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Growing Legacies

IMI KOLKATA

GISDSI GLOBAL

# 19th ISDSI-Global Conference 2025

## Tech for Net Zero: Digital Solutions for a Sustainable Planet

**Editors:** Dr. Rohit Kumar Singh
Prof. Mohua Banerjee

# BOOK OF ABSTRACTS

26 - 29 December 2025

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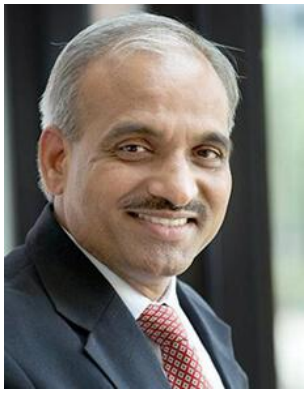
# Message from the President, ISDSI-Global



It gives me immense pleasure to welcome you to the 19th ISDSI-Global Conference. ISDSI-Global was founded with a clear purpose—to create a truly international platform where academia, industry, and the research community come together to generate ideas that shape a sustainable and innovative future. Over the years, the ISDSI community has worked tirelessly to foster research as a culture, especially among young academics, nurturing curiosity, rigor, and the confidence to contribute to global scholarship.

One of our enduring missions is to celebrate Indian scholars on the world stage, showcasing their research excellence and strengthening India's presence in global knowledge networks. We are equally committed to encouraging aspiring scholars from the margins, helping them find their voice, build networks, and emerge at the forefront of academic discourse.

As we convene under the theme "Tech for Net Zero: Digital Solutions for a Sustainable Planet," I am confident that the conversations here will inspire collaborations that transcend disciplines, geographies, and generations. Together, let us continue to build a vibrant, inclusive, and globally engaged ISDSI community FROM INDIA FOR THE WORLD.

**Prof. Bhimaraya Metri**
President, ISDSI Global

# Message from the Chief Patron, ISDSI-Global

It is a pleasure and an honour to welcome all delegates to the 19th ISDSI-Global Conference at IMI Kolkata. This year's theme, "Tech for Net Zero: Digital Solutions for a Sustainable Planet," resonates deeply with our institutional commitment to fostering responsible leadership and innovative thinking for a sustainable future. As the world navigates complex environmental challenges, the integration of technology, data-driven decision-making, and managerial insight becomes indispensable.

At IMI Kolkata, sustainability is embedded in our institutional ethos. Our campus actively promotes green practices – ranging from the use of solar panels for electricity generation to the adoption of paperless operations wherever possible. Even for this Conference, we have ensured that schedules and key materials are accessible through QR codes, reducing our environmental footprint and encouraging digital-first engagement. These initiatives reflect our belief that Business Schools must lead by example in advancing environmentally responsible behaviour.

Hosting ISDSI-Global allows us to strengthen our collaborative ties with a vibrant, multidisciplinary community of academicians, scholars, practitioners, and industry experts. We are delighted to provide a platform where cutting-edge research, impactful dialogue, and forward-looking ideas can flourish. I extend my sincere appreciation to all contributors, organisers, and participants for enriching this academic endeavour. Together, let us advance knowledge that supports a sustainable, inclusive, and technology-enabled world.

**Prof. Mohua Banerjee**
Director, IMI Kolkata

# Message from the Secretary General, ISDSI-Global

It is my privilege to welcome all distinguished scholars, practitioners, and industry leaders to the 19th ISDSI-Global Conference, hosted at IMI Kolkata. This year's theme, "Tech for Net Zero: Digital Solutions for a Sustainable Planet," reflects our collective commitment to advancing research and action toward a climate-resilient future. As the world accelerates its transition to net-zero pathways, the role of data sciences, digital technologies, and innovative managerial practices becomes more crucial than ever.

The conference brings together a vibrant community of thinkers to deliberate on breakthrough ideas across sustainability, technology, operations, analytics, and social impact. Through scholarly presentations, doctoral colloquium sessions, workshops, and global networking opportunities, we aim to foster meaningful collaboration and inspire actionable insights.

I extend my heartfelt appreciation to all contributors and participants for enriching this intellectual platform. Together, let us shape knowledge that propels a sustainable, inclusive, and digitally empowered future.

**Prof. Ravi Kumar Jain**
Secretary General, ISDSI-Global

# Message from the Conference Patron

We welcome you to the ISDSI Global Conference 2025 at IMI Kolkata with a profound sense of purpose that aligns with this erudite collection of original abstracts addressing various facets of sustainability. In this age of interconnected global challenges with the requirement of balancing local priorities, the United Nations Sustainable Development Goals (SDGs) provide a comprehensive lens for examining complex issues and a framework for implementation. The brief snippets of research within this book of abstracts explore the complex dynamics of these goals. With a collection of both global and Indian papers, the objective has been to emphasize local contextual underpinnings and their global implications.
India and many other nations are subject to expectations of rapid economic growth while living up to expectations around sustainability. With the net-zero countdown clock ticking away for nations, many are turning to innovative and digital solutions to address this. The research presented in this book examines themes from the SDGs that have an interface with business or business-related disciplines. The traditional business discussions are also tempered with emissions, circularity, equity and other themes around sustainability. The collection of papers underscores that business research can play a broader role in value creation for people and the planet. We sincerely wish that this wide collection leads to ideations, discussions, and collaborations for co-creating a just and sustainable future.

**Prof. Tirthankar Nag**
Dean (Research), IMI-Kolkata

# Message from the Conference Chair

It is my pleasure to welcome you to the 19th ISDSI Global Conference 2025, hosted by IMI Kolkata, on the theme "Tech for Net Zero: Digital Solutions for a Sustainable Planet." This year's conference arrives at a pivotal moment when nations, organisations, and researchers are collectively seeking data-driven pathways to achieve sustainability targets. With India's commitment to Net Zero by 2070, reducing emission intensity by 45% by 2030, and expanding renewable energy capacity to 500 GW, the role of analytics, optimisation, AI, and digital transformation in managerial decision-making has become indispensable. The 2025 edition marks one of the largest ISDSI gatherings to date, reflecting global confidence in India as a rising hub of research and innovation.

The overwhelming response affirms the growing need for evidence-based approaches to sustainability, and the critical role of decision sciences in accelerating the Viksit Bharat 2047 vision. The papers received, highlight advancements in carbon-efficient supply chains, predictive analytics, optimisation, digital infrastructure, and sustainable business practices. Together, they offer rigorous empirical insights, conceptual clarity, and innovative frameworks that can guide industries and policymakers in the journey toward a net-zero future.

I extend my sincere appreciation to all authors, reviewers, track chairs, keynote speakers, and members of the organising committee for their dedication. I hope the scholarly contributions presented in this volume inspire new collaborations and meaningful advancements for academia, industry, and society.

Welcome to ISDSI Global 2025, and welcome to IMI Kolkata.

**Dr. Rohit Kumar Singh**
Conference Chair,
ISDSI Global Conference 2025
IMI Kolkata

# INDEX


| Title | Author | Page Number |
|---|---|---|
| ASSESSMENT OF SUPPLY CHAIN FLEXIBILITY: A SYSTEM DYNAMICS APPROACH | Rohit Kumar Singh (IMI Kolkata) and Sachin Modgil (IMI Kolkata) | 1 |
| NET ZERO EMISSION AND THEIR IMPACT ON SUPPLY CHAIN PERFORMANCE USING BLOCKCHAIN TECHNOLOGY | Anandika Sharma (Central University of Punjab, Bathinda) | 2 |
| RISKS IN TECHNOLOGY INTEGRATION TO DRIVE SUSTAINABILITY IN SUPPLY CHAINS | Sachin Modgil (IMI Kolkata) and Rohit Kumar Singh (IMI Kolkata) | 3 |
| HOW DOES FAIRNESS CONCERN INFLUENCE A MOBILE PHONE SUPPLY CHAIN'S PRICING AND EFFORT DECISIONS? A GAME-THEORETIC ANALYSIS | Arnab Adhikari (Indian Institute of Management Kozhikode) | 3 |
| SIMULATING RESILIENT LAST-MILE DELIVERY IN KOLKATA'S QUICK-COMMERCE: CLUSTERING INSIGHTS FOR FILL RATE AND ON-TIME DELIVERY UNDER DISRUPTIONS | Kumar Subrat (Vinod Gupta School of Management, Indian Institute of Technology Kharagpur) and Dr. Anupam Ghosh (Vinod Gupta School of Management, Indian Institute of Technology Kharagpur) | 4 |

| | | |
|---|---|---|
| FROM FISH TO FORK: ANALYSING THE IMPACT OF MICROPLASTICS IN SUPPLY FOOD CHAIN | Saiprasad Nagula (SR University), Sravya Bollam (SR University), Sufiya Mehnaaz (SR University) and Rajan Kumar Gangadhari (SR University) | 5 |
| SENTIENT SUPPLY CHAIN MANAGEMENT FOR ACHIEVING NET ZERO CARBON FOOTPRINT: A COMPARISON OF INDUSTRIAL SECTORS | Suman Pal (Amity Business School, Amity University Kolkata Major), Sanjib Biswas (Amity Business School, Amity University Kolkata) and Prasenjit Chatterjee (Department of Mechanical Engineering, MCKV Institute of Engineering, Howrah) | 6 |
| SUPPLY CHAIN 4.0 TECHNOLOGIES FOR VALUE CREATION IN PHARMACEUTICAL INDUSTRY | Prabakaran Yogeswaran (IMI Kolkatta) | 7 |
| RISK ASSESSMENT OF GEN AI-ENABLED SUPPLY CHAIN MANAGEMENT | Sanjib Biswas (Amity Business School, Amity University Kolkata), Ranjabati Basu (Amity Business School, Amity University Kolkata) and Prasenjit Chatterjee (Department of Mechanical Engineering, MCKV Institute of Engineering, Howrah) | 7 |
| TRUSTING THE MACHINE: HOW AI GOVERNANCE TRANSPARENCY SHAPES STRATEGIC BUYER-SUPPLIER PARTNERSHIPS IN ETHICAL SUPPLY CHAINS | Surajit Bag (Excelia Business School France), Santosh Kumar Srivastava (Institute of Management Technology Ghaziabad) and Muhammad Sabbir Rahman (North South University) | 8 |
| THE MODERATING ROLE OF EXTERNAL UNCERTAINTY IN THE | Boby Krishan (IMI Kolkata), Tirthankar Nag (IMI Kolkata) and Rohan Mukherjee (IMI Kolkata) | 9 |

| | | |
|---|---|---|
| DIGITALIZATION-DRIVEN LINK BETWEEN GREEN SUPPLY CHAIN MANAGEMENT AND INNOVATION: THE STRATEGIC INFLUENCE OF CSR COMMITMENTS | | |
| UNVEILING DIGITAL TWIN READINESS FACTORS IN SUPPLY CHAINS: AN INDIAN MSME STUDY | Subhajit Maji (Indian Institute of Management Sambalpur), Aditya Kumar Sahu (Indian Institute of Management Nagpur) and Ramakrushna Padhy (Indian Institute of Management Sambalpur) | 10 |
| DIGITAL TRANSFORMATION OF GREEN SUPPLY CHAIN FROM FINANCIAL PERSPECTIVE | Sunita Ghosh (Army Institute of Management, Kolkata), Asmita Basu (Associate Professor (Finance) Army Institute of Management Kolkata) and Aniruddha Kundu (Assistant Professor (Operations Management) Army Institute of Management Kolkata) | 11 |
| DEVELOPMENT OF A CONCEPTUAL MODEL ON I4.0 TECHNOLOGIES' INFLUENCE ON SUPPLY CHAIN PERFORMANCE | Vishal Sudan (IMI Kolkata), Sachin Modgil (IMI Kolkata) and Rohit Kumar Singh (IMI Kolkata) | 11 |
| INFLUENCE OF DIGITAL TECHNOLOGY (DT) ON CIRCULAR SUPPLY CHAIN | Rana Goswami (IMI Kolkata), Rohit Kumar Singh (IMI Kolkata) and Sachin Modgil (IMI Kolkata) | 12 |
| MULTI AGENTIC AI SYSTEMS FOR SELF-REGULATION OF SUPPLY CHAIN FINANCE SYSTEMS | Divya D (ISBR Business School) and Arunkumar O N (Symbiosis Institute of Business Management, Bengaluru) | 13 |
| SUSTAINABLE TIDAL PORT PRICING MODEL: A DYNAMIC OPTIMISATION APPROACH | Deepankar Sinha (Indian Institute of Foreign Trade) | 14 |

| | | |
|---|---|---|
| ACHIEVING SUSTAINABLE GROWTH OF DAIRY SUPPLY CHAINS IN A NET ZERO ECONOMY: A PARADOX THEORY APPROACH | Ruchi Mishra (Institute of Rural Management Anand (IRMA)) and Rajesh Singh (Management Development Institute) | 14 |
| INTELLIGENT DIGITAL TWIN FRAMEWORK FOR SUSTAINABLE SUPPLY CHAIN RESILIENCE | Devnaad Singh (UPES) | 15 |
| INTEGRATING VALUE THROUGH DIGITAL INNOVATION IN INDIA'S AGRI-SUPPLY CHAINS | Shweta (Indian Institute of Management Sambalpur) and Suresh Kumar (Government Polytechnic Jhajjar) | 16 |
| EXPLORING THE SYNERGIES BETWEEN INDUSTRY 4.0 AND LEAN SIX SIGMA: AN ANALYSIS OF ENABLERS FOR OPERATIONAL EXCELLENCE | Punj Lata Singh (Indian Institute of Management - Sambalpur, Odisha, India), Rahul Sindhwani (Indian Institute of Management - Sambalpur, Odisha, India) and Ramandeep Singh (Avgol India Pvt. Ltd., Mandideep, Bhopal, India) | 17 |
| A HYBRID MULTI-CRITERIA MODEL FOR RISK-RESILIENT DIGITAL TRANSFORMATION IN FOOD VALUE CHAINS | Rahul Sindhwani (Indian Institute of Management - Sambalpur, Odisha, India) and Punj Lata Singh (Indian Institute of Management - Sambalpur, Odisha, India) | 18 |
| UTILIZING ARTIFICIAL INTELLIGENCE TO DRIVE SUPERIOR EFFICIENCY IN SUPPLY CHAIN OPTIMIZATION | Mohammad Asef Jalilzad (PhD Scholar, School of Management Studies, Punjabi University, Patiala, India) and Dr. Rajwinder Singh (Associate Professor, School of Management Studies, Punjabi University, Patiala) | 20 |
| CONSUMER DIGITAL FATIGUE AND THE SUSTAINABLE DEVELOPMENT GOALS: | Mahantesh Patil (IIM Sirmaur) | 21 |

| | | |
|---|---|---|
| A TWINING RELATIONSHIP | | |
| ROLE OF SUPPLY CHAIN FINANCE IN BUSINESS: A DATA TRIANGULATION APPROACH | Santosh Kumar Shrivastav (IMT Ghaziabad) | 21 |
| ASSESSING SUPPLY CHAIN AND PRODUCT LIFECYCLE MANAGEMENT IN THE ORANGE SECTOR OF WARUD TALUKA, MAHARASHTRA | Rajeshwar Dupare (Rajeshwar Dupare, Executive Trainee- CSR, Tata Power Company Ltd., Dist. Raigad, Maharashtra) and Surendra Kansara (Centre for Social Entrepreneurship, School of Management of Labor Studies, Tata Institute of Social Sciences, Mumbai) | 22 |
| EXPLORING THE DYNAMIC RELATIONSHIP BETWEEN BSE SENSEX AND SME IPO RETURNS | Dr. Suman Kolpula (IFHE), Dr. Gattaiah Tadoori (IFHE) and Dr. P. Bhanu Sireesha (IFHE) | 23 |
| MANAGING PARADOX UNDER DYNAMISM: AMBIDEXTERITY FOR SUPPLY CHAIN RESILIENCE | Abhijeet Tewary (Institute of Management Technology Ghaziabad) and Parijat Upadhyay (Indian Institute of Management Shillong) | 24 |
| DIGITAL PRODUCTION IN THE PHARMACEUTICAL INDUSTRY: A STRATEGIC APPROACH TO ENHANCE OPERATIONAL EXCELLENCE | Prabakaran Yogeswaran (IMI Kolkatta) | 25 |
| EVALUATING THE EFFICIENCY OF AI ADOPTION IN INDIAN SURFACE LOGISTICS: | Sakshi Aggarwal (Delhi Technological University) and Dr. Deepti Aggrawal (Delhi Technological University) | 25 |

| | | |
|---|---|---|
| AN INTEGRATED MPI–DEA APPROACH | | |
| BEHAVIOURAL INSIGHTS IN GREENING DECISIONS UNDER COBB DOUGLAS DEMAND: EXPLORING OVERCONFIDENCE IN CENTRALIZED AND DECENTRALIZED SUPPLY CHAINS | Anjali (School of Computer Science Engineering and Technology, Bennett University, Greater Noida, India), Mandeep Mittal (School of Computer Science Engineering and Technology, Bennett University, Greater Noida, India) and Biswajit Sarkar (Department of Industrial Engineering, Yonsei University, 50 Yonsei-ro, Seoul 03722, South Korea) | 26 |
| DIGITIZING THE HEAT: SMART TECHNOLOGIES FOR NET ZERO IN THERMAL COAL SUPPLY CHAINS | Juhi Bhattacharjee (Indian Institute of Foreign Trade, Kolkata) | 27 |
| DETERMINANTS OF SUPPLY CHAIN PERFORMANCE IN FIVE-STAR HOTELS: AN EMPIRICAL STUDY IN WEST BENGAL | Shantanu Chakraborty (Techno India University) | 27 |
| BLOCKCHAIN-ENABLED ENTERPRISE ARCHITECTURE FOR AGRICULTURAL SUPPLY CHAINS: INTEGRATING SEED TRACEABILITY WITH PREDICTIVE ANALYTICS | Sandipan Chakravorty (The Neotia Univerity) and Partha Mukherjee (The Neotia University) | 28 |
| A GENERALISED MODELING FRAMEWORK FOR SUSTAINABLE SUPPLY CHAIN INCULCATING DEMAND UNDER UNCERTAIN MARKETING ENVIRONMENT | Chanchal (Department of Operational Research, University of Delhi, Delhi, India), Adarsh Anand (Department of Operational Research, University of Delhi, Delhi, India) and Avinash K. Shrivastava (Operations Management and Quantitative Techniques, IMI Kolkata, West Bengal, India) | 29 |

| | | |
|---|---|---|
| DATA-DRIVEN SUPPLY CHAIN RESILIENCE AND CARBON HOTSPOT PREDICTION USING MACHINE LEARNING FOR NET ZERO TRANSITIONS | Shubhangini Rajput (FORE School of Management, New Delhi), Sourabh D. Kulkarni (FORE School of Management, New Delhi) and Sumeet Kaur (FORE School of Management, New Delhi) | 30 |
| THE AI-ENHANCED SUPPLY CHAIN: ACHIEVING FUTURE-PROOF RESILIENCE WITH DATA-DRIVEN DECISIONS | Swati Chavan (IMI Kolkata) | 32 |
| EXPLORING DYNAMICS BETWEEN ARTIFICIAL INTERNET OF THINGS (AIOT), SUPPLY CHAIN TRANSPARENCY AND SUPPLY CHAIN SOCIAL SUSTAINABILITY | Jighyasu Gaur (Indian Institute of Management Raipur), Pratyush Banerjee (IMI Bhubaneswar) and Shubhashree S. Iyer (Columbia University New York) | 33 |
| MODELING FLEXIBILITY IN THE SOAP MANUFACTURING SUPPLY CHAIN: INSIGHTS FROM SYSTEM DYNAMICS SIMULATION | Rohit Kumar Singh (IMI Kolkata) and Padmanav Acharya (IIM Mumbai) | 33 |
| UNLOCKING COLD CHAIN SUCCESS: A TISM-MICMAC EXPLORATION | Madhu Arora (Symbiosis Institute of Computer Studies and Research, Symbiosis International (Deemed University), Pune, India), Rupesh Kumar (Jindal Global Business School (JGBS), O.P. Jindal Global University, Sonipat, Haryana), Ajay Jha (Jaipuria Institute of Management, Lucknow), Shri Krishna Pandey (Manipal Academy of Higher Education, Dubai Campus, UAE.,) and Sarbjit Singh Oberoi (Institute of Management Technology Nagpur) | 34 |
| RISK MANAGEMENT AND RESILIENCE IN | Dr. Shikha Singh (Ajeenkya D Y Patil University, Pune) | 34 |

| | | |
|---|---|---|
| SUSTAINABLE OPERATIONS | | |
| EXAMINING BARRIERS TO SUPPLY CHAIN COLLABORATION FOR SUSTAINABLE SUPPLY CHAIN PERFORMANCE IN A NET-ZERO ECONOMY: AN INTEGRATED THEORETICAL AND ANALYTICAL FRAMEWORK | Ruchi Mishra (Institute of Rural Management Anand (IRMA), Gujarat) and Rajesh Singh (Management Development Institute (MDI), India) | 35 |
| CAN INCLUSIVE LEADERSHIP REDUCE KNOWLEDGE-HIDING BEHAVIORS? | Dr. Arindam Bhattacharjee (IMI Kolkata) | 36 |
| TEACHING THE MACHINE, REPLACING THE HUMAN: KNOWLEDGE HIDING BEHAVIOR IN THE DIGITAL WORKPLACE | Sweta Sinha (IMI Kolkata) | 36 |
| UNLOCKING PROJECT SUCCESS IN VIRTUAL TEAMS: THE INTERPLAY OF KNOWLEDGE SHARING, CREATIVITY, AND TRANSFORMATIONAL LEADERSHIP IN IT PROJECTS | Mahanish Panda (IMI Kolkata) and Roma Puri (IMI Kolkata) | 37 |
| DRIVING SUSTAINABILITY: THE ROLE OF HUMAN RESOURCE MANAGEMENT IN ECOSYSTEM CONSERVATION WITHIN | Harneet Kaur (Thapar Institute of Engineering and Technology, Patiala) and Anupam Sharma (Thapar Institute of Engineering and Technology, Patiala) | 38 |

| | | |
|---|---|---|
| THE SMALL-SCALE HOSPITALITY SECTOR | | |
| INFLUENCE OF GREEN HRM ON SOCIAL RESPONSIBILITY INITIATIVES: A STUDY OF EMPLOYEE ENGAGEMENT AND SUSTAINABILITY OUTCOMES IN HIGHER EDUCATION SECTOR | Riya Sharma (Thapar Institute of Engineering and Technology) and Anupam Sharma (Thapar Institute of Engineering and Technology) | 38 |
| INFLUENCE OF PERCEIVED ORGANIZATIONAL SUPPORT AND MENTAL WELL-BEING ON JOB SATISFACTION OF EMPLOYEES - A STUDY ON SELECT OIL REFINERIES IN ASSAM | Bitupon Borah (Assam University Silchar) and Dr. Soumendra Bhattacharjee (Assam University Silchar) | 39 |
| BEYOND EFFICIENCY: EMOTIONAL SUSTAINABILITY OF HYBRID EMPLOYEES UNDER SURVEILLANCE AND POLITICAL PRESSURES | Lavanya R S (Vellore Institute of Technology) and Sowmya G (Vellore Institute of Technology) | 40 |
| GREEN HRM IN HEALTHCARE: A THEMATIC FRAMEWORK FOR SUSTAINABLE PERFORMANCE IN DEVELOPING ECONOMIES | Tina Paul (Research Scholar) and Jayeeta Debnath Munshi (Academician) | 41 |
| THE IMPACT OF GREEN HRM PRACTICES ON EMPLOYEE PERFORMANCE: A MIXED-METHOD STUDY | Dr. Saravanan P (Kathir College of Arts and Science), Dr. Prathima V (Vidyavardhaka College of Engineering, Gokulam) and Mr. Amit Subramanyam (Rani Channamma University Belagavi) | 41 |

| | | |
|---|---|---|
| IN THE CONTEXT OF SUSTAINABILITY AND DIGITAL TRANSFORMATION | | |
| TRANSFORMATIONAL LEADERSHIP FOR SUSTAINABLE PSYCHOSOCIAL HEALTH IN THE ERA OF AI | Pooja Thapliyal (SP Jain School of Global Management) | 43 |
| DIGITAL HR ANALYTICS, ORGANIZATIONAL JUSTICE, AND SOCIAL SUSTAINABILITY: THE ROLE OF INFORMATION OVERLOAD | Yajikumar E M (Vellore Institute of Technology (VIT) ,Vellore) and Sowmya G (Vellore Institute of Technology (VIT),Vellore) | 44 |
| ORGANIZATIONAL SUSTAINABILITY THROUGH PREDICTIVE WORKER PRODUCTIVITY | Malabika Chakraborty (Netaji nagar day college) and Sriparna Guha (Narula Institute of Technology) | 44 |
| MITIGATING TECHNOSTRESS IN THE DIGITAL AGE: THE ROLE OF PSYCHOLOGICAL CAPITAL IN FOSTERING SUSTAINABLE WORK-LIFE QUALITY AMONG HIGHER EDUCATION FACULTY | Sneha Dutta (Amity University) and Dr.Sriparna Guha (Amity University) | 45 |
| IMPACT OF WOMEN LEADERSHIP ON ORGANIZATIONAL PERFORMANCE | Smt. Laxmi Shivannavar (Research Scholar, Sanjay Godhawat University, Kolhapur) and Dr. Revati Deshpande (Associate Professor and HOD, School of Commerce ,Sanjay Ghodawat University Kolhapur) | 46 |
| INTEGRATING EMOTIONAL INTELLIGENCE AND MINDFULNESS: A | Tulsi Thakran (Gurugram University), Amarjeet Kaur Malhotra (Gurugram University) and Shweta Mittal (Indian Institute of Public Administration) | 46 |

| | | |
|---|---|---|
| CONCEPTUAL PERSPECTIVE ON MINDFUL LEADERSHIP | | |
| FOSTERING ORGANIZATIONAL RESILIENCE THROUGH SUSTAINABLE HRM PRACTICES IN THE POST-PANDEMIC ERA: AN EMPIRICAL STUDY OF THE INDIAN IT SECTOR | Ashwini Hiremath (VTU) and Basavaraj Kudachimath (VTU) | 47 |
| MAKING SENSE OF ALGORITHMS: THE ROLE OF MATERIAL FEATURES IN WORK PRACTICES | Jaikiran Dhanasekaran (IIM Trichy) | 48 |
| ALGORITHMIC CONTROL, WORK STRESSORS, MOTIVATIONAL RESOURCES, AND RETENTION INTENTIONS: A JD-R PERSPECTIVE ON INDIA'S GIG WORKFORCE | Alshifa Anwer (IIIT ALLAHABAD) and Dr. Saurabh Mishra (IIIT ALLAHABAD) | 48 |
| EXPLORING THE DEPTHS: LEVERAGING DATA MINING TECHNIQUES FOR THE ANALYSIS OF EMPLOYEE PERFORMANCE AND PRODUCTIVITY | Sukhpreet Kaur (PMLSD BUSINESS SCHOOL) and Harsimran Kaur (Amity University,Punjab) | 49 |
| MENTAL HEALTH AND CAREER INTENTIONS OF GIG WORKERS: A | Shayeri Sadat (University of Calcutta), Dipa Mitra (University of Calcutta) and Madhumita Mohanty (University of Calcutta) | 49 |

| | | |
|---|---|---|
| STUDY IN INDIAN PERSPECTIVE | | |
| REJECTED BY CODE: A FRAMEWORK FOR UNDERSTANDING ALGORITHMIC FAIRNESS AND HUMAN OVERSIGHT IN AI-DRIVEN HIRING AND ALIGNING ALGORITHMIC FAIRNESS IN HRM WITH THE SDGS | Tuneer Chakrabarti (XLRI, Jamshedpur) and Debarchita Sinha (XLRI, Jamshedpur) | 50 |
| CONSENSUS OR CONTRADICTION? ANALYZING DIVERGING NARRATIVES ON DECENT WORK | Atanu Manna (Research Scholar, Centre for Environmental Studies, Vidyasagar University, Midnapore) and Debasish Biswas (HOD & Associate Professor, Department of Business Administration, Vidyasagar University, Midnapore) | 51 |
| DIGITAL DETOX AS AN EMPLOYEE-INITIATED RECOVERY STRATEGY: AUTONOMY, WELL-BEING, AND IDENTITY RENEWAL IN HIGH-DIGITAL-DEMAND WORK ENVIRONMENTS | Rachana Chattopadhyay (IMI Kolkata) | 52 |
| HR ANALYTICS FOR NET-ZERO: LEVERAGING WORKFORCE METRICS TO ALIGN EMPLOYEE CONTRIBUTIONS WITH ORGANIZATIONAL SUSTAINABILITY GOALS | Dr. Subrata Ghosh (Maulana Abul Kalam Azad University of technology, West Bengal) and Dr. Sarani Bhaumik (Maulana Abul Kalam Azad University of technology, West Bengal) | 52 |

| | | |
|---|---|---|
| COACHING AS A CATALYST FOR PSYCHOLOGICAL SAFETY: A SCOPING REVIEW IN INDIAN ORGANIZATIONAL CONTEXTS | Siddartha Mazumdar (S P Jain School of Global Management) | 53 |
| SCREEN TIME, ADVERTISING EXPOSURE, AND BEHAVIORAL EFFECTS ON CHILDREN: A CONTEMPORARY LITERATURE REVIEW IN THE INDIAN CONTEXT | Sweta Singh (ICFAI, IFHE, (IBS) Hyderabad), Rahul Bhagat (PIMR, Indore) and Rashmita Saran (ICFAI, IFHE, (IBS) Hyderabad) | 54 |
| DIGITALLY DRAINED: HOW EMOTIONAL EXHAUSTION FUELS COGNITIVE FAILURES IN REMOTE WORKERS | Shanthi Banishetty (GITAM School of Business, Hyderabad) and Tanusree Dutta (Indian Institute of Management Ranchi) | 56 |
| EMOTIONAL LABOUR AND DIGITAL INCLUSION: GENDER DISPARITY AMONG RURAL WOMEN IN SUSTAINABLE DEVELOPMENT | Kadeeja Nourah B H (BIMTECH - Birla Institute of Management Technology), Shreya Mishra (BIMTECH - Birla Institute of Management Technology), Veenu Sharma (BIMTECH - Birla Institute of Management Technology) and Shalini Singh (BIMTECH - Birla Institute of Management Technology) | 57 |
| MINDFUL COMMUNICATION: ENHANCING COLLABORATION AND CONFLICT RESOLUTION IN TEAMS | Dr. Shivender Rahul (Maharashtra National Law University, Nagpur) and Dr. Veena Roshan Jose (Maharashtra National Law University, Nagpur) | 58 |
| JOB INSECURITY AND STRESS IN THE AGE OF ARTIFICIAL INTELLIGENCE: CAN RESILIENCE HELP? | Stalgy Muliyil (School of Business, Woxsen University) and Subhendu Patnaik (Management Development Institute Gurgaon) | 59 |

| | | |
|---|---|---|
| MOONLIGHTING : OPPORTUNITIES, CHALLENGES, AND ETHICAL PERSPECTIVE IN THE MODERN WORKFORCE | Ashritha Vadlakonda (SR University) Sanjana Yadav Janga (SR University) Akshay Teja Uppula (SR University) and Rajan Kumar Gangadhari (SR University) | 60 |
| GENDER EQUALITY IN RECRUITMENT FOR SUSTAINABLE EMPLOYMENT: A SYSTEMATIC REVIEW | Reshma C (VIT University) and Aruna Polisetty (VIT University) | 61 |
| STUDY TO DETERMINE HOMOGENEITY OF PROCESSES AND BEHAVIOURS IN MULTINATIONAL ORGANIZATIONS IN APAC | Sunena Sharma (SPJAIN Global Management School) | 61 |
| THE IMPACT OF MANAGERIAL VERSATILITY ON WOMEN IN THE WORKPLACE | Ashissh Kapoor(IMI Kolkata) | 62 |
| INNOVATION, FINANCE, AND TECHNICAL EFFICIENCY IN INDIAN FIRMS: INVESTIGATING THE MANUFACTURING EDGE | Ruchi Gupta (Banaras Hindu University) and Dr. Bhanu Pratap Singh (Banaras Hindu University) | 63 |
| MODELLING THE DRIVERS MOTIVATING GEN Z TO INVEST IN CRYPTOCURRENCIES | Sanjib Biswas (Amity Business School, Amity University Kolkata), Syed Shakif Anjum (Amity Business School, Amity University Kolkata), Dewasini Roy (Amity School of Economics, Amity University Kolkata) and Prasenjit Chatterjee (Department of Management Studies, NIT, Durgapur, West Bengal) | 63 |
| GREEN FINTECH & REGULATORY FRAMEWORKS: LEGAL PATHWAYS FOR | Dr. Poorvi Singh Chaudhary (TIUT) | 64 |

| | | |
|---|---|---|
| CREDIBLE DIGITAL SUSTAINABILITY FINANCE | | |
| EVALUATING THE IMPACT OF FINANCIAL LITERACY PROGRAMS ON FINANCIAL INCLUSION AMONG YOUTH: EVIDENCE FROM BELGAUM CITY, KARNATAKA | Sampada Patil (Research Scholar, Sanjay Ghodawat University, Kolhapur) and Dr. Revati Deshpande (Associate Professor, Sanjay Ghodawat University, Kolhapur) | 65 |
| SMART FINANCIAL ANALYTICS FOR SUSTAINABLE GROWTH: A COMPARATIVE CASE STUDY OF DEBT-FUNDED STRATEGIES IN INDIAN RETAIL SECTOR | Pallavi Ingale (Vishwakarma University) and Pranjal Dalal (Vishakarma University) | 66 |
| EXPLORING ESG INTERDEPENDENCE IN THE HANDICRAFTS INDUSTRY A SYSTEM DYNAMICS APPROACH-BASED CASE STUDY ON NATURAL FIBRE-MADE CRAFTS AT PATHAMADAI GRASS MATS CLUSTER | Barathy Paramasivan (Indian Institute of Management Nagpur) and Deepmala Baghel (Indian Institute of Management Nagpur) | 67 |
| THE IMPACT OF CSR DISCLOSURE ON STOCK PERFORMANCE: EVIDENCE FROM PUBLICLY LISTED FIRMS | Md Quamar Nadeem (Amity University Kolkata) and Dr. Sriparna Guha (Amity University Kolkata) | 68 |
| IMPACT OF INDIRECT TAX REFORMS ON INDIRECT TAX BURDEN, | Himadri Shekhar Chakrabarty (IIM Lukhnow)<br>Poulomi Bhattacharya (IIT Kanpur) | 68 |

| | | |
|---|---|---|
| FIRM LEVEL EVIDENCE FROM INDIA | | |
| STRATEGIC ALCHEMY: EXPLORING THE INTERPLAY OF CORPORATE SOCIAL RESPONSIBILITY, CORPORATE SOCIAL IRRESPONSIBILITY, AND BUSINESS STRATEGY ON FINANCIAL PERFORMANCE. | Garima Kumari (motilal nehru national institute of technology allahabad) | 69 |
| SCOPE OF FINANCIAL LITERACY AMONGST MSME OWNER'S IN WEST BENGAL | Somnath Chakraborty (Narula Institute of Technology, Kolkata) and Sraboni Dutta (JIS University, Kolkata) | 69 |
| FINANCIAL MANAGEMENT STRATEGIES FOR ADVANCING SUSTAINABLE DEVELOPMENT GOALS IN EMERGING ECONOMIES | Dr. Prathima V (Vidyavardhaka College of Engineering, Gokulam, Mysuru.), Dr. Rakesh H M (Vidyavardhaka College of Engineering, Gokulam, Mysuru.), Dr. Saravanan P (Kathir College of Arts and Science, Coimbatore, TamilNadu, India) and Amit Subramanyam (Rani Channamma University, Belagavi) | 70 |
| EXPLORING SMART FINANCIAL MANAGEMENT TOOLS ACCELERATING TECHNOLOGICAL DEVELOPMENT AND INCLUSIVE PARTICIPATION | Dr Pooja Vernekar (KLE Society's college of Business Administration Lingaraj College Belagavi) and Dr Sachindra G R (Rani Channamma University, Belagavi) | 71 |
| DRIVING FINANCIAL TRANSPARENCY & INCLUSION: A PATHWAY TO A SUSTAINABLE ECONOMY THROUGH DIGITALIZATION | Sk Arman Uddin (Vidyasagar University), Ishita Bera (IMI Kolkata) and Subhasis Bera (International School of Business and Media, Kolkata) | 71 |

| | | |
|---|---|---|
| EVALUATING THE FINANCIAL IMPACT OF INDIA'S PRODUCTION LINKED INCENTIVE (PLI) SCHEME ON SEMICONDUCTOR ECOSYSTEM FIRMS | Tejas Kale (IMI Kolkata) and Samyadip Chakraborty (IMI Kolkata) | 73 |
| FROM CASH TO CODE: THE MACROECONOMIC JOURNEY OF CENTRAL BANK DIGITAL CURRENCIES | Neha Kamboj (IILM University) and Tanya Bhutani (IILM University) | 74 |
| HOW FIRM SIZE INFLUENCES CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE: EVIDENCE FROM ASX LISTED FIRMS | Md Shah Newas Kabir (S P Jain School of Global management) | 75 |
| CONVENIENCE OR REGRET: A BEHAVIOURAL STUDY ON POST-COVID SPENDING TRENDS AND FINANCIAL AWARENESS AMONG STUDENTS | Chitikesh Sai Naga Raju (Indian Institute of Technology Kharagpur) and Titas Bhattacharjee (Indian Institute of Technology Kharagpur) | 75 |
| FINANCIAL LITERACY AS A DETERMINANT OF SOUND FINANCIAL MANAGEMENT AMONG YOUNG ENTREPRENEURS | Dr Shruti Gupte (DSSE, IIT Bombay) | 76 |
| EMERGENCE OF PRO-CAPITALIST AND PRO-UNIONIZED REGIME THROUGH LOBBYING ACTIVITIES AND THEIR IMPACT ON ECONOMIC GROWTH | Swapan Chakraborty (St.Xavier's University, Kolkata) and Mausumi Das (Delhi School of Economics, Delhi University) | 76 |

| | | |
|---|---|---|
| DRIVERS OF RETAIL PAYMENT INSTRUMENT USE: A CROSS-COUNTRY ANALYSIS | Chetna Batra (Assistant Professor, IILM University, Gurgaon) and Seema Sharma (Professor, IIT, Delhi) | 77 |
| IMPACT OF BOARD CHARACTERISTICS ON ESG SCORE OF COMPANIES AND MODERATING ROLE OF EARNING MANAGEMENT | Sonali Sardar (University of Calcutta), Dr. Sayantan Kundu (IMI Kolkata) and Dipanwita Majumder (The Bhawanipur Education Society College) | 78 |
| CORPORATE CONNECTEDNESS, NETWORK CENTRALITY, AND FUND MANAGERS' PERFORMANCE | Sayantan Kundu (IMI Kolkata) and Sudipta Majumdar (Jindal School of Banking & Finance, O. P. Jindal Global University Sonipat, Haryana, India) | 78 |
| EFFICIENCY OF EQUITY OPTIONS MARKET - AN EMPIRICAL ANALYSIS WITH REFERENCE TO NATIONAL STOCK EXCHANGE, INDIA | Partha Sarathi Roy (Adamas University, Kolkata) | 81 |
| DIVIDEND PAYOUT POLICIES IN NIFTY INDEX COMPANIES: ROLE OF INVESTMENT OPPORTUNITIES AND CORPORATE FINANCE | Somnath Chakraborty (Pune Institute of Business Management) and Partha Sarathi Roy (Adamas University, Kolkata) | 82 |
| A STUDY ON ANALYZING THE IMPACT OF CAPITAL STRUCTURE ON PROFITABILITY WITH REFERENCE TO SELECTED COMPANIES OF NSE | Erram Ramesh (ICFAI Business School, ICFAI Foundation for Higher Education, Gattaiah Tadoori (ICFAI Business School, ICFAI Foundation for Higher Education) and P.Bhanu Sireesha (ICFAI Business School, ICFAI Foundation for Higher Education) | 83 |

| | | |
|---|---|---|
| IMPACT OF BOARD CHARACTERISTICS ON ESG SCORE OF COMPANIES AND MODERATING ROLE OF AUDIT QUALITY | Dr. Dipanwita Majumder (Assistant Professor, Department of Business Administration,The Bhawanipur Education Society College, Kolkata), Dr. Sayantan Kundu (IMI Kolkata) and Sonali Sardar (University of Calcutta) | 83 |
| COINTEGRATION AND CAUSALITY RELATION BETWEEN ECONOMIC DEVELOPMENT AND LIFE INSURANCE DEMAND IN INDIA | Arijit Banerjee (Research Scholar, Department of Commerce, Adamas University, West Bengal) and Sankersan Sarkar (IILM-AHL JAIPUR CAMPUS) | 84 |
| NEXUS BETWEEN ENVIRONMENTAL, SOCIAL & GOVERNANCE AND CORPORATE FINANCIAL PERFORMANCE | Mohit Pathak (IMI-Kolkata) | 85 |
| NAVIGATING CEO CAREER CONCERNS: THE ROLE OF ORGANIZATIONAL SLACK AND MARKET UNCERTAINTY IN SHAPING R&D DECISIONS | Tamal Mandal (IMI Kolkata) and Chanchal Chatterjee (IMI Kolkata) | 85 |
| COMMODITY RISKS IN SUSTAINABLE INVESTING IN INDIA: INSIGHTS FROM EXTREME QUANTILES | Arunava Bandyopadhyay (IMI Kolkata) and Prabina Rajib (Birla Institute of Management Technology) | 86 |
| ENERGY POVERTY AND FINANCIAL INCLUSION IN INDIA: A HOUSEHOLD ANALYSIS | Garima Singh (Indian Institute of Management Indore) and Kiran Kumar (Indian Institute of Management Indore) | 86 |
| COMPARATIVE ANALYSIS OF ETFS AND INDEX MUTUAL FUNDS | Gattaiah Tadoori (IFHE), Bhanu Sireesha (IFHE) and Suman Kolpula (IFHE) | 89 |

| | | |
|---|---|---|
| IN INDIA: EVALUATING RISK, RETURN, AND COST EFFICIENCY | | |
| DETERMINANTS OF ACCESS TO GREEN CREDIT IN INDIA: AN EMPIRICAL ASSESSMENT | Khushboo Uppal (TERI School of Advanced Studies) | 89 |
| FINANCIAL INCLUSION IN THE FINTECH ERA: BEHAVIORAL INSIGHTS FROM INDIA | Sattwik Santra (Centre for Studies in Social Sciences, Kolkata, India), Sahana Roy Chowdhury (IMI Kolkata) and Dona Ghosh (Thiagarajar School of Management, Madurai, India) | 90 |
| AN EXPLANATORY STUDY ON THE BREAKTHROUGH OF SELF-HELP GROUPS IN THE TECH ERA | Madhumita Das (IMI Kolkata), Prof. Sahana Roy Chowdhury (IMI kolkata) and Dr.Arunava Bandyopadhyay (IMI Kolkata) | 90 |
| MODERATING ROLE OF INSTITUTIONAL INVESTORS IN ESG REPORTING AND STOCK LIQUIDITY NEXUS: EVIDENCE FROM INDIAN FIRMS | Gaurav Kumar (Dr B R Ambedkar National Institute of Technology Jalandhar) and Matwal Singh (Dr B R Ambedkar National Institute of Technology Jalandhar) | 91 |
| DECODING GROWTH: A REGIONAL ANALYSIS OF ESG INDICES VS. CONVENTIONAL BENCHMARKS | Mafruza Sultana (Bharathidasan Institute of Management), Pooja Gupta (Jagdish Sheth School of Management), Asit K Barma (Bharathidasan Institute of Management) and Ashwani Kesarwani (GIBS Business School) | 91 |
| EFFECT OF BRIBES, DIGITAL PAYMENTS, AND STOCKOUTS ON THE PRODUCTIVITY OF INFORMAL MICRO ENTERPRISES IN INDIA. | Ruchi Gupta (Banaras Hindu University) and Dr. Bhanu Pratap Singh (Banaras Hindu University) | 93 |
| WHEN GOVERNANCE MEETS FINANCE: | Bhuvaneskumar A (VIT Business School, VIT University) and Suraj P G (VIT Business School, VIT University) | 94 |

| | | |
|---|---|---|
| PATHWAYS TO CLIMATE RESILIENCE IN EMERGING ECONOMIES - A PANEL QUANTILE APPROACH | | |
| JAN DHAN YOJANA AND 'PSEUDO-FINANCIAL INCLUSION': A CASE STUDY | Md Imdadul Haque (Aligarh Muslim University) | 97 |
| EMBEDDING ESG VALUES IN INDIAN BANKING: REDEFINING FINANCIAL INSTITUTIONS FOR A SUSTAINABLE FUTURE | Tanishka Jaiswal (Indian Institute of Information Technology Allahabad), Mohammad Alijah Hasan (Indian Institute of Information Technology Allahabad), Varu Jaiswal (Indian institute of Information Technology Allahabad), Harshita Singh (Indian Institute of Information Technology Allahabad) and Vineet Tiwari (Indian Institute of Information Technology Allahabad) | 97 |
| THE ROLE OF TRANSACTION COSTS IN ESG DISCLOSURE AND FIRM PROFITABILITY: INSIGHTS FROM INDIAN EMERGING MARKET FIRMS | Rima Mondal (Indian Institute of Management Calcutta) and Uttam Karki (Indian Institute of Management Rohtak) | 98 |
| SIGNALLING THROUGH SOCIAL STOCK EXCHANGES: INSIGHTS FROM SGBS UNNATI FOUNDATION | Diwahar Nadar (IIM Sambalpur) | 99 |
| GREEN INVESTMENT AND GREEN FINANCE: A BIBLIOMETRIC ANALYSIS OF RESEARCH TRENDS, INTELLECTUAL STRUCTURE, AND FUTURE DIRECTIONS | Dipak Debnath (Gauhati University, Research Scholar), Bhagyashree Kashyap (Gauhati University, Research Scholar), Bhagyashree Das (Nalbari Commerce College, Assistant Professor) and Dr. Runumoni Lahkar (K.C das commerce college, associate professor) | 99 |
| MAPPING RESEARCH ON RURAL WOMEN'S | Sujata Kerketta (Research Scholar, Ravenshaw University, Cuttack, India) and Sanjeeb Kumar Dey | 100 |

| | | |
|---|---|---|
| FINANCIAL INCLUSION IN INDIA: A PRISMA-GUIDED BIBLIOMETRIC AND SYSTEMATIC LITERATURE REVIEW USING BIBLIOSHINY AND VOSVIEWER | (Assistant Professor, Ravenshaw University, Cuttack, India) | |
| SUSTAINABLE FINANCE FOR A NET-ZERO FUTURE: A SYSTEMATIC LITERATURE REVIEW OF GREEN FINANCE AND ESG INVESTING | Naqi Hasan (Rajiv Gandhi Institute of Petroleum Technology) and Dr. Rohit Bansal (Rajiv Gandhi Institute of Petroleum Technology) | 100 |
| A MODIFIED UTAUT FRAMEWORK TO PREDICT WORKING WOMEN'S INTENTION TO ADOPT CHAT BANKING IN INDIA | Nupur Srivastava (Babu Banarasi Das University), Jyoti Shukla (Babu Banarasi Das University) and Alok Tewari (Babu Banarasi Das University) | 102 |
| ROLE OF UPI AS THE DRIVER OF INDIAN ECONOMY | Mohammed Sadaf Ahmed (Babu Banarasi Das University) and Sushil Pande (Babu Banarasi Das University) | 102 |
| COMPARATIVE ASSESSMENT OF FINANCING GAPS IN SDG SECTORS: EVIDENCE FROM SELECTED SOUTH ASIAN ECONOMIES | Mahananda Sen Gupta (St. Xavier's College, Kolkata) and Dr Samrat Roy (St.Xavier's College, Kolkata) | 103 |
| DOES THE POLITICAL STABILITY OF HOST IMPACT OUTWARD FDI? AN EMPIRICAL EVIDENCE FROM AN EMERGING ECONOMY | Baishali Sen (Indian Institute of Management Ranchi), Rajesh Jain (Institute of Rural Management Anand) and Deepak Kumar Srivastava (Indian Institute of Management Ranchi) | 104 |
| INTERACTION OF FEAR AND MULTI ASSET PRICING FACTORS IN INDIAN STOCK MARKET | Santosh Kumar (Associate Professor Finance Chandragupt Institute of Management Patna) and Ranjit Tiwari (Associate Professor Finance Chandragupt Institute of Management Patna) | 105 |

| | | |
|---|---|---|
| DYNAMIC INFLUENCE OF CURRENCY AND CRUDE OIL PRICE ON STOCK MARKET AND ECONOMIC PERFORMANCE: EVIDENCE FROM VAR AND VECM MODELS | *Asif Khan (Institute of Management Technology, Nagpur)* | 106 |
| LEVERAGING AI AND SUSTAINABILITY IN MARKETING: A FRAMEWORK FOR ENHANCING CONSUMER ENGAGEMENT TOWARDS SUSTAINABLE BUSINESS MODELS | Manisha Paliwal (Sri Balaji University Pune), Ojaswita Pragya (Sri Balaji University Pune) and Vedant Prakash (Sri Balaji University Pune) | 107 |
| WHEN AI SUMMARIZES FOR US: AUTONOMY-TECHNOLOGY TENSION, PERFORMANCE EXPECTANCY, AND CONSUMER TRUST IN REVIEW PLATFORMS | Aun Ahmed (IILM Lodhi Road), Shruti Gill (IILM Lodhi Road) and Gurpreet Bhatia (IILM Lodhi Road) | 108 |
| NET ZERO CONSUMER BEHAVIOUR ACROSS GENERATIONS: PURCHASE INTENTIONS FOR INNOVATIVE, ENERGY-EFFICIENT TECHNOLOGIES | Aastha Singh (Master's student, International School of Business & Media, Kolkata), Dr. Subhasis Bera (Associate Professor, International School of Business & Media, Kolkata) and Ishita Bera (Research Scholar, IMI Kolkata) | 108 |
| I LOVE MY PAGE': EXAMINING THE FACTORS DRIVING SNS LOVE AMONG THE MILLENNIALS | Abhigyan Sarkar (Institute of Management Technology Ghaziabad) and Juhi Gahlot Sarkar (IILM University Greater Noida) | 111 |

| | | |
|---|---|---|
| AI-POWERED PERSONALIZED FORTIFIED FOODS: CONSUMER ACCEPTANCE IN THE DIGITAL AGE | Abhisek Dutta (ICFAI Business School, Hyderabad) | 112 |
| IDENTIFYING KEY DRIVERS OF USER SATISFACTION IN INDIAN MATRIMONIAL APPS: A TEXT ANALYTICS AND MACHINE LEARNING APPROACH | Ejaz Ahmed (IMI Kolkata), Ranadheer Mandadi (Asian Institute of Technology) and Rajdeep Roy (Macquarie University) | 112 |
| CLICKING TOWARDS SUSTAINABILITY: THE ROLE OF SOCIAL MEDIA MARKETING AND MOTIVATIONAL DIMENSIONS IN DRIVING GREEN PURCHASE BEHAVIOR | Barkha Agarwal (University of Calcutta, Kolkata), Ittequa Turkan (University of Calcutta, Kolkata), Dipa Mitra (Indian Institute of Social Welfare and Business Management, Kolkata) and Sarbani Mitra (Indian Institute of Social Welfare and Business Management, Kolkata) | 113 |
| THIS IS MINE, AND I LOVE IT! AI ANTHROPOMORPHISM AND BRAND LOVE: AN EMOTIONAL CONTAGION PERSPECTIVE | Dr. Farrah Zeba (IBS Hyderabad, IFHE University, India) and Dr. Musarrat Shaheen (Institute of Management Technology (IMT) Hyderabad) | 114 |
| LAYERS OF MEANING: AN INTEGRATIVE REVIEW OF CULTURAL AND GENERATIONAL INFLUENCES ON BRAND COMMUNICATION | Snehashis Khan (Indian Institute of Management Sambalpur) and Poonam Kumar (IIM Sambalpur) | 114 |
| THE DISEMBODIMENT OF IDENTITY IN SUSTAINABLE FOOD CONSUMPTION: THE | Subhadip Dutta (MICA Ahmedabad) | 115 |

| | | |
|---|---|---|
| ROLE OF GENERATIVE AI FOR INDIAN CONSUMERS THROUGH THE LENS OF CCT | | |
| PREDICTING CONSUMER PURCHASE INTENTION FOR GENERIC MEDICINES IN INDIA: A HYBRID DECISION MAKING APPROACH | Brijesh Kamal (Delhi Technological University) and Deepti Aggrawal (Delhi Technological University) | 115 |
| ENHANCING CONSUMER FLOW IN VIRTUAL TRY-ON APPS: HOW INTERACTIVITY, PERSONALIZATION AND PRIVACY CONCERN IMPACT CONSUMER DECISIONS | Ananya Aparajita (XLRI - Xavier School of Management, Jamshedpur) | 116 |
| GEN AI IN MARKETING : UNVEILING THE BLACK BOX | Sanskar Kumar (IMI New Delhi), Purva Grover (IMI New Delhi) and Ashish Kumar Rathore (IMI New Delhi) | 117 |
| BRIDGING TWO WORLDS: SOCIAL MEDIA INFLUENCERS AND UNDEREXPLORED FINANCIAL INFLUENCER CONNECTIONS – A BIBLIOMETRIC ANALYSIS | Pavithra M (VIT Business School, VIT University (Vellore Campus), Vellore - 632014, Tamil Nadu, India) and Bhuvaneskumar A (VIT Business School, VIT University (Vellore Campus), Vellore - 632014, Tamil Nadu, India) | 117 |
| ROLLING CREDITS, LASTING LEGACY: THE ASSEMBLAGE OF BRAND LONGEVITY | Mratunjai Singh (IIM Sirmaur) | 118 |
| HOW REINFORCEMENTS SHAPE SUSTAINABLE BRANDING: | Rajarshi Debnath (Fore School of Management), Garima Saxena (Institute of Management Technology, Ghaziabad) and Subhojit Sengupta (Institute of Management Technology, Ghaziabad) | 118 |

| | | |
|---|---|---|
| MODERATING ROLE OF ENVIRONMENT VALUES IN INDIAN QUICK COMMERCE | | |
| PLAY YOUR PART, SAVE THE PLANET: GAMIFICATION IN SUSTAINABILITY MARKETING | Rajshree Misara (Indian Institute of Information Technology, Allahabad) and Saurabh Mishra (Indian Institute of Information Technology, Allahabad) | 121 |
| LINKING CORPORATE SOCIAL RESPONSIBILITY AND BRANDING: A SYSTEMATIC LITERATURE REVIEW AND FUTURE RESEARCH AGENDA | Mahanish Panda (IMI, Kolkata), Akansha Kumari (IMI, Kolkata) and Bidhiska Ray (IMI, Kolkata) | 122 |
| THE RESTAURANT-PLATFORM CONUNDRUM IN THE SHARING ECONOMY: RESTAURANT'S CAPACITY, PRICING AND CHANNEL DECISIONS IN THE PRESENCE OF ONLINE FOOD DELIVERY PLATFORMS | Soumyadeep Kundu (T A Pai Management Institute (TAPMI)) and Ashutosh Sarkar (Indian Institute of Management Kozhikode) | 122 |
| DIGITAL RESALE ECOSYSTEMS IN PRE-LOVED FASHION: TECHNOLOGY, TRUST, AND VALUE CREATION IN DOLCE VEE | Anupa Barik (International School of Business and Media, Kolkata) and Neha Arora (Institute of Management Studies, Noida) | 123 |
| ALGORITHMIC LITERACY IN TOURISM AND HOSPITALITY: A REVIEW AND FUTURE RESEARCH AGENDA. | Nayeem Aktar (IMI kolkata), Sahil Singh Jasrotia (IMI kolkata) and Kishalay Adhikari (IMI Kolkata) | 124 |

| | | |
|---|---|---|
| EFFECT OF GAMIFICATION FEATURES ON RESPONSIBLE SPENDING BEHAVIOR AMONG INDIAN APP USERS | Neelakshi Shukla (Indian Institute of Information Technology), Dr. Saurabh Mishra (Indian Institute of Information Technology) and Rajshree Misara (Indian Institute of Information Technology) | 124 |
| PRIORITIZING FACTORS INFLUENCING SHOPPING INTENTION THROUGH METAVERSE USING GINA: A TAM-BASED APPROACH | Eshita Gupta (Sharda School of Business Studies, Sharda University) and Ruchi Jain Garg (Sharda School of Business Studies, Sharda University) | 125 |
| WOMEN'S ENGAGEMENT IN PHYGITAL RETAIL SPACES: INVESTIGATING THE ROLES OF SELF-DETERMINATION, EXTENDED SELF, AND SOCIAL PRESENCE | Rashmi Shukla (Indian Institute of Information Technology , Allahabad), Saurabh Mishra (Indian Institute of Information Technology , Allahabad) and Rajshree Misara (Indian Institute of Information Technology , Allahabad) | 126 |
| UNDERSTANDING CONSUMER MOTIVATIONS AND RESISTANCE IN LIVESTREAM COMMERCE: A BEHAVIORAL REASONING THEORY PERSPECTIVE IN INDIA | Tanisha Patel (Indian Institute of Information Technology), Saurabh Mishra (Indian Institute of Information Technology) and Rajshree Misra (Indian Institute of Information Technology) | 126 |
| FROM CODE TO CONNECTION: UNDERSTANDING PARASOCIAL BONDS AND PURCHASE INTENTIONS IN THE AGE OF AI INFLUENCERS | Muskan Mishra (Indian Institute of Information Technology Allahabad), Saurabh Mishra (Indian Institute of Information Technology Allahabad) and Rajshree Misara (Indian Institute of Information Technology Allahabad) | 130 |

| | | |
|---|---|---|
| MINDSET-CONTINGENT WILLINGNESS-TO-PAY PREMIUMS VIA JUDGMENT PROCESSES FOR SUSTAINABILITY INITIATIVES: PREREGISTERED EXPERIMENTAL EVIDENCE | Jishnu Bhattacharyya (School of Management, Swansea University), M S Balaji (RMIT University Australia) and Yangyang Jiang (University of Nottingham, Ningbo, China) | 130 |
| FROM CLICKS TO CHAINS: UNDERSTANDING THE DRIVERS OF DIGITAL SWEATSHOPS | Sahil Singh Jasrotia (IMI Kolkata), Manoj Kamila (Jaipuria Institute of Management Indore) and Shagun Chib (Institute of Business Management, Jadavpur University) | 131 |
| DETERMINANTS OF LONG-TERM ENGAGEMENT WITH WEARABLE ACTIVITY DEVICES: THE ROLES OF PSYCHOLOGICAL AND MOTIVATIONAL DRIVERS | Nishit Srivastava (Operations and IT Department, ICFAI Business School, IFHE Deemed to be University, Hyderabad), Namrata Chatterjee (Department of HR, ICFAI Business School, IFHE Deemed to be University, Hyderabad), Shubhagata Roy (Operations and IT Department, ICFAI Business School, IFHE Deemed to be University, Hyderabad) and Garima Tiwari (Operations and IT Department, ICFAI Business School, IFHE Deemed to be University, Hyderabad) | 132 |
| FROM GLITCH TO SWITCH: A NARRATIVE REVIEW OF DIGITAL SERVICE FAILURE | Nayeem Aktar (IMI kolkata) and Rituparna Basu (IMI kolkata) | 132 |
| ROLE OF SOCIAL MEDIA INFLUENCER IN SHAPING CONSUMERS SUSTAINABLE CONSUMPTION BEHAVIOR: A SYSTEMATIC LITERATURE REVIEW | Rashmita Saran (Icfai Foundation of Higher Education), Mandakini Paruthi (IBS, IFHE Hyderabad) and Sweta Singh (IBS, IFHE Hyderabad) | 133 |
| EXPLORING DRIVERS AND BARRIERS FOR SUSTAINABLE FASHION | Munshi Maksud Hossain (IMI Kolkata), Dr. Gobinda Roy (IMI Kolkata) and Prof. Mohua Banerjee (IMI Kolkata) | 134 |

| | | |
|---|---|---|
| PURCHASE INTENTION IN SOCIAL COMMERCE: A QUALITATIVE INQUIRY | | |
| NURTURING BUSINESS PERFORMANCE: UNVEILING THE POWER OF STRATEGIC GREEN ORIENTATION AND SUSTAINABLE DESIGN | Priyavrat Sanyal (Higher Colleges of Technology), Nikunj Kumar Jain (IIM Nagpur) and Kaustov Chakravraty (IIM Sambalpur) | 134 |
| CONSUMER INSIGHTS ON SUSTAINABILITY WITHIN THE ERA OF CLIMATE CRISIS | Rakesh Kumar Pandey (United University Prayagraj Uttar Pradesh), Pradeep Kumar Mishra (Faculty of Management Studies, Sankalchand Patel University Visnagar, Gujarat) and Ambrish Singh (Rajkiya Engineering College Azamgarh, Uttar Pradesh) | 135 |
| EVALUATION AND RANKING OF SERVICE QUALITY IN THE VEHICLE INSURANCE COMPANIES: A MULTI-CRITERIA DECISION-MAKING APPROACH | Bibhuti Tripathy (Institute of Management Technology, Nagpur) | 135 |
| MARKETING STRATEGIES TOWARDS SUSTAINABLE SERVICE: A NORTH - SOUTH COMPARISON OF INDIAN SHOPPING MALLS | Riya Ghosh (Indian Institute of Social Welfare and Business Management) and Dipa Mitra (Indian Institute of Social Welfare and Business Management) | 136 |
| GREEN CHOICES: ANALYSING INDIAN CUSTOMERS RESPONSE TO SUSTAINABLE PACKAGING | Radha Govind Indwar (IMI Kolkata) and Rupjyoti Saha (Indian Institute of Information Technology, Guwahati (IIITG)) | 137 |
| EXPLORING THE DRIVERS OF WELLNESS | Indrani Paul (IMI Kolkata) and Gobinda Roy (IMI Kolkata) | 137 |

| | | |
|---|---|---|
| PRODUCT CONSUMPTION: A QUALITATIVE INVESTIGATION INTO CONSUMER ATTITUDES AND PREFERENCES | | |
| ETHICS MEETS ENGAGEMENT: A BIBLIOMETRIC ANALYSIS INTO CORPORATE SOCIAL RESPONSIBILITY'S ROLE IN STIMULATING BRAND LOYALTY | Abinash Jena (Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha) | 138 |
| URBAN APPETITE: CONSUMER DYNAMICS AND THE PROLIFERATION OF QUICK-SERVICE RESTAURANTS IN KOLKATA | Dr. Sudipta Halder (Assistant Professor, Techno India School of Management Studies, Techno Main Saltlake (MAKAUT)) and Sucharita Debnath (Assistant Professor, Department of Management, Brainware University) | 139 |
| INNOVATING HOSPITAL FRONTLINE SERVICES: A STUDY ON AI-DRIVEN AUTOMATION AND RESPONSIVENESS FOR SERVICE QUALITY IMPROVEMENT | Anisha Biswas (Brainware University), Dr. Saileswar Ghosh (Brainware University) and Dr. Indrajit Ghosal (Brainware University) | 140 |
| IMPACT OF SERVICE QUALITY ON INDIAN DRY PORTS: EVIDENCE FROM SERVPERF AND EXPORT LINKAGES | Kannan Kumar (Indian Institute of Foreign Trade) | 141 |
| AUGMENTED AND VIRTUAL REALITY IN INDIAN REAL ESTATE: A PATHWAY TO CUSTOMER | Siri Chandana Gadipelly (SR University), Laxmi Sahasra Madhavapeddi (SR University), Vishwak Bonagiri (SR University), Sandeep Choudhary (SR University) and Rajan Kumar Gangadhari (SR University) | 141 |

| | | |
|---|---|---|
| SATISFACTION AND PURCHASE INTENTION | | |
| GREEN BRANDING THROUGH VISUAL ADS: INFLUENCING STUDENT DECISION-MAKING IN HIGHER EDUCATION AFTER SCHOOL | Prasenjit Das (Phd Scholar), Rajat Singha (Assistant Professor) and Dr Jayeeta Debnath Munshi (Associate Professor) | 142 |
| QUALITATIVE INSIGHTS INTO KEY ATTRIBUTES OF SERVICE QUALITY AND CUSTOMER EXPERIENCE MANAGEMENT IN SMART HOSPITALITY | Anamita Biswas (Amity Business School, Amity University, Kolkata), Nibir Khawash (Amity Business School, Amity University, Kolkata), Sanjib Biswas (Amity Business School, Amity University, Kolkata) and Reeti Debnath (NSHM Knowledge Campus, Kolkata) | 143 |
| A QUALITATIVE STUDY OF FACTORS INFLUENCING CONSUMER PURCHASE BEHAVIOUR FOR GREEN PACKAGED PRODUCTS. | Charudutt Butala (SP Jain School of Global Management), A. Seetharaman (SP Jain School of Global Management) and K. Maddulety (SP Jain School of Global Management) | 144 |
| AN EXAMINATION OF THE IMPACT OF CONSUMERS' NEED FOR STIMULATION ON THEIR CURIOSITY-DRIVEN BEHAVIOUR: AN ANALYSIS ACROSS DIFFERENT LEVELS OF BRAND EQUITY | Sulagna Chakrabarti (Assistant Professor, Eastern Institute for Integrated Learning in Management-Kolkata) and Dr. Surajit Ghosh Dastidar (Professor, Eastern Institute for Integrated Learning in Management-Kolkata) | 145 |
| WHEN GREEN TURNS GREY: THE PSYCHOLOGICAL EFFECT OF NON-GREEN ADVERTISING ON CHILDREN'S UNDERSTANDING OF SUSTAINABILITY | Moutusi Chakraborty (Techno India University Tripura) | 145 |

| | | |
|---|---|---|
| GREEN STORIES OR SECRET PERSUASION? DIGITAL ADVERTISING, SUSTAINABILITY, AND CHILDREN'S DEVELOPMENT | Moutusi Chakraborty (Techno India University Tripura) | 146 |
| ETHICAL AI PERSONALIZATION AND ALGORITHMIC FAIRNESS: PROMOTING RESPONSIBLE BRAND TRUST AND DIGITAL LOYALTY AMONG GEN Z INDIAN WOMEN | Debalina Goswami (Calcutta Business School) | 146 |
| COMPARING THE EFFECTIVENESS OF DIFFERENT GREEN MARKETING STRATEGIES ON CONSUMER PURCHASE INTENTIONS | Pankaj Kumar (PGDBA, IIM Calcutta) | 147 |
| CSR AND BRAND PERFORMANCE IN INDIAN SMALL BUSINESSES | Gulshan Kumar Yadav (Indian Institute of Technology Kharagpur), Soumya Sarkar (Xavier Institute of Management, Bhubaneswar), Titas Bhattacharjee (Indian Institute of Technology Kharagpur) and Atasi Mohanty (Indian Institute of Technology Kharagpur) | 148 |
| SUSTAINABILITY-DRIVEN SALES PRACTICES: ADVANCING THE MARKETING DISCIPLINE | Dr. Swati Bhatnagar (New Delhi Institute of Management) and Dr. Rajneesh Mahajan (University of Niagara Falls, Niagara Falls Region) | 152 |
| TOWARDS SUSTAINABLE PRACTICES: ROLE OF SOCIAL ENTERPRISES AND DIGITAL TECHNOLOGIES IN | Vishal Sinha (Indian Institute of Management Indore) and Prof. Bipul Kumar (Indian Institute of Management Indore) | 153 |

| | | |
|---|---|---|
| VULNERABLE CONSUMER EMPOWERMENT | | |
| ECONOMIC AND CULTURAL DRIVERS BEHIND THE EMERGENCE OF INDIA'S PREMIUM FOOD MARKET | Raj Akshay Kolla (S. P Jain) | 153 |
| MARKETING MIX >AIDA > PURCHASE: PLS-SEM EVIDENCE FROM OTT MARKET | Prasenjit Chakrabarty (PhD Scholar, Dr. K N Modi University, RJ, India) | 154 |
| IMPACT OF SUSTAINABLE LOGO DESIGN ON BRAND AVOIDANCE | Arnav Pati (School of Management, Kalinga Institute of Industrial Technology, Bhubaneswar, India), Subidita Pattanaik (Government College of Engineering, Kalahandi, Bhawanipatna, India) and Tapas Ranjan Moharana (XLRI- Xavier School of Management) - Jamshedpur, India) | 155 |
| EFFECT OF SUSTAINABLE BRAND FRAMING ON CONSUMERS' BEHAVIOURAL INTENTION: ROLE OF BRAND PARASOCIAL INTERACTION | Subidita Pattanaik (Department of Humanities, Government College of Engineering, Kalahandi, Bhawanipatna, India) and Tapas Ranjan Moharana (XLRI Xavier School of Management, XLRI Jamshedpur, India) | 155 |
| GREEN MARKETING AS A CATALYST FOR SUSTAINABLE CHANGE | Ridhika Chatterjee (IILM Academy of Higher Learning, Lucknow), Dr Suchita Vishwakarma (IILM Academy of Higher Learning) and Dr Sheetal Sharma (Chandigarh University) | 156 |
| EFFECTS OF SUSTAINABLE PACKAGING ON CONSUMER TRUST, BRAND LOYALTY, AND PURCHASE INTENT IN LAST-MILE FRESH-MEAL DELIVERY: A | Sagar Phuloria (University School of Management and Entrepreneurship, D.T.U.) and Deepti Aggrawal (University School of Management and Entrepreneurship, D.T.U.) | 157 |

| | | |
|---|---|---|
| HYBRID MACHINE LEARNING APPROACH | | |
| TOWARDS NET-ZERO: A REFLEXIVE DIGITAL GOVERNANCE FRAMEWORK FOR SUSTAINABLE AND INCLUSIVE WORK ECOSYSTEMS | Ishita Bera (IMI, Kolkata) and Subhasis Bera (ISB&M, Kolkata) | 158 |
| ADVANCING CIRCULAR ECONOMY THROUGH VALUE CO-CREATION IN B2B INDUSTRIAL NETWORK | Amit Tiwari (IIM Sirmaur) and Mahantesh M Patil (IIM Sirmaur) | 159 |
| INCENTIVIZING GREEN STRATEGIES: MANAGERIAL INCENTIVES AND SUSTAINABILITY AGREEMENTS | Ajay Sharma (Indian Institute of Management, Indore) and Nitin Shahi (IIM Indore) | 160 |
| STRATEGIC EVALUATION OF BORN-CIRCULAR STARTUPS USING A TWO-PHASE FUZZY-AHP AND TOPSIS METHODOLOGY | S Alekhya (Research Scholar, School of Management Studies, University of Hyderabad) and Pramod Kumar Mishra (Assistant Professor, School of Management Studies, University of Hyderabad) | 160 |
| CIRCULAR ECONOMY AND FINANCIAL STRATEGIES: DRIVING SUSTAINABLE GROWTH AND ACHIEVING FINANCIAL SYNERGY IN SUPPLY CHAINS | Mohd Shahid Ali (School of Management, IILM University, Gurugram) and Rimjhim Jha (School of Management, IILM University, Gurugram) | 161 |
| SUSTAINABILITY IN GLOBAL ELECTRONICS SUPPLY CHAINS: THE GEOPOLITICAL IMPACT | Santanu Roy (IILM Institute for Higher Education, Lodhi Road, New Delhi, India) and Samyadip Chakraborty (IMI Kolkata) | 161 |

| | | |
|---|---|---|
| ECO-DIGITAL TRANSFORMATION: REDEFINING LABORATORY MANAGEMENT AND CRM FOR A SUSTAINABLE FUTURE | Rupam Chakraborty (TECHNO INDIA UNIVERSITY TRIPURA) | 162 |
| OPTIMIZATION OF SUSTAINABLE GARBAGE COLLECTION USING THE ELECTRIC VEHICLE ROUTING PROBLEM | Yuvraj Gajpal (University of Manitoba) and Srimantoorao Appadoo (University of Manitoba) | 163 |
| ARTIFICIAL INTELLIGENCE FOR OPTIMIZING RENEWABLE ENERGY GENERATION, INTEGRATION, AND CONSUMPTION FOR SUSTAINABILITY | Dr. Amitabha Ghose (Adamas University) Sustainability. | 163 |
| EXPLORING FLEXIBLE BATTERY LEASING FOR ELECTRIC VEHICLES FROM TCO PERSPECTIVE | Aniruddha Kundu (IIM Sambalpur, Army Institute of Management, Kolkata), Dr Ramakrushna Padhy (IIM Sambalpur) and Dr Asit Tripathy (IMT Ghaziabad) | 164 |
| FROM THRIFTING TO TRENDING: GEN Z'S ROLE IN SHAPING SUSTAINABLE SOCIAL COMMERCE FOR THE PLANET | Manya Sah (BIMTECH) | 165 |
| ADVANCING THE SUSTAINABILITY BALANCED SCORECARD: EVIDENCE FROM MULTI-CASE ANALYSIS | Sajad Ebrahimi (Grand Valley State University), Jean Essila (Grand Valley State University) and Jaideep Motwani (Grand Valley State University) | 168 |

| | | |
|---|---|---|
| THE SUSTAINABILITY MIRAGE: WHY MARKETING CAN LOOK GREENER THAN IT IS | Somya Bansal (Birla Institute of Management Technology) and Dr. Garima Malik (Birla Institute of Management Technology) | 168 |
| THE PARADOX OF RECYCLING: A RESEARCH NOTE ON LIMITATION OF CIRCULAR ECONOMY TO ACHIEVE SUSTAINABILITY | Dr. Breeta Banerjee (Assistant Professor of Economics, Institute of Engineering and Management Newtown) | 170 |
| FROM LESS TO MINDFUL: EXPLORING HOW MINIMALISM FUELS MINDFUL CONSUMPTION IN THE SUSTAINABILITY ERA | Meenal Sharma (Symbiosis International (Deemed) University Pune), Udit Chawla (Institute of Engineering & Management, School of University of Engineering and Management, Kolkata) and Vinod Sharma (SCHMRD, Symbiosis International Pune) | 171 |
| SUSTAINABLE TARGETED ADVERTISING AND ITS DISCONTENTS: AN EMPIRICAL INVESTIGATION | Ajitesh Kumar Tiwari (Research Scholar, Department of Management, University of Lucknow), Dr. Abhishek Kumar Pandey (IILM Academy of Higher Learning Lucknow , U.P , India) and Dr. Ajai Prakash (Associate Professor, Department of Management, University of Lucknow) | 172 |
| ADVANCING SUSTAINABLE AVIATION FUEL PATHWAYS: TECHNICAL CHALLENGES, OPPORTUNITIES, AND RESEARCH DIRECTIONS | Vinod L (Nitte Meenakshi Institute of Technology (NMIT), Nitte (Deemed to be University)) and Somashekar V (Nitte Meenakshi Institute of Technology (NMIT), Nitte (Deemed to be University)) | 172 |
| BUILDING SUSTAINABLE DIGITAL ENGAGEMENT FOR ONLINE FOOD DELIVERY SERVICE PLATFORMS | Anupama Ahluwalia (SP Jain School of Global Management) and Dr K Maddulety (Professor Cum Director - DBA, SP Jain School of Global Management) | 173 |
| TRANSFORMING SOLAR PANEL WASTE FOR A SUSTAINABLE FUTURE: | Tanvi Agarwal (Circle PV Limited.) | 174 |

| | | |
|---|---|---|
| CIRCULAR INNOVATION THROUGH AI BASED WASTE MANAGEMENT | | |
| THE PROSPECTIVE OF ARTIFICIAL INTELLIGENCE FOR NET ZERO SUSTAINABILITY: A COMPREHENSIVE REVIEW OF CURRENT EVIDENCE AND FUTURE PROSPECTS | Adrija Nath (Pune Institute of Business Management) and Dr. Nilesh Kate (Pune Institute of Business Management) | 174 |
| A SYSTEMATIC LITERATURE REVIEW ON IMPACT OF ENVIRONMENTAL ETHICS ON REDUCING EMISSIONS IN INDIA | Siddharth Chakravorty (The Bhawanipur Education Society College) and Dr. Tridib Sengupta (The Bhawanipur Education Society College) | 175 |
| INTEGRATING ALTERNATIVE MEDICAL PRACTICES FOR BUILDING A SUSTAINABLE HEALTHCARE SYSTEM: A PATHWAY TO HOLISTIC AND RESILIENT PATIENT CARE | Zeba Khan (Swiss School of Management) and Archana Mishra (MGM School of Biomedical Science) | 176 |
| DIGITAL SOLUTIONS FOR SUSTAINABLE CONSTRUCTION: EXPLORING AI'S ROLE IN ACHIEVING NET ZERO | Abdul Gafoor K A (Doctoral Scholar, S P Jain School of Global Management) | 176 |
| CATALYZING AND WEAVING IN THE GREEN: SUSTAINABILITY IN NEW AGE STARTUPS | Kshitija Wason (Daulat Ram College Delhi University) | 177 |

| | | |
|---|---|---|
| DECODING THE PATH TO NET ZERO: A TEXT ANALYTICS AND TOPIC MODELLING APPROACH TO CARBON NEUTRALITY AND DEVELOPMENT DIALOGUE AT COP26 COP 27, COP28 AND COP 29 | Sonakshi Gupta (IIM Sirmaur) and Manish Sarkhel (IIM Sirmaur) | 177 |
| INTEGRATING DIGITAL INFRASTRUCTURE WITH ENVIRONMENTAL JUSTICE IN THE SUSTAINABILITY-DRIVEN ERA | Bindu Roy (Assistant Professor, Department of PG Commerce DAV Centenary College, Faridabad, Haryana) and Richa Sharma (Assistant Professor, PML SD Business School, Chandigarh) | 179 |
| MANAGEMENT EFFICIENCY AS A MODERATOR IN THE SUSTAINABILITY REPORTING–FIRM VALUE NEXUS: EVIDENCE FROM BSE 100 COMPANIES | Najul Laskar (IILM University, Greater Noida) | 179 |
| VISION, MISSION AND VALUES: A CONVENIENCE STATEMENT, A STATUTORY REQUIREMENT, OR A ROADMAP FOR VALUE BASED DECISION MAKING TOWARDS ACHIEVING SUSTAINABILITY, INCLUSIVE GROWTH, AND DEVELOPMENT | Dr. Arijit Santikary (Siva Sivani Institute of Management) and Samarpita Roy (Siva Sivani Institute of Management) | 180 |
| EDUCATING FOR A JUST AND SUSTAINABLE NET-ZERO FUTURE: EMPOWERING | Dinesh A (University of Hyderabad) and Samarpita Roy (Siva Sivani Institute of Management) | 182 |

| | | |
|---|---|---|
| CLASSROOMS FOR CARBON NEUTRALITY | | |
| BUILDING SUSTAINABLE FINANCIAL FUTURES: EXAMINING THE IMPACT OF SME-TO-MAINBOARD TRANSITIONS ON STOCK RETURNS IN THE INDIAN MARKET | Rahul Kumar (Indian Institute of Management Sambalpur) | 183 |
| SMARTCHOICE: A DIGITAL DECISION ASSISTANT FOR SUSTAINABLE CONSUMER CHOICES IN THE NET-ZERO ERA | Jeevana Kalla (National Institute of Technology Raipur) | 184 |
| ANALYSING THE IMPACT OF MANDATORY CSR REGULATION ON THE ENVIRONMENTAL PERFORMANCE OF MANUFACTURING FIRMS IN INDIA: EVIDENCE FROM A QUASI-NATURAL EXPERIMENT | Baikunthanath Sahoo (Indian Institute of Technology Madras,Chennai,Tamil Nadu, India), Santosh Kumar Sahu (Indian Institute of Technology Madras,Chennai,Tamil Nadu, India) and Krishna Malakar (Indian Institute of Technology Madras,Chennai, Tamil Nadu, India) | 186 |
| DESIGNING SUSTAINABLE AND HIGH-IMPACT CSR STRATEGIES | Soni Agrawal (IMI Kolkata) | 187 |
| NAVIGATING THE INSTITUTIONAL VOIDS: A TALE OF THE INDIAN SUSTAINABILITY ENTREPRENEURS | Sumita Ketkar (Westminster Business School , University of Westminster) and Roma Puri (IMI Kolkata) | 187 |
| THE ROLE OF CULTURE IN SHAPING | Neelarya Bhaduri (IMI Kolkata) and Rituparna Basu (IMI Kolkata) | 188 |

| | | |
|---|---|---|
| SUSTAINABLE CONSUMPTION: A CONCEPTUAL REVIEW AND RESEARCH AGENDA | | |
| INFRASTRUCTURE GAPS, CAPITAL FORMATION AND SUSTAINABLE DEVELOPMENT GOAL SCORES IN SOUTH ASIA | Dr Swati Jain (Assistant Professor Department of Economics University of Allahabad) | 188 |
| EVOLUTION OF EDUCATION AND EMPLOYABILITY THROUGH CAPACITY BUILDING FOR SDG SUCCESS | Deeptikana Choudhury (Brainware University), Dr. Indrajit Ghosal (Brainware University) and Dr. Suparna Biswas Goswami (Brainware University) | 189 |
| FROM IMMERSION TO SUSTAINABILITY: TECHNOLOGY-DRIVEN MARKETING IN THE NET ZERO ERA | Abhinav Prasad (Master's student, International School of Business & Media, Kolkata), Dr. Subhasis Bera (Associate Professor, International School of Business & Media, Kolkata), Ishita Bera (Research Scholar, IMI Kolkata) and Soumyajit Ghosh (International School of Business and Media, Kolkata) | 190 |
| RESPONSIBLE AI FOR SUSTAINABILITY: THE STARTUP PERSPECTIVE ON CSR AND ETHICS | Arup Kumar Mondal (Master's student, International School of Business & Media, Kolkata), Dr. Subhasis Bera (Associate Professor, International School of Business & Media, Kolkata) and Ishita Bera (Research Scholar, IMI Kolkata) | 192 |
| LEVERAGING SOCIAL MEDIA ENGAGEMENT FOR WASTE MANAGEMENT AND SUSTAINABLE CONSUMER EQUITY: AN INTEGRATED EXPERIENCE MODEL | Sunita Diwedi (School of Management, IILM University) and Monika Mittal (School of Management, IILM University) | 194 |
| DOES CIRCULAR ECONOMY AND RECYCLING-FOCUSED | Nibedita Saha (Footwear Research Centre, University Institute, Tomas Bata University in Zlín, Czech Republic), Nabanita Saha (Center of Polymer Systems, Tomas Bata | 195 |

| | | |
|---|---|---|
| WASTE MANAGEMENT STRATEGY PROMOTE SUSTAINABLE GROWTH IN THE FOOTWEAR INDUSTRY? | University in Zlín, Czech Republic), Tomas Sáha (Footwear Research Centre, University Institute, Tomas Bata University in Zlín, Czech Republic), Petr Sáha (Center of Polymer Systems, Tomas Bata University in Zlín, Czech Republic) | |
| PIEZOELECTRIC MATERIALS FOR ENVIRONMENT SUSTAINABILTY | Dr. Soma Mukherjee (Associate Professor, Department of Appl Science & Hum(Physics), Panihati, Kolkata), Dr. Susinjan Bhattacharya (Associate Professor, School of Agriculture and Allied Science, TNU, Sarisa, D.H. Road, West Bengal) and Mr. Diprit Turul (B.Tech Student, Dept CSE GNIT, 157/F Nilgunj Road, Panihati, Kolkata) | 196 |
| SUSTAINABLE SOLUTION TO PHARMA WASTES RISING: A STUDY ON CURRENT TRENDS IN PHARMACEUTICAL WASTE MANAGEMENT | Rupam Chakraborty (Techno India University Tripura) and Ramkrishna Debnath (Techno India University Tripura) | 196 |
| THE COLOUR OF SUSTAINABILITY: A STUDY ON WEAVERS AND NATURAL DYE COMMUNITIES OF ORISSA STATE OF INDIA | Ramkrishna Debnath (Techno India University Tripura) and Rupam Chakraborty (Techno India University Tripura) | 197 |
| TRANSFORMING TRASH INTO VALUE: CIRCULAR BUSINESS MODELS FOR SUSTAINABLE WASTE MANAGEMENT IN KOLKATA AND SUBURBS | Joyita Chatterjee (Calcutta Business School) | 197 |
| DIGITAL TECHNOLOGIES FOR NET-ZERO: A FRAMEWORK FOR SUSTAINABLE INDUSTRIAL TRANSFORMATION | Dr. Nilesh Kate (Pune Institute of Business Management), Manasvi Pathak (Pune Institute of Business Management) and Aditya Jadhav (Lawrence Technological University) | 198 |

| | | |
|---|---|---|
| SUSTAINABILITY INITIATIVES: CASE STUDY OF GOOGLE AND MICROSOFT | Moumita Das Jana (MAKAUT) | 199 |
| A REVIEW OF GENDER DIVERSITY IN MANAGEMENT AFTER A DECADE OF ADOPTING SUSTAINABLE DEVELOPMENT GOALS | Pallav Datta (Research Scholar; Indian Institute of Management Nagpur), Shailendra Nigam (Professor; HASS; Indian Institute of Management Nagpur), Mukund Vyas (Professor, OBHRM; Indian Institute of Management Nagpur) and Alok Kumar Singh (Professor; POM; Indian Institute of Management Nagpur) | 199 |
| LIFE CYCLE ASSESSMENT AND DIGITAL MODELLING OF RAILWAY BRIDGES: A PATH TOWARD SUSTAINABLE RURAL - URBAN CONNECTIVITY IN THE HIMALAYAN REGION | Rajesh Kumar Singh (Research Scholar, ICFAI Tech School, The ICFAI University, Dehradun), Ram Karan Singh (Professor, ICFAI Tech School, The ICFAI University, Dehradun) and Amit Kumar Bera (Assistant Professor, ICFAI Tech School, The ICFAI University, Dehradun) | 200 |
| FRAMEWORK FOR NET ZERO PATHWAY FOR INDIAN CHEMICAL INDUSTRY | Mukundan Ramakrishnan (SP Jain Global School of Management), Wilson Kia Onn Wong (SP Jain Global School of Management) and Suchismita Das (SP Jain Global School of Management) | 201 |
| GREEN PACKAGING FOR SUSTAINABLE DEVELOPMENT: A SYSTEMATIC REVIEW AND CONCEPTUAL INTEGRATION | Mahanish Panda (IMI Kolkata) and Sahilswayamsri Sahoo (IMI Kolkata) | 201 |
| ARTIFICIAL INTELLIGENCE IN GREEN INNOVATION: A SYSTEMATIC LITERATURE REVIEW USING THE TCCM FRAMEWORK | Aradhana Raj (Academic Associate, IIM Indore), Mahanish Panda (PhD IMI, kolkata) and Roma Puri (Associate professor, IMI Kolkata) | 202 |
| FROM SIMULATION TO SYSTEM: DEVELOPING A THEORETICAL MODEL | Bhavesh Sarna (Jyväskylä School of Business and Economics) and Veenu Sharma (Birla Institute of management and Technology) | 203 |

| | | |
|---|---|---|
| OF INTEGRATED CIRCULAR ECONOMY COMPREHENSION AND SUSTAINABLE INTENT | | |
| VIRTUAL WATER FOOTPRINT OF AGRICULTURAL PRODUCTION AND TRADE IN INDIA WITH SPECIAL REFERENCE TO WEST BENGAL (2021-2023) | Iram Jamal, (Ph.D. Research Scholar, Department of Business Management, University of Calcutta), and Dr. Shelly De (Pandit), (Associate Professor, Department of Commerce, Bijoy Krishna Girls' College, Howrah, West Bengal) | 203 |
| ORGANIC MATTRESS PILLOW | Abhishek Singh (RAMCHANDRAALKA PVT LTD) and Akanksha Singh (DAZZEL SLEEP) | 204 |
| CORPORATE SOCIAL RESPONSIBILITY IN INDIAN COMPANIES- A CURRENT SCENARIO | Soumyendu Mukhopadhyay (University of Calcutta) | 205 |
| ANALYSIS OF CHALLENGES IN ADOPTING SUSTAINABLE NET-ZERO EV CHARGING INFRASTRUCTURE: AN INTERPRETIVE STRUCTURAL MODELLING (ISM) APPROACH | Nilesh Kate (Pune Institute of Business Management) and Sujoy Kumar Jana (Pune Institute of Business Management) | 205 |
| ADOPTION OF GENERATIVE AI IN IT SERVICES AND OPERATIONS: REVIEW AND FUTURE SCOPE OF RESEARCH | Subhendu Dey (JIS Institute of Advanced Studies and Research (JISIASR), Kolkata), Sachin Modgil (IMI Kolkata), Rohan Mukherjee (IMI Kolkata) and Ajoy Kumar Ray (JIS Institute of Advanced Studies and Research (JISIASR), Kolkata) | 208 |
| AI DRIVEN HUB-AND-SPOKE HEALTHCARE MODEL: SUSTAINABLE | Sumit Mitra (Indian Institute of Management Kozhikode) and Indranil Jana (Indian Institute of Management Kozhikode) | 210 |

| | | |
|---|---|---|
| EQUITY IN EMERGING ECONOMIES | | |
| OPTIMIZING HEALTHCARE SCHEDULING: A SIMULATION-BASED COMPARISON OF CENTRALIZED AND DECENTRALIZED MODELS IN OR SYSTEMS | Mahua Banerjee (Indian Institute of Management, Kozhikode) and Ashutosh Sarkar (Indian Institute of Management Kozhikode) | 210 |
| THE ROLE OF DIGITAL TECHNOLOGIES IN INFLUENCING PATIENT SATISFACTION: A REVIEW-BASED STUDY IN PRIVATE HOSPITALS | Arunika Bhadra (Brainware university), Dr. Fedric Kujur (Xavier Institute of Social Service) and Dr. Saileswar Ghosh (Brainware university) | 211 |
| AI FOR NET ZERO: LEVERAGING EDTECH TO DEMOCRATIZE INDIAN HIGHER EDUCATION AND BUILD A SUSTAINABLE WORKFORCE | Sanjiva Shankar Dubey (IILM) and Chanchal Kushwaha Kushwaha (IILM) | 213 |
| DRONES IN AGRICULTURE : BEYOND ADOPTION, TOWARDS SERVICEABILITY | Navya Sri Animireddy (SR University), Srivani Adunoori (SR University), Akshaya Sangani (SR University), Sahithi Gurrapu (SR University) and Rajan Kumar Gangadhari (SR University) | 214 |
| EXPLORING THE IMPACT OF GIG WORK: SENTIMENT ANALYSIS AND TOPIC MODELLING OF WORKERS' RIGHTS AND LABOUR MARKET DYNAMICS | Gorre Chandana (SR UNIVERSITY, WARANGAL, INDIA), Rajan Kumar Gangadhari (SR UNIVERSITY, WARANGAL, INDIA) and Etukala Aishwarya (SR UNIVERSITY, WARANGAL, INDIA) | 215 |
| IOT SMART ENERGY CONTROL SYSTEM FOR | Benjamin Sebastian (K J Somaiya Institute of Management, Somaiya University, Vidhyavihar, Mumbai.), Arunima Pandey (K J Somaiya Institute of | 216 |

| | | |
|---|---|---|
| AIR CONDITIONING SYSTEMS | Management, Somaiya University, Vidhyavihar, Mumbai.), Mohammed Varaliya (K J Somaiya Institute of management, Somaiya University, Vidhyavihar, Mumbai) and Mayura Nagar (K J Somaiya Institute of management, Somaiya University, Vidhyavihar, Mumbai) | |
| ALLOCATION OF CRITICAL RESOURCES IN AGRICULTURAL SECTOR IN INDIA UNDER A TWO-STAGE STOCHASTIC ENVIRONMENT | Utsav Pandey (Indian Institute of Management Lucknow) and Neelesh Kumar (Indian Institute of Management Lucknow) | 217 |
| INTEGRATION OF DISRUPTIVE TECHNOLOGIES IN PROCUREMENT TRANSFORMATION | Vivek Ghabak (S P Jain School of Global Management), Dr. Rajiv Aserkar (S P Jain School of Global Management) and Vanita Bhoola (S P Jain School of Global Management) | 218 |
| ENERGY CONSUMPTION PREDICTION IN BUILDINGS USING MACHINE LEARNING TECHNIQUES | Rini Varghese (Kerala University of Digital Sciences, Innovation, and Technology, Thiruvananthapuram, India), Pradeep Kumar Kalampukatt (Kerala University of Digital Sciences, Innovation, and Technology, Thiruvananthapuram, India) and R Umasankar (Kerala University of Digital Sciences, Innovation, and Technology, Thiruvananthapuram, India) | 218 |
| MEGHDUT DIGITAL PLATFORM: D2D (DIL-2-DIL) LOCAL COMMERCE | Sumit Bagchi (Syspedia Technologies Pvt. Ltd) | 219 |
| INTELLIGENT PRODUCTION ORCHESTRATION: DATA-DRIVEN CONTROL WITHIN INTEGRATED ENTERPRISE ECOSYSTEMS | Mehul Zawar (Independent Researcher) | 219 |
| NON-EXPLAINABLE AI IN HEALTHCARE: RISKS, MITIGATION STRATEGIES, AND AN | Hemendra Kumar Vaishnav (IT Systems and Analytics Area, Indian Institute of Management Jammu, Jammu) and Nitin Upadhyay (Professor, IT Systems and Analytics Area, Indian Institute of Management Jammu, Jammu) | 220 |

| | | |
|---|---|---|
| XAI ADOPTION FRAMEWORK | | |
| FROM SUSTAINABILITY TO REGENERATION: A THEMATIC ANALYSIS OF INFORMATION SYSTEMS AND ANALYTICS IN HUMAN–MACHINE INTERFACES | Ishita Bera (IMI Kolkata), Avinash Shrivastava (IMI Kolkata) and Ruchi Sharma (IMI Kolkata) | 221 |
| TECH-ENABLED SAFETY AND SECURITY IN TERTIARY HEALTH CARE: A STUDY OF DOCTORS' PERSPECTIVES | Suhas Ghadage (MGMSBS), Dr. Bahubali Nagaonkar (MGMSBS) and Dr. Noopur Kulkarni (MGM MEDICAL COLLAGE) | 222 |
| EVALUATING PATIENT SATISFACTION USING DIGITAL PLATFORMS: WAITING PERIODS AND QUALITY OF CARE AT OUTPATIENT DEPARTMENTS AND DIAGNOSTIC | Loukik Patil (MGMSBS), Dr Ratnaprabha Pedhambkar (MGMSBS) and Dr Bhaubali Nagaonkar (MGMSBS) | 224 |
| WHEN DIGITAL ACCESS BECOMES CAPABILITY: EVIDENCE FROM COASTAL TOURISM MICROENTERPRISES IN INDIA | Manali Chowdhury (Research Scholar, Dept. of Management and Business Administration, Aliah University, Kolkata) and Arup Kumar Baksi (Professor, Dept. of Management and Business Administration, Aliah University, Kolkata) | 225 |
| MACHINE LEARNING BASED UNDERSTANDING OF FACTORS AFFECTING CLIMATE CHANG0045 | Pushpakanti Duari (The Neotia University) and Moubani Singha (The Neotia University) | 226 |
| DETERMINING DIMENSIONS OF DIGITAL TRANSFORMATION FOR SUSTAINABLE | Nikita Bhati (Sharda School of Business Studies, Sharda University) and Ruchi Jain Garg (Sharda School of Business Studies, Sharda University ) | 226 |

| | | |
|---|---|---|
| DEVELOPMENT USING PARETO ANALYSIS | | |
| DEEP LEARNING-BASED CLASSIFICATION OF DIABETIC STATS USING RETINA & NAIL IMAGING | Rima Dutta (IMI Kolkata) and Samyadip Chakraborty (Associate Professor, IMI Kolkata) | 227 |
| SURVEY ON INTRUSION DETECTION USING DEEP LEARNING IN IIOT | Km Shivani Singh (NIT Jalandhar, punjab) and Dr. Shefali Arora Chouhan (NIT Jalandhar) | 227 |
| PROTECTING PERSONAL DATA IN FINANCIAL TECHNOLOGY SERVICES IN INDIA TO IMPROVE TRANSPARENCY FOR REGULATORY AND COMPLIANCE PURPOSES | Subhas Malik (SP Jain School of Global Management) | 228 |
| AN EMPIRICAL STUDY INVESTIGATING THE APPLICATION OF BLOCKCHAIN TECHNOLOGY IN SUPPLY CHAIN MANAGEMENT BASED ON REASONS AGAINST | Siddhartha Sengupta (DBS Global University), Dr. Avinash K Shrivastava (IMI Kolkata), Dr. Gunjan Sood (fiib.edu.in) and Dr Jitendra Nenavani (K J Somayia) | 229 |
| AGILE IT PRACTICES AND RESPONSIBLE GEN AI USAGE AS ANTECEDENTS TO SUSTAINABLE SERVICING CAPABILITY FOR DIGITAL SERVICE START-UPS | Samyadip Chakraborty (Associate Professor, IMI Kolkata) | 229 |
| INEQUALITIES AMONG CASTE GROUPS IN LOAN APPROVALS | Johnson Madatthil (XIME Bangalore) and Shradha Kundra (XIME Bangalore) | 230 |

| | | |
|---|---|---|
| FROM INSTITUTIONAL SOURCES FOR INDIAN BUSINESS HOUSEHOLDS: A CAUSAL INFERENCE USING DOUBLE MACHINE LEARNING | | |
| FUZZY LOGIC FRAMEWORK ENHANCED NEURAL NETWORK INTERPRETABILITY IN FINANCIAL MARKET PREDICTION | Rashmi Singh (Department of Mathematics, Amity Institute of Applied Sciences, Amity University Noida, India), Kuhu Awasthi (School of Management, Bennett University, India) and Meghna Athwani (Department of Community Medicine, Autonomous State Medical College, Amethi, India) | 231 |
| EXPLOITING FEATURE EXPLAINABILITY TO RENDER TUNABLE PRIVACY OF DATA | Payel Sadhukhan (Army Institute of Management Kolkata) | 231 |
| QUADRUPED SURVEILLANCE ROBOT DOG | Yash Thakur (Vishwakarma institute of technology), Shravani Jadhav (Vishwakarma institute of technology), Suhani Kumbhar (Vishwakarma institute of technology) and Apurva Sanpurkar (Vishwakarma institute of technology) | 232 |
| BIG DATA ANALYTICS, KNOWLEDGE MANAGEMENT ACTIVITIES, AND TECHNOLOGICAL INNOVATION EFFECTS ON ENVIRONMENTAL PERFORMANCE | Saumyaranjan Sahoo (Indian Institute of Management Sambalpur) | 232 |
| UNDERSTANDING ORGANIZATIONAL TECHNOLOGY ADOPTION: A QUALITATIVE STUDY OF SELF-BOOKING TOOL IMPLEMENTATION | Adhip Nath Palchaudhuri (IIM Nagpur), Dr. Aakash Kamble (Flame University), Mrigashikha Mitra Banerjee (IIM Indore) and Dr Rohan Mukherjee (IMI Kolkata) | 234 |

| | | |
|---|---|---|
| TECH FOR NET ZERO-DIGITAL SOLUTIONS FOR A SUSTAINABLE PLANET | Shashank Tiwari (Pune Institute of Business Management) and Surojit Saha (Pune Institute of Business Management) | 235 |
| WI-FI-BASED HUMAN ACTIVITY RECOGNITION USING CSI AND MACHINE LEARNING TECHNIQUES | Sangeeta Rai (NIT Jalandhar) and Dr. Naveen Kumar Gupta (NIT Jalandhar) | 235 |
| OPTIMIZED ORDER ALLOCATION TO TIER 2 SUPPLIERS IN INDIAN AUTOMOTIVE INDUSTRY: A DECISION FRAMEWORK | Sayan Chakraborty (ICFAI Business School Hyderabad) and Ajith James (Indian Institute of Management Bodh Gaya) | 236 |
| DETECTION OF AFRICAN ANIMALS VIA DEEP LEARNING | Saakshi Kapoor (UIET, Panjab University, Chandigarh) and Maanya Kharbanda (UIET, Panjab University, Chandigarh) | 237 |
| A NOVEL HEURISTIC ALGORITHM TO REDUCE SHIFTING OPERATIONS IN STOWAGE PLANNING | Samir Biswas (Indian Institute of Management Udaipur) | 237 |
| AUTOMATED FORECASTING FOR SUSTAINABLE FOOD MANUFACTURING: A COMPARATIVE STUDY OF WPI MODELS IN INDIA USING STATISTICAL, AI-DRIVEN, AND HYBRID METHODS | Dipankar Das (Institute of Engineering & Management, University of Engineering and Management Kolkata, India) and Shameek Mukhopadhyay (School of Business, UPES, Dehradun, Uttarakhand, India) | 238 |
| IMPACT OF INSTITUTIONALIZATION ON INFORMATION SYSTEMS ADOPTION, | Abhishek Tripathi (IIM Trichy) | 238 |

| | | |
|---|---|---|
| IMPLEMENTATION AND USE | | |
| INVISIBLE GATEKEEPERS: A REVIEW OF ALGORITHMIC BIAS IN RESUME SCREENING AND TALENT MATCHING SYSTEMS | Jahnavi Patky (Bharati Vidyapeeth Institute of Management and Research) | 239 |
| APPREHENSION OR AVOIDANCE? : THE DYNAMICS OF USER DISTRUST IN AI MENTAL HEALTH CHATBOTS | Aniket Sachan (Indian Institute of Management Tiruchirappalli (IIM Trichy)) and Ashish Viswanath Prakash (Indian Institute of Management Tiruchirappalli (IIM Trichy)) | 240 |
| MAPPING EMPLOYEE WELL-BEING THROUGH AYU TYPOLOGY: A CONTEXTUAL NLP STUDY OF THE INDIAN BFSI SECTOR | Dr. Dipa Banerjee (Assistant Professor, Department of Business Administration, Vidyasagar University, West Bengal, India), Dr. Debasish Biswas (Associate Professor, Department of Business Administration, Vidyasagar University, West Bengal, India), Soumya Chakraborty (QA Lead, V Group INC, Bhopal, Madhya Pradesh, India) and Sourav Chakraborty (Independent Researcher, Durgapur, West Bengal, India) | 241 |
| EMPLOYEE ATTRITION PREDICTION USING MACHINE LEARNING APPROACHES | Debasmita Paul (Techno International New Town), Prerona Pattrea (Techno International New Town), Sobhan Sarkar (Indian Institute of Management Ranchi) and Milan Basu (Techno International New Town) | 242 |
| DO ORGANIZATIONS' RISK PERCEPTION AND GOVERNANCE IMPACT DIGITAL TRANSFORMATION? A VIGNETTE EXPERIMENTAL APPROACH IN THE UK MANUFACTURING SECTOR | Wenjuan Zeng (Leeds University Business School) and Debabrata Ghosh (Essex Business School) | 242 |
| MISINFORMATION, DISINFORMATION, AND | Vishruth Khare (Indian Institute of Management Calcutta), Rahul Singh (Indian Institute of Management | 243 |

| | | |
|---|---|---|
| BUSINESS RISK A MACHINE LEARNING APPROACH | Calcutta) and Rahul Kumar (Indian Institute of Management Calcutta) | |
| SMART WASTE MANAGEMENT THROUGH AI-POWERED REAL-TIME SEGREGATION: DIGITAL PATHWAYS TO NET ZERO | Mayura Nagar (K.J. Somaiya Institute of Management , Somaiya University, Mumbai) | 243 |
| OPERATIONALIZING SOCIAL SUSTAINABILITY IN NEXT-GENERATION INTELLIGENT MANUFACTURING: EVIDENCE-BASED BENCHMARKS FROM INDIAN MANUFACTURING | Purvi Charde (S P Jain School of Global Management), A Seetharaman (SP Jain School of Global management) and K Maddulety Maddulety (SP School of Global Business) | 244 |
| GENERATIVE AI AND MACHINE LEARNING - IMPACT ON CLIMATE CHANGE AND ENVIRONMENTAL MANAGEMENT: A REVIEW & RESEARCH AGENDA | Dr Dibyendu Nandy (UPES School of Business) | 245 |
| THE HIDDEN CARBON FOOTPRINT OF DATA BREACHES: ANALYZING THE IMPACT OF CYBERSECURITY FAILURES ON IT SUSTAINABILITY AND NET-ZERO STRATEGIES | Nupur Maity (IIFT) and Dipankar Sinha (IIFT) | 245 |
| E+HEALTH A UNIQUE FRAMEWORK FOR | Jagdish Gandhi (Theory Y Consulting Bangalore) | 246 |

| | | |
|---|---|---|
| APPLICATION OF AI IN HEALTH CARE | | |
| FROM ADOPTION TO ADVANTAGE: A SYSTEMATIC LITERATURE REVIEW ON DIGITAL INNOVATION ADOPTION, TRANSFORMATION, AND PERFORMANCE IN SMES | Koustav Dakshit (IMI Kolkata), Sachin Modgil (IMI Kolkata), Rohan Mukherjee (IMI Kolkata) and Tirthankar Nag (IMI Kolkata) | 247 |
| UTILIZING LLMS (LARGE LANGUAGE MODELS) FOR MORE ADVANCED SENTIMENT ANALYSIS AND TO ENHANCE ONLINE SALES | Sourav Choudhury (IIM Nagpur) and Yatish Joshi (IIM nagpur) | 247 |
| EXPLORING BARRIERS IN ADOPTING ARTIFICIAL INTELLIGENCE IN PROJECT MANAGEMENT | Prem Prakash Dayal (ICFAI University , Jharkhand) and Aditya Kumar Sahu (Indian Institute of Management , Nagpur) | 248 |
| ONLINE PRIVACY PROTECTION DILEMMAS: A QUALITATIVE STUDY OF BEHAVIORAL DETERMINANTS IN ADOPTING CONSENT MANAGEMENT TOOLS | Mitesh Bharwada (KJ Somaiya Institute of Management, Somaiya Vidyavihar University, Mumbai) and Anjali Chopra (KJ Somaiya Institute of Management, Soamiya Vidyavihar University, Mumbai) | 249 |
| STUDY OF CYBER BEHAVIOURS IMPACTING INDIVIDUALS' CREDITWORTHINESS IN INDIAN METROPOLITAN CITIES TO FACILITATE A | Jayesh Gulani (SP Jain School of Global Management), A Seetharaman (SP Jain School of Global Management) and K Maddulety (SP Jain School of Global Management) | 250 |

| | | |
|---|---|---|
| MORE INCLUSIVE LENDING | | |
| FROM LOOP TO PARTNERSHIP: A FRAMEWORK FOR UNDERSTANDING THE EVOLVING PARADIGMS OF HUMAN-AI COLLABORATION | Sagar Patil (SP Jain School of Global Management) | 250 |
| BUILDING ORGANIZATIONAL RESILIENCE WITH DIGITAL TRANSFORMATION: A HYBRID REVIEW | Rohit Kumar Mukherjee (IMI, Kolkata) | 251 |
| GENERATIVE AI FOR SUSTAINABLE IT PROJECT MANAGEMENT : ENHANCING EFFICIENCY, REDUCING WASTE AND DRIVING NET-ZERO GOALS | Syam Mohan (SP Jain School of Global Management) | 252 |
| DIGITAL ASSESSMENT OF NURSING KNOWLEDGE, ATTITUDE, AND PRACTICES IN CONTROLLING HOSPITAL ACQUIRED INFECTIONS | Bhakti Patil (MGMSBS), Dr.Bahubali Nagaonkar (MGMSBS) and Sangeeta Choudhary (MGMSBS) | 253 |
| ADVANCING ECO-TRAVEL INTENTION THROUGH AI-ENABLED DIGITAL NARRATIVES: A FRAMEWORK BASED ON NARRATIVE TRANSPORTATION THEORY | Shubhra Mishra (Babu Banarasi Das University, Lucknow), Sachin Kumar Srivastava (Babu Banarasi Das University, Lucknow) and Alok Tewari (Babu Banarasi Das University, Lucknow) | 254 |

| | | |
|---|---|---|
| SYSTEMIC RISK MODELING: A MULTI-LINE INSURANCE PORTFOLIO ANALYSIS | Mehul Zawar (Independent Researcher) | 255 |
| ANALYTICAL MODEL TO OPTIMIZE CAPACITY PLANNING IN FREIGHT FORWARDING UNDER CLIMATE RISK | Mansi (Indian Institute of Management Amritsar) and Harpreet Kaur (Indian Institute of Management Amritsar) | 255 |
| FROM DIGITAL TWINS TO DECISION TWINS: MAKING SMART DECISIONS IN INDUSTRY 5.0 | Sourav Dey (Graduate school of Frontier Sciences, University of Tokyo) and Hiroki Hill Kobayashi (Center for Spatial Information Science, University of Tokyo) | 256 |
| A CROSS-COUNTRY STUDY ON THE INFLUENCE OF READINESS AND USAGE BARRIERS ON BEHAVIORAL INTENTION TO USE INFORMATION AND COMMUNICATION TECHNOLOGY: THE MODERATING ROLE OF UNCERTAINTY AVOIDANCE | Anusuiya Subramaniam (School of Business and Economics, Universiti Putra Malaysia), Tirthankar Nag (IMI Kolkata), Subhajyoti Ray (Jaipuria Institute of Management Noida), Rohan Mukherjee (IMI Kolkata) and Boudhayan Ganguly (IIM Bodh Gaya) | 256 |
| FACTORS AFFECTING GRATIFICATION OF MEDICINE APP USERS: A HYBRID APPROACH OF TEXT MINING AND MACHINE LEARNING | Rima Dutta (IMI Kolkata) and Aniket Ghosh (Instagrid GmbH) | 257 |
| TECHNOLOGY CONVERGENCE, PEOPLE EXPERTISE AND SERVICE-DOMINANT LOGIC: A VALUE CO- | Amit Anand Tiwari (IIM Sirmaur) | 258 |

| | | |
|---|---|---|
| CREATION FRAMEWORK | | |
| REAL OR GENERATED? CONSUMER RESPONSES TO AICREATED VERSUS HUMANCREATED CONTENT IN THE AUTOMOTIVE INDUSTRY | Sudeep Pawar(IIM Nagpur) and Yatish Joshi(IIM Nagpur) | 258 |
| ENGAGE THROUGH CONVERSATIONAL AGENTS: A FRESH PERSPECTIVE IN TOURISM EXPERIENCE | Navin Kumar (Jaipuria Institute of Management, Jaipur Campus) and Kishalay Adhikari (IMI Kolkata) | 260 |
| THE ROLE OF DIGITAL TRANSFORMATION IN TOURISM: A SYSTEMATIC REVIEW OF TECHNOLOGY INNOVATION AND ADOPTION | Binita Chakraborty (IMI Kolkata), Sachin Modgil (IMI Kolkata), Rohan Mukherjee (IMI Kolkata) and Tirthankar Nag (IMI Kolkata) | 260 |
| DIGITAL PILGRIMAGE: SENTIMENT ANALYSIS OF YOUTUBE COMMENTS TO UNDERSTAND PUBLIC PERCEPTIONS OF ANCIENT TEMPLE VISITATION—PHIMAI TEMPLE CASE STUDY | Burra Rishika (SR University , Warangal, India), Bandi Satwika (SR University , Warangal, India), Giragani Nandhini (SR University , Warangal, India), Emmadi Priyanka (SR University , Warangal, India), Anapuram Ravali (SR University , Warangal, India) and Rajan Kumar Ganagadhari (SR University, Warangal, India) | 262 |
| MARKETING & BRANDING OF SUSTAINABLE TOURISM AMONG WOMEN TOURISTS | Punit Moris Ekka (Indian Institute of Management Sambalpur, India) and Dr. Poonam Kumar (Indian Institute of Management Sambalpur, India) | 263 |
| NAVIGATING VALUE: EXPLORING DETERMINANTS AND MEDIATING ROLE OF | Triranga Deka (University of Engineering and Management, Kolkata, Assam Don Bosco University) and Dr. Udit Chawla (University of Engineering and Management, Kolkata) | 263 |

| | | |
|---|---|---|
| PERCEIVED VALUE IN SOUTH ASIAN CRUISE TRAVEL BEHAVIOR | | |
| RURAL HOMESTAYS AND SUSTAINABLE TOURISM: EXAMINING MEDIATING ROLE OF SAFETY IN SHAPING TOURIST INTENTIONS ACROSS SOUTH ASIA | Pijush Kanti Goswami (University of Engineering and Management, Kolkata) and Dr Udit Chawla (Institute of Engineering & Management, School of University of Engineering and Management, Kolkata, India) | 264 |
| UNPACKING MOTIVATIONS AND WELL-BEING IN ADVENTURE TOURISM: INSIGHTS FROM SOUTH ASIAN GEN Z | Ujjwal Basu (University of Engineering and Management) and Udit Chawla (Institute of Engineering and Management school of University of Engineering and Management) | 264 |
| RESILIENCE IN SMALL BUSINESSES – A STUDY IN INDIAN CONTEXT | Kajari Mukherjee (Indian Institute of Management Indore) | 266 |
| LOCAL INDIGENOUS FOOD ESTABLISHMENTS AND ENTREPRENEURSHIP IN MEGHALAYA, INDIA: CHALLENGES AND PROSPECTIVE OPPORTUNITIES IN THE EMERGING TOURISM LANDSCAPES | Dr. Indranil Bose (Adamas University, School of Business, Kolkata, West Bengal, India) and Dr. Madhurima Dasgupta (Abo-Akademi University, Turku, Finland) | 266 |
| CHALLENGES AND SUGGESTED SOLUTIONS FOR FAMILY-OWNED MANUFACTURING BUSINESSES IN SMALL AND MEDIUM ENTERPRISES IN INDIA: CRITICAL REVIEW OF LITERATURE | Sarif Hossain (SP Jain School of Global Management & Saïd Business School Oxford) | 267 |

| | | |
|---|---|---|
| MICROFINANCE AND ENTREPRENEURSHIP: A PATHWAY TO ECONOMIC STABILITY THROUGH SMALL BUSINESS DEVELOPMENT IN INDIA | Sadaf Fatima (Assistant Professor, HILSR, School of Law, Jamia Hamdard New Delhi) | 267 |
| UNICORN VALUATION IN INDIA: THE ROLE OF VENTURE CAPITAL NETWORKS AND STARTUP CHARACTERISTICS | Samant Saurabh (Indian Institute of Management Bodh Gaya), Rohan Mukherjee (IMI Kolkota) and Vinit Ghosh (T.A.Pai Management Institute) | 268 |
| THE FACTORS INFLUENCING WOMEN'S ENTREPRENEURSHIP IN TRIBAL AREAS OF HIMACHAL PRADESH | Kulbhushan Sharma (Thapar Institute of Engineering & Technology, Patiala, Punjab), Dr Anupam Sharma (Thapar Institute of Engineering & Technology, Patiala, Punjab) and Dr Harpreet Singh (Thapar Institute of Engineering & Technology, Patiala, Punjab) | 269 |
| PROFESSION TO PASSION EXPLORING ENTREPRENEURSHIP FROM THE PERSPECTIVES OF DOCTORS, ENGINEERS, LAWYERS AND CHARTERED ACCOUNTANTS | Naziya Iqbal Patvegar (Rani Channamma University, Belagavi) | 269 |
| DIGITAL INNOVATION FOR SUSTAINABLE STUDENT ENTREPRENEURSHIP: A REVIEW OF TECHNOLOGY-ENABLED INCUBATION PRACTICES | Aishik Chatterjee (Brainware University), Dr. Indrajit Ghosal (Brainware University) and Dr. Suparna Biswas Goswami (Brainware University) | 270 |

| | | |
|---|---|---|
| BUISNESS IDEA OF INNOSPROUT PRIVATE LTD | Soma Das , Innosprout Private Limited Start Up (Adamas University) and Dr Soma Das (Adamas University) | 271 |
| WOMEN-OWNED ENTERPRISES-PATHWAY TO ENERGY SUSTAINABILITY: A QUALITATIVE APPROACH | Jogeswar Mahato (IIM Sambalpur) | 271 |
| UNSCRAMBLING THE MODULAR DISPARITIES WITHIN WOMEN'S ENTREPRENEURIAL VENTURES AND THE PROSPECT OF DIGITAL TECHNOLOGIES | Nilanta Mukherjee (Indian Institute of Management, Visakhapatnam) and Mohd. Amir Hussain (Indian Institute of Management, Visakhapatnam) | 273 |
| THE INVESTMENT EFFICIENCY-SUSTAINABLE CORPORATE GROWTH NEXUS: FIRM-LEVEL EVIDENCE FROM A DEVELOPING COUNTRY | Ranjit Tiwari (Chandragupt Institute of Management Patna) | 274 |
| BRIDGING THE DIVIDE IN PLATFORM ECONOMY RESEARCH: A CONCEPTUAL FRAMEWORK FOR GOVERNANCE AND WORKER WELFARE | Vikrant Yadav (Entrepreneurship Development Institute of India) | 274 |
| EVALUATING CORPORATE GOVERNANCE PRACTICES AND THEIR IMPACT ON INDIAN PUBLIC SECTOR BANK PERFORMANCE | Dr. Jubayeer Ahmed Talukdar (Independent Researcher) and Dr. Jaynal Ud-Din Ahmed (North-Eastern Hill University) | 275 |
| APPLYING THE ANALYTIC HIERARCHY | Sourom Sagar Bhagat (Ramakrishna Mission Residential College, Narendrapur) | 276 |

| | | |
|---|---|---|
| PROCESS (AHP) TO EVALUATE BETWEEN RESHORING, HYBRID AND OFFSHORING PRODUCTION DECISION | | |
| STRATEGIC PROCUREMENT PORTFOLIO MANAGEMENT USING THE ANALYTIC HIERARCHY PROCESS | Grishika Agrawal (Sant Gadge Baba Amravati University) | 276 |
| OPTIMIZING CERAMIC TILE DESIGN THROUGH QFD: A CUSTOMER-CENTRIC APPROACH | Sourom Sagar Bhagat (Ramakrishna Mission Residential College, Narendrapur) | 277 |
| OPTIMIZING GLASS TUMBLER DESIGN USING QUALITY FUNCTION DEPLOYMENT (QFD): A CUSTOMER-CENTRIC APPROACH | Sahilswayamsri Sahoo (Utkal university) | 277 |
| ENHANCING RAINCOAT DESIGN THROUGH QFD: A CUSTOMER-DRIVEN DEVELOPMENT APPROACH | Grishika Agrawal (Sant Gadge Baba Amravati University) Keywords: Quality Function Deployment, Raincoat Design Material Selection, Manufacturing Process, Customer Requirements, Technical Descriptors, Competitive Benchmarking | 277 |
| ENHANCING JUICER DESIGN THROUGH QFD: A CUSTOMER-CENTRIC APPROACH | Raj Parikh (Vishwakarma Government Engineering College) | 278 |
| IMPROVING DESIGN OF DIGITAL CAMERA WITH DIGITAL QFD: CUSTOMER FOCUSED DESIGN | Rahul Kolase (Sanjivani Collage of Engineering Kopargaon) | 279 |
| BELTS (LEATHER) CUSTOMER | Atikant Jain (IPS ACADEMY INDORE) | 279 |

| | | |
|---|---|---|
| PRIORITIZATION MATRIX | | |
| IDENTIFYING CRITICAL INTERDEPENDENT RISKS IN GLOBAL SUPPLY CHAINS USING AHP–DEMATEL HYBRID APPROACH | Rima Dutta (IMI Kolkata) | 280 |
| ENHANCING SOAP DESIGN THROUGH QFD: A CUSTOMER-CENTRIC APPROACH | Preet Paigude (Savitribai Phule Pune University) | 281 |
| PRIORITIZING TRADE COMPLIANCE PRIORITIZATION USING THE ANALYTIC HIERARCHY PROCESS (AHP) APPROACH | Atikant Jain (IPS ACADEMY) | 281 |
| AHP FOR WASTE MANAGEMENT SYSTEM SELECTION | Preet Paigude (Savitribai Phule Pune University) | 282 |
| PRIORITIZING B2B MARKETPLACE EVALUATION USING THE ANALYTIC HIERARCHY PROCESS (AHP) APPROACH | Rahul Kolase (Sanjivani Collage of Engineering Kopargaon) | 282 |
| PRIORITIZING ORGANIC SUPPLIER SELECTION USING THE ANALYTIC HIERARCHY PROCESS (AHP) APPROACH | Raj Parikh (Vishwakarma Government Engineering College) | 283 |
| ENHANCING HEAVY-DUTY TRUCK DESIGN IN INDIA THROUGH QFD: A FLEET-CENTRIC APPROACH | Aditya Sahu (Shri Ram Group of Colleges) | 284 |

| | | |
|---|---|---|
| APPLYING THE AHP TO EVALUATE SIX SIGMA PROJECT SELECTION | Sahilswayamsri Sahoo (Utkal University) | 284 |
| A COMBINED APPROACH USING AHP AND DEMATEL FOR GREEN SUPPLY CHAIN MANAGEMENT SUCCESS FACTORS EVALUATION | Shubham Pathak (IMI Kolkata), Sachin Modgil (IMI Kolkata) and Rohit Kumar Singh (IMI Kolkata) | 285 |
| SUPPLIER EVALUATION USING THE ANALYTIC HIERARCHY PROCESS (AHP): A DECISION-MAKING FRAMEWORK | Aditya Sahu (Shri Ram Group of Colleges) | 286 |
| BALANCING TEACHER SUPPORT AND STUDENT EMOTIONAL LABOR: A CONCEPTUAL FRAMEWORK FOR HOLISTIC EMOTIONAL WELL BEING IN EARLY EDUCATION ALIGNED WITH NEP 2020 | Him Jyoti (Thapar Institute of Engineering and Technology) and Anupam Sharma (Thapar Institute of Engineering and Technology) | 287 |
| BALANCING GROWTH AND SUSTAINABILITY IN EDTECH: THE ROLE OF BUSINESS MODEL DESIGN THROUGH CRITICAL LITERATURE REVIEW | Natasha Banth (SP Jain Global) | 287 |
| A STUDY ON DIMENSIONS OF PEDAGOGICAL CONTENT KNOWLEDGE IN ENGLISH LANGUAGE TEACHERS IN INDIA | Zeenat Bandukwala (K J Somaiya Institute of management, Somaiya University, Vidhyavihar, Mumbai) and Dr. Anjali Chopra (K J Somaiya Institute of management, Somaiya University, Vidhyavihar, Mumbai) | 288 |
| SHORT-TERM VS. LONGER-TERM | Sourabh Bhattacharya (Institute of Management Technology, Hyderabad), Aindrila Chatterjee (Institute of | 289 |

| | | |
|---|---|---|
| SUSTAINABILITY EDUCATION: IMPACT ON STUDENTS' PRO-ENVIRONMENTAL DISPOSITIONS | Management Technology, Hyderabad), Romina Mathew (Institute of Management Technology, Hyderabad) and Mahesh Ramalingam (Institute of Management Technology, Hyderabad) | |
| AN EMPIRICAL STUDY OF FACTORS INFLUENCING JOB SATISFACTION AMONG TEACHING FRATERNITY OF ENGINEERING COLLEGES IN KARNATAKA: USING PLS SEM AND IMPORTANCE PERFORMANCE APPROACH | Shilpa Kulkarni (Visvesvaraya Technological University (VTU) ,Belagavi) and Dr.M.M Munshi (Visvesvaraya Technological University (VTU) ,Belagavi) | 290 |
| BRIDGING THE AWARENESS GAP: UNVEILLING THE TRANSFORMATIVE ROLE OF INSURANCE EDUCATION IN DRIVING SUSTAINABLE INSURRANCE IN DEVELOPING ECONOMIES- EVIDENCE FROM NEPAL | Indra Raj Subedi (Institute of Business Management & Commerce, Mangalayatan University, Beswan, Aligarh) and Dr. Sujit Kumar Mohapatra (Assistant Professor, Institute of Business Management & Commerce, Mangalayatan University, Beswan, Aligarh) | 291 |
| EDUCATIONAL INSTITUTIONS AND STUDENT LEADERSHIP: EVIDENCE FROM AN EMPIRICAL ANALYSIS OF STUDENT PERCEPTIONS | Bhanu Sireesha P (ICFAI Business School, IFHE, Hyderabad) and Madhavi Garikaparthi (ICFAI Business School, IFHE, Hyderabad) | 292 |
| A MULTI-TIERED APPROACH TO QUALITY ASSURANCE AND SDG4 ACHIEVEMENT IN INDIA | Abhishek Dikshit (A.E.S' Anekant Institute of Management Studies (AIMS), Baramati; Savitribai Phule Pune University, Pune) | 292 |

| | | |
|---|---|---|
| FOR INCLUSIVE AND SPECIAL SCHOOLS | | |
| DISSECTING STUDENT PERCEPTIONS: A FACTOR ANALYTIC APPROACH TO HIGHER EDUCATION EFFECTIVENESS IN WEST BENGAL | Prasenjit Chakravarty (The Neotia University), Debobani Biswas (The Neotia University) and Santanu Ray Chaudhuri (Brainware University) | 293 |
| GREEN PEDAGOGY AND AI FOR VOCATIONAL EDUCATORS IN AGARTALA | Priyam Podder (Techno India University Tripura) | 294 |
| RECONFIGURING THE HIGHER EDUCATION VALUE CHAIN: A SUSTAINABILITY-ORIENTED FRAMEWORK | Tishya Tripathi Shukla (Babu Banarasi Das University) and Anchal Rastogi (Babu Banarasi Das University) | 296 |
| MAPPING THE SUSTAINABILITY COMMUNICATION GAP: A QUALITATIVE STUDY OF INSTITUTIONAL COMMUNICATION AND IMPLICATIONS FOR PR EDUCATION | Dr Mona Gupta (Vivekananda Institute of Professional Studies- Technical Campus, Delhi) and Dr Chetna Bhatia (Vivekananda Institute of Professional Studies- Technical Campus, Delhi) | 296 |
| AI-DRIVEN DIGITAL EDUCATION AND ASSESSMENT: IMPROVING LABORATORY SAFETY COMPETENCE AMONG HEALTHCARE PRACTITIONERS IN TERTIARY CARE HOSPITAL | Kartiki Mandavkar (MGM SBS NM), Dr.Deepashri Naik (MGM SBS NM) and Dr. Anamika Chalwadi (MGM SBS NM) | 298 |

| | | |
|---|---|---|
| GENAI USAGE IN HIGHER EDUCATION BOON OR BANE | Pravat Surya Kar (Goa Institute of Management) | 299 |
| EXAMINING THE BUSINESS CASE FOR CHILDCARE SUPPORT IN EMERGING ECONOMIES: CHILDCARE SUPPORT, EXPORTING AND FIRM EMPLOYMENT | Bibek Bhattacharya (Indian Institute of Management Ahmedabad) | 301 |
| AN OVERVIEW OF FOOD SECURITY IN THE CONTEXT OF CLIMATE CHANGE ADAPTATION: A BIBLIOMETRICS ANALYSIS | Somanath Kumar Mishra (School of Economics and Commerce, KIIT Deemed to be University, Bhubaneswar, Odisha) and Dr. Prasanta Patri (School of Economics and Commerce, KIIT Deemed to be University, Bhubaneswar, Odisha) | 301 |
| STUDY OF EFFECTIVENESS OF PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY) IN WESTERN UTTAR PRADESH | Prashant Sharma (O. P. Jindal Global University Sonipat), Raj Kumar Kovid (UPES Dehradun) and Dinesh Kumar Sharma (Gautam Buddha University, Greater Noida) | 302 |
| ALIGNING SDG & ESG: SHAPING COMMON GOOD HRM AND ORGANIZATIONAL CONSCIOUSNESS FOR SUSTAINABLE DEVELOPMENT IN THE INDIAN POWER GENERATION SECTOR | Biswajit Chatterjee (PhD Scholar, VGSOM, IIT, Kharagpur) and Susmita Mukhopadhyay (Associate Professor, VGSOM, IIT, Kharagpur) | 303 |
| REGULATORY REQUIREMENTS FOR MEDICAL DEVICES IN INDIA WITH THE BACKDROP OF GLOBAL REGULATIONS | Zoheb Muhammad (Swiss School of Management) and Dr. Archana Mishra (Swiss School of Management) | 303 |

| | | |
|---|---|---|
| CAUSAL AND NECESSARY CONDITIONS FOR MEGAPROJECT SOCAIL RESPONSIBILITY: A SEQUENTIAL EXPLANATORY STUDY OF INDIAN MEGAPROJECTS | Nikunj Kumar Jain (Indian Institute of Management Nagpur) and Soumya Prakash Rath (Indian Institute of Management Nagpur) | 304 |
| ENERGY CONSUMPTION AND DECOUPLING GROWTH: AN EMPIRICAL ANALYSIS OF THE INDIAN MANUFACTURING SECTOR FROM 2001 TO 2022 | Sritama Kar (Indian Institute of Technology Kharagpur), Prantik Bagchi (Indian Institute of Technology Kharagpur) and Anwesha Aditya (Indian Institute of Technology Kharagpur) | 305 |
| FEDERATED LEARNING IN LOW RESOURCES HEALTHCARE SYSTEMS | Benu Gopal Kanjilal (The Neotia University) and Saswata Pal (The Neotia University) | 306 |
| DIGITAL ASSESSMENT TOOL FOR MEASURING QUALITY OF LIFE AMONG DRUG SENSITIVE TUBERCULOSIS PATIENTS AT DOTS CENTRE | Shruti Khedekar (MGMSBS), Dr. Bahubali Nagaonkar (MGMSBS) and Dr.Harapriya Kar (MGMSBS) | 307 |
| LOCATION ALLOCATION MODEL TO OPTIMIZE THE SITE SELECTION OF MICRO FULFILLMENT CENTERS | Harpreet Kaur (Indian Institute of Management Amritsar) | 308 |
| DATA-DRIVEN DEMAND FORECASTING FOR BLOOD COMPONENTS FOR ACHIEVING NET ZERO | Kriti Karmakar (Calcutta Business School) | 309 |

| | | |
|---|---|---|
| CHALLENGES OF DATA SECURITY AND CONSUMER TRUST IN E-BUSINESS: PILLARS FOR A SUSTAINABLE FUTURE | Dr. Lipika Sarkar (Techno India University) and Bijay Banik (TCS) | 309 |
| ASSESSMENT OF FRONTLINE DEMONSTRATION AND CAPACITY BUILDING OF FARMERS IN INDIA | Rajinder Kumar (Punjabi University Patiala) and Dr. Harpreet Singh (Punjabi University, Patiala) | 310 |
| CLIMATE CHANGE IS NOT REAL!- INVESTIGATING THE ROLE OF SOCIAL MEDIA MESSAGE FORMATS IN CLIMATE CHANGE MISINFORMATION | Elvira Ismagilova (Swansea University), Rohitkumar Trivedi (University of Bradford) and Chitivwa Zimba (Global Banking School) | 310 |
| A META-ANALYSIS OF AGRI-COMMODITY PRICE MANAGEMENT APPROACHES: TRENDS AND FUTURE PROSPECTS TOWARDS DIGITAL AGRI-MARKETING | Kripamay Baishnab (Indian Institute of Technology Kharagpur), Piyush Kumar Singh (Indian Institute of Technology Kharagpur) and Alok Kumar Singh (Indian Institute of Management Nagpur) | 311 |
| BEYOND CAPITAL AND LABOR: IDENTIFYING KEY DETERMINANTS OF TOTAL FACTOR PRODUCTIVITY FOR RENEWABLE ENERGY FIRMS IN INDIA | Harwinder Goyal (Research Scholar , School of Humanities and Social Sciences, Thapar Institute of Engineering and Technology, Patiala) and Dr. Shilpi Tyagi (Assistant Professor, School of Humanities and Social Sciences, Thapar Institute of Engineering and Technology, Patiala) | 312 |
| A LONGITUDINAL ANALYSIS OF INFLUENCE AND OVERLOAD IN CORPORATE NETWORKS | Manish Sarkhel (IIM Sirmaur) and Sonakshi Gupta (IIM Sirmaur) | 312 |

| | | |
|---|---|---|
| DETERMINANTS OF FARM-GATE PRICES: AN EMPIRICAL STUDY FROM AMRAVATI DISTRICT, MAHARASHTRA | Anurag Kinge (Promoter, Vegropure LLP, Amravati, Maharashtra) and Surendra Kansara (CSE, School of Management and Labor Studies, Tata Institute of Social Sciences, Mumbai, Maharashtra) | 313 |
| REDDGENCY HOME HEALTHCARE PRIVATE LIMITED - REDEFINING HOME HEALTHCARE AFFORDABLE LUXURY, SUSTAINABLE AND "SEVA-MINDED | Tanjeet Singh Wadhwa (Reddgency Home Healthcare Private Limited) | 314 |
| GLOBAL AVIATION $CO_2$ EMISSIONS: A COUNTRY-WISE COMPARATIVE ANALYSIS USING PER CAPITA, GDP, AND EQUIVALENCY METRICS | Chaithanya S (Nitte Meenakshi Institute of Technology (NMIT), Nitte (Deemed to be University)), Somashekar V (Nitte Meenakshi Institute of Technology (NMIT), Nitte (Deemed to be University)) and Vinod L (Nitte Meenakshi Institute of Technology (NMIT), Nitte Deemed to be University)) | 316 |
| USE OF MACHINE DATA FOR QUANTIFYING AND VISUALIZING HUMAN PRESSURE ON CORAL REEFS | Papiya Das (2022PHDG013) and Anjum Shaheen (4299) | 317 |
| TRIED THEM ALL, NOTHING SEEMS TO WORK": NAVIGATING NOISE, AFFORDANCES, AND LIMITS FOR ATTENTIONAL INNOVATORS | Sayantan Mitra (Indian Institute of Management Tiruchirappalli) and Ashish Viswanath Prakash (Indian Institute of Management Tiruchirappalli) | 318 |
| BEYOND ENVIRONMENTAL ALTRUISM: A BEHAVIOURAL ANALYSIS OF SOLAR HOME LIGHTING | Navdeep Kaur (Guru Nanak Dev University, Amritsar) and Anupam Sharma (Thapar Institute of Engineering and Technology, Patiala) | 318 |

| | | |
|---|---|---|
| SYSTEM ADOPTION IN URBAN PUNJAB | | |
| A STUDY OF IMPACT OF PROJECT MANAGEMENT METHODOLOGY ON PROJECT RISK MANAGEMENT | Alok Kumar Singh (Indian Institute of Management Nagpur) and Dr Shailendra Nigam (Indian Institute of Management Nagpur) | 320 |
| THE DIFFERENTIAL IMPACT OF TOP MANAGEMENT'S ENVIRONMENTAL RESPONSIVENESS ON THEIR NEW PRODUCT DEVELOPMENT PROCESS | Abhijit Roy (Howard University) | 320 |
| BRIDGING THE DIGITAL DIVIDE: AN AUTOMATION-FIRST FRAMEWORK FOR IMPLEMENTING CLIMATE-SMART HEALTHCARE ACCREDITATION | Shoeb Ahmed Ilyas (Swiss School of Management) and Ayesha Ahmed Ilyas (SR University) | 321 |
| REVOLUTION IN ENERGY UTILITY IN THE PHASE OF INDUSTRY 5.0 | Sourav Majumder (Rani Durgawati University), Subhrodipto Basu Choudhury (ISMS Sankalp Business School), Dr. Niloy Kumar Pal (MIT- WPU), Soma Garani (WBUAFS) and Arunima Hazra (Research scholar, Adamas University) | 322 |
| THE GLOBAL CARBON EMISSION INDEX (GCEI): A VALID, RELIABLE, AND ROBUST MEASURE FOR TRACKING AND ANALYZING COUNTRY EMISSION PERFORMANCE | Aniruddha Ghosh (ICFAI Business School Gurugram Haryana), Vipin Khurana (Dean ICFAI Business School Gurugram Haryana), Santanu Roy (Professor IILM University New Delhi), Ruchi Singh (Assistant Professor SRM University Ghaziabad UP Campus) and Satish Kumar (Professor Department of Management Studies GL Bajaj Institute of Technology & Management Greater Noida UP) | 322 |

| | | |
|---|---|---|
| TRAJECTORIES OF LOW-CARBON TECHNOLOGY TRANSFER IN DEVELOPING ECONOMIES: INVESTIGATING THE HETEROGENEOUS EFFECTS USING PANEL QUANTILE REGRESSION | Varsha Sharma (IIT (ISM) Dhanbad) and Mohd Irfan (IIT (ISM) Dhanbad) | 323 |
| RESTORATIVE ENVIRONMENTAL JUSTICE AND WATER EQUITY IN CLIMATE-VULNERABLE REGIONS: AN EVIDENCE-BASED ASSESSMENT OF THE JAL JEEVAN MISSION IN THE INDIAN SUNDARBANS | Chandan Roy (Department of Economics, Christ University, Bangalore), Neelathpal Chanda (Department of Media Studies, Christ University, Bangalore), Indrila Guha (Basanti Devi College, Kolkata) and Rakesh Kumar Saroj (School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi) | 324 |
| ENERGY TRANSITION AND ECONOMIC GROWTH: EVIDENCE FROM SOUTH ASIA, SUB-SAHARAN AFRICA, AND OECD ECONOMIES | Dr. Atul Anand Jha (Xavier Institute of Social Service) and Vishal Kumar (Ranchi University) | 325 |
| EARLY EFFECTS OF GOVERNMENT INTERVENTION ON HEALTH CARE UTILIZATION PATTERNS | Tannista Banerjee (Auburn University) Keywords: Government Policy, Health, Emergency care | 331 |
| CENTRAL BANK AUTONOMY AND CLIMATE CHANGE: A GLOBAL PERSPECTIVE | Poulomi Bhattacharya (IIT KANPUR) and Himadri Shekhar Chakrabarty (IIM LUCKNOW) | 331 |
| AN ANALYSIS OF INDIAN IMPORTS OF MEDICAL EQUIPMENT: DOES REGIONALISM MATTER? | Sudhanshu Sharma (Indian Institute of Management Jammu) and Dr Sarbjit Singh (Indian Institute of Management Jammu) | 332 |

| | | |
|---|---|---|
| TARGETED ELECTRICITY SUBSIDIES AND RURAL DEVELOPMENT: EVIDENCE FROM INDIA’S RGGVY PROGRAM | Rohan Yadav (Indira Gandhi Institute of Development Research, Mumbai) | 333 |
| MODELLING ENERGY SECURITY IN ENERGY TRANSITION: AN EMPIRICAL ANALYSIS OF GEOPOLITICAL RISKS AND DOMESTIC RESILIENCE IN INDIA'S CLEAN ENERGY SHIFT | R U Megha (Rama Devi Women's University) and Kalpana Sahoo (Rama Devi Women's University) | 333 |
| UNPACKING THE ELECTRIC VEHICLE DILEMMA IN AN EMERGING ECONOMY: SYNERGIZING SUBSTITUTION EFFECT THEORY AND THE EVAPORATING CLOUD | Sujoy Jana (N/A) and Mahesh Gupta (University of Louisville) | 334 |
| ELECTRIC VEHICLE ADOPTION IN INDIA: RESEARCH GAPS AND OPPORTUNITIES. | Adithya Chakravarty Myla (Indian Institute of Management Visakhapatnam) and Vishal Singh Patyal (Indian Institute of Management Visakhapatnam). | 336 |
| STOCHASTIC FUZZY PORTFOLIO MODEL FOR INDIA’S POWER GENERATION MIX. | Md Tanweer Ahmad (Indian Institute of Foreign Trade, New Delhi) and Mohd. Irfan (Department of Science and Technology, Ministry of Science and Technology, India) | 337 |
| FROM BELIEFS TO FUNDING: A GAME-THEORETIC FRAMEWORK FOR DESIGNING EFFECTIVE CROWDFUNDING INTERFACES. | Avijit Bose (MCKV Institute of Engineering), Dr. Pradyut Sarkar (Maulana Abul Kalam Azad Univeristy of Technology) and Dr. Premananda Jana (Netaji Subhash Open University, Kalyani, Nadia West Bengal). | 337 |

| | | |
|---|---|---|
| INTERPROFESSIONAL RELATIONS AMONG INDIAN HEALTHCARE PROFESSIONALS: A STUDY OF THE DOCTOR-NURSE RELATION IN THE CONTEXT OF EMERGING 'NURSE PRACTITIONERS | Vimal Francis (Swiss School of Management) and Dr.Archana Mishra (MGM School of Biomedical Sciences Navi Mumbai, India) | 338 |
| YOGA, AI AND GANDHIAN ETHICS: PATHWAYS FOR TODAY WELL-BEING | Dr Shreekala Prasad Bachhav (Savitribai Phule Pune University) | 339 |
| EFFECTS OF INSPECTION ON RETAILER'S ORDERING POLICY FOR A DETERIORATING ITEM WITH WEIBULL DISTRIBUTION DETERIORATION, TIME-DEPENDENT DEMAND UNDER INFLATIONARY CONDITION | Sunil Kumar (Department of Mathematics Bennett University Greater Noida, Uttar Pradesh, India), Mandeep Mittal (Department of Mathematics Bennett University Greater Noida, Uttar Pradesh, India) and Biswajit Sarkar (Department of Industrial Engineering Yonsei University Seoul, South Korea) | 339 |
| FROM STAR TO THREAT: LESSONS FROM POLITICAL PARTY ORGANIZATIONS | Arghya Banerjee (Indian Institute of Management Calcutta), Somdeep Chatterjee (Indian Institute of Management Calcutta) and Manhar Manchanda (Indian Institute of Management Calcutta) | 340 |
| JUDICIAL CAPACITY BUILDING FOR ENVIRONMENTAL JUSTICE IN TRIPURA: STRENGTHENING THE LEGAL ROLE OF COURTS IN ADDRESSING ENVIRONMENTAL CHALLENGES1 | Shayam Chakraborty (Research Scholar Law), Dr. Proorvi Singh Chowdhury (Assistant Professor) and Dr Jayeeta Debnath Munshi (Associate Professor) | 340 |

| | | |
|---|---|---|
| UNLOCKING SUSTAINABILITY THROUGH ACCESS TO FINANCE: AN EMPIRICAL ANALYSIS OF SMES IN DEVELOPING COUNTRIES | Payal Adlakha (Manav Rachna International Institute of Research and Studies), Durairaj Kumarasamy (Manav Rachna International Institute of Research and Studies) and Prakash Singh (Goa Institute of Management) | 341 |
| UNRAVELLING THE ECONOMIC COST OF HEAT STRESS: A REGIONAL PERSPECTIVE | Esha Agrawal (ICRIER) and Sunishtha Yadav (ICRIER) | 342 |
| A STUDY ON MITIGATION STRATEGIES FOR BARRIERS TO ADOPTION OF PERFORMANCE BASED CONTRACTING (PBC) WITHIN INFORMATION TECHNOLOGY ECOSYSTEM | Rajesh Shastry (SP Jain School of Global Management) | 343 |
| OFF-GRID ENERGY TRANSITIONS: INVESTIGATING MICROGRID ADOPTION IN INDIA | Srikant Shaw (Indian Institute fo Technology Madras) and Santosh Kumar Sahu (Indian Institute fo Technology Madras) | 343 |
| RURAL ROADS AND FIRM OUTCOMES IN INDIA | Bharti Nandwani (Indira Gandhi Institute of Development Research), Punarjit Roychowdhury (Shiv Nadar Institution of Eminence) and Binay Shankar (Shiv Nadar Institution of Eminence) | 344 |
| DOES THE COVID-19 HEALTH EMERGENCY IMPACT THE INTEGRATION OF PRECIOUS METALS AND THE INDIAN EQUITY INDEX? A TIME-VARYING APPROACH TO | Sujit Paul (National Institute of Technology Durgapur) and Prof. Avijan Dutta (National Institute of Technology Durgapur) | 344 |

| | | |
|---|---|---|
| CONNECTEDNESS AND SPILLOVER | | |
| EXPLORING THE UTILITY OF PREVENTIVE HEALTHCARE PACKAGES: AN IN-DEPTH ANALYSIS OF COMPREHENSIVE HEALTH PACKAGE SUBSCRIPTIONS AND THEIR CORRELATION WITH FASTING BLOOD SUGAR LEVELS | Abhishek Charan (Army Institute of Management, Kolkata) and Abhishek Sarkar (Army Institute of Management, Kolkata) | 345 |
| IMPROVING CARE COORDINATION FOR ENHANCED PATIENT EXPERIENCE | Sriparna Dutta (MGM New Bombay Hospital, Vashi) and Dr. Archana Mishra (MGM School of Biomedical Sciences Navi Mumbai, India) | 346 |
| AN EXPLORATORY STUDY TO REDUCE THE IMPACT OF FACTORS THAT CONTRIBUTE TO GOODS SHORTAGE WORLDWIDE | Lucas Jaipaul (SP Jain School of Global Management) | 347 |
| INVISIBLE BORDERS, VISIBLE BEHAVIORS: HOW LOCAL TECH SHAPES GLOBAL RETAIL JOURNEYS | Namita Jain (BIMTECH) | 347 |
| DATA-DRIVEN PRIORITIZATION OF SOLAR PHOTOVOLTAIC INVESTMENT IN G20 COUNTRIES: A MULTI-CRITERIA DECISION-MAKING AND MACHINE LEARNING APPROACH | Atanu Manna (Vidyasagar University) and Debarun Chakraborty (Indian Institute of Management Nagpur) | 348 |
| SMART WASTE SOLUTIONS: | Harshad Patil (MGM SBS), Dr.Sagar Sinha (MGM SBS) and Dr.Anamika Chalwadi (MGM SBS) | 348 |

| | | |
|---|---|---|
| EVALUATING KNOWLEDGE AND PRACTICES OF BIOMEDICAL WASTE MANAGEMENT THROUGH DIGITAL TOOLS IN A TERTIARY CARE HOSPITAL | | |
| VALUE-IN-USE PRICING FRAMEWORK FOR PREVENTIVE MAINTENANCE OPTIMIZATION | Subhadip Dutta (IIM Sirmaur) | 350 |
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| | | |
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# SUPPLY CHAIN MANAGEMENT

# ASSESSMENT OF SUPPLY CHAIN FLEXIBILITY: A SYSTEM DYNAMICS APPROACH

*Rohit Kumar Singh (IMI Kolkata) and Sachin Modgil (IMI Kolkata)*

**Abstract.** The paradigm shift in the soap manufacturing industry to emerging market is the most crucial trend for the global soap manufacturing industry around the world in recent times. This transition is primarily driven among another factor by the lower production costs in developing countries. The scenario gets more prominent due to the rapid growth of hygiene product demand including soap in the developing world. For a soap manufacturing firm, demand for a particular period is always uncertain, sometimes it is on the high side, and sometimes it is very low. Therefore, domestic manufacturers of various soap manufacturing firm adopt methodologies to produce various kind of soaps and tries to adopt flexible manufacturing concepts to fulfill highly volatile customer demand.

This research work is a case based empirical study where the observation from the field study and multiple consultations with a group of experts of a leading soap manufacturing firm formed the basis for selecting key dimensions of supply chain flexibility applied to soap manufacturing. After finding out the dimensions, DEMATEL methodology is used to find out the supply chain flexibility dimensions having maximum impact on overall supply chain performance with the help of a relationship map.

Three supply chain flexibility dimensions i.e. product flexibility, demand management flexibility, and physical distribution flexibility were found mostly fitting in the specific case of soap manufacturing's supply chain performance. After getting causal relation among three major flexibility dimensions from the DEMATEL, a conceptual structural model has been developed. This model presents the influence of the three flexibility measures on the overall supply chain flexibility.

The flexibility assessment Template is designed with the help of importance rating of various flexibility dimensions and their sub components by the concerned management and the performance rating ( of flexibility dimension) by the concerned operating staff provides a relative measure of supply chain flexibility of the process.

The System Dynamics Model developed to shows the effect of factors as product flexibility, demand management flexibility and physical distribution flexibility on overall supply chain flexibility of the firm and discusses the behavior of supply chain parameters

***Keywords:*** *Supply Chain Flexibility, Flexibility Dimensions, Product Flexibility, Demand Management Flexibility, Physical Distribution Flexibility, Flexibility Index, System Dynamics Modelling*

# NET ZERO EMISSION AND THEIR IMPACT ON SUPPLY CHAIN PERFORMANCE USING BLOCKCHAIN TECHNOLOGY

*Anandika Sharma (Central University of Punjab, Bathinda)*

**Abstract.** Blockchain technology has a specific role in making the food supply chain smart enough to address today's world challenges, such as net zero emissions. Through this paper, the authors attempt to showcase the immense scope and significance of blockchain technology in the food supply chain by examining and analyzing the existing studies and their impact on net zero emissions. The systematic literature review was conducted on 98 high-quality, peer-reviewed articles to capture the blockchain implementation in the food supply chain. The time frame considered included the years 2010- 2024. The applications of reviewed technology in the food supply chain are analyzed under five research dimensions, namely traceability and food safety, food quality, transparency, and other miscellaneous-based applications. The existing research has devoted significant efforts to developing blockchain-based frameworks for the food supply chain industry, but a comprehensive study of these frameworks for the food supply chain is missing. To bridge this research gap, this article provides a comprehensive overview of the research developments in the food supply chain using blockchain technology and draws a conclusion on the limitations, observed patterns, and future prospects. Additionally, this survey highlights the problems existing in the conventional food supply chain, discusses prominent technologies to address these problems and provides a taxonomy of the state-of-the-art blockchain-based frameworks. This study also summarises the adoption theories of blockchain adoption and provides a deep insight into open research challenges in using blockchain technology in the food supply chain.

***Keywords:*** *Blockchain technology, Food supply chain, Net zero emissions, Sustainability*

## RISKS IN TECHNOLOGY INTEGRATION TO DRIVE SUSTAINABILITY IN SUPPLY CHAINS

*Sachin Modgil (IMI Kolkata) and Rohit Kumar Singh (IMI Kolkata)*

**Abstract.** Today supply chains are facing challenges and find themselves in dilemma to count on the immediate benefits. Supply chains are not able to identify the risks in employing supply chain technologies that claim to contribute to sustainability. Hence, in this study we pinpoint the risks involved in integrating technologies in impacting the sustainability. We adopted a combined total interpretive structural modelling and quantitative approach to develop a hierarchical structure. We interviewed 41 respondents for conducting TISM, which helped us to create a level hierarchical structure. To validate the findings of TISM, we further used a quantitative study by collecting data of 233 respondents. Our results indicate that social risks are having a highest driving effect, which indicate the fear of job replacement, community disparity and structural and cultural changes in the organization. Furthermore, the technological risk can cause issues such as difficulty in integrating different systems, obsolesce and scalability issues. This study offers a novel framework, where we validated it through structural equation modelling. Overall, TISM offers a theoretical framework, whereas causal relationships analysis through structural equation modelling indicates the robustness of the model.

***Keywords:*** *Supply chain risk identification, supply chain technologies, risk management, sustainability*

## HOW DOES FAIRNESS CONCERN INFLUENCE A MOBILE PHONE SUPPLY CHAIN'S PRICING AND EFFORT DECISIONS? A GAME-THEORETIC ANALYSIS

*Arnab Adhikari (Indian Institute of Management Kozhikode)*

**Abstract.** The mobile supply chain members' fairness concerns and channel leadership influence their pricing decisions, effort decisions, and collaboration. Existing literature indicates that the scholarly works are mainly restricted to a single supply chain member's effort decision, fairness concern, and channel leadership. It indicates the absence of a work depicting the holistic picture. Motivated by this issue, we propose a model that depicts a holistic picture of a fairness-concerned one-supplier-one-manufacturer mobile supply chain, considering the supplier's and manufacturer's efforts for both supplier's and manufacturer's leadership. Using the Stackelberg and Nash-bargaining-based approaches, we determine the supply chain members' optimal efforts, prices, and utilities for all the probable scenarios. We perform comparative analyses of supply chain members' decision variables and utilities. Finally, we propose a fairness concern framework to facilitate the mobile supply chain's managerial decision-making.

***Keywords:*** *Supply chain , Fairness concern , Game theory*

# SIMULATING RESILIENT LAST-MILE DELIVERY IN KOLKATA'S QUICK-COMMERCE: CLUSTERING INSIGHTS FOR FILL RATE AND ON-TIME DELIVERY UNDER DISRUPTIONS

*Kumar Subrat (Vinod Gupta School of Management, Indian Institute of Technology Kharagpur) and Dr. Anupam Ghosh (Vinod Gupta School of Management, Indian Institute of Technology Kharagpur)*

**Abstract.** Purpose: This research analyses the effectiveness of the clustering algorithms in improving the performance of the delivery reliability of quick commerce (Q-commerce) in an environment prone to disruptions, e.g., Kolkata, India, with respect to Sustainable Development Goals (SDGs), especially SDG 9 (Industry, Innovation, and Infrastructure) and SDG 11 (Sustainable Cities and Communities). It evaluates clustering performance based on different operational regimes and levels of disruption over 30 days to facilitate stable and resilient cities logistics framework.

Design/Methodology/Approach: A simulation framework consisting of operational assessment is performed to assess 15 of the clustering algorithms under a set of six disruption scenarios, five disruption levels (0 percent, 20 percent, 40 percent, 60 percent, and 100 percent), and flexible operating conditions and inflexible operating conditions. The study was based on 13,500 simulations of last-mile deliveries performed using synthetic demand data and real city road networks developed in OpenStreetMap, which ran through 30 days. The most important performance indicators are the percentage of On-Time Delivery (OTD), fill rate, and environmental impact indicators (e.g. carbon footprint per delivery), provided stability is considered under a 0-20% CAGR demand growth. The framework is integrated with systems developed under the SDG, including low-emission delivery means, efficient routes to unclog the city.

Findings: The operational flexibility is a considerable aspect when it comes to improving delivery performance in the event of disruptions and SDG goals. FuzzyCMeans and KMedoids had better resiliency and high OTD (up to 88.44%) and fill rates (up to 0.936) at disruption levels severe (75%) and moderate stability (otd = 14.07, fill = 0.150) and savings on emissions due to optimized hub assignment. Conversely, DBSCAN and GreedyClustering showed much poorer performance decreases (OTD = 33.33 sites, fill rate = 0.333) and large variability (otd_std = 23.06). The location of hubs in the least distance existing between the string of roads, as well as the dynamic reallocation policies, are identified as extremely important in the transportation planning of road network-based, sustainable goal-oriented logistics, which is essential in terms of sustainable transportation mobility in urban areas and infrastructure resilience.

Originality: This paper proposes a trailblazer massive simulation framework, carried out based on 30 days, which combined actual urban street limitations, dynamic activity tactics, and future demand expansion to gauge Q-commerce cluster survivability. It is singular to simultaneously consider the SDG-based strategies of disruption response and clustering evaluation in order to fill the methodological gaps in the sustainable last-mile delivery in cities: it prioritizes resilient infrastructure (SDG 9) and inclusive, sustainable, urbanization (SDG 11).

Practical Implications: The framework gives evidence based information to logistics planners so that they can choose resilient clustering algorithms in Q-commerce systems, so that delivery becomes reliable, sustainable, and low-emitting under disruption and uncertainty in demand. It can assist urban planners and policy-makers to meet SDG 9 and SDG 11 by fostering the resilience in logistics infrastructure and minimizing the environmental effects of urban areas.

***Keywords:*** *Last mile delivery, quick commerce, disruption, resilience, clustering algorithms, OTD, fill rate*

## FROM FISH TO FORK: ANALYSING THE IMPACT OF MICROPLASTICS IN SUPPLY FOOD CHAIN

*Saiprasad Nagula (SR University), Sravya Bollam (SR University), Sufiya Mehnaaz (SR University) and Rajan Kumar Gangadhari (SR University)*

**Abstract.** Microplastics are tiny pieces of plastic, less than 5 mm in size. They are derived from broken-down plastics, industrial waste, cosmetics, cleaning products, and synthetic clothing. For example, washing one load of synthetic clothes can release thousands of fibres into water. These particles are too small to see and spread easily through air, soil, and water. Scientists have even found them in Arctic snow and on Mount Everest. Microplastics move through rivers, oceans, and soil. Fish and other sea animals often eat them by mistake, and more than 100 marine species already have plastics in their systems. Plants are also affected because microplastics mix with soil and water, which reduces crop quality. Studies show that over 90% of table salt contains microplastic particles, showing how easily they reach our food. Humans consume between 50,000 and 120,000 particles every year through food, water, and air. (Cox, 2019) They are found in seafood, fruits, vegetables, salt, honey, and bottled water. Many studies have found that bottled water may contain up to 600 particles per Liter. Because filters cannot completely remove them, people eat or drink them without realizing it. Microplastics can cause severe health problems with long-term impacts on human health, potentially leading to organ failure and stress on body cells. These elements carry contagious microbes that damage human tissues and exacerbate hormonal imbalances in the body. Due to the microplastic pollution, the residents in urban areas are prone to harmful exposure to these substances. Apart from damaging human health, these microplastics are causing tremendous damage to the environment. Several studies have demonstrated that microplastic pollution impacts a diverse range of ocean species, including turtles and sea mammals.

Research Objectives

1. To know what the significant things are that spread microplastics in the environment.

2. To know how humans are affected and what health issues they are facing, through what, and how these microplastics are entering the human body.

3. To explore the economic consequences of microplastics, it is necessary to study the losses incurred by the farming, fishing and tourism industries due to pollution.

Lastly, we need to find out what solutions can actually work. This includes using less plastic, improving recycling, and trying out new technologies that can stop or clean up microplastics.

Methodology

Study Design: In this research collecting of data like, social media posts, comments, and hashtags from various platforms, such as Twitter, Instagram, and LinkedIn, using the APIs provided by those platforms. After obtaining the access key, we will download the data in Excel format, and then the next step is to clean the collected data (Removing Missing values, Nulls, Errors, etc.). Then, we'll write Python code using various libraries, such as Matplotlib, Pandas, and NumPy, to identify the most frequent words (Word cloud), perform topic modelling, and Conduct Sentiment analysis. From these, we will analyse the results, including problems and health issues, in living organisms.

***Keywords:*** *Microplastics, food chain, pollution, human health, animals, environment, soil, Water, air*

## SENTIENT SUPPLY CHAIN MANAGEMENT FOR ACHIEVING NET ZERO CARBON FOOTPRINT: A COMPARISON OF INDUSTRIAL SECTORS

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**Abstract.** The ability to respond to rapid changes in the uncertain business environment and agility have been playing a pivotal role in the success stories of supply chains across various business sectors. Additionally, with the increasing concern for environmental sustainability in the circular economy, responsiveness and agility have become paramount. The concept of sentient supply chain management (SSCM) has emerged as a timely need for sustaining in the current uncertain business environment and mitigating the effects of climate change. The SSCM stands for sensing, perceiving, analyzing, and responding quickly. While there is an extensive discussion on technologies and individual case studies about supply chain management, a comparative evaluation across industry sectors is lacking in terms of their readiness and potential to implement sentient supply chains to achieve net-zero goals. This paper fills the gap by developing a multi-criteria decision analysis (MCDA) framework to identify critical success factors (CSFs) for implementing SSCM towards achieving net zero. Further, this work compares ten industrial sectors based on CSFs. We use a novel interval-valued p, q Quasirung Orthopair Fuzzy (p, q-QROF) comparison between ranking criteria (COBRAC) and Root Assessment Method (RAM) to analyze experts' opinions. Subsequently, sensitivity analysis and comparability of results with multiple multi-criteria decision analysis (MCDA) models are carried out. The present work provides valuable impetus to decision-makers.

**Keywords:** Supply chain agility, Environmental sustainability, Net zero, Interval valued p q Quasirung Orthopair Fuzzy Numbers, COBRAC, RAM

## SUPPLY CHAIN 4.0 TECHNOLOGIES FOR VALUE CREATION IN PHARMACEUTICAL INDUSTRY

*Prabakaran Yogeswaran (IMI Kolkatta)*

**Abstract.** Purpose: The global healthcare system heavily depends on the pharmaceutical sector. In recent years, Supply Chain 4.0, with innovative technologies such as Internet of things (IoT), Machine Learning; Artificial Intelligence, Big Data, and Blockchain transformed all industries, including the pharmaceutical sector. This qualitative study explores the integration of Supply Chain 4.0 into the pharmaceutical industry and how does it create value for the sector. Methodology: The study uses a qualitative approach to collect real-life examples and experiences from pharmaceutical supply chain professionals. Using semi-structured data, themes and codes are identified for the critical supply chain functions of the pharmaceutical companies where the Supply Chain 4.0 technologies create value for the sector. We have mapped different Supply Chain 4.0 technologies to the different nodes. Findings: Qualitative study resulted in developing a framework that integrates Supply Chain 4.0 with the inbound, in-house and outbound supply chain functions of the pharmaceutical industry creating value. By utilizing IoT, AI big data, blockchain, robotics and other advanced Supply Chain 4.0 technologies, pharmaceutical companies can transform their operations to ensure that vital drugs are readily accessible and enhance well-being. Originality: The study details the influence of Supply Chain 4.0 technologies on the pharmaceutical industry. Additionally, these innovative solutions contribute significantly to the progress of healthcare by promoting resilience, transparency and accountability in the pharmaceutical industry.

**Keywords:** Supply Chain 4.0, Industry 4.0, Value Creation, Advanced Technologies, Pharmaceutical Industry

## RISK ASSESSMENT OF GEN AI-ENABLED SUPPLY CHAIN MANAGEMENT

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**Abstract.** Introduction: Artificial Intelligence (AI) has been a cornerstone of the success of supply chain management (SCM) today. AI has invaded every facet of socio-economic life. Generative AI (Gen AI) is a recent advancement of AI that has revolutionized the SCM landscape. However, experts have been apprehensive about the misuse of AI. Therefore, there has been an emphasis on ethical and governance aspects while utilizing AI applications.

Aim: This paper aims to investigate various risks associated with the use of Gen AI in SCM from the perspectives of behavioral, ethical, and governance issues.
Method: This research draws on the opinions of experts. The risk factors (RFs) are identified through a literature review and subsequently finalized through discussions with experts. We use the Failure Mode and Effect Analysis (FMEA) approach. Then, experts rate the RFs using a pre-defined scale, which are subsequently converted into interval-valued intuitionistic fuzzy numbers. We then use the multi-criteria decision analysis (MCDA) approach to determine the weights of the risk dimensions. We apply the weighted Frank aggregation to derive the final risk scores (FRSs) of the RFs and rank them.
Findings: We observe that the loss of human oversight, data breaches, privacy concerns, and ineffective regulatory and legal standards have a significant impact on SCM performance.
Conclusion: A multidimensional risk mitigation plan aligned with the new SDG framework is necessary to utilize Gen AI in SCM effectively.
Originality and value: The current study is the first of its kind that addresses the challenges of Gen AI-driven SCM from the perspectives of behavioral, ethical, and governance issues. The robust FMEA approach provides a scientific framework for the risk assessment.

***Keywords:*** *Generative AI, SCM, Interval valued intuitionistic fuzzy numbers, FMEA*

## TRUSTING THE MACHINE: HOW AI GOVERNANCE TRANSPARENCY SHAPES STRATEGIC BUYER-SUPPLIER PARTNERSHIPS IN ETHICAL SUPPLY CHAINS

*Surajit Bag (Excelia Business School France), Santosh Kumar Srivastava (Institute of Management Technology Ghaziabad) and Muhammad Sabbir Rahman (North South University)*

**Abstract.** This study investigates how business customers evaluate the ethical governance of agentic AI systems implemented by suppliers, and how these evaluations shape strategic partnership intentions in the textile manufacturing industry. Drawing on theories of ethical judgment and signal-based trust formation, we propose a model linking AI governance transparency and value alignment to customer trust, collaboration propensity, and long-term strategic engagement. Adopting a mixed-methods design, we first conducted focus group interviews with apparel buyers to explore emerging concerns and expectations (Study 1). We then tested our conceptual model through a cross-sectional survey of European textile buyers (Study 2). Findings reveal that supplier transparency in AI system governance, along with alignment to customers' ethical priorities, significantly enhances trust and willingness to collaborate.

***Keywords:*** *Agentic AI, Ethical AI Governance, Customer Trust, Buyer-Supplier Relationships, Strategic Partnerships, Transparency, Value Alignment, Signal-Based Trust*

# THE MODERATING ROLE OF EXTERNAL UNCERTAINTY IN THE DIGITALIZATION-DRIVEN LINK BETWEEN GREEN SUPPLY CHAIN MANAGEMENT AND INNOVATION: THE STRATEGIC INFLUENCE OF CSR COMMITMENTS

*Boby Krishan (IMI Kolkata), Tirthankar Nag (IMI Kolkata) and Rohan Mukherjee (IMI Kolkata)*

**Abstract.** Organizations in emerging economies are increasingly under pressure to integrate sustainability practices with digital transformation to remain competitive. Sustainable supply chains are increasingly recognized as engines of innovation, yet their outcomes often vary under conditions of environmental and market turbulence. This study examines how green supply chain management (GSCM) practices influence innovation, with a focus on the mediating role of digital capabilities and the moderating role of external uncertainty. Drawing on agency theory, stakeholder theory, and the dynamic capabilities perspective, the study develops a moderated mediation model that also considers the strategic influence of corporate social responsibility (CSR) commitments. Data will be collected from mid- to senior-level managers in supply chain, operations, sustainability, and digital roles across industrial and service sectors in the Middle East. Using partial least squares structural equation modelling (PLS-SEM), the study will test direct, mediating, and moderating effects. The proposed framework suggests that GSCM positively influences innovation both directly and indirectly through digital capabilities. Digitalization strengthens firms' ability to monitor, coordinate, and optimize green practices, thereby enhancing innovative outcomes. However, the extent of this relationship is contingent on external uncertainty — where volatile regulatory environments and shifting market conditions may either amplify or constrain the digitalization–innovation link. CSR commitments are positioned as an overarching strategic orientation that legitimizes green practices, enhances stakeholder alignment, and buffers the destabilizing effects of uncertainty. This integrative model advances theoretical understanding by linking sustainability-driven supply chain practices with technological and institutional enablers, offering insights into how firms navigate uncertainty while pursuing innovation. For managers, the findings highlight the importance of embedding CSR into strategic priorities and investing in digital tools to stabilize performance under volatile conditions. The study contributes to the growing discourse on sustainable innovation by demonstrating how external and internal capabilities interact to determine organizational outcomes in dynamic environments.

***Keywords:*** *Green Supply Chain, Digital Capabilities, Innovation, External Uncertainty, CSR*

# UNVEILING DIGITAL TWIN READINESS FACTORS IN SUPPLY CHAINS: AN INDIAN MSME STUDY

*Subhajit Maji (Indian Institute of Management Sambalpur), Aditya Kumar Sahu (Indian Institute of Management Nagpur) and Ramakrushna Padhy (Indian Institute of Management Sambalpur)*

**Abstract.** Micro, Small, and Medium Enterprises (MSMEs) are the major contributor the Indian economy, playing a vital role in employment generation and economic growth. The adoption of digital twin (DT) offers significant potential for MSMEs to enhance operational efficiency, competitiveness, and sustainability. However, MSME supply chains are often constrained by limited resources and lack of visibility, making DT integration crucial for improving transparency, responsiveness, and resilience. While large industries are rapidly adopting DT to optimize their operations, their MSME suppliers who provide raw materials, spare parts, and processed goods are lag behind due to readiness gaps. This raises an important question: are MSMEs sufficiently prepared to adopt DT and align with the digital transformation of larger supply chain partners? This study adopts mixed method approach to identify fifteen key readiness factors for DT adoption. Firstly, through a systematic literature review and after that focused group discussions with eleven experts from various sectors and have experience of over fifteen years in the industry 4.0 and DT. We have adopted TISM approach to find the interrelations among readiness factors. To provide robustness and quantitative validation, the findings were further triangulated with DEMATEL and ANP methods. The results reveal that Data Readiness, Infrastructure Readiness, Technology Readiness, and Financial Readiness act as key driving factors, forming the foundational layer of DT adoption. IT Readiness, HR Readiness, Partnership Readiness, and Cognitive Readiness emerge as linkage factors, mediating between foundational enablers and organizational outcomes. Strategic, Organizational, Cultural, and Resource Readiness are identified as dependent factors, while Perceived Values and Benefits represent the ultimate outcome of readiness.

These findings provide valuable insights for managers by identifying the critical drivers of DT adoption and demonstrating their potential to enhance supply chain performance in MSMEs. By adopting DT in the organizations helps to better navigate the complexities of modern supply chains, foster agility, and achieve sustainable growth. Moreover, the results of this study support government agencies in formulating policies and making strategic decisions aimed at strengthening the MSME sector. By aligning digital transformation initiatives with policy frameworks, governments can create an enabling environment that accelerates DT adoption, enhances competitiveness, and drives sustainable industrial development. Ultimately, this research emphasizes the strategic importance of DT integration in the MSME sector, demonstrating its ability to improve operational efficiency, drive innovation, and align with broader sustainability objectives.

***Keywords:*** *Digital Twin, MSME, Supply Chain, Technology Readiness, Data Readiness*

## DIGITAL TRANSFORMATION OF GREEN SUPPLY CHAIN FROM FINANCIAL PERSPECTIVE

*Sunita Ghosh (Army Institute of Management, Kolkata), Asmita Basu (Associate Professor (Finance) Army Institute of Management Kolkata) and Aniruddha Kundu (Assistant Professor (Operations Management) Army Institute of Management Kolkata)*

**Abstract.** The transition toward net-zero has intensified the need for supply chains to integrate sustainability while preserving financial competitiveness. Green Supply Chain Management (GSCM) incorporates eco-friendly practices across sourcing, production, logistics, and reverse flows, and its effectiveness is increasingly enhanced by digital technologies such as Artificial Intelligence (AI), Internet of Things (IoT), blockchain, and data analytics. While prior studies document the operational benefits of Industry 4.0, the financial impacts of digital-enabled GSCM remain less explored in emerging economies such as India. This study investigates how Indian manufacturing firms adopting digital GSCM achieve financial outcomes including cost savings, improved profitability, enhanced market valuation, and access to sustainable financing instruments such as green bonds and ESG-linked funds. Using a mixed-method approach, the research combines case insights from global leaders with empirical survey data from Indian firms. Statistical techniques will be applied to examine mediating mechanisms operational efficiency, ESG disclosure quality, and supply chain resilience that link digital adoption to firm-level financial performance. Findings are expected to show that digital transformation of green supply chains strengthens competitiveness by lowering capital costs, reducing environmental risks, and attracting investor confidence. This study contributes to the literature by contextualizing the financial dimension of digital GSCM in an emerging economy, while providing actionable insights for managers, policymakers, and investors seeking to align sustainability with long-term value creation.

***Keywords:*** *Green Supply Chain Management, Digital Transformation, Financial Performance, ESG, Sustainable Financing, Competitiveness*

## DEVELOPMENT OF A CONCEPTUAL MODEL ON I4.0 TECHNOLOGIES' INFLUENCE ON SUPPLY CHAIN PERFORMANCE

*Vishal Sudan (IMI Kolkata), Sachin Modgil (IMI Kolkata) and Rohit Kumar Singh (IMI Kolkata)*

**Abstract.** This paper systematically reviews the influence of Industry 4.0 (I4.0) technologies on circular supply chain performance, focusing on how regulatory, normative, and cognitive institutional pressures drive technology adoption and sustainability initiatives within organizations. Through an analysis of 119 research articles published between 2015 and 2023, it identifies key technologies—such as blockchain, IoT, AI, cloud computing, cobots, and 5G—and explores their integration into supply chain functions like sourcing, manufacturing, distribution, and reverse logistics.

The study highlights the pronounced role of institutional pressures, noting that regulatory standards set compliance foundations, while societal and cognitive expectations push organizations toward deeper and more innovative sustainability endeavors.

Applying broad theoretical models including resource-based view, contingency theory, and institutional theory, the paper develops a conceptual framework that maps how advanced digital technologies enable improved visibility, traceability, agility, collaboration, and real-time decision-making across supply chain phases. It emphasizes that successful transition to circular supply chains requires strategic alignment, flexibility, technological innovation, and stakeholder collaboration to overcome challenges such as inconsistent regulations, legacy systems, and cybersecurity risks.

The review finds that I4.0 technologies increase supply chain resilience, efficiency, and sustainability, especially in responding to disruptions, optimizing resource use, and minimizing waste. It also identifies gaps for future research, urging deeper quantitative assessment, standardized performance metrics, territorial contextualization, and long-term evaluations of technological impact. Overall, the paper contributes a unique lens for understanding how institutional, technological, and contextual factors coalesce to shape circular supply chain performance and drive responsible innovation for a more sustainable future.

***Keywords:*** *Industry 4.0 Technologies, Circular Supply Chain, Institutional Pressure*

## INFLUENCE OF DIGITAL TECHNOLOGY (DT) ON CIRCULAR SUPPLY CHAIN

*Rana Goswami (IMI Kolkata), Rohit Kumar Singh (IMI Kolkata) and Sachin Modgil (IMI Kolkata)*

**Abstract.** The rapid advancement of digital technologies has transformed the dynamics of modern supply chains, enabling organizations to transition from linear models toward more sustainable and resilient circular supply chains (CSCs). This paper investigates the influence of key digital technologies—Artificial Intelligence (AI), Internet of Things (IoT), Blockchain, Cloud Computing/ERP, Additive Manufacturing, and Digital Twin—across the major stages of the CSC: Design, Sourcing, Production, Distribution, Collection/Return, and Recovery.

The analysis highlights that AI and digital twins enhance the design phase by optimizing product life cycles and predicting end-of-life scenarios, while IoT and blockchain strengthen sourcing through real-time visibility, traceability, and supplier compliance. In production, additive manufacturing fosters resource efficiency and product customization, while cloud-based ERP systems improve coordination and waste minimization. During distribution, AI-driven analytics and IoT-enabled logistics streamline routing, demand forecasting, and inventory control. In the collection and return phase, blockchain ensures trust in reverse logistics, while IoT facilitates tracking of used products. Finally, in recovery, digital twins simulate remanufacturing processes, and AI supports decision-making for recycling, reuse, or disposal pathways. Together, these technologies create a digitally enabled ecosystem that supports transparency, efficiency, and sustainability throughout the CSC. The study underscores that integrated adoption of digital technologies not only enhances operational performance but also advances circularity goals by closing material loops, reducing waste, and promoting responsible resource utilization.

***Keywords:*** *Digital Transformation (DT) Capabilities, AI/ Analytics, IoT and Sensors, Blockchain, Digital Twin, Cloud/ERP, Additive Manufacturing, Circular Supply Chain Phases, Collection, Return*

## MULTI AGENTIC AI SYSTEMS FOR SELF-REGULATION OF SUPPLY CHAIN FINANCE SYSTEMS

*Divya D (ISBR Business School) and Arunkumar O N (Symbiosis Institute of Business Management, Bengaluru)*

**Abstract.** Supply chain finance systems are extremely important in the smooth operation of the organizations. It facilitates doing the optimization of supply chain financial flows and its working capital by involving external stakeholders such as financial and logistics service providers. Because of uncertainties in economy at times it is extremely hard for the financial providers to verify the repaying capacity of the companies, which drive them into financial loss. Since the entry of Artificial Intelligence, this evaluation became more convenient because of their dynamic processing. Agentic AI is significant technological leap in this regard, where Agentic AI will make the dynamic evaluation based on real time data gathered from different regions of the supply which subsequently assist the financial institutes in making dynamic credit assessment. This paper suggests a theoretical model to incorporate agentic AI in financial consideration and assist the readers in determining how agentic AI accomplish the task with the least human interference.

***Keywords:*** *Supply Chain Finance, Agentic AI, dynamic processing*

## SUSTAINABLE TIDAL PORT PRICING MODEL: A DYNAMIC OPTIMISATION APPROACH

*Deepankar Sinha (Indian Institute of Foreign Trade)*

**Abstract.** Seaports are a crucial link in any global supply chain, and hence, their competitiveness is significant for the ports to survive. Most ports thrive on higher levels of productivity and lower port tariffs to be the popular choices of shipping lines and shippers. However, specific ports are tidal ports and suffer from draft constraints during changes in seasons and climatic conditions. Vessels with right load per voyage ensures port revenue, optimal use of draft and ship's cargo space minimising waste and non-green (carbon, water and energy) footprint. Tariff waivers encourage shipping lines from route and trade lane diversions ensuring port resource utilisation. This paper proposes a sustainable pricing model for ports where tidal and seasonal variations in navigable draft impact ship calls. The model is based on dynamic programming optimisation, introducing a draft-constrained tariff function to adjust port tariffs, compensating vessels for revenue losses due to reduced cargo load during draft restrictions. The model formalised as a theorem has been proved and illustrated with a worked example. The paper demonstrates the use of cargo-draft and cargo-price elasticities to calibrate the compensation for shipping lines, ensuring economic fairness and continuing to attract ships during low draft seasons.

***Keywords:*** *Tidal ports, Sustainability, Navigable Draft, Port Pricing, Dynamic Optimisation*

## ACHIEVING SUSTAINABLE GROWTH OF DAIRY SUPPLY CHAINS IN A NET ZERO ECONOMY: A PARADOX THEORY APPROACH

*Ruchi Mishra (Institute of Rural Management Anand (IRMA)) and Rajesh Singh (Management Development Institute)*

**Abstract.** The transition toward a net zero economy has intensified sustainability challenges within dairy supply chains, which must simultaneously achieve environmental goals, economic viability, and social responsibility. This study examines how dairy supply chains can achieve sustainable growth while moving toward a net zero economy. Using a paradox theory approach, it identifies key tensions between sustainability goals and operational performance and proposes solutions to manage these challenges. The research applies Principal Component Analysis (PCA), Structural Equation Modelling (SEM), and Artificial Neural Networks (ANN) to validate the model. Findings show that resilience and net zero performance play significant mediating roles in improving overall organizational performance. The study highlights that effectively managing paradoxes enhances both sustainability and competitiveness in dairy supply chains.

***Keywords:*** *Sustainability, Net Zero, Dairy Supply Chain, Sustainable Development Goals*

# INTELLIGENT DIGITAL TWIN FRAMEWORK FOR SUSTAINABLE SUPPLY CHAIN RESILIENCE

*Devnaad Singh (UPES)*

**Abstract.** Supply chains today face unprecedented disruptions from climate variability, pandemics, geopolitical shocks, and market volatility. These challenges are particularly acute in food systems, where disruptions translate into rising costs, resource inefficiencies, and food loss. Traditional supply chain management methods often remain reactive, relying on historical trends and probabilistic forecasting, which limits their ability to adapt to compound risks. This research presents an Intelligent Digital Twin (IDT) framework designed to enhance resilience, transparency, and sustainability in supply chain operations. The iDT acts as a dynamic virtual replica of logistics processes, integrating real-time and historical data to simulate cascading disruptions and test adaptive strategies. By embedding advanced AI-driven decision engines within the twin, the framework enables autonomous interventions such as rerouting, demand balancing, and resource reallocation, while ensuring that decisions remain explainable, auditable, and equitable across stakeholders. The proposed framework is validated through practitioner-informed case studies, drawing insights from logistics hubs and food distribution networks. Initial results suggest the potential to reduce disruption recovery times and mitigate food waste. Beyond food systems, the iDT blueprint can be extended to other critical infrastructures such as healthcare logistics, energy grids, and urban mobility. The study contributes to advancing resilient and trustworthy supply chains by demonstrating how intelligent digital twin technologies can bridge the gap between predictive simulation and real-world adaptive decision-making.

***Keywords:*** *Artificial Intelligence, Supply Chain Resilience, Food Supply Chains, Sustainable Supply Chains*

# INTEGRATING VALUE THROUGH DIGITAL INNOVATION IN INDIA'S AGRI-SUPPLY CHAINS

Shweta (Indian Institute of Management Sambalpur) and Suresh Kumar (Government Polytechnic Jhajjar)

**Abstract.** Problem Statement: This work seeks to study the integration of innovative digital transformation solutions in Indian Agriculture Supply Chain (IASC). The digital initiatives like e-NAM (electronic National Agriculture Market), DPI (Digital Public Infrastructure) and Krishi-DSS (Krishi Decision Support System) have been taken by Government of India (GoI) to promote and integrate digital innovations in the field of agriculture. Virtual platform has been created to integrate physical wholesale market to facilitate online trading for farmers through e-NAM. To connect Indian farmers with agricultural markets and information, ITC Private limited has taken initiative of e-Choupal (electronic gathering place). This study aims to analyse how digital innovation integration in IASC is creating value. The proposed approach for achieving this to develop model by linking innovative digital solution adoptions with IASC outcomes. The digital innovative solutions are represented by technology resilience and viability, digital adoption, whereas IASC outcomes are represented by value created by farmers, Supply Chain Collaborations (SCC) and Supply Chain Performance (SCP) (Shukla et al., 2023). The developed model proposes statistical analysis among digital transformation technologies implementation and its expected outcomes that are creating value in supply chain.

Methodology: The proposed approach will be to implement Structure Equation Model by exploring latent constructs in IASC. The preliminary literature survey shows constructs like Digital Adoption (DA), Stakeholder Involvement (SI), Farmer Value Creation (FVC), Technology Resilience and Viability (TRV) (Padovano & Ivanov, 2025), (Sargani et al., 2025), (Agrawal et al., 2021), Supply Chain Collaborations (SCC) and finally the Supply Chain Performance (SCP) (Shukla et al., 2023). Literature survey starts with keyword-based search that will be followed by scoping review with snowball sampling methodology (Arksey & O'Malley, 2005). Questionnaires will be framed to create observed variables to measure latent constructs (that will be finalized from literature). Hypothesis will be defined to understand the interrelations among all the selected constructs. The key participants include farmers, farmer-producer organizations (FPOs), Agri-tech platform users, and mandi officials for specified and selected locations in India. The expected sample size for data collection will be targeted in the range of 100-150 participants. Statistical models will be developed finally to interlink constructs in IASC with the help of Structure Equation Model (SEM).

***Keywords:*** *Agri-Supply Chains, Digital Supply Chain, Supply Chain Performance, Structure Equation Mode*l

# EXPLORING THE SYNERGIES BETWEEN INDUSTRY 4.0 AND LEAN SIX SIGMA: AN ANALYSIS OF ENABLERS FOR OPERATIONAL EXCELLENCE

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**Abstract.** The current economic climate dictates that industries need to achieve a higher level of operational excellence in order to stay competitive. The integration of LSS and I4.0 provides industries with an innovative way of improving their profitability and meeting customer demands while maintaining quality standards. The purpose of this study is to identify and analyze the key enablers of Industry 4.0 (I4.0) and Lean Six Sigma (LSS) for their successful integration and implementation in the industries for achieving operational excellence. A literature review was carried out to identify the articles pertaining to the research area using the PRISMA 2020 statement. After the successful identification of the enablers, the Fuzzy-Interpretive Structural Modelling methodology along with matrice d'impacts croises-multiplication applique a classment (MICMAC) analysis is employed to analyze the interrelationships between the enablers and categorize them according to their dependence and driving powers. The research identifies the enablers and analyzes their interrelationships to develop an understanding of the driving enablers that can help achieve operational excellence. The study identified Staff motivation and participation, Top management commitment, and Strategic enterprise alignment as the top three enablers that can help drive other enablers for proper LSS4.0 implementation. The outcome of the study is also aligned with the Resource-Based View theory, the Transformational Leadership theory and the Dynamic Capability theory. From the results of the study, the authors provide the managers and industries with three recommendations that can help them in implementing LSS4.0 for achieving operational excellence. The industries can use the findings of this study to strategically reposition themselves to be in the driving seat with the help of their motivated staff and committed management. This paper originality emerges from the incorporation of two techniques, LSS and I4.0, for achieving operational excellence in industries. While both LSS and I4.0 have been explored and deployed separately, this study focuses on their combined integration as a novel strategy to increasing profitability, meeting customer needs, and maintaining quality standards.

***Keywords:*** *Industry 4.0, Lean Six Sigma, LSS4.0, Operational Excellence, PRISMA 2020, Fuzzy-ISM*

# A HYBRID MULTI-CRITERIA MODEL FOR RISK-RESILIENT DIGITAL TRANSFORMATION IN FOOD VALUE CHAINS

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**Abstract.** Problem Statement: The food value chain has undergone digital transformation owing to the use of technologies, which include the IoT, blockchain, big data analytics, and AI, and this has tremendously enhanced efficiency of operations, traceability, and visibility. Nevertheless, there are also some new threats that are associated with this transformation, including cybersecurity threats, compliance challenges, and vulnerabilities in infrastructures, which particularly affect the highly regulated perishable food category (Nayal et al., 2022; Annosi et al., 2021; Ivanov and Dolgui, 2021). The global shocks that took place recently, particularly the Covid-19 pandemic and associated increasing geopolitical tensions, raise the awareness of existing weaknesses. New risk management frameworks, adapted for digitally transforming food, are critically needed. (Paul et al., 2023; Dutta et al., 2020). While there is a universal agreement on the benefits of digital solutions, current literature is limited in that it does not account for holistic models addressing supply chain risks as well as technological, human, and sustainability factors (Burgos et al., 2021). Off-the-shelf risk reduction methods usually downplay the unique requirements of the food industry. This study will fill this gap by developing a hybrid decision support model that gives high-level priorities to digital-age risks and scores countermeasures, using multi-criteria methods to provide actionable recommendations for enhancing supply chain resilience.

Research Gaps & Objectives

In contrast to the capabilities of digitalisation for transformative change, as little has been studied that combines supply chain risk management under the heading of digitalisation in the food industry (Hohenstein, 2022; Kumar et al., 2021), specific issues like perishability, strict safety norms, and unpredictable consumer demand require customised frameworks over common methods. This study aimed to:

- RQ1: Identify the specific challenges food-sector supply chains faced during digital transformation.
- RQ2: Develop a hybrid decision-support model balancing technology, human factors, and sustainability dimensions to mitigate risks and enhance resilience.
- RQ3: Provide actionable recommendations for food industry managers to implement the hybrid model effectively.

Methodology: A systematic literature review was conducted following the PRISMA protocol, drawing from databases such as Scopus with keywords including “supply chain risk management,” “digital transformation,” and “food industry.” Special consultations with experts were performed in order to capture industry reports and grey literature. Multicriteria Decision analysis (MCDA) i.e. Best-Worst Method was used to determine the weights of important risk factors by prioritizing the identified challenges. Multi-Objective

Optimization Ratio Analysis was determined as the tool to estimate mitigation measures in terms of feasibility, cost, effectiveness, and sustainability.

Model Structure & Testing: Findings indicated the threats of the digital age (e.g., cybersecurity vulnerabilities, traceability, issues with compliance), prioritized through BWM. MOORA prioritized mitigation measures, including IoT-based traceability, blockchain provenance components, supplier audit templates, and collaborative digital environments. An easy-to-use interface that showed the ranked risks and the suggested mitigation policies. The applicability of the models was tested by one case study that was conducted in a food sector organization to test the reality of its practical effectiveness.
Results: IT vulnerabilities, traceability failures, and compliance non-conformities received the top tier in the instance of digital-era threats; they were also in line with previous digital-risk models. The most mentioned mitigation tools comprised real-time Internet of Things monitoring, blockchain-based provision systems, and enhanced interaction with partners. The process of ranking and weighing the options hybrid led to realist recommendations that are feasible and comprehensive in nature and in accordance to the managerial and sustainability goals.
Discussion & Implications: The paper demonstrates that evidence-based literature and professional weighting by means of BWM and multi-objective optimization through MOORA are utilized in developing dependable and helpful decision support associated with the management of complex supply-chain risk. The model is suitable in the food industry because it is well balanced in terms of technological, human, and sustainability considerations. It helps to achieve the UN SDG 2: Zero Hunger because it provides the state of increased food supply resilience and reduces the number of disruptions. SDG 17: Partnerships for the Goals is another model that can be applied in this case, as it will help researchers, policymakers, and practitioners engage with each other intra- and cross-sectorally. The ISO 22000 that was developed to guarantee traceability and legal necessities are some of the standards.
Contributions & Practical Takeaways

- A novel integration of PRISMA, BWM, and MOORA within the food-sector risk management context.
- Prioritized risk lists and mitigation measures selected via transparent, multi-criteria decision analysis, ready for implementation.
- Evidence-based guidance for regulators promoting digital adoption that balances safety, traceability, and sustainability.

Future Research Directions: Segmentation across food sub-sectors (e.g., fresh produce vs. dairy), dynamic modeling under uncertainty (such as pandemic-like shocks), and incorporation of explicit sustainability indicators such as carbon footprint and labor ethics directly as decision criteria offer potential enhancements to this model.

***Keywords:*** *Food value chain, Digital Transformation, Risk-Resilient, risk management*

# UTILIZING ARTIFICIAL INTELLIGENCE TO DRIVE SUPERIOR EFFICIENCY IN SUPPLY CHAIN OPTIMIZATION

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**Abstract.** This study critically investigates the transformative role of Artificial Intelligence (AI) in enhancing operational efficiency, innovation, and sustainability within Supply Chain Management (SCM). Employing a systematic literature review and content analysis of peer reviewed journal articles and conference papers published between 2015 and 2024, the research synthesizes emerging trends, challenges, and strategic implications of AI adoption across global supply chains.The analysis encompasses a diverse range of AI technologies machine learning, deep learning, natural language processing, robotics, blockchain, and AIoT (Artificial Intelligence of Things) and examines their practical applications in demand forecasting, inventory optimization, supplier evaluation, logistics automation, and sustainability management.

Findings reveal that AI-driven systems significantly enhance decision making accuracy, cost efficiency, and risk mitigation, while fostering intelligent, adaptive, and resilient supply chains. Innovations such as Generative AI, Digital Twins, and autonomous SCM systems further demonstrate the potential for real time responsiveness and sustainability driven logistics. However, challenges including data privacy concerns, algorithmic bias, skill shortages, and regulatory uncertainties hinder widespread AI adoption.

The study concludes that realizing AI's full potential in SCM demands collaborative efforts across technological, organizational, and policy dimensions. Strengthening digital infrastructure, investing in workforce upskilling, and developing robust governance frameworks are imperative for responsible AI integration. This research contributes to the ongoing discourse on digital transformation and sustainable supply chain strategies, emphasizing AI's enduring impact on efficiency, resilience, and global competitiveness.

***Keywords:*** *Artificial Intelligence, Supply Chain Management, Operational Efficiency, Sustainability, Digital Transformation, Internet of Things*

## CONSUMER DIGITAL FATIGUE AND THE SUSTAINABLE DEVELOPMENT GOALS: A TWINING RELATIONSHIP

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**Abstract.** Prolonged exposure to digital content may potentially result in consumer digital fatigue (CDF), which relates to emotional, cognitive, social, and physical exhaustion. Digital technologies have become pivotal to advancing the Sustainable Development Goals (SDGs) and other hand CDF hinder progress on SGDS like health (SGD3) and quality of education (SDG 4). There is growing interest in the intersection between CDF and SDGs since there are fever studies directly address digital fatigue as a mediating or moderating factor in SDG outcomes. This study conceptualizes CDF, outlines its dimensionality, and establishes its discriminant validity from related constructs such as burnout, Zoom fatigue, and technostress from the consumer's perspective. A nomological network is proposed to identify significant antecedents, such as notification frequency, advertising clutter, intrusive personalization, and brand content overload, along with outcomes such as brand avoidance, decreased satisfaction, and impacts on well-being. Finally, we present a comprehensive multiphase plan for scale development, including item creation, validity checks, and statistical validation using Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA). This study also aims to provide new insights into empirically measuring CDF in marketing settings. The ultimate aim of this paper is to advance the knowledge of CDF to help industry and academia to explore the twinning relationship between CDF and SGDs.

***Keywords:*** *Consumer Digital Fatigue, Sustainable Development Goals, Consumer Psychology*

## ROLE OF SUPPLY CHAIN FINANCE IN BUSINESS: A DATA TRIANGULATION APPROACH

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**Abstract.** Purpose- Supply chain finance (SCF) is an emerging area of research from many decades. Due to emergence of digital transformation in various aspect of business, the role of SCF has extended beyond. This study is focused to explore the current status of SCF in business through big data and data triangulation approach. The study also aims to provide the valuable insight on SCF for addressing the various challenges faced by business and proposing future research possibility.

Design/methodology/approach- In this study, we have used natural language processing (NLP) techniques such as Latent Dirichlet Allocation (LDA) and various databases such as academic literature and social media content to derive the current status, emerging topics, trending theme and research gap in SCF.

Findings- This research consolidates information from 1,648 published articles and over 10000 expert opinions gathered from social media platforms, encompassing diverse blogs and forums. The study classifies six themes, with three currently trending and the remaining three emerging in the SCF domain. Instead of presenting overarching implications, the research amalgamates insights from two distinct databases and introduces an Antecedents, Decisions, and Outcomes (ADO) framework. This framework delineates the drivers, processes, and impacts associated with each theme, providing a comprehensive understanding, and it also suggests future research direction.
Originality/value- Existing studies have mainly utilized published research articles and reports to identify trending themes and emerging topics. This study is the first to utilize social media data for SCF. This innovative approach seeks to reveal new SCF trends and themes relevant to firms, presenting promising opportunities for future research.

***Keywords:*** *Supply chain finance, Natural language processing, Data triangulation, Social Media, Latent Dirichlet Allocation*

## ASSESSING SUPPLY CHAIN AND PRODUCT LIFECYCLE MANAGEMENT IN THE ORANGE SECTOR OF WARUD TALUKA, MAHARASHTRA

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**Abstract.** Purpose: The study aims to understand the supply chain dynamics and product lifecycle management of orange-based products in Warud Taluka, Amravati District, Maharashtra. The research explicitly explores challenges farmers, processors, and traders face while identifying opportunities for value addition and sustainable livelihood creation.
Design/Methodology/Approach: The research is of a descriptive type. The primary data was collected from field surveys, interviews, focus group discussions, and secondary data from published reports and literature. The study examined different stages of the orange value chain, from production and marketing to processing and distribution, while integrating socio-economic perspectives of stakeholders.
Findings: The study found that farmers encounter significant challenges such as price volatility, high intermediary costs, and a lack of storage and processing infrastructure. Product lifecycle analysis revealed that orange products such as squash, peel powder, and processed juice have untapped potential for value addition, which could enhance farmers' income and create off-season employment opportunities for women. The findings also highlighted inefficiencies in supply chain linkages and the dominance of commission agents, which erode producer farmers' margins.
Research Limitations/Implications: The study was limited to Warud Taluka and focused on selected stakeholders, which may not represent the broader citrus belt in India. Future research could expand the geographical scope and incorporate advanced supply chain modeling for deeper analysis.

Practical Implications: Insights from this research can inform policymakers, cooperatives, and entrepreneurs in designing interventions for strengthening farmer income, reducing dependency on commission agents, and promoting localized processing units. It further suggests that capacity-building for women in processing activities can improve rural livelihoods and reduce economic vulnerability during agricultural off-seasons.
Originality/Value:This study contributes by linking supply chain and product lifecycle management with social entrepreneurship in the context of Warud's orange economy. It demonstrates how integrating value addition and women's empowerment within agricultural supply chains can generate economic and social impacts, ensuring sustainability.

***Keywords:*** *Supply Chain Management, Product Lifecycle Management, Oranges, Value Addition, Warud-Maharashtra, Rural Livelihoods, Sustainability*

## EXPLORING THE DYNAMIC RELATIONSHIP BETWEEN BSE SENSEX AND SME IPO RETURNS

*Dr. Suman Kolpula (IFHE), Dr. Gattaiah Tadoori (IFHE) and Dr. P. Bhanu Sireesha (IFHE)*

**Abstract.** This study examines the dynamic relationship between the returns of BSE Sensex and BSE SME IPOs over the period from January 2013 to June 2025, using robust econometric methods. The aim is to assess both short-term interactions and long-term linkages between these two segments of the Indian equity market. Descriptive statistics reveal that SME IPO returns exhibit higher volatility and more extreme fluctuations compared to BSE Sensex returns, as evidenced by greater standard deviation, higher kurtosis, and strong deviation from normality. This suggests that SME IPOs are inherently riskier and more prone to sharp price movements. The correlation coefficient and covariance values indicate a weak positive linear relationship, suggesting limited co-movement between the two markets in the short term. To assess volatility, an ARCH model on Sensex returns shows statistically significant ARCH and GARCH terms, confirming the presence of volatility clustering-a common trait in financial return series. A key finding emerges from the Johansen cointegration test, which identifies two cointegrating relationships between SME and Sensex returns. This implies a long-run equilibrium relationship, suggesting that although the two markets may move independently in the short term, they tend to adjust toward a shared path over time. This is especially important for long-term investors and policymakers who monitor market integration. However, show that neither market significantly predicts the other in the short term. This means there is no direct short-term predictive causality running from BSE Sensex to SME IPOs or vice versa, reinforcing the notion of short-term independence

***Keywords:*** *BSE SENSEX, BSE SME IPO, ADF Test, ARCH and GARCH, Johansen Cointegration Test, Granger Causality Test*

# MANAGING PARADOX UNDER DYNAMISM: AMBIDEXTERITY FOR SUPPLY CHAIN RESILIENCE

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**Abstract.** Purpose: To explain how supply chain disruption orientation enhances resilience in supply chains and to test whether organizational ambidexterity—simultaneous exploration and exploitation—acts as a capability pathway linking supply chain disruption orientation to supply chain resilience. The study also examines how environmental dynamism moderates the relationship between supply chain disruption orientation and organizational ambidexterity.
Methodology: A theory-driven model grounded in paradox and contingency perspectives is developed. The hypotheses are tested using a cross-sectional quantitative design: primary survey data from firms, validated multi-item constructs for supply chain disruption orientation, organizational ambidexterity, supply chain resilience, and environmental dynamism, and regression-based analyses (including tests of mediation via organizational ambidexterity and moderation by environmental dynamism).
Findings: Analysis indicates that supply chain disruption orientation is positively associated with supply chain resilience and fosters exploration and exploitation. Each ambidexterity dimension, in turn, positively predicts resilience; the indirect path (supply chain disruption orientation → organizational ambidexterity → supply chain resilience) complements the direct path (supply chain disruption orientation → supply chain resilience). Firms that balance exploration and exploitation exhibit stronger resilience than those skewed toward only one. Environmental dynamism strengthens the link between supply chain disruption orientation and organizational ambidexterity, suggesting that turbulent contexts amplify the capability-building effects of supply chain disruption orientation.
Implications: For managers in supply chains, cultivating a deliberate disruption-learning orientation-post-incident reviews, playbooks, and cross-functional sensing-should be paired with a "both-and" portfolio: continuous improvement (exploitation) and innovation for flexibility (exploration). Investments in dual routines (e.g., supplier development and redundancy alongside rapid reconfiguration, alternative channels, and product/process redesign) can raise readiness, response, and recovery performance, for policymakers and ecosystem actors, platforms that share disruption intelligence and incentivize ambidextrous capability building can diffuse resilience across supply chain networks.
Originality: The study answers the call to foreground learning in supply chain resilience by theorizing and testing ambidexterity as the capability mechanism through which disruption orientation translates into resilience. It integrates paradox (managing competing demands) with contingency (fit to environmental dynamism) in a single nomological network and provides evidence for supply chains, a context where brittleness and turbulence are acute yet under-examined.

***Keywords:*** *Supply Chain Disruption Orientation, Supply Chain Resilience, Organizational Ambidexterity, Environmental Dynamism*

# DIGITAL PRODUCTION IN THE PHARMACEUTICAL INDUSTRY: A STRATEGIC APPROACH TO ENHANCE OPERATIONAL EXCELLENCE

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**Abstract.** Purpose: This study examines the strategic integration of digital technologies within production functions to foster operational excellence. It investigates how production process is driven by innovations such as automated lean operations (ALO), real-time pilot production (RTP), virtual clinical trials (VCT), and precision medicine (PRM) enhance traceability, responsiveness, customization, and flexibility. The research addresses dynamic challenges in production management, emphasizing the mediating roles of these advanced operational capabilities empowered by digital technologies.

Methodology: Employing a quantitative survey approach, this study utilizes a self-administered questionnaire distributed to 374 professionals in the Indian production sector. Structural equation modeling is applied to test hypotheses derived from the dynamic capabilities view, focusing on the impacts of digital technologies and associated operational mediators on production excellence, using robust analytical methods.

Findings: The results reveal that digital technologies significantly reinforce operational performance in production by enhancing process traceability, agility, and financial flexibility. Automated lean operations, pilot production, clinical trial innovations, and precision medicine each positively mediate the influence of digital technologies, supporting better risk management, cost efficiency, and product quality. These dynamic capabilities enable organizations to adapt rapidly, maintain regulatory compliance, and achieve a competitive advantage in a volatile market environment.

Originality: This research contributes to the supply chain and operations management literature by providing empirical evidence of the value of digital technologies in transforming production functions. It details how digitalization acts as a strategic resource, offering a nuanced understanding of its impact on operational excellence and adaptation in complex manufacturing environments. The findings offer guidance for academics, practitioners, and policymakers interested in leveraging digital transformation for sustained operational superiority.

***Keywords:*** *Digital technology, Production, Operations Excellence, Dynamic Capabilities, Indian Manufacturing Sector*

# EVALUATING THE EFFICIENCY OF AI ADOPTION IN INDIAN SURFACE LOGISTICS: AN INTEGRATED MPI–DEA APPROACH

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**Abstract.** India's surface logistics sector is undergoing rapid transformation, driven by rising digitalization, growing demand for freight efficiency, and mounting sustainability pressures.

This study examines the relative efficiency and productivity change of leading logistics service providers (LSPs) over a three-year period using Data Envelopment Analysis (DEA) and the Malmquist Productivity Index (MPI). The input variables considered include fleet size, warehousing capacity, capital expenditure, technology expenditure, and workforce digital readiness, while the outputs comprise freight volume handled, logistics revenue, cost efficiency, on-time delivery, environmental performance, and digital adoption. DEA results highlight significant differences in efficiency among firms, while MPI analysis distinguishes whether productivity shifts arise from technological progress or improved scale utilization. Regression analysis further explores the influence of AI-related and sustainability investments on efficiency outcomes. The findings reveal that firms emphasizing digital capabilities and environmental initiatives achieve superior efficiency compared to asset-heavy players, underscoring the strategic role of technology-driven and sustainable practices. The study contributes to logistics literature by integrating efficiency analysis with AI and sustainability perspectives, offering insights for both practitioners and policymakers in shaping the future of Indian logistics.

***Keywords:*** *Logistics Service Providers, Data Envelopment Analysis, Malmquist Productivity Index, Artificial Intelligence, Sustainability*

## BEHAVIOURAL INSIGHTS IN GREENING DECISIONS UNDER COBB DOUGLAS DEMAND: EXPLORING OVERCONFIDENCE IN CENTRALIZED AND DECENTRALIZED SUPPLY CHAINS

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**Abstract.** This study explores how a manufacturer's overconfidence can shape decision-making strategies and overall performance in green supply chains, especially in the context of growing global demand for sustainable practices. Departing from the traditional assumption of rational behaviour, it introduces behavioural bias into supply chain modeling to understand how inflated perceptions of greening investment efficiency influence outcomes. Demand is sensitive to both greening and price, captured through a Cobb–Douglas-type differential demand function. The research seeks to bridge behavioural operations management with sustainability-focused supply chain design. The paper employs a Stackelberg game-theoretic framework where the retailer acts as the leader, setting the retail price, and the manufacturer acts as the follower, choosing the greening effort and wholesale price. The model is categorized under two structures centralized and decentralized decision-making structures. Overconfidence is mathematically modeled as an upward bias in the manufacturer's perception of greening return. Analytical expressions for equilibrium decisions and profits are derived, comparing outcomes under both rational and overconfident scenarios. The analysis reveals that overconfidence does not change the optimal decision values. However, it increases profit for both the manufacturer and retailer and the market demand. This counterintuitive result emerges

because the overconfident manufacturer invests more in greening, which enhances perceived sustainability and thus attracts more consumers. The model shows that behavioural bias—often considered a liability—can, under certain conditions, improve overall supply chain performance.

***Keywords:*** *Green Supply Chain, Overconfidence, Differential Demand, Cobb-Douglas Demand, Stackelberg Game*

## DIGITIZING THE HEAT: SMART TECHNOLOGIES FOR NET ZERO IN THERMAL COAL SUPPLY CHAINS

*Juhi Bhattacharjee (Indian Institute of Foreign Trade, Kolkata)*

**Abstract.** India's thermal coal supply chain remains a critical component of its energy infrastructure, yet it faces mounting pressure to decarbonize in alignment with the country's Net Zero commitment by 2070. This study investigates how smart technologies—Internet of Things (IoT), Artificial Intelligence (AI), blockchain, and digital twins—can transform coal logistics into a digitally optimized, emissions-conscious system. Through a systematic literature review of 85 peer-reviewed articles and a bibliometric analysis using VOSviewer, the research identifies three dominant thematic clusters: digital mining, emissions monitoring, and blockchain-enabled traceability. Stakeholder network mapping reveals that public sector units (PSUs), regulators, and tech vendors play pivotal but fragmented roles in digital adoption. Simulation modeling demonstrates that full integration of smart technologies can reduce idle time by 35%, lower emissions by 27%, and improve compliance accuracy to 94%. The study concludes with a conceptual framework and strategic roadmap for scalable digital decarbonization tailored to India's coal ecosystem. These findings offer actionable insights for policymakers, industry leaders, and researchers seeking to align operational efficiency with climate resilience.

***Keywords:*** *Net Zero, Thermal Coal Supply Chain, Sustainability, Emission Reduction*

## DETERMINANTS OF SUPPLY CHAIN PERFORMANCE IN FIVE-STAR HOTELS: AN EMPIRICAL STUDY IN WEST BENGAL

*Shantanu Chakraborty (Techno India University)*

**Abstract.** The hospitality industry operates in a highly competitive environment where supply chain performance plays a critical role in achieving operational efficiency and customer satisfaction. This research investigates the determinants influencing supply chain performance in five-star hotels in West Bengal, India. Supply chain performance is considered the dependent variable, while independent variables include supplier relationships, service quality, customer responsiveness, employee integration, and information system alignment. Despite the recognized importance of these factors, there is limited empirical evidence focusing on integrated supply chain performance within the hospitality sector, particularly in the Indian context.

The study adopts a descriptive and mixed-method research design, incorporating both qualitative and quantitative approaches. Primary data will be collected through structured questionnaires, focus group discussions, and personal interviews with senior executives and employees of five-star hotels, while secondary data will be sourced from industry reports and associations. A sample of 200 respondents will be analyzed using advanced statistical techniques such as Principal Component Analysis (PCA), Confirmatory Factor Analysis (CFA), Multiple Regression, and Structural Equation Modeling (SEM) through SPSS and AMOS. Bibliometric analysis may also be conducted using VOSviewer and Mendeley.
The findings are expected to identify the most significant factors influencing supply chain performance and provide a validated model specific to the hospitality industry in West Bengal. The study will also offer practical recommendations for hotel management to enhance their supply chain integration, efficiency, and service quality. Ultimately, the research contributes to bridging the literature gap on supply chain performance measurement in the hospitality sector and supports hotels in achieving sustainable competitive advantage

***Keywords:*** *Supply Chain Performance, Hospitality Industry, Five-Star Hotels, Service Quality, Supply Chain Integration, Determinants of Performance, Hotel Supply Chain Management, Structural Equation Modeling (SEM), West Bengal, Competitive Advantage*

## BLOCKCHAIN-ENABLED ENTERPRISE ARCHITECTURE FOR AGRICULTURAL SUPPLY CHAINS: INTEGRATING SEED TRACEABILITY WITH PREDICTIVE ANALYTICS

*Sandipan Chakravorty (The Neotia Univerity) and Partha Mukherjee (The Neotia University)*

**Abstract.** Agricultural supply chains face persistent challenges in seed quality assurance, traceability, and yield prediction. Current blockchain implementations function primarily as passive record-keeping systems rather than leveraging data for predictive analytics. This paper introduces a blockchain-enabled enterprise architecture that integrates seed traceability with predictive analytics to generate actionable insights supporting agricultural supply chain performance indicators. The proposed architecture combines Hyperledger Fabric with a five-layer framework unifying on-chain and off-chain data management. The predictive analytics layer incorporates machine learning regression models, time-series forecasting algorithms, and causal mediation analysis using scikit-learn and TensorFlow, implementing environmental impact modeling, quality correlation analysis, and supply chain disruption assessment. We applied bootstrap-based causal mediation analysis to 1,000 seed transactions using ordinary least squares regression with 500-iteration bootstrap resampling. Results revealed that cold storage conditions significantly improved seed quality indices ($p < 0.05$), and seed quality strongly predicted yield outcomes. While indirect effects through quality metrics were not statistically significant, direct effects demonstrated blockchain-secured environmental data's potential for agricultural decision-making through yield forecasting and risk assessment.This research contributes a novel enterprise architecture integrating blockchain traceability with predictive analytics capabilities and demonstrates causal inference application to blockchain-

secured agricultural data, providing a foundation for transitioning from reactive to proactive agricultural supply chain management.

***Keywords:*** *Agriculture supply chain, Blockchain analytics, Seed traceability, Predictive modeling, Causal mediation analysis, Enterprise architecture*

## A GENERALISED MODELING FRAMEWORK FOR SUSTAINABLE SUPPLY CHAIN INCULCATING DEMAND UNDER UNCERTAIN MARKETING ENVIRONMENT

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**Abstract.** Sustainable supply chain management has become an essential area of research as organizations strive to balance economic growth with environmental and social responsibilities, wherein a central challenge lies in forecasting demand. Demand is heavily influenced by uncertainties in marketing, such as changing customer preferences, adoption behaviors, promotional responses, social media influence, competitor actions, and evolving sustainability concerns. These factors cause significant fluctuations in demand, rendering traditional deterministic forecasting approaches inadequate for modern supply chains. To address this issue, the present study proposes a generalised mathematical framework to capture and analyse demand uncertainty in sustainable supply chains. To represent this uncertain demand, a random variable is introduced. Also, multiple probability distributions are considered to reflect variations arising from unpredictable market conditions. Based on this foundation, several demand models are developed to improve demand forecasting more reliably across uncertain scenarios. The proposed framework integrates uncertainty into forecasting, enabling a structured evaluation of its impact on supply chain operations, including production planning, inventory control, and distribution strategies. By accounting for demand variability in the supply chain, the approach enhances prediction accuracy and reduces risk. The findings bridge the gap between demand forecasting under uncertainty and sustainability practices. The study provides practical insights for managers and policymakers in a volatile market environment.

***Keywords:*** *Marketing variability, Sustainable Supply Chain, Uncertain demand*

# DATA-DRIVEN SUPPLY CHAIN RESILIENCE AND CARBON HOTSPOT PREDICTION USING MACHINE LEARNING FOR NET ZERO TRANSITIONS

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**Abstract.** Introduction: Global supply chains are facing a dual imperative: achieving net-zero emissions while building resilience against disruptions. On one side, climate commitments and carbon pricing schemes are pressuring organizations to decarbonize their operations, particularly in sourcing, production, and logistics. On the other side, supply chains continue to be disrupted by the pandemic, climate extremes, geopolitical tensions, and resource shortages. The challenge is to design supply chains that are both sustainable and resilient, capable of advancing decarbonization without compromising continuity.

Conventional approaches have relied on optimization models and multi-criteria decision-making frameworks. While effective in some contexts, these methods often suffer from respective assumptions, static inputs, or subjective judgements, making them less adaptable to complex and dynamic environments. In contrast, machine learning (ML) offers a data-driven alternative that can predict emissions and disruption risk by identifying hidden patterns in supply chain data.

This study proposes an ML framework that jointly predicts carbon emission hotspots and disruption risks across supply chain activities. The approach combines predictive analytics with explainable AI (XAI) to provide actionable insights, enabling firms to align with net-zero strategies while enhancing resilience.

Research Gap: Three critical research gaps motivate this research:

- Fragmented focus: Existing studies usually analyze sustainability (emissions reduction) and resilience (disruption management) separately, despite their interdependence.
- Subjective methods: MCDM and similar approaches rely heavily on expert judgment, limiting generalizability.
- Limited predictive use of ML: Few works harness ML to simultaneously forecast emissions and disruptions, even though data availability and algorithmic advances make this feasible.
- By addressing these research gaps, this study introduces a dual-prediction ML framework that unifies sustainability and resilience concerns.

Research Objectives: The study is guided by three focused research objectives:

- To develop ML models for predicting emission hotspots and disruption risks in supply chains.
- To apply XAI techniques to interpret predictions and provide actionable managerial insights.
- To evaluate policy and operational scenarios viz., carbon pricing, renewable adoption, backup suppliers using the predictive framework.

Methodology: Data collection

The framework integrates multiple data sources:

- Operational data: supplier reliability, shipment modes, lead times, demand fluctuations

- Environmental data: energy consumption, fuel mix, renewable share, life-cycle emission factors.
- Disruption data: historical delays, supplier shutdowns, weather-related events.
- External data: carbon pricing signals, trade flows, and regulatory requirements.

Preprocessing and Feature Engineering: Data will be cleaned, normalized, and enriched with engineered features such as:

- Carbon intensity per unit of shipment
- Historical disruption frequency and recovery times.
- Rolling averages and lag features for time-series observations.

Targets will be defined as:

- Emission hotspots (continuous regression outputs)
- Disruption risk levels (binary or multi-class classification outcomes)

Modelling Approach: Emission Prediction (Regression):

- Gradient Boosted Regression Trees (XGBoost/LightGBM) as the primary model.
- Random Forest and Elastic Net as baselines.
- Evaluation metrics: Root Mean Square Error (RMSE) for predictive accuracy and $R^2$ for explanatory power.

Disruption Prediction (Classification):

- Gradient Boosted Tree classifiers (XGBoost/LightGBM/CatBoost) as the main approach.
- Logistic Regression and Random Forest as baselines.
- Class imbalance addressed using SMOTE and class weights.
- Evaluation metrics: F1-score as the primary measure, supported by Precision-Recall AUC (PR-AUC) to assess performance under imbalance.

Explainability and Scenario Analysis

- XAI: SHAP values and LIME will highlight the drivers of emissions and disruptions.
- Scenario testing: The framework will be applied to evaluate the effects of carbon taxes, renewable-powered logistics fleets, and backup supplier strategies.

Results: The study delivers the following outcomes:

- Accurate forecasts of emission hotspots and disruption-prone nodes in supply chains.
- Driver analysis that identifies critical variables such as transport mode, supplier reliability, and energy mix.
- Scenario outcomes showing how policy or operational changes influence both sustainability and resilience.
- A decision-support framework for firms to anticipate risks and prioritize decarbonization actions.

Contributions: This study makes four key contributions across theory, methodology, managerial practice, and policy. From a theoretical perspective, it bridges the currently fragmented research on sustainability and resilience by developing a unified predictive framework that jointly addresses emission reduction and disruption management. Methodologically, the study advances supply chain analytics through the application of dual machine learning pipelines for regression (emissions) and classification (disruptions), supported by explainable AI techniques that enhance the transparency and interpretability of

model outputs. From a managerial standpoint, the research provides decision-makers with practical tools for identifying emission-intensive and disruption-prone activities, thereby enabling proactive risk management and prioritization of decarbonization initiatives. Finally, the study contributes to policy discussions by generating empirical evidence on the impact of interventions such as carbon taxes, renewable adoption, and resilience-enhancing regulations, offering valuable insights to guide the transition toward net-zero supply chains.
Implications: For academics, this research demonstrates how ML can unify sustainability and resilience streams in supply chain studies. For industry, it provides predictive tools to anticipate risks and align decarbonization initiatives with resilience strategies. For policymakers, it offers data-driven evidence to support the design of interventions for net-zero transitions.
Conclusion: The shift toward net-zero supply chains cannot be achieved without addressing disruption risks. This research introduces a machine learning framework that predicts both emissions and disruptions, moving beyond traditional optimization and MCDM methods. By leveraging predictive analytics, explainable AI, and scenario analysis, the study provides a robust and adaptable decision-support tool. The contribution lies in advancing theory, methodology, and practice in the development of sustainable and resilient supply chains for the net-zero era.

***Keywords:*** *Net Zero Transitions, Machine Learning, Explainable AI (XAI), Carbon emission prediction, Supply chain resilience*

## THE AI-ENHANCED SUPPLY CHAIN: ACHIEVING FUTURE-PROOF RESILIENCE WITH DATA-DRIVEN DECISIONS

*Swati Chavan (IMI Kolkata)*

**Abstract.** The way supply chains are currently managed isn't cutting it anymore because the world is so unpredictable. This paper explores a new idea: using AI to build smarter, more resilient supply chains. The goal is to shift from just reacting to problems to actually predicting and preventing them.
My research will look at how we can use machine learning to get really good at understanding a ton of real-time data—like supplier performance, global events, and even weather patterns. The idea is to have the system learn what could go wrong so it can respond quickly and make adjustments automatically.
Basically, I want to figure out how AI can help the supply chain become a "self-healing" system. Instead of being fragile and prone to breaking down, it would be smart and flexible enough to adapt to changes. This isn't just about making things more efficient; it's about making our supply chains strong enough to handle whatever comes next. This work is a step toward building a truly robust and competitive system for the future.

***Keywords:*** *Supply Chain Resilience, AI Machine Learning, Data-Driven Decisions, Predictive Analytic*

## EXPLORING DYNAMICS BETWEEN ARTIFICIAL INTERNET OF THINGS (AIOT), SUPPLY CHAIN TRANSPARENCY AND SUPPLY CHAIN SOCIAL SUSTAINABILITY

*Jighyasu Gaur (Indian Institute of Management Raipur), Pratyush Banerjee (IMI Bhubaneswar) and Shubhashree S. Iyer (Columbia University New York)*

**Abstract.** Grounded in Supply Chain Practice view, this study conducts an empirical investigation with professionals (n=401) employed across 15 manufacturing firms in India with AIOT integrated supply chain processes. The objective of this study is to understand the role that AIOT integration plays in the supply chain's overall operational transparency and its resultant impact on the firm's supply chain social sustainability. Moderation analysis indicates that employees who perceive their firm's AIOT integration to be more impactful, demonstrate more belief in their firm's overall supply chain transparency which in turn enhances their perception regarding their organization's supply chain social sustainability. The findings suggest the need for firms to integrate AIOT systems in their supply chain to enhance the overall social sustainability of their firm's processes.

***Keywords:*** *Supply chain transparency, Artificial Intelligence of Things, Supply Chain Social Sustainability*

## MODELING FLEXIBILITY IN THE SOAP MANUFACTURING SUPPLY CHAIN: INSIGHTS FROM SYSTEM DYNAMICS SIMULATION

*Rohit Kumar Singh (IMI Kolkata) and Padmanav Acharya (IIM Mumbai)*

**Abstract.** Although personal care sector within fast-moving consumer goods industry has been known as key contributor towards the growth of the economy, barely any study has been conducted to assess the flexibility in the personal care supply chain. Further, being competitive and challenging environment of the industry, domestic personal care firms are stressed for their supply chain performance. The state of affairs is predominantly critical in the soap manufacturing firm, which have simple, but yet long supply chain with ample amount of uncertainty and thereby increase the challenges for firms such as "how much to produce" and "how much should be the production lead time". Using expert views along with academicians and literature support, this paper investigates the flexibility associated with soap manufacturing supply chain. The paper describes a unique approach of assessing the supply chain flexibilities using a system dynamics model and authenticates the model in a soap manufacturing firm in India. Scenario analysis is conducted by changing the level of order rate and production lead time. The model along with the overall supply chain performance of a soap manufacturing unit evaluated, throws light on the degree of flexibility achievable by the firm through flexible supply chain. Flexibility dimensions having substantial and subordinate impact on improving the supply chain performance are recognized. The study is exclusive in reviewing the common man's sector of personal care industry, which has received the least consideration in literature

and practice. The study claims to be unique by applying system dynamics modeling to respond to research questions raised up along with inferences for practice and theory.

***Keywords:*** *Supply chain flexibility, Supply chain performance, Soap Manufacturing, System dynamics*

## UNLOCKING COLD CHAIN SUCCESS: A TISM-MICMAC EXPLORATION

*Madhu Arora (Symbiosis Institute of Computer Studies and Research, Symbiosis International (Deemed University), Pune, India), Rupesh Kumar (Jindal Global Business School (JGBS), O.P. Jindal Global University, Sonipat, Haryana), Ajay Jha (Jaipuria Institute of Management, Lucknow), Shri Krishna Pandey (Manipal Academy of Higher Education, Dubai Campus, UAE.,) and Sarbjit Singh Oberoi (Institute of Management Technology Nagpur)*

**Abstract.** Cold chain structures today, especially post-COVID-19, must ensure that they can meet the ever-increasing requirements of customers while also ensuring the safety and quality of products for the end consumer. In order to improve cold chain performance, this study primarily analyses the critical success factors (CSFs). The total interpretive structural modelling technique was exercised to construct contextual links amongst the isolated elements and then categorised into various groups on the basis of driving force and dependence through the application of Cross-Impact Matrix Multiplication Applied to a Classification (MICMAC). The TISM model emphasises the significance of infrastructure, awareness and integration, which are the foundational factors leading to responsiveness and sustainability. MICMAC analysis established that to enhance the success of the digital cold chain, it is imperative that infrastructure, awareness, integration, traceability, safety and quality are enhanced. Enhancing these CSFs will bring about enhanced responsiveness and a sustainable digital cold chain. Decision-makers and strategists in the supply chain domain can focus on crucial factors leading to effective choices and maximise value for businesses. Although the field is still in its stage of evolution, the study aims to contribute to the expanding information on digitally-led cold network. This study is among the few to look at success elements that are essential to raising cold chain performance and establishes the framework for additional study in this area.

***Keywords:*** *Cold chain, TISM, MICMAC, Infrastructure, Traceability, Sustainability, Integration*

## RISK MANAGEMENT AND RESILIENCE IN SUSTAINABLE OPERATIONS

*Dr. Shikha Singh (Ajeenkya D Y Patil University, Pune)*

**Abstract.** Sustainability in operations requires not only efficiency and environmental stewardship but also the capability to anticipate, mitigate, and recover from risks. Organizations face a growing spectrum of operational, environmental, social, and economic

risks that can disrupt production, supply chains, and market performance. This paper examines the integration of risk management and resilience into sustainable operations. It explores risk assessment methodologies, strategies for building resilient supply chains, crisis management and business continuity planning, and adaptive responses to climate-related risks. Additionally, sector-specific case studies, emerging risk analysis, and frameworks for future-proofing operations are discussed. Through literature synthesis and illustrative case studies, the paper highlights best practices, challenges, and recommendations for embedding resilience in sustainability-driven operations.

***Keywords:*** *sustainable operations, supply chain, crisis management, climate adaptation, emerging risk*

## EXAMINING BARRIERS TO SUPPLY CHAIN COLLABORATION FOR SUSTAINABLE SUPPLY CHAIN PERFORMANCE IN A NET-ZERO ECONOMY: AN INTEGRATED THEORETICAL AND ANALYTICAL FRAMEWORK

*Ruchi Mishra (Institute of Rural Management Anand (IRMA), Gujarat) and Rajesh Singh (Management Development Institute (MDI), India)*

**Abstract.** With the global agenda of achieving the net-zero target by 2050, reducing carbon emissions has become an urgent priority for global supply chains, driven by climate concerns, regulatory pressure, and growing stakeholder expectations. In this context, supply chain collaboration has evolved as a strategic lever to encourage innovation, maximise resource utilisation and achieve sustainable development goals. However, realising the full potential of such collaboration is constrained by barriers like incompatible digital systems, misaligned performance metrics, regulatory uncertainties, and cultural issues. Prior research largely emphasises the benefits and drivers of supply chain collaboration, with limited attention to the specific barriers impeding collaborative efforts for sustainable performance in a net-zero economy. This study systematically identifies, assesses, and prioritises these barriers by integrating Institutional Theory, the Technology-Organisation-Environment framework, and the Dynamic Capability View. Using the Fuzzy Delphi Method, Best-Worst Method and Graph Theory Matrix Approach (GTMA), the study identifies, classifies and prioritises barriers to effective collaboration. The study develops a GTMA-based self-assessment framework for organisational readiness in collaborative, sustainable transitions. This research offers a diagnostic tool for practitioners and contributes to understanding and overcoming the barriers to achieving a decarbonised and resilient supply chain. It offers actionable insights for designing interventions and guiding policy for a decarbonised supply chain. Socially, the study underscores the importance of investing in workforce training, ensuring digital equity, and fostering inclusive platforms for a just net-zero transition.

***Keywords:*** *Net Zero, Supply Chain Collaboration, Barriers, Sustainability*

# HUMAN RESOURCE MANAGEMENT

## CAN INCLUSIVE LEADERSHIP REDUCE KNOWLEDGE-HIDING BEHAVIORS?

*Dr. Arindam Bhattacharjee (IMI Kolkata)*

**Abstract.** Knowledge hiding is a low-intensity deviant employee behavior. To date, many antecedents of knowledge hiding have been uncovered. However, whether inclusive leadership can influence knowledge-hiding is a question that has attracted little attention. Therefore, in this paper, we build a conceptual framework of propositions linking inclusive leadership with knowledge hiding. Specifically, we leveraged the Social Exchange Theory to argue for a direct negative relationship between inclusive leadership and knowledge-hiding. Furthermore, the authors utilized the Affective Events theory to posit positive affect as a mediator and Machiavellianism as a boundary condition between inclusive leadership and knowledge hiding. The theoretical and practical implications of our conceptual framework are discussed.

***Keywords:*** *inclusive leadership, Mach, Machiavellianism, positive affect, positive emotions, knowledge hiding*

## TEACHING THE MACHINE, REPLACING THE HUMAN: KNOWLEDGE HIDING BEHAVIOR IN THE DIGITAL WORKPLACE

*Sweta Sinha (IMI Kolkata)*

**Abstract.** Based on the theory of psychological contract and protection motivation, this paper presents a conceptual framework of the AI integration at the organizational level, leading to knowledge-hiding behavior among employees. The paper reviews the existing literature to develop propositions and a conceptual model. An unclear AI integration strategy in an organization may drive the perception of violation of the psychological contract, and a perception of job threat, both of which may lead to knowledge-hiding behaviour. The relationship between the perception of violation of the psychological contract and job threat with the knowledge-hiding behaviour is moderated by employee resilience. The knowledge-hiding behavior can be mitigated through a transparent and inclusive AI implementation strategy. Training programs can be held to upskill the workforce so that they can perceive AI as a collaborator, rather than a competitor.

This paper is the first of its kind to utilize the theory of psychological contract and the theory of protection motivation to explore the utility of knowledge-hiding behavior as a coping mechanism in response to the job threat due to AI integration.

***Keywords:*** *AI, Knowledge hiding, Protection Motivation theory*

# UNLOCKING PROJECT SUCCESS IN VIRTUAL TEAMS: THE INTERPLAY OF KNOWLEDGE SHARING, CREATIVITY, AND TRANSFORMATIONAL LEADERSHIP IN IT PROJECTS

*Mahanish Panda (IMI Kolkata) and Roma Puri (IMI Kolkata)*

**Abstract.** As remote work becomes the norm in the IT industry, organizations face mounting challenges in managing knowledge flows and ensuring project success in virtual environments. This study examines the influence of knowledge sharing on project success, proposing a conceptual model in which employee creativity mediates this relationship, and transformational leadership moderates it. Drawing on Amabile's Theory of Creativity, the research posits that knowledge-sharing practices alone are not sufficient; instead, their effectiveness is amplified when employees are encouraged to apply knowledge creatively, particularly under empowering leadership.

Data were collected from 472 remote IT professionals across several organizations using a structured survey. The study applies structural equation modelling (SEM) to analyze the hypothesized relationships. Initial findings indicate that knowledge sharing significantly enhances employee creativity, which in turn leads to improved project outcomes. Furthermore, transformational leadership strengthens the link between knowledge sharing and creativity by creating a psychologically safe and motivating work environment, enabling employees to experiment, collaborate, and innovate without fear of failure.

Theoretically, this research extends the application of creativity theory into remote work contexts, offering a nuanced understanding of how leadership and creativity interact to influence knowledge-based outcomes. Practically, the findings provide actionable recommendations for IT managers and project leaders to foster creative behaviors, strengthen leadership capabilities, and redesign knowledge management strategies to suit digital-first environments. This study contributes to both academic literature and industry practice by addressing an urgent and timely concern: how to drive project success in the dynamic and dispersed nature of the remote IT workforce.

***Keywords:*** *Knowledge Sharing, Project Success, Employee Creativity, Transformational Leadership, Amabile's Creativity Theory*

## DRIVING SUSTAINABILITY: THE ROLE OF HUMAN RESOURCE MANAGEMENT IN ECOSYSTEM CONSERVATION WITHIN THE SMALL-SCALE HOSPITALITY SECTOR

*Harneet Kaur (Thapar Institute of Engineering and Technology, Patiala) and Anupam Sharma (Thapar Institute of Engineering and Technology, Patiala)*

**Abstract.** The accelerating degradation of natural ecosystems due to unsustainable tourism highlights the urgent need for environmentally responsible practices within the hospitality industry, especially in ecologically sensitive regions. This study explores the pivotal role Human Resource Management (HRM) can play in ecosystem conservation within small-scale hospitality businesses. It investigates green HRM strategies including sustainable recruitment, training, employee engagement, and performance management that align hotel operations with global sustainability goals. Drawing upon data from 35 boutique hotels across biodiversity-rich areas of Himachal Pradesh, India, the study identifies the challenges and opportunities for integrating sustainability into HRM practices. Findings emphasize the need for strategic HRM models that not only address biodiversity preservation but also foster sustainable work culture and community partnerships.

**Keywords:** Green HRM, ecosystem conservation, sustainable hospitality, biodiversity, Small-scale, sustainability training, CSR, SDGs

## INFLUENCE OF GREEN HRM ON SOCIAL RESPONSIBILITY INITIATIVES: A STUDY OF EMPLOYEE ENGAGEMENT AND SUSTAINABILITY OUTCOMES IN HIGHER EDUCATION SECTOR

*Riya Sharma (Thapar Institute of Engineering and Technology) and Anupam Sharma (Thapar Institute of Engineering and Technology)*

**Abstract.** This research explores the dynamic relationship between Green Human Resource Management (GHRM) practices and social responsibility initiatives in higher education institutions (HEIs), focusing on their impact on employee engagement and sustainability outcomes. With growing environmental challenges and heightened awareness of social accountability, HEIs are uniquely positioned to lead by integrating sustainability into their core functions. The study posits that GHRM—comprising green recruitment, training, performance management, and rewards—can serve as a transformative approach to embed environmental consciousness within institutional culture.

Through a mixed-method approach, the study investigates how GHRM fosters employee engagement and contributes to sustainability in HEIs. The conceptual framework aligns with theories such as Social Exchange and AMO (Ability-Motivation-Opportunity), suggesting that employees are more engaged when sustainability goals resonate with personal and institutional values. The research identifies that green engagement, psychological climate, and leadership commitment are critical mediators in driving sustainable behaviour and institutional transformation.

Empirical evidence is drawn from literature, supported by a proposed survey across top-ranking public and private HEIs in Punjab and Haryana, with a sample size calculated using statistical formulas. The study employs tools like descriptive statistics, factor analysis, regression, and structural equation modelling to evaluate the data.

Key research gaps addressed include limited empirical studies on GHRM's role in HEIs, its influence on long-term sustainability outcomes, and the psychological impact on faculty and staff. The findings aim to contribute a model that links GHRM practices with measurable sustainability impacts, offering actionable insights for policy-makers, administrators, and educators striving to align human resource strategies with environmental and social objectives. Ultimately, this study underscores the significance of integrating GHRM into institutional strategies to enhance environmental responsibility, employee participation, and sustainable development within higher education.

**Keywords:** Green HRM, Social Responsibility, Higher Education Institutions, Employee Engagement, Sustainability Outcomes

## INFLUENCE OF PERCEIVED ORGANIZATIONAL SUPPORT AND MENTAL WELL-BEING ON JOB SATISFACTION OF EMPLOYEES - A STUDY ON SELECT OIL REFINERIES IN ASSAM

*Bitupon Borah (Assam University Silchar) and Dr. Soumendra Bhattacharjee (Assam University Silchar)*

**Abstract.** Purpose: This study investigates the relationship between perceived organizational support (POS), mental well-being, and job satisfaction among executive employees in select public sector oil refineries of Assam, India. The objective of this paper is to assess whether a high level of perceived organizational support and psychological wellness translate into improved job satisfaction in high-demand industrial settings.

Theoretical Framework: Grounded in Organizational Support Theory (Eisenberger et al., 1986), this study examines the interplay between perceived organizational support (POS), mental well-being, and job satisfaction—factors central to organizational effectiveness. Data from 305 executive employees of select oil refineries of Assam were collected using validated tools, including the 8-item POS scale, 20-item Minnesota Satisfaction Questionnaire, and 14-item WEMWBS. Responses were captured using a five-point Likert scale to analyze patterns of perceived organizational support and mental well-being in relation to job satisfaction.

Design/Methodology/Approach: A descriptive cross-sectional design was adopted. Primary data were collected through a structured questionnaire incorporating validated scales: the Perceived Organizational Support Scale, Warwick-Edinburgh Mental Well-being Scale, and Minnesota Satisfaction Questionnaire. Responses from 305 executive employees were analyzed using SPSS v27. Due to non-normality in the dataset, Spearman's rank-order correlation was employed.

Findings: Descriptive statistics revealed high levels of job satisfaction and perceived organizational support, alongside moderately strong mental well-being. However, correlation

analyses did not yield any statistically significant associations among the core constructs. Similarly, gender did not exhibit a significant influence on any of the variables studied.
Practical Implications: While the constructs are individually rated positively, their interrelationships appear to be more complex and context-dependent than suggested in the literature. The findings underscore the necessity for contextualized, longitudinal, and multi-variable approaches in industrial HR research and interventions.
Originality/Value: The study addresses a significant research gap in the oil refineries in India under the public sector, offering valuable insights for HR policy and employee well-being in operationally intensive environments.

**Keywords:** Perceived Organizational Support, Job Satisfaction, Oil Refineries, Mental Well-being

## BEYOND EFFICIENCY: EMOTIONAL SUSTAINABILITY OF HYBRID EMPLOYEES UNDER SURVEILLANCE AND POLITICAL PRESSURES

*Lavanya R S (Vellore Institute of Technology) and Sowmya G (Vellore Institute of Technology)*

**Abstract.** The rise of hybrid work in India's IT sector has been accompanied by increased use of digital surveillance tools such as login tracking, screen monitoring, and webcam oversight to maintain productivity. While these technologies may enhance operational control, their emotional implications remain poorly understood. Anchored in Conservation of Resources (COR) theory (Hobfoll, 1989), this mixed-method study investigates whether surveillance-induced stress mediates the relationship between perceived surveillance and emotional exhaustion, and whether this pathway is amplified by perceived organizational politics.
Study 1 adopts an interpretive phenomenological approach, drawing on interviews with 16 hybrid IT professionals. Participants described experiences of psychological strain under digital monitoring, particularly in politically charged environments. Themes of distrust, invisible labor, and hypervigilance emerged, revealing how surveillance is interpreted not merely as a technical control system but as a source of emotional depletion when coupled with ambiguous power dynamics.
Study 2 employs a two-wave, time-lagged survey of 469 hybrid IT employees across Indian tech hubs. In Wave 1, participants reported on perceived surveillance (Segijn et al., 2022), surveillance stress (Tarafdar et al., 2007), and organizational politics (Kacmar & Ferris, 1991). In Wave 2, conducted four weeks later, they responded to the emotional exhaustion subscale of the Maslach Burnout Inventory (Maslach & Jackson, 1981). Structural equation modeling (SEM) revealed that surveillance stress fully mediates the relationship between perceived surveillance and emotional exhaustion. Furthermore, the mediation effect is significantly stronger under high organizational politics, supporting a moderated mediation model consistent with COR theory.
Meta-inferences from both phases affirm that digital surveillance in hybrid teams imposes emotional costs, particularly when embedded in opaque or politicized environments. This study underscores the need for ethically aligned digital HRM strategies that prioritize emotional

sustainability alongside operational efficiency, contributing to responsible technological transformation in the future of work.

***Keywords:*** *Perceived Surveillance, Surveillance Stress, Emotional Exhaustion, Organizational Politics*

## GREEN HRM IN HEALTHCARE: A THEMATIC FRAMEWORK FOR SUSTAINABLE PERFORMANCE IN DEVELOPING ECONOMIES

*Tina Paul (Research Scholar) and Jayeeta Debnath Munshi (Academician)*

**Abstract.** Healthcare in emerging economies needs to consider both service delivery and sustainability of the environment. Green Human Resource Management (GHRM) provides one route, but its use in healthcare remains underresearched. This research provides a thematic framework for Palestinian healthcare organizations based on previous empirical research. It includes five practices at the core—green recruitment, training, participation, performance management, and rewards—and their effects on environmental, economic, and social performance. Findings indicate moderate uptake but positive associations with sustainability, with recruitment and training being most effective. The model presents pragmatic advice for managers to integrate sustainability into HR systems in the face of institutional and resource constraints. It expands GHRM research to public healthcare and provides a basis for more comprehensive validation in other service industries.

**Keywords:** Green HRM, Healthcare Sector, Sustainable Performance

## THE IMPACT OF GREEN HRM PRACTICES ON EMPLOYEE PERFORMANCE: A MIXED-METHOD STUDY IN THE CONTEXT OF SUSTAINABILITY AND DIGITAL TRANSFORMATION

*Dr. Saravanan P (Kathir College of Arts and Science), Dr. Prathima V (Vidyavardhaka College of Engineering, Gokulam) and Mr. Amit Subramanyam (Rani Channamma University Belagavi)*

**Abstract.** The global momentum toward achieving net-zero targets has encouraged organizations to adopt sustainable strategies that go beyond environmental management and extend to human resource practices. Green Human Resource Management (GHRM)—covering green recruitment, training, performance appraisal, and rewards—has gained recognition as a key enabler of sustainable business practices (Renwick, Redman, & Maguire, 2013). However, while the environmental benefits of GHRM are increasingly documented, its implications for employee performance and engagement remain underexplored, particularly when viewed through the lens of digital transformation.

This study employs a mixed-method design to examine the influence of GHRM practices on employee performance. On the qualitative side, the research explores employee perceptions of sustainability-oriented HR policies through in-depth semi-structured interviews with employees and HR professionals across industries. The aim is to capture narratives on how green initiatives affect motivation, satisfaction, and alignment with organizational sustainability goals. Using thematic analysis, these qualitative insights provide contextual depth to the study.

On the quantitative side, the study investigates the relationship between GHRM practices and employee performance metrics through structured surveys. The survey data will be analyzed using Structural Equation Modeling (SEM) to test hypothesized relationships and validate the influence of GHRM on employee engagement, productivity, and overall performance (Paillé et al., 2014).To strengthen the analytical rigor, the study integrates advanced tools and techniques. VOSviewer will be used for bibliometric mapping of existing literature on GHRM and performance, enabling identification of research gaps and dominant themes. Fuzzy-Set Qualitative Comparative Analysis (fsQCA) will help uncover causal configurations of HR practices that contribute to high employee performance, offering a nuanced understanding of multiple pathways leading to desired outcomes (Ragin, 2008). Additionally, Vector Regression will be applied to model the dynamic interplay between GHRM practices and performance over time, thereby capturing the predictive strength of sustainability-focused HRpolicies in influencing organizational outcomes.

The findings are expected to offer both theoretical and practical contributions. Theoretically, the study will extend the discourse on sustainable HRM by linking green practices with measurable employee outcomes. Practically, it will guide HR managers in designing policies that not only reduce environmental footprints but also enhance employee productivity and engagement. By integrating qualitative perceptions with quantitative metrics and applying advanced analytical tools, this research provides a comprehensive framework for understanding the role of HRM in driving both sustainability and performance in the digital age.

***Keywords:*** *Green Human Resource Management (GHRM), Green Recruitment, Employee Performance, Performance Appraisal*

# TRANSFORMATIONAL LEADERSHIP FOR SUSTAINABLE PSYCHOSOCIAL HEALTH IN THE ERA OF AI

*Pooja Thapliyal (SP Jain School of Global Management)*

**Abstract.** This paper examines the critical role of transformational leadership in fostering and enhancing sustainable psychosocial health of employees within organizational ecosystems, amidst the extensive integration of artificial intelligence (AI). Organisations are encountering unprecedented psychosocial challenges, including technostress, anxiety, and uncertainty as AI transforms workplace processes and employee experiences across the globe. To tackle these challenges, a transformational leadership stands out as key enabler of employee wellbeing and organisational sustainability and is defined by its vision, inspirational motivation, individualized consideration, and intellectual stimulation.

The findings of this study indicates that transformational leadership plays a pivotal role in promoting resilience, wellbeing, and engagement among employees in the workplaces undergoing AI Integration. Agile and adaptive organisational structures, led by visionary and ethical leaders, enable businesses to effectively navigate rapid digital transformation and psychosocial stressors. Ethical leadership practices build trust and mitigate AI-related anxiety, supporting sustainable workforce health. These results substantiate the need for organisations to invest in specialised leadership development, building sustainable HR practices, culture of continuous learning, and implementing agile teams capable of adapting to evolving AI technologies. For academics and practitioners, this study enriches theoretical understanding and provides actionable frameworks for creating resilient, inclusive, and future-ready AI-driven workplaces build around employee's psychosocial health & wellbeing. Overall, transformational leadership emerges as a cornerstone for sustainable organisational and psychosocial outcomes in the AI- driven workplaces.

A systematic literature review, complemented by critical synthesis, will be conducted to rigorously identify, evaluate, and integrate empirical studies and thematic insights to ensures comprehensive coverage and nuanced analysis, strengthening the relevance and applicability of findings for both business leaders and academic professionals.

***Keywords:*** *Transformational leadership, Psychosocial health, Artificial intelligence (AI) integration, Sustainable leadership, Digital Transformation, AI-driven workplaces, Sustainable HR practices*

## DIGITAL HR ANALYTICS, ORGANIZATIONAL JUSTICE, AND SOCIAL SUSTAINABILITY: THE ROLE OF INFORMATION OVERLOAD

*Yajikumar E M (Vellore Institute of Technology (VIT) ,Vellore) and Sowmya G (Vellore Institute of Technology (VIT),Vellore)*

**Abstract.** Digital HR analytics is helping organizations make better decisions about employees using data. But it is not clear how these systems affect fairness at work and socially responsible practices. This study looks at how digital HR analytics may improve social sustainability through organizational justice, and how information overload can change this effect. Using Social Exchange Theory, the study suggests that when employees feel that HR processes are fair, they are more likely to behave in ways that support fair and inclusive workplaces. Too much information, however, may reduce this effect because employees may find it hard to notice or respond to fairness. The study will use a mixed-methods approach, combining surveys of employees and interviews with HR managers. The findings are expected to show how fair and well-managed HR analytics systems can improve social sustainability, and why managing information carefully is important.

***Keywords:*** *Digital HR Analytics, Organizational Justice, Social Sustainability, Information Overload, Social Exchange Theory*

## ORGANIZATIONAL SUSTAINABILITY THROUGH PREDICTIVE WORKER PRODUCTIVITY

*Malabika Chakraborty (Netaji nagar day college) and Sriparna Guha (Narula Institute of Technology)*

**Abstract.** Organizational productivity reflects how effectively a company utilizes its resources to attain strategic goals. Organizational productivity is immensely dependent on worker productivity, which reflects the efficiency and effectiveness of employees in workplace. Researchers in the past have already identified five factors such as “Workplace Environment”, “Compensation and Salary Structure”, “Peer Relationship”, “Supervisor Subordinate Relationship” and “Family influence” that have significant influence in determining worker productivity. Self-efficacy, the belief in one’s own capabilities to execute specific tasks, is a key psychological factor influencing motivation, goal-setting, and persistence at work. This study investigates the relationship between self-efficacy and worker productivity, aiming to measure how self-efficacy influences worker productivity across selected industries. Primarily to identify underlying relationships among these determinants Spearman’s Rho Factor analysis is used as a data reduction technique that explain the patterns of correlations among these factors. Data were collected through a structured survey of 100 employees in the manufacturing sector of West Bengal, India. Initial analysis revealed that the factor “Family influence” exhibits very low correlation with every other factor including self-efficacy, implying it operates independently of internal organizational constructs. Hence, a composite productivity index was constructed using Principal Component Analysis (PCA) on the dataset excluding

weakly correlated “Family influence” variable. Finally, to evaluate the influence of self-efficacy on worker productivity, OLS regression model was developed, treating self-efficacy scores as the independent variable and the PCA-derived productivity score as the dependent variable. The results demonstrated a statistically significant relationship affirming that increases in self-efficacy were associated with higher productivity scores. It also confirmed that by predicting the worker productivity using self-efficacy organizations can attain long-term sustainability.

***Keywords:*** *Organizational Sustainability, Worker Productivity, Self-Efficacy*

## MITIGATING TECHNOSTRESS IN THE DIGITAL AGE: THE ROLE OF PSYCHOLOGICAL CAPITAL IN FOSTERING SUSTAINABLE WORK-LIFE QUALITY AMONG HIGHER EDUCATION FACULTY

*Sneha Dutta (Amity University) and Dr.Sriparna Guha (Amity University)*

**Abstract.** The rapid digitalization of higher education has revolutionized academic work yet simultaneously intensified technostress - the strain arising from constant connectivity, technology overload, and adaptation pressures. This study investigates the mitigating role of Psychological Capital (PsyCap) - hope, efficacy, optimism, and resilience in reducing technostress and promoting Quality of Work Life (QoWL) among higher-education faculty. By linking PsyCap to faculty adaptability under digital transformation, the study highlights how psychological strengths enable educators to sustain performance and well-being amid evolving technological demands. Drawing upon the Conservation of Resources (COR) theory and Positive Organizational Behavior framework, a mediational model is proposed where PsyCap acts as a psychological resource buffering the adverse effects of technostress on sustainable work-life quality. Using a quantitative design, data are being collected from faculty members of higher-education institutions across West Bengal through standardized instruments (Technostress Scale, PCQ-24, WRQoL Scale). Pilot results ($n = 60$) indicate significant reliability ($\alpha > 0.80$) and meaningful correlations: technostress–PsyCap ($r = -0.41$, $p < 0.01$) and PsyCap-QoWL ($r = 0.54$, $p < 0.01$). The study anticipates that higher PsyCap will reduce technostress and enhance work-life quality, contributing to human sustainability in digital academia. Findings will guide interventions such as digital-wellness programs and faculty development initiatives, aligning with SDG 3 (Good Health and Well-being) and SDG 4 (Quality Education).

***Keywords:*** *Technostress, Psychological Capital, Sustainable Quality of life, Digital Transformation, Higher Education Faculty*

## IMPACT OF WOMEN LEADERSHIP ON ORGANIZATIONAL PERFORMANCE

*Smt. Laxmi Shivannavar (Research Scholar, Sanjay Godhawat University, Kolhapur) and Dr. Revati Deshpande (Associate Professor and HOD, School of Commerce ,Sanjay Ghodawat University Kolhapur)*

**Abstract.** This study examines the relationship between gender diversity in leadership positions and organisational performance in the banking sector, with the mediating variable being organisational culture. It also wants to find out how let's leadership quality affects this relationship. This study validates the hypothesised relationships using Partial Least Squares Structural Equation Modelling (PLS-SEM) technique through survey data collected from 403 women leaders at administrative positions of commercial banks in Karnataka. As per the findings of the measurement model, it can be stated that the model is valid and reliable. In the same way, the assessment of the structural model shows excellent predictive power. To put it differently, the model successfully explains the 33.4 percentage variation in organization performance. The findings indicated that female leaders had a positive influence on firm performance and gender diversity in leadership positions. The organisational culture strengthens the association between quality leadership and performance. Furthermore, gender diversity within leadership has direct effects on performance. Female leaders drive inclusive innovation and sustainable development which are positive outcomes of technological, competitiveness and sustainability transformation across the board. The research paper relating to female leadership quality, culture diversity and gender subsequently proposes a new-song framework which further contributes to the diversity and leadership literature. Banking organizations to make controls in AI age resilient and competitive This provides a theoretical contribution as well as practical insights for banking organizations to achieve resilience and competitiveness in the age of AI.

***Keywords:*** *Women Leadership Quality, Leadership Gender Diversity, Organizational Culture, Organizational Performance, Banking Sector*

## INTEGRATING EMOTIONAL INTELLIGENCE AND MINDFULNESS: A CONCEPTUAL PERSPECTIVE ON MINDFUL LEADERSHIP

*Tulsi Thakran (Gurugram University), Amarjeet Kaur Malhotra (Gurugram University) and Shweta Mittal (Indian Institute of Public Administration)*

**Abstract.** Purpose: Emotional intelligence and mindfulness are two important concepts independently. This study aims to integrate and synthesize the variables of EI and mindfulness by systematically reviewing the previous high-quality literature of scholarly works to gain deeper insight into how this integration leads to positive organisational outcomes. Though there is a gap in existing research, as they were heavily inclined towards separate constructs rather than an integrated relationship in leadership aspects. In a complex organisational environment, it becomes very crucial to understand others and own emotional needs through leadership effectiveness. The main aim of this study is to construct a conceptual model that showcases a

combined relationship between mindfulness and emotional intelligence and, additionally, their integrated effect on individual, group, leader, and organisational outcomes. This study recognized the importance of emotional intelligence for positive and successful work teams and 'leading by feeling' in today's era. On the other hand, mindfulness leads to better leadership capabilities and self-awareness.
Design/Methodology—This study leverages a detailed conceptual review, drawing upon literature that comprises psychology, behaviour management, organisational behaviour, innovation, emotional competence, healthcare, personality, and individual differences. This conceptual paper analyses how these two psychological aspects—mindfulness (present-moment consciousness) and emotional intelligence (understanding and overcoming emotions)—are intertwined. The analysis of this study pertains to seminal works such as Goleman's Emotional Intelligence Model, Transformational Leadership Theory, and Kabat-Zinn's Mindfulness Theory.
Findings—This conceptual paper reveals that EI acts as a crucial aspect characterized by self-awareness and interpersonal skills when integrated with mindfulness that relies on the present moment and internal peace leveraged to mindful leadership (empathy, humility, standing back, transparency, authenticity, and positivity), ultimately leading to positive organizational outcomes (reduced burnout, improved efficiency, and better sustainable performance).
Research Implications— This paper offers numerous notable implications. First, EI contributes to psychological capital, enabling individuals to stay motivated and cultivate compassion, thereby contributing to mindful practices. Secondly, the need for EI and mindfulness in leadership is vital to Strategic Human Resource Management (SHRM). Overall, these theoretical and practical implications suggest that increased focus on EI and mindful practices is critical to leading in this complex modern organisation.
Originality/value—This paper brings a novel synthesis that showcases how emotional intelligence fuels present-moment consciousness (mindfulness), thereby overcoming mental stress and improving organisational effectiveness. It provides a roadmap for future research relying on conceptual testing within leadership development.

***Keywords:*** *Emotional Intelligence, Mindfulness, Mindful Leadership, Organisational Behaviour*

## FOSTERING ORGANIZATIONAL RESILIENCE THROUGH SUSTAINABLE HRM PRACTICES IN THE POST-PANDEMIC ERA: AN EMPIRICAL STUDY OF THE INDIAN IT SECTOR

*Ashwini Hiremath (VTU) and Basavaraj Kudachimath (VTU)*

Abstract. Purpose: The COVID-19 pandemic acted as a global stress test, exposing organizational vulnerabilities and highlighting the criticality of resilience. This study investigates the role of Sustainable Human Resource Management (SHRM) practices in fostering organizational resilience in the post-pandemic business environment. It aims to empirically examine the relationship between the three dimensions of SHRM—social,

environmental, and economic—and organizational resilience within the dynamic Indian Information Technology (IT) sector.

***Keywords:*** *Sustainable HRM, Organizational Resilience, Post-COVID-19 Employee Well-being, Green HRM*

## MAKING SENSE OF ALGORITHMS: THE ROLE OF MATERIAL FEATURES IN WORK PRACTICES

*Jaikiran Dhanasekaran (IIM Trichy)*

**Abstract.** Over the past decade, there has been an increase of the number of employees who interact with an algorithmic management system across industries. These automated systems perform managerial tasks that are often opaque and of a complex nature by design, hence it is difficult for employees to interpret and comprehend them. In such a setting, when employees struggle to reach their goals, the question arises whether this calls for them to reassess their sensemaking or question the material features of the technology. My argument in this paper is that the answer to such a question is not simply "yes" or "no," but rather depends greatly on the degree to which human agency is intertwined with the material features of algorithmic systems. As I have suggested, I claim that the design features and interface affordances, along with the logic embedded in algorithmic systems, have an immediate impact on how these systems are perceived. Drawing on and extending sensemaking frameworks, I show how perceptions of materiality influence whether users adjust their routines or reconfigure interactions with others.

***Keywords:*** *Algorithmic Management, Sensemaking, Algorithm Sensemaking, Socio-materiality, Human Agency*

## ALGORITHMIC CONTROL, WORK STRESSORS, MOTIVATIONAL RESOURCES, AND RETENTION INTENTIONS: A JD-R PERSPECTIVE ON INDIA'S GIG WORKFORCE

*Alshifa Anwer (IIIT ALLAHABAD) and Dr. Saurabh Mishra (IIIT ALLAHABAD)*

**Abstract.** The study discusses the impact of workload, algorithmic control, and customer pressure on the engagement and stress faced by gig workers in India, and how factors like flexibility, autonomy, etc influences their retention intentions and well-being. By considering the Job Demands Resources (JD-R) theory, the research examines how job demands leads to an increase in stress level while job resources such as flexibility, autonomy, and organisational support adds to engagement and mitigate negative outcomes. The data is taken from gig workers across many digital platforms that practice excessive algorithmic control. The workload significantly magnifies stress, whereas a supportive and flexible work environment ensures a high retention and more engagement. The findings of the research contribute to not just knowing but understanding the physiological experiences of gig workers' and offers some

implications for creating a fairer, better and more sustainable digital labor system in Indians expanding digital platform economy.

***Keywords:*** *Gig economy, Job engagement, JDR theory*

## EXPLORING THE DEPTHS: LEVERAGING DATA MINING TECHNIQUES FOR THE ANALYSIS OF EMPLOYEE PERFORMANCE AND PRODUCTIVITY

*Sukhpreet Kaur (PMLSD BUSINESS SCHOOL) and Harsimran Kaur (Amity University,Punjab)*

**Abstract.** Increasing employee performance and productivity has become an essential objective for contemporary businesses, given the frequently changing nature of the terrain in which they operate. This is necessary for sustaining competitiveness and attaining sustainable growth. Data mining methods provide companies with useful instruments for extracting insights from the large amounts of employee-related data that are accumulated over the course of their operations. The purpose of this study is to provide an overview of the various data mining approaches that have been used to examine the performance and productivity of employees. The study commences by exploring the significance of employee performance evaluations and their correlation with overall business success. Subsequently, it delves into data mining, elucidating key concepts such as data preparation, feature selection, and model assessment. An in-depth examination of data mining methods, including both supervised and unsupervised learning strategies, is presented in the study. The study examines various supervised learning methods, including as neural networks, decision trees, and support vector machines, to predict employee performance and identify factors that impact productivity. The purpose of this study is to examine unsupervised approaches such as clustering and association rule mining in order to find hidden patterns within employee data. This will make it easier to identify employee groups that have different performance characteristics. This study also provides an empirical investigation into how AI-enabled data mining techniques can be used to analyze employee performance and productivity. A dataset of 120 employees from the automotive sector working in the NCR Region was examined using decision trees, neural networks, logistic regression, support vector machines (SVM), and K-Means clustering.

***Keywords:*** *Employee Performance, Human Resource Analytics, Data Analytics*

## MENTAL HEALTH AND CAREER INTENTIONS OF GIG WORKERS: A STUDY IN INDIAN PERSPECTIVE

*Shayeri Sadat (University of Calcutta), Dipa Mitra (University of Calcutta) and Madhumita Mohanty (University of Calcutta)*

**Abstract.** The sudden emergence of digital labour platforms such as Swiggy, Zomato, Ola, Urban Company, etc has reshaped India's employment scenario, giving flexibility and earning opportunities to millions. Although, this transition has also introduced psychological concerns among gig workers, including stress, anxiety, job insecurity and emotional fatigue stimulated

by unstable income, customer ratings, and algorithmic control. In spite of the rapid expansion of this sector, the psychological health of gig workers in India remains underexplored.
This research helps to interrogate the impact of work-related factors on the mental well-being of platform-based gig workers, explore variations among different industries, and understand their long-term career intentions. The study adopts a mixed-methods design, incorporating both quantitative and qualitative techniques to attain the varied nature of gig work. The quantitative method will be used to survey 500–700 platform workers across different sectors such as delivery, ride-hailing, and personal services using standardized tools, including the Kessler Psychological Distress Scale (K10) and other relevant scales. Statistical methods like descriptive analysis, ANOVA, regression and others will check upon the relationship between work-related variables and psychological distress. The qualitative method will include extensive interviews with 20 participants to thematically investigate their experiences, emotional challenges, and coping mechanisms.
Initial presumptions signify that irregular income, lack of job security, and extensive working hours noticeably impact mental health and that several gig employees may prefer stable employment if given the choice. The study's outcomes will give meaningful outcomes for creating cleaer platform strategies, mental health support frameworks, and comprehensive labour habits to promote sustainable well-being among India's gig workforce.

***Keywords:*** *Human Resource Management, Gig Economy, Employee Wellbeing*

## REJECTED BY CODE: A FRAMEWORK FOR UNDERSTANDING ALGORITHMIC FAIRNESS AND HUMAN OVERSIGHT IN AI-DRIVEN HIRING AND ALIGNING ALGORITHMIC FAIRNESS IN HRM WITH THE SDGS

*Tuneer Chakrabarti (XLRI, Jamshedpur) and Debarchita Sinha (XLRI, Jamshedpur)*

**Abstract.** With an ever greater level of integration of Artificial Intelligence (AI) tools and algorithmic processes during all the stages of recruitment, from identifying good matches to filtering and even in some cases acceptance or rejection, concerns regarding fairness, accountability and transparency have become paramount to the current scenario. While it is easy to laud these innovations to be primarily objective and highly efficient, there is always the risk of bias which keeps existing separate from its promises, more so when they are operating without human oversight or clear transparency. This paper exists to propose a framework that can be able to integrate socio-technical systems thinking, trust in automation, procedural justice theory and attribution to accountability to be able to understand how the characteristics of the algorithm and human moderators influence final hiring outcomes and perceptions of fairness. Specifically, this framework in question also tries to identify auditability, algo transparency, auditability and data bias as the fundamental features that shape outcomes, with critical moderators of accountability, recruiter trust in automation and override authority. The paper goes on to further propose perceived procedural fairness as the key mediating variable linking our design and perception variables to the ultimate hiring outcomes, such as hire quality, bias and acceptance of the candidate. Furthermore, the paper frames algorithmic fairness and human

oversight in AI-driven hiring as critical levers for advancing global Sustainable Development Goals (SDGs), particularly those related to ending discrimination (SDG 5), promoting decent work (SDG 8), reducing inequalities (SDG 10), and building accountable, transparent institutions (SDG 16). By incorporating these objectives within HR technology, the framework not only addresses organisational imperatives but also contributes towards a sustainable and equitable future for all. In that line, the paper also puts forth six propositions that may guide future empirical work in this field and attempts to put forward recommendations regarding ethical design, deployment and governance of AI in hiring systems in the field of Human Resource Management.

***Keywords:*** *Algorithmic Fairness, Human Oversight, AI-Driven Hiring, Bias in Recruitment, Trust in Automation, Sustainable Development Goals (SDGs), Inclusive Hiring, Ethical AI, Recruiter Override Authority, Algorithmic Bias, Diversity and Inclusion*

## CONSENSUS OR CONTRADICTION? ANALYZING DIVERGING NARRATIVES ON DECENT WORK

*Atanu Manna (Research Scholar, Centre for Environmental Studies, Vidyasagar University, Midnapore, 721102) and Debasish Biswas (HOD & Associate Professor, Department of Business Administration, Vidyasagar University, Midnapore, 721102)*

**Abstract.** This study examines how three groups—governments, employers, and workers—build and share the meaning of Decent Work in the global policy setting of the International Labour Conference (ILC). We analyze 818 plenary speeches from the 110th to 112th ILC sessions (2022–2024) and use Latent Dirichlet Allocation (LDA) to identify eight main themes: Social Justice, Labour Rights, Workforce Development, Employment Support, Crisis Management in Employment, Social Dialogue, Job Quality, and Human Rights at Work. We then conduct a series of one-way ANOVA tests to explore differences in focus among the stakeholder groups and country income levels, followed by Tukey post-hoc tests for significant findings: The results show that differences among stakeholders are most clear in institutional themes. Employers stress Social Justice, Labour Rights, and Social Dialogue more than the other groups. On the other hand, differences in income levels stand out in developmental themes like Workforce Development and Job Quality, with middle- and high-income countries placing more emphasis. Interestingly, worker representatives did not significantly lead discussions on themes that typically focus on workers, challenging assumptions in Stakeholder Theory regarding legitimacy and urgency.

Theoretically, the study expands stakeholder salience models by demonstrating how stakeholders signal their views within multilateral organizations. Practically, it highlights the need to separate rhetorical alignment from real policy commitment in global labor governance. Methodologically, the study offers a replicable framework for combining topic modeling with stakeholder-based policy analysis in international settings.

***Keywords:*** *Decent Work, ILO, Labour Rights, Social Justice, Job Quality*

## DIGITAL DETOX AS AN EMPLOYEE-INITIATED RECOVERY STRATEGY: AUTONOMY, WELL-BEING, AND IDENTITY RENEWAL IN HIGH-DIGITAL-DEMAND WORK ENVIRONMENTS

*Rachana Chattopadhyay (IMI Kolkata)*

**Abstract.** Digital fatigue has emerged as a significant occupational health challenge in technology-intensive work environments, and this study investigates digital detox as an employee-initiated recovery strategy by examining its motivational drivers, perceived autonomy, willingness to invest in recovery, and effects on post-detox psychological well-being. Using a mixed-methods design, Phase I involved qualitative interviews with employees from high-digital-demand occupations to identify motivational themes for digital detox, while Phase II tested a structural model with survey data from 300 employees, applying segmentation analysis to profile recovery orientations. Findings revealed three motivational segments—High-Autonomy Restorers, Exploratory Recoverers, and Socially Driven Participants—with mindfulness and wellness motivations strongly linked to perceived autonomy, which positively influenced willingness to invest in recovery and post-detox well-being. The study highlights the importance of autonomy-supportive workplace interventions that acknowledge diverse recovery motivations and demonstrates that tailoring digital detox initiatives to employee profiles can enhance participation, normalise disconnection, and improve occupational health outcomes. By reframing digital detox from a leisure activity to a strategic occupational health behaviour, this study integrates Self-Determination Theory with established recovery models and contributes to employee well-being policy and practice.

***Keywords:*** *Digital fatigue, Employee well-being, Digital detox, Recovery strategies, Perceived autonomy, Occupational health, Self-Determination Theory, Psychological detachment, Workplace interventions*

## HR ANALYTICS FOR NET-ZERO: LEVERAGING WORKFORCE METRICS TO ALIGN EMPLOYEE CONTRIBUTIONS WITH ORGANIZATIONAL SUSTAINABILITY GOALS

*Dr. Subrata Ghosh (Maulana Abul Kalam Azad University of technology, West Bengal) and Dr. Sarani Bhaumik (Maulana Abul Kalam Azad University of technology, West Bengal)*

**Abstract.** As organizations increasingly commit to net-zero targets, understanding and quantifying the workforce's contribution to sustainability has become critical. This study explores the role of HR analytics in tracking employee-level sustainability metrics to support organizational net-zero goals. It identifies key workforce-level metrics, including employee carbon footprint, such as business travel emissions, commuting emissions, and reductions achieved through remote work, and green training and development metrics, including training hours per employee and participation in sustainability programs. By integrating these metrics into HR analytics frameworks, organizations can better assess employee contributions and align workforce behavior with sustainability objectives. The study emphasizes the strategic

role of HR in promoting pro-environmental behaviors to attain organizational sustainability goal towards Net Zero.

***Keywords:*** *HR Analytics, Workforce Metrics, Organizational Sustainability, Sustainability Metrics, Net-Zero*

## COACHING AS A CATALYST FOR PSYCHOLOGICAL SAFETY: A SCOPING REVIEW IN INDIAN ORGANIZATIONAL CONTEXTS

*Siddartha Mazumdar (S P Jain School of Global Management)*

**Abstract.** Background/ Context: Psychological safety is the birth right of every human. As social beings the shared belief that an individual can talk about their real feelings, thoughts and vulnerabilities without fear of being judged and facing negative consequences is a critical aspect of our society.

Purpose/ Research Objective: This paper explores the existing research on coaching as a catalyst for psychological safety within Indian organizational context. The main objective of this paper is to present and critically analyse the key findings drawing from global and India-specific literature; establish the gaps to propose and guide future research in this area by synthesizing various coaching scenarios, empirical findings and cultural considerations in the Indian context from a coaching lens to shape the psychological safety dynamics.

Methodology: Using the scoping review methodology to explore the existing literature on coaching as a catalyst for psychological safety within Indian organizational contexts, the review aims to identify conceptual linkages, empirical evidence, and contextual gaps to inform future research and practice.

Key Findings: There are two key findings of this research paper:

- Though there are several studies on coaching and psychological safety, research on how coaching acts as a catalyst in fostering psychological safety is scarce. However, the reviewed literature suggests that there is a definitive inter-relation between coaching and psychological safety, especially from studies from a global perspective.
- Coaching and psychological safety in Indian organizational contexts is an under-researched topic.

Conclusion/ Implications: This paper identifies the gaps and scope for future research in the intricate inter-relationship between coaching and psychological safety. This study also suggests a conceptual model of Coaching driven Psychological Safety Net Framework for Indian organizations, incorporable at a theoretical, practice and policy level.

***Keywords:*** *Coaching, Catalyst, Psychological Safety, Framework*

# SCREEN TIME, ADVERTISING EXPOSURE, AND BEHAVIORAL EFFECTS ON CHILDREN: A CONTEMPORARY LITERATURE REVIEW IN THE INDIAN CONTEXT

*Sweta Singh (ICFAI, IFHE, (IBS) Hyderabad), Rahul Bhagat (PIMR, Indore) and Rashmita Saran (ICFAI, IFHE, (IBS) Hyderabad)*

**Abstract.** India has over 250 million children below 14 years old, positioning it among the countries with the highest number of children in the world (UNICEF, 2023). In the last ten years, the growth of digital media has greatly changed how children spend their time, with screen usage becoming a normal part of everyday life for many. In India, the availability of affordable smartphones, increased internet access, and the popularity of streaming services have led to a major increase in how much children use digital devices (IAMAI, 2023).

According to NCERT (2021), Indian children have seen a significant rise in screen time for entertainment purposes during and after the COVID-19 pandemic, with daily usage often going beyond what is considered safe (Kumar et al., 2021). Data from the Internet and Mobile Association of India (IAMAI, 2023) shows that children aged 5 to 15 spend an average of 2 to 4 hours daily on screens, with higher usage reported in urban and middle-class families (Baruah & Das, 2023). This exposure is not only for educational or fun content; children are also being exposed to advanced advertising techniques through advergames, social media influencers, and branded content on platforms such as OTT services, Twitter, and YouTube(ASCI, 2023; Sarkar & Sinha, 2023; Valkenburg & Piotrowski, 2017).

The increase in unsupervised digital engagement raises concerns about children's exposure to advertising content. Unlike traditional television ads, digital ads are often personalized, immersive, and embedded within entertainment content through techniques like influencer marketing, product placements, advergames, and native advertising (Nayar & Malhotra, 2020). These marketing strategies often blur the line between content and advertisement, making it difficult for children to distinguish persuasive intent, particularly among younger age groups (UNICEF, 2023). The Advertising Standards Council of India
(ASCI) has highlighted the inadequacy of current advertising guidelines to protect minors from manipulative digital advertising (ASCI, 2023).

Numerous studies have linked excessive screen time and advertising exposure to adverse behavioral outcomes such as increased aggression, reduced attention span, early consumerism, and unhealthy eating patterns (Chandrashekhar et al., 2022; Kapoor & Verma, 2022). In the Indian context, where cultural values traditionally emphasize parental control and face-to-face interactions, this digital shift has led to emerging tensions between technological advancement and child welfare (Nayar & Malhotra, 2020). Moreover, regulatory frameworks in India lag behind the pace of digital advertising innovation, leaving children particularly vulnerable to unregulated marketing (ASCI, 2023).

This literature review aims to critically examine the patterns of screen exposure among Indian children from 2014 to 2024, identify the types of advertising they encounter, and assess the psychological, cognitive, and behavioral implications of this dual exposure. While international literature provides robust models of media effects, this review emphasizes the need for culturally situated research, given the unique socio-economic diversity and media

consumption habits across Indian regions (UNICEF, 2023; Sarkar & Sinha, 2023). It also identifies significant research gaps in longitudinal studies, parental mediation strategies, and the development of digital literacy among children, urging scholars and policymakers to prioritize child-centric approaches to media governance in India.

Studies demonstrate that high situations of screen time are linked to a range of behavioral issues in children, including increased aggression, reduced attention span, sleep disturbances, academic decline, and heightened materialism (Twenge et al., 2018; Pathak et al., 2020; Rao & Singh, 2022). A meta- analysis by Domoff et al. (2019) confirms that exposure to violent or fast- paced digital content correlates with increased impulsivity and materializing actions among youngish druggies. Indian studies echo these enterprises, noting a rise in screen dependence and related anxiety symptoms among children progressed 6 – 12 (Chandel et al., 2022; sharma & Khandelwal,2023). Advertising exposure has surfaced as a particularly influential element of children's media experience. Influencer marketing and ingrained content — especially on YouTube, Instagram, and gaming platforms are largely conclusive due to their native donation and perceived authenticity (Hudders et al., 2022). Studies in the Indian environment reveal that children as youthful as six are unfit to distinguish between tract and marketable content, making them particularly vulnerable to conclusive messaging (ASCI, 2023; Jain & Rathore, 2021). Exposure to advertisements for unhealthy foods, specifically, has been linked to a rise in junk food consumption, which in turn contributes to the increasing rates of childhood obesity (Seth et al., 2020; WHO, 2022). This literature review is guided by the theoretical lens of Social Cognitive Theory (Bandura, 2001), which posits that children learn behaviors through observational learning, imitation, and reinforcement—particularly from media figures and digital role models. The theory helps explain how repeated exposure to consumerist messages and screen-based role models influences children's attitudes, aspirations, and behaviors over time. Additionally, the framework of developmental media effects (Valkenburg & Piotrowski, 2017) informs the review's exploration of cognitive and emotional vulnerabilities across different age groups. The study used a systematic literature review (SLR) methodology, concentrating on government reports, white papers, and peer-reviewed studies released between 2014 and 2024. Databases such as Scopus, PubMed, JSTOR, and Google Scholar were searched using keywords including "screen time," "children," "India," "advertising exposure," "digital media," "behavioral effects," and "media literacy." Studies were selected based on their relevance, empirical rigor, and geographical focus. A total of 68 studies were shortlisted, with 20 recent high-impact sources forming the basis of this abstract. Preference was given to studies that used longitudinal, cross-sectional, or experimental designs. Key findings indicate that the behavioral effects of screen time are mediated by content type, duration, parental supervision, and socio-economic context. Educational content, when appropriately curated and time-bound, may offer cognitive and language development benefits (Muthukumar et al., 2021; UNICEF, 2022). However, unregulated exposure—particularly to entertainment media, gaming apps, and YouTube—has been consistently linked to hyperactivity, irritability, and reduced social interaction (Chandel et al., 2022; Baruah & Das, 2023). Children from urban and higher-income households tend to report more screen time due to greater device access, whereas rural children increasingly rely on mobile phones for both learning and leisure (Mehta & Singh, 2022). The study also points out that India lacks strong regulations for advertising targeted at children. Unlike countries such as Sweden or the United

Kingdom, India does not have comprehensive laws specifically dealing with ads directed at children on online platforms (ASCI, 2023). The Advertising Standards Council of India has established some rules, but these are not strictly followed and depend largely on self-regulation. Moreover, media literacy is not commonly part of the school curriculum in India, leaving children without the ability to critically evaluate messages they see (Gupta & Sen, 2023).
The research indicates that parents' involvement is important in shaping children's media experiences. Studies suggest that when parents watch content with their kids and discuss what they see, it can help reduce inappropriate behaviors and promote critical thinking (Livingstone & Byrne, 2021; Kapoor et al., 2020). Conversely, when parents are not involved
or only loosely monitor their children's media use, it often results in too much screen time and increased exposure to commercial content (Rao & Singh, 2022). In conclusion, this review shows that the time children spend on screens and their exposure to advertisements are not just about managing their time, but are closely linked to their behavior, mental health, and how they are socialized as consumers. The unique situation in India adds another layer of complexity due to various socio-economic factors, gaps in digital policy, and cultural views on education and technology. While digital media can provide developmental benefits when used under supervision, the risks are significant when it is used without oversight or in large amounts. The findings emphasize the need for strong policy measures, awareness campaigns, parental education, and programs that increase media literacy for both children and adults. Researchers should also focus on developing interventions that fit the Indian cultural context and digital tools that can help monitor and limit children's screen use and ad exposure. Future research should explore the long-term effects of AI-generated personalized ads on children's behavior, how regional language content influences media habits, and the effectiveness of media literacy programs in schools. As India's digital landscape continues to expand, ensuring the rights, well-being, and development of children in the media environment must become a top national priority.

***Keywords:*** *Screen time, Children behaviour, Advertising*

## DIGITALLY DRAINED: HOW EMOTIONAL EXHAUSTION FUELS COGNITIVE FAILURES IN REMOTE WORKERS

*Shanthi Banishetty (GITAM School of Business, Hyderabad) and Tanusree Dutta (Indian Institute of Management Ranchi)*

Abstract. Post-pandemic, remote work continues to be viewed as a flexible employment option by many professionals. However, increasing job demands and challenges in maintaining work–life balance have turned this flexibility into a growing concern. Building on this issue, the present study examines the relationship between Job Demands (JD) and Cognitive Failures (CF), with Emotional Exhaustion (EE) as a mediating variable. Using a cross-sectional survey design, data were collected from 362 remote employees representing various industrial sectors across India. Comprehensive analyses were conducted using AMOS and SPSS PROCESS Macro. The results reveal a strong positive association between JD and both CF and EE. Moreover, EE was found to mediate the relationship between JD and CF. The findings

underscore the importance of cognitive health for enhancing employee productivity and well-being. The study urges organizations to formulate strategic HR policies that address psychological strain and promote psychological resilience among remote workers. By designing targeted virtual resources and social support mechanisms, HR managers can strengthen employees' cognitive efficiency and foster a more resilient and effective remote workforce.

***Keywords:*** *job demands, remote work, emotional exhaustion, cognitive failures, SEM modelling*

## EMOTIONAL LABOUR AND DIGITAL INCLUSION: GENDER DISPARITY AMONG RURAL WOMEN IN SUSTAINABLE DEVELOPMENT

*Kadeeja Nourah B H (BIMTECH - Birla Institute of Management Technology), Shreya Mishra (BIMTECH - Birla Institute of Management Technology), Veenu Sharma (BIMTECH - Birla Institute of Management Technology) and Shalini Singh (BIMTECH - Birla Institute of Management Technology)*

**Abstract.** This paper tries to identify the intersection between the digital inclusion and the emotional labour of women in rural Uttar Pradesh. It argues that the transformation of women through digital inclusion not only empowers them but also reconfigures the emotional expectations placed on them by society. Through qualitative data collected by the focused group discussions with NGO leaders working on the field of digital inclusion and transformation in rural areas of Uttar Pradesh, Lucknow and Delhi along with the Focus Group Discussions and this study considers the literature review from systematic reviews and concept analysis as legitimate data sources, along with the qualitative data and its integration is done using joint display tables. This study found that rural women lack agency in using basic technological services,not because of infrastructural barriers but because of emotional labour, as the expectations society placed on women along with patriarchal norms exclude women from digital domains. The emotional and financial dependence of males, the traditional caregiving roles and responsibilities of household duties provide them with scarce time to invest in digital technology, their lack of agency, skills and time significantly put rural women in a digital handicap situation.

***Keywords:*** *Emotional Labour, Digital Inclusion, Patriarchy, Societal Expectations, Track number 17, Green and Blue Economy Sustainable Finance Digitalization and Sustainable Development*

# MINDFUL COMMUNICATION: ENHANCING COLLABORATION AND CONFLICT RESOLUTION IN TEAMS

*Dr. Shivender Rahul (Maharashtra National Law University, Nagpur) and Dr. Veena Roshan Jose (Maharashtra National Law University, Nagpur)*

**Abstract.** Modern organizations increasingly depend on cross-functional teams to deliver complex outcomes in dynamic environments. While such teams offer cognitive diversity and innovation potential, they are also vulnerable to miscommunication, interpersonal friction, and conflict escalation. This paper examines mindful communication—the practice of present-moment, non-judgmental awareness applied to listening, speaking, and interaction—as a strategic approach to enhance collaboration and transform conflict dynamics. Drawing on mindfulness theory, emotional intelligence, and psychological safety literature, the study proposes a conceptual framework linking mindful communication to improved team outcomes through three mechanisms: (a) fostering psychological safety, (b) reducing relationship conflict while enabling constructive task conflict, and (c) improving interactional clarity and empathy. The research adopts a mixed-method design involving an eight-week intervention with intact organizational teams. The intervention integrates micro-practices (e.g., Pause–Breathe–Notice–Choose), reflective listening drills, and structured conflict-resolution tools such as Situation–Behavior–Impact feedback. Data will be collected through multi-source surveys, behavioral coding of meetings, and objective metrics like decision-cycle time. Multilevel modeling will test the mediating role of psychological safety and moderating effects of leader behaviors.

Expected contributions include a validated framework for mindful communication, practical guidelines for embedding micro-practices into team routines, and empirical evidence on its impact on collaboration quality and conflict profiles. The findings aim to inform leadership development and organizational design by demonstrating how small, repeatable behaviors can create inclusive, resilient, and high-performing teams.

Introduction: Collaboration is the cornerstone of organizational success in an era of complexity and interdependence. However, diverse teams often experience communication breakdowns and conflict, which can erode trust and performance. Traditional communication training emphasizes clarity and assertiveness but often neglects the role of awareness and emotional regulation. Mindful communication—anchored in present-moment attention and non-reactivity—offers a promising alternative by fostering empathy, reducing impulsive responses, and creating space for constructive dialogue.

Theoretical Framework: This paper integrates four strands: (1) mindfulness practice to enhance attentional control and emotion regulation; (2) emotional intelligence to translate awareness into prosocial behaviors (empathy, perspective-taking); (3) psychological safety to enable voice, candor, and learning; and (4) conflict management theory distinguishing constructive task conflict from destructive relationship conflict, supported by structured feedback (e.g., Situation–Behavior–Impact) and interest-based negotiation. The framework posits that mindful communication improves collaboration by enhancing turn-taking norms and perspective-taking, increases psychological safety by reducing threat cues, and reframes conflict from personal to task-focused.

Methodology: Sample & Setting: 24–30 intact teams (6–10 members each) in knowledge-intensive functions, randomized to intervention or waitlist-control.
Intervention (8 weeks): Weekly micro-practices (2–5 min: Pause–Breathe–Notice–Choose; 3×3 grounding), reflective listening (paraphrase, intent–impact checks), and conflict tools (needs–feelings articulation, SBI feedback); meeting hygiene (agenda framing, check-ins/check-outs, timed turns, "one breath before reply").
Measures: Individual: mindfulness facets, emotion regulation, empathy. Team: collaboration quality, psychological safety, conflict type (task vs. relationship). Behavioral: speaking-time distribution, interruption rates, decision-cycle time (coded by trained raters).
Analysis: Multilevel modeling (individuals nested in teams) for intervention effects; mediation via psychological safety; moderation by leader practices (humility, reflective inquiry).
Expected Findings: Anticipated outcomes: (1) higher collaboration quality (clearer turn-taking, fewer interruptions); (2) increased psychological safety (reflective listening, non-judgmental inquiry); (3) conflict profile shift (↓ relationship conflict, ↑ constructive task conflict); (4) efficiency gains (shorter decision cycles without suppressing dissent); (5) leader multiplier effects (visible modeling of mindful micro-practices strengthens gains).
Practical and Social Implications: Organizations can embed low-cost micro-practices into routine meetings (60-second settle-in; mid-meeting breathing gap; end-of-meeting alignment checks). Training front-line leaders to model reflective inquiry, label emotions neutrally, and separate observations from interpretations reduces defensiveness and accelerates problem-solving. Broader impacts include reduced stress and greater inclusion, enabling contributions from quieter and underrepresented voices.
Limitations and Future Research: Short-duration interventions may limit habit formation; longitudinal follow-ups are warranted. Behavioral coding of real meetings raises privacy concerns, requiring transparent consent and low-intrusion protocols. Future work should examine cross-cultural generalizability, remote/hybrid contexts, and boundary conditions (e.g., high time pressure).

***Keywords:*** *Collaboration, Conflict Resolution, Emotional Intelligence, Mindful*

## JOB INSECURITY AND STRESS IN THE AGE OF ARTIFICIAL INTELLIGENCE: CAN RESILIENCE HELP?

*Stalgy Muliyil (School of Business, Woxsen University) and Subhendu Patnaik (Management Development Institute Gurgaon)*

**Abstract.** In the current competitive corporate environment, job insecurity and stress have emerged as significant concerns for employees. An examination of current research on resilience, job insecurity, and stress shows that there is limited investigation into how resilience affects the connection between job insecurity and stress. This research aims to examine how resilience influences the relationship between job insecurity and stress. Data was collected from 258 employees working in the Indian IT sector. The findings suggested moderating impact of resilience on the association between job insecurity and perceived stress. The study concludes by discussing the theoretical and practical significance of these results.

***Keywords:*** *Job Insecurity, Stress, Artificial Intelligence, Resilience*

## MOONLIGHTING: OPPORTUNITIES, CHALLENGES, AND ETHICAL PERSPECTIVES IN THE MODERN WORKFORCE

*Ashritha Vadlakonda (SR University), Sanjana Yadav Janga (SR University), Akshaya Teja Uppula (SR University) and Rajan Kumar Gangadhari (SR University)*

**Abstract.** Moonlighting means doing several jobs at the same time. Moonlighting is increasing day by day due to rise in freelancing, online platforms, and part-time jobs. Moonlighting gives opportunities and challenges to both employees and companies. because of Moonlighting, people will earn extra income, learn skills, and they may get new innovative business ideas. Gen-z also supports Moonlighting because it is the best way to become independent and it supports building their career and getting settled in life. Moonlighting also has disadvantages for both organizations and employees, for employees. It may cause stress and health issues and for organizations has chance of leaking company ideas and reducing productivity. Few people think moonlighting is ethical. If the second job does not complete with the main job, it should not reduce productivity and employees should not misuse companies' ideas, gen z also supports moonlighting as they believe in innovation, independence, and learning new skills

Methodology:To study moonlighting, we use both primary and secondary methods

Primary data; Asking questions for employees, especially Gen-z to know their perspective on moonlighting like a reason behind doing moonlighting, their experiences during moonlighting and impact of moonlighting on their work life.

Secondary data: We Will gather information from existing research papers and articles to know more about moonlighting and listing companies that allow and restrict moonlighting.

Employees perspective: Moonlighting helps employees to earn extra income, improve skills and bring innovative ideas and opportunities

Organization perspective: Companies as it brings experience, innovation and new skills. organizations also face challenges due to moonlighting because sometimes it will reduce productivity, lower employee's loyalty and also have chance leaking Company ideas.

Ethical perspective: This research says that moonlighting is ethical when employees are transparent and second job does not compete with main job. Gen-z are also okay with moonlighting Has they believe in freedom, innovation and learning new skills

Policy implication: This research will help organizations to write clear and balance policies and such policies motivate employees to improve productivity and also help in handling challenges

***Keywords:*** *Moonlighting, Generation Z, Work-life balance, Productivity, Ethics*

## GENDER EQUALITY IN RECRUITMENT FOR SUSTAINABLE EMPLOYMENT: A SYSTEMATIC REVIEW

*Reshma C (VIT University) and Aruna Polisetty (VIT University)*

**Abstract.** Getting equal opportunities in recruitment makes people feel welcomed and valued. It also helps them feel fairly represented, and this forms the base for sustainable employment. This study is a systematic review of 48 peer-reviewed papers on gender equality in recruitment for sustainable employment. The review uses the SPAR-4-SLR method to keep the process clear and reliable. Using the TCM (Theory, Context, Methodology) framework, the study develops a conceptual framework to illustrate how theories, contexts, and methods have been employed in previous research. This approach helps to find gaps in the research and suggest a future research agenda. The findings indicate that bias and stereotypes continue to influence recruitment practices. At the same time, policies, artificial intelligence tools, and representation can support diversity, but only to a limited extent. The study also gives practical suggestions for managers, HR professionals, and organizations to make recruitment more inclusive and supportive of gender equality and sustainable employment

***Keywords:*** *Gender Equality, Recruitment, Sustainable Employment, Sustainability, Hiring, Reduced Inequality*

## STUDY TO DETERMINE HOMOGENEITY OF PROCESSES AND BEHAVIOURS IN MULTINATIONAL ORGANIZATIONS IN APAC

*Sunena Sharma (SPJAIN Global Management School)*

**Abstract.** Organizational Culture as a topic has been spoken for centuries among multinational organizations and has been an area of interest. The notion that organizations may have specific cultures is found sprinkled in a vast array of publications on strategy and business policy, on organizational behavior and theory. This has been an area of study in multinational organizations where organizations headquartered outside Asia Pacific (APAC) markets has struggled or succeeded to integrate global culture in companies with processes and behaviors in past two decades considering change in landscape of global markets and economics in APAC. In context of Culture, managers have been trying to maintain the right balance of local culture and global culture practices in the organizations. Utilizing a mixed-methods approach, the study analyses data from selected MNCs across key APAC markets to identify patterns, challenges, and strategic outcomes.

***Keywords:*** *Organization Culture, Organizational Behaviour, Organizational*

# THE IMPACT OF MANAGERIAL VERSATILITY ON WOMEN IN THE WORKPLACE

*Ashissh Kapoor(IMI Kolkata)*

**Abstract.** This study examines how a manager's versatility shapes the daily experiences and long-term career outcomes of women in the workplace. Drawing from behavioural research and field insights, the paper explores how women often navigate invisible pressures that influence confidence, participation and access to meaningful opportunities. To ground the study, the research draws on psychological safety theory, which explains how individuals perform and contribute more effectively when they feel safe to express ideas and take interpersonal risks without fear of negative judgement. This perspective helps clarify why a manager's ability to adapt, listen and respond with empathy has such a significant influence on women's experience at work.

The analysis is based on real workplace data, which includes performance patterns of women employees and the measured versatility scores of their managers. Reviewing this organisational data made it possible to observe how managerial behaviour correlates with women's engagement, growth and willingness to take on stretch work. Additional qualitative insights were incorporated to understand how these interactions play out in everyday situations.

The findings show that women working with versatile managers report higher psychological safety and a stronger sense of being heard. They feel more comfortable taking risks, sharing ideas and stepping into challenging assignments. The data further shows that versatile managers build trust more quickly, which reduces the impact of unconscious bias on evaluations, feedback and development discussions.

Rather than viewing versatility as a soft or optional trait, the paper positions it as a central leadership capability that directly supports gender equity. Leaders who listen, adapt and engage constructively create microcultures where women can thrive authentically, without feeling the need to constantly prove their worth.

The paper concludes by recommending that organisations embed versatility into leadership development frameworks and treat it as a core capability. Strengthening this skill not only supports women more effectively but also enhances overall team culture, trust and performance.

***Keywords:*** *Manager versatility, Psychological safety, Women in the workplace, Gender inclusion, Leadership behaviour, Workplace performance data, Behavioural adaptability, Employee experience, Trust and bias reduction, Inclusive leadership*

# FINANCE

## INNOVATION, FINANCE, AND TECHNICAL EFFICIENCY IN INDIAN FIRMS: INVESTIGATING THE MANUFACTURING EDGE

*Ruchi Gupta (Banaras Hindu University) and Dr. Bhanu Pratap Singh (Banaras Hindu University)*

**Abstract.** This study examines the impact of innovation inputs and financial constraints on the technical efficiency of Indian firms, with a focus on the manufacturing sector. Using firm-level data from the World Bank Enterprise Survey (WBES 2022), the analysis employs Stochastic Frontier Analysis (SFA) to estimate efficiency scores and identify sources of inefficiency. The results show that innovation inputs such as international quality certification and the use of online platforms positively influence efficiency. At the same time, the adoption of new methodologies and formal employee training is negatively associated. Access to short-term finance through credit lines and overdraft facilities improves efficiency, whereas a greater reliance on credit sales reduces it. Business environment factors, widespread power outages, significantly increase inefficiency and indicate resource misallocation. The study finds that SMEs contribute less to product and process innovation compared to large firms. These findings underscore the importance of innovation-friendly policies and improved financial access to enhance manufacturing efficiency.

***Keywords:*** *Keywords: Innovation, Financial constraints, Business environment, Stochastic frontier analysis*

## MODELLING THE DRIVERS MOTIVATING GEN Z TO INVEST IN CRYPTOCURRENCIES

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**Abstract.** Introduction: Cryptocurrencies have emerged as a popular financial instrument in recent times. Cryptocurrency is a form of digital asset that operates within a blockchain network, which is distributed across multiple computers. Regardless of their demographic background, many people, including members of Gen Z, have taken an active interest in investing or trading in cryptocurrency assets.

Aim: Given the growth of investment in cryptocurrencies, it is essential to know why investors prefer to invest in this form of asset. This work aims to identify the driving factors and their interrelationships that influence the investment in cryptocurrencies.

Method: This research draws on the opinions of Gen Z investors. The criteria are identified through a literature review, grounded in behavioral finance theories, and subsequently finalized through discussions with experts.

Then, we build a causal model using the Interpretive Structural Modelling (ISM) approach. We also conduct the MICMAC analysis to validate the findings. Finally, we reached out to Gen Z investors to seek their rating on various factors. We analyze the opinions of the Gen Z investors using the CIMAS method.
Findings: The findings show that the influence of return potential, financial independence, accessibility, increasing financial literacy, and regulatory control have been instrumental in attracting Gen Z to invest in cryptocurrencies. The MICMAC analysis confirms the validity of the findings of the ISM analysis.
Conclusion: The cryptocurrency market has experienced phenomenal growth over the past few years, attracting individuals from grassroots levels, as well as Gen Z, alongside mature investors and promoters.
Originality and value: Studies on understanding the dynamics of Gen Z's motives for investing in cryptocurrencies are rare in the literature.

***Keywords:*** *Financial instrument, Cryptocurrency, ISM, MICMAC, CIMAS*

## GREEN FINTECH & REGULATORY FRAMEWORKS: LEGAL PATHWAYS FOR CREDIBLE DIGITAL SUSTAINABILITY FINANCE

*Dr. Poorvi Singh Chaudhary (TIUT)*

**Abstract.** The rapid expansion of financial technologies (FinTech) is reshaping the global financial ecosystem by opening new channels for mobilizing capital toward climate goals. Green finance instruments such as blockchain-enabled green bonds, tokenized carbon credits, and ESG-scoring tools are increasingly deployed to support projects aligned with net-zero commitments. These innovations promise efficiency, liquidity, and transparency; however, the legal and regulatory frameworks governing them remain fragmented across jurisdictions, creating risks of greenwashing, investor misinformation, and unenforceable cross-border obligations. This paper critically examines the evolving regulatory landscape of green bonds, carbon credits, and ESG-focused digital assets, with a comparative focus on India, the European Union (EU), and the United States (U.S.).
In India, the Securities and Exchange Board of India (SEBI) revised disclosure norms for green debt securities in 2023, requiring issuers to identify eligible green projects and enhance reporting mechanisms. This aligns with India's broader sustainable finance agenda and the Business Responsibility and Sustainability Reporting (BRSR) framework. Yet regulatory clarity is limited for digital platforms that tokenize carbon credits or issue sustainability-linked assets. By contrast, the EU has introduced a more comprehensive regime. The Sustainable Finance Disclosure Regulation (SFDR) and the Corporate Sustainability Reporting Directive (CSRD) impose mandatory sustainability-related disclosures, require companies to report on climate risks, and establish assurance mechanisms for ESG-related information. These measures aim to harmonize sustainability reporting and reduce information asymmetry across member states. In the U.S., the Securities and Exchange Commission (SEC) proposed climate-related disclosure rules in 2022 and is moving toward mandatory reporting of greenhouse gas emissions and climate risks. However, the proposals face significant litigation and political

contestation, highlighting the challenges of advancing sustainability regulation in polarized policy environments.

A central concern across these jurisdictions is the credibility of carbon credits and tokenized environmental assets. While tokenization may enhance efficiency and traceability, unresolved legal questions remain around ownership rights, enforceability of smart contracts, and mechanisms to prevent double counting across registries. Without harmonized global standards, tokenized carbon markets risk undermining trust in digital green finance. Similarly, the growing reliance on ESG scoring algorithms raises legal and governance issues related to transparency, data quality, and accountability. As highlighted in scholarship on digital dispute resolution, opaque algorithmic systems can perpetuate bias and erode confidence if not subject to oversight and auditability.

This paper argues that disclosure-based regulation alone is insufficient to ensure credibility in FinTech-enabled sustainable finance. A robust legal framework must integrate mandatory sustainability disclosures with standardized metrics, independent audits, and enforceable accountability mechanisms. Regulators should clarify rules for tokenized carbon credits, including registry interoperability, provenance certification, and property rights. Stronger enforcement against greenwashing is essential for protecting investors and ensuring the integrity of sustainability-linked digital finance. Finally, supervisory cooperation across jurisdictions is necessary to address the extraterritorial reach of digital platforms and to establish coherent global standards that reduce regulatory arbitrage.

By situating green FinTech within a comparative analysis of India, the EU, and the U.S., this paper contributes to the scholarly dialogue at the intersection of digital technology, law, and sustainability. It advances a normative argument for harmonized regulatory frameworks that balance innovation with accountability. Such frameworks would enable FinTech to serve as a credible instrument for financing the global transition to a net-zero economy while safeguarding against risks of greenwashing, misrepresentation, and systemic failures.

***Keywords:*** *Green FinTech, Green Bonds, Carbon Credits, ESG Regulation, Greenwashing, Sustainability Disclosure*

## EVALUATING THE IMPACT OF FINANCIAL LITERACY PROGRAMS ON FINANCIAL INCLUSION AMONG YOUTH: EVIDENCE FROM BELGAUM CITY, KARNATAKA

*Sampada Patil (Research Scholar, Sanjay Ghodawat University, Kolhapur) and Dr. Revati Deshpande (Associate Professor, Sanjay Ghodawat University, Kolhapur)*

**Abstract.** Financial literacy and inclusion of these two factors play an important role in developing economy specifically in young urban areas. This study is to determine the effectiveness of financial literacy programs in determining the financial inclusion of youth (aged 18-35) in Belgaum City, Karnataka. Primary data was gathered using a mixed-method approach, where structured surveys were conducted with the participants and non-participants of financial literacy programs in colleges, workplaces, and community centres. Government reports and financial institutions were used as secondary data to supplement the analysis. This

research evaluates the knowledge acquisition of such programs as well as their impact on financial behaviors such as the use of bank accounts, adoption of digital payments, investment in formal financial products, and savings habits. Mixed method approach and descriptive statistics entitle were used to examine the relationship between financial literacy and inclusion and qualitative analysis was used to determine the barriers and perceptions of the youth. The results will be used to offer evidence-based recommendations to policy makers, financial institutions and educationists to improve the effectiveness of the programs and increase financial engagement among the youth in the urban settings.

***Keywords:*** *Financial Literacy, Financial Inclusion, Youth, Digital Finance, Belgaum City*

## SMART FINANCIAL ANALYTICS FOR SUSTAINABLE GROWTH: A COMPARATIVE CASE STUDY OF DEBT-FUNDED STRATEGIES IN INDIAN RETAIL SECTOR

*Pallavi Ingale (Vishwakarma University) and Pranjal Dalal (Vishakarma University)*

**Abstract.** The Indian retail sector is characterized for its major transformation over the past several years all this transformation is driven by changing consumer preferences such as digital-shopping, experience-driven retailing, tailored recommendations, convenience and affordability. The Indian retail sector has become more dynamic because of constant evolution, fresh opportunities and immense scope for expansion. The Indian Retail sector has transformed from traditional trade to modern cutting-edge innovation making it the fastest-growing sectors in the Indian economy. The retail sector of India accounts for around 10% of the country's GDP and 8% of the workforce. India's organized retail sector is witnessing rapid growth and is expected reach approximately US$ 230 billion by 2030, driven by high disposable income and shifting consumer preference (Deloitte & Retailers association of India, as cited by IEBF). Additionally, data suggests that seven of India's major cities will see the addition of 16.6 million square feet of prime retail space through new shopping malls by the end of 2026 (Anarock, as cited in IEBF).

While this trend highlights a promising future for the retail sector, there is a major need for sustainable growth strategies. A major observation for Indian retail sector is that it relies on debt funded initiatives to scale its operations and hence there is a need for companies to balance profitability with economic sustainability. The study presents a comparative case study analysis of debt-funded growth strategies among selected BSE-listed retail firms from 2017 to 2021. This study employs smart financial analytics by combining on ratio trends, regression models and Altman Z- scores to review how debt-strategies perform in practice. These tools aim to look for the firms that are building financial resilience other than the risk of over-leveraging. This study treats debt as a long-term sustainability tool, it demonstrates how data-driven insights can guide managers and policymakers in making financial decisions. Most findings indicate that debt levels enhance growth and operational efficiency, while excessive debt can pose significant threat of financial distress, particularly under shocks such as the COVID-19 pandemic.

The current research focuses on varying debt approaches- excessive, balanced, aggressive and conservative- impact the financial performance, stability and long-term sustainability. The study aims to serve objectives such as analyzing how Future Group's excessive debt- financing led to financial distress, while also evaluating how balanced debt strategies can bring sustainable growth. Additionally, it compares the outcomes of aggressive versus conservative debt approaches. This paper combines statistical techniques with predictive distress testing, with this the methodology aims at bridging the gap by pairing together capital structure theories and digital financial analytics. The methodology uses ratio trend analysis and aims to evaluate leverage and profitability patterns. The Altman-Z score estimates bankruptcy risk & distress, also to test the strength of association between debt levels and performance outcomes the study employes Pearson correlation. Further, multiple regression models are used to understand the effect of debt ratios on profitability, solvency and growth, while keeping in control variables such as firm, revenue and market capitalization. To compare aggressive and conservative strategies, descriptive statistics such as mean, median, and standard deviation is used. In addition, the study has employed visual analytics for comparing the results and trends overtime. The preliminary findings suggest that debt acts like a doble-edged sword i.e. when kept at moderate level it brings efficiency and growth, but when overused, the firm may face insolvency and it may even liquidate, which was experienced more during the pandemic period. Balance debt strategy emerges as a smart path towards resilience and sustainable growth on the other hand, the conservative models appear more stable than the aggressive models.
Looking at the future, the study can be expanded further by applying advanced digital analytics such as machine learning based distress prediction and big data financial modelling which can give more accurate insights. The study can be further expanded to cross-sectoral comparisons which can give bigger insight on optimal financial strategies across industries. In this way, the research sees smart financial analytics more than number crunching- it becomes a digital tool that will help business grow responsibly, make better decisions, and also contribute to sustainable future.

***Keywords:*** *Indian retail, Debt funded growth, Smart financial analysis, Sustainability, Capital structure.*

## EXPLORING ESG INTERDEPENDENCE IN THE HANDICRAFTS INDUSTRY A SYSTEM DYNAMICS APPROACH-BASED CASE STUDY ON NATURAL FIBRE-MADE CRAFTS AT PATHAMADAI GRASS MATS CLUSTER

*Barathy Paramasivan (Indian Institute of Management Nagpur) and Deepmala Baghel (Indian Institute of Management Nagpur)*

**Abstract.** This paper presents a conceptual case study on the ESG interconnectedness of the Indian Handicraft industry. The research uses the thematic lens and System Dynamics approach for studying the ecosystem of a natural fibre-made handicrafts cluster at Pathamadai, Tamil Nadu.This includes the identification of the inventory of variables associated with the cluster through a structured qualitative study and visualising the interlinkage of variables through a

Causal Loop Diagram(CLD) to spot the measurable outcomes and the leverage points. The system Dynamics approach links the production process, design aspects, market linkages, sustainability practices, technology integration, and other elements of the entrepreneurial ecosystem. The feedback loops in this study offer actionable visions that can be integrated into policy design and stakeholder involvement. The approach not only enriches our understanding of the handicraft entrepreneurial ecosystem but also provides a pathway for achieving pragmatic results that align with the United Nations Sustainable Development Goals (SDGs) 5, 8, and 12.

***Keywords:*** *SDGs 5 8 & 12, ESG interdependence, Indian Handicrafts Industry, System Dynamics Approach, Technological integration for Handicraft Entrepreneurial Ecosystem, Causal Loop Diagram(CLD), Policy making, Natural Fibre-based crafts, Rural Economy &Employment Generation*

## THE IMPACT OF CSR DISCLOSURE ON STOCK PERFORMANCE: EVIDENCE FROM PUBLICLY LISTED FIRMS

*Md Quamar Nadeem (Amity University Kolkata) and Dr. Sriparna Guha (Amity University Kolkata)*

**Abstract.** In recent years, businesses have been more open about their corporate social responsibility (CSR) initiatives because of the increased focus on sustainability and responsible business behaviour throughout the world. Such disclosures are anticipated to not only demonstrate a company's ethical and social responsibility but also to impact investors' perceptions of its financial stability and future potential. Many research have looked at how ESG ratings affect investing choices, although most of them use private databases like Refinitiv, Bloomberg, MSCI, or Sustainalytics. Access to these kinds of databases is still expensive and limited, especially in developing countries. This study fills this vacuum by looking at whether CSR disclosure from publicly available sources like business websites and annual reports has an effect on stock performance. The study provides a realistic and scalable methodology for examining the relationship between sustainability communication and market results by concentrating on publicly available data.

***Keywords:*** *CSR disclosure, stock performance, sustainable finance, emerging markets, voluntary reporting*

## IMPACT OF INDIRECT TAX REFORMS ON INDIRECT TAX BURDEN: FIRM-LEVEL EVIDENCE FROM INDIA

*Himadri Shekhar Chakrabarty (IIM LUCKNOW) and Poulomi Bhattacharya (IIT KANPUR)*

**Abstract.** The study examines the impact of India's indirect tax reforms, with the introduction of the Goods and Services Tax (GST) on firm-level financial and legal burden, focusing on sectoral and financial stress variations. Using data from 37,057 non-financial firms (17,983 manufacturing and 19,704 services) between 2015–2022, fixed effects and difference-

indifferences models have been employed to assess the effects of GST implementation. Findings indicate that, the GST reforms has certainly reduced indirect tax expenditure across all firms. However, tax disputes increased due to complexities in classification, valuation, and compliance especially in the services sector in comparison to the manufacturing sector. Manufacturing firms experienced a more significant reduction in tax expenditure, while services firms faced higher tax burdens post-GST. Additionally, financially stressed firms exhibited increased indirect tax payments and a higher likelihood of tax disputes, suggesting that limited financial flexibility exacerbates the challenges posed by GST compliance. This research highlights the heterogeneous effects of GST across sectors and firm financial health, emphasizing the need for targeted policy interventions to mitigate compliance burdens and litigation risks, especially for service-oriented and financially constrained firms.

***Keywords:*** *Indirect tax reforms, GST effect, DID/RDD effect*

## STRATEGIC ALCHEMY: EXPLORING THE INTERPLAY OF CORPORATE SOCIAL RESPONSIBILITY, CORPORATE SOCIAL IRRESPONSIBILITY, AND BUSINESS STRATEGY ON FINANCIAL PERFORMANCE.

*Garima Kumari (motilal nehru national institute of technology allahabad)*

**Abstract.** Drawing on stakeholder and signaling theories, the present study examines the impact of corporate social responsibility (CSR)and corporate social irresponsibility (CSiR) n thrporate financial performance (CFP) under the influence of prospector and defender strategies within the context of India. The study utilizes Partial Least Squares Structural Equation Modeling to analyze survey data and reports that CSR enhances CFP while CSiR harms it. Prospector strategy strengthens the CSR-CFP link, while the defender stratgey reduces the gains from CSR, and stregnthens the negative consequences of CSiR. The findings offer important contributions to both theory and practice.

***Keywords:*** *Corporate social responsibility (CSR), Corporate social irresponsibility (CSiR), Defender strategy, Prospector strategy, Corporate financial performance (CFP)*

## SCOPE OF FINANCIAL LITERACY AMONGST MSME OWNER'S IN WEST BENGAL

*Somnath Chakraborty (Narula Institute of Technology, Kolkata) and Sraboni Dutta (JIS University, Kolkata)*

**Abstract.** The ability to comprehend and analyze funding possibilities, plan for the future, and react appropriately to circumstances are all implied by financial literacy. In addition to improving financial well-being, financial literacy gives people the ability to successfully engage in economic activities through higher deposits, wise purchasing decisions, prudent investment, using security, and debt. Globally, MSMEs are pivotal drivers of economic growth,

innovation, and employment, accounting for approximately 90% of businesses worldwide and over 50% of global employment.In India, the sector encompasses over 63 million enterprises. Historically, MSMEs have accounted for over 30% of India's GDP. West Bengal has emerged as a leading state in India's MSME sector, experiencing significant growth in the number of enterprises and their contribution to employment and economic development.
Most existing studies on MSMEs and financial literacy in India, including those in West-Bengal, are descriptive in nature. The absence of adequate financial literacy among MSME owners/managers in West Bengal presents a substantial challenge with far-reaching implications for their growth and prosperity. This deficiency leads to inadequate financial planning, restricted access to funding, poor debt management, inefficient resource allocation, suboptimal risk management, and hindrances to innovation and investment. To address this critical concern, the study is aimed to examine performance of MSME owners/managers in South Bengal, while considering different mediators and socio-demographic and enterprise related factors. 413 samples were collected from four southern districts of West Bengal-24 pgs(N), 24 Pgs(s), Howrah and Kolkata. A stratified random sampling technique was used, with stratification based on geographical location (urban vs. rural), enterprise type (micro, small, medium), nature of business (manufacturing, services, trading), and legal status. The quantitative data was subjected to a series of statistical analyses using IBM SPSS (Version 25) and AMOS (Version 24). EFA, CFA Multicollinearity test were conducted following Principal Component Analysis. The result prove that all 6 hypotheses were supported and amongst the mediator category, financial knowledge proved to be most important determinant

***Keywords:*** *Financial literacy, MSME, West Bengal, MSME Performance*

## FINANCIAL MANAGEMENT STRATEGIES FOR ADVANCING SUSTAINABLE DEVELOPMENT GOALS IN EMERGING ECONOMIES

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**Abstract.** As climate change gets worse, economies are worried about how to make long-lasting improvements to their economies. This study examines the function of financial management methods in promoting Sustainable Development Goals (SDGs) in emerging economies, where swift progress is frequently impeded by structural limitations. The study uses a quantitative design and secondary data from 30 emerging economies. It uses multiple regression, ANOVA, and Structural Equation Modeling (SEM) to make sure the results are strong and trustworthy. The main financial strategies that were looked at are green financing, environmental, social, and governance (ESG) practices, access to microfinance, sustainable capital budgeting, and public private partnerships (PPPs). Two Way ANOVA also shows that the quality of institutions affects the relationship, making financial methods function better

when there are strong governance structures in place. The SEM results show that financial mechanisms have both direct and indirect effects. ESG practices operate as a mediator, and institutional quality acts as a moderator. The model fit indices (CFI = 0.95, RMSEA = 0.045) show that the model is very valid. The results show that sustainable finance, along with efficient institutions, leads to better social, economic, and environmental outcomes. This study provides theoretical and practical insights by illustrating how innovative financial management practices might expedite the achievement of Sustainable Development Goals (SDGs) in emerging economies.

***Keywords:*** *Sustainable Development Goals, Green Finance, ESG Practices*

## EXPLORING SMART FINANCIAL MANAGEMENT TOOLS ACCELERATING TECHNOLOGICAL DEVELOPMENT AND INCLUSIVE PARTICIPATION

*Dr Pooja Vernekar (KLE Society's college of Business Administration Lingaraj College Belagavi) and Dr Sachindra G R (Rani Channamma University, Belagavi)*

**Abstract.** A complex relationship between digital financial literacy, FinTech use, perceived regulatory support, perceived security, service quality, trust, and financial inclusion was examined in this study. Smart financial management tools were found to transform technological development and inclusive participation. A survey among 280 IT industry employees from Karnataka, India was taken, and analysis was conducted using SmartPLS. The findings validate that DFL and PRS have a substantial impact on FI, whereas FTU has a positive effect on DFL and PRS. PS, SQ, and TR emerged as predictors of FTU, indicating the role of security, quality of service, and trust in technology adoption. Technological tools and fintech adoption mediate the links between regulatory support, digital literacy, and inclusive financial activity, as this article demonstrates. The findings provide policymakers, financial intermediaries, and technology businesses fintech implementation advice to support equitable economic growth and sustainable development.

***Keywords:*** *Digital Financial Literacy, FinTech Use, Financial Inclusion, Perceived Regulatory Support, Smart Financial Management*

## DRIVING FINANCIAL TRANSPARENCY & INCLUSION: A PATHWAY TO A SUSTAINABLE ECONOMY THROUGH DIGITALIZATION

*Sk Arman Uddin (Vidyasagar University), Ishita Bera (IMI Kolkata) and Subhasis Bera (International School of Business and Media, Kolkata)*

**Abstract.** Introduction: Unrecorded financial transactions continue to be a significant barrier to building an inclusive and transparent economy. When large segments of income and trade

fall outside formal systems, it leads to revenue losses for governments, weakens economic planning, and deepens social inequality. However, the rapid expansion of smartphone usage and digital infrastructure presents a unique opportunity to address this challenge. This paper examines how positioning digital payments as the primary mode of financial exchange can enhance transparency, enable more accurate income estimation, and support sustainable development. These dynamics are analysed through the lens of Institutional Economics and Information Asymmetry Theory, which provides insight into how formal institutions and information flow influence economic governance and inclusion.

Purpose of the Study: This theory-building study systematically reviews scholarly and applied literature to explore how digital transformation can contribute to sustainable governance. Grounded in Institutional Economics and Information Asymmetry Theory, its central objective is to examine how compulsory digital payment systems, when paired with robust safeguards, can establish the foundation for a more resilient and transparent economic structure. The paper examines how this shift can enhance financial visibility, integrate informal income into the formal economy, and promote broader economic inclusion by reducing information gaps between economic agents and the government. It further highlights the pivotal roles of education and cybersecurity in ensuring a secure, informed, and equitable digital transition across diverse population segments.

Methodology: This study is designed as a review-based conceptual paper. It draws insights from academic literature, policy reports, government initiatives, and case studies to understand the relationship between digital transactions and economic transparency globally. Thematic analysis is applied, informed by Institutional Economics to identify how formal rules and digital infrastructure interact, and by Information Asymmetry Theory to assess mechanisms that improve transparency and compliance. Based on this synthesis, a practical framework is proposed to guide future policy and implementation efforts for digital payments as a tool for institutional reform.

Findings and Framework Development: The study identifies five key pillars essential for the successful large-scale adoption of digital payment systems in any economy. First, digital infrastructure must be strengthened to ensure reliable internet connectivity and widespread access to mobile devices, representing the formal institutional capacity for digital engagement. Second, incentive design plays a crucial role, offering benefits such as tax relief or improved credit ratings to encourage user adoption, thus aligning agent behaviours with government goals. Third, cybersecurity is crucial for safeguarding users against digital fraud and enhancing trust in digital transactions, which mitigates the risks arising from information asymmetry. Fourth, public awareness must be implemented through large-scale education campaigns that can enhance digital literacy and user confidence, addressing behavioural barriers to adoption. Finally, policy support is needed to institutionalise digital payments through enabling laws and supportive regulatory frameworks, solidifying the institutional environment necessary for sustained compliance.

In addition to these five pillars, the study highlights two further mechanisms to promote transparency and inclusion:

- Community-Based Monitoring and Rewards: Involving local communities or cooperatives in monitoring digital payment adoption and rewarding individuals or groups for transparency can strengthen accountability. For example, digital payment “champions” or

"ambassadors" may be incentivised to raise awareness and support others, leveraging grassroots trust.

- Linking Transparency to Access to Services: Making access to government services, subsidies, or financial products conditional on using digital payments creates a direct incentive for transparency. This "service-linked transparency" ensures that those who engage transparently in the economy receive tangible benefits.

These seven components are unified in a conceptual framework titled the Digital Inclusion for Transparency (DIT) model, which connects these enablers to key outcomes such as improved income visibility, reduced informal financial activity, and enhanced tax collection. Collectively, the DIT model illustrates how strengthening institutions, reducing information asymmetry, and fostering community accountability can lead to a more sustainable and equitable economic future.

Contribution and Implications: This paper presents a structured perspective on how technology can be leveraged not only for convenience but also as a mechanism for institutional reform to strengthen economic governance and promote a sustainable economy. It highlights that digital payments, supported by robust systems and inclusive policies, can reduce information asymmetry between taxpayers and the state, leading to more accurate income estimates, higher tax compliance, and reduced social inequality. The framework developed herein, grounded in Institutional Economics and Information Asymmetry Theory, provides policymakers and practitioners with a conceptual tool to design targeted interventions that facilitate a secure and inclusive transition to a digital economy. Moreover, the integration of community-based monitoring and service-linked incentives introduces innovative pathways to foster accountability, sustained transparency, and greater societal inclusion. These initiatives align with global goals, including reducing inequality (SDG 10), promoting decent work and economic growth (SDG 8), and building strong institutions (SDG 16).

***Keywords:*** *Digital Payments, Financial Inclusion, Sustainable Development, Economic Governance*

## EVALUATING THE FINANCIAL IMPACT OF INDIA'S PRODUCTION LINKED INCENTIVE (PLI) SCHEME ON SEMICONDUCTOR ECOSYSTEM FIRMS

*Tejas Kale (IMI Kolkata) and Samyadip Chakraborty (IMI Kolkata)*

**Abstract.** Global technology is heavily dependent on the semiconductor industry. The United States, Taiwan, and South Korea are among the countries that have implemented strong policy frameworks to build their domestic semiconductor capabilities. In 2021, India followed suit by launching the Production Linked Incentive (PLI) scheme to develop a self-reliant semiconductor ecosystem encompassing electronics manufacturing services (EMS), assembly, testing, packaging, and chip design. Since India is still an emerging player without operational fabrication units, the financial performance of publicly listed ecosystem firms provides an effective lens to assess how this policy may reshape the country's industrial and market landscape.

This research adopts a two-step methodological framework. First, a panel data regression covering Q1 2018 to Q2 2025 is conducted to examine the performance differences of Indian semiconductor ecosystem firms before and after the implementation of the PLI scheme. Second, a global benchmarking analysis compares valuation multiples and profitability indicators of Indian firms with international semiconductor sector medians, offering a broader perspective on India's market positioning within the global industry.

The outcomes of this study are expected to have strong implications for policymakers, academics, and finance professionals, as it establishes a connection between firm-level performance and industrial policy incentives. The findings will also provide valuable insights for investors and researchers who are keen to monitor the progress of India's semiconductor ecosystem and its trajectory toward becoming a competitive global manufacturer.

***Keywords:*** *Semiconductor Ecosystem, PLI Scheme, Global Benchmarking, Financial Performance*

## FROM CASH TO CODE: THE MACROECONOMIC JOURNEY OF CENTRAL BANK DIGITAL CURRENCIES

*Neha Kamboj (IILM University) and Tanya Bhutani (IILM University)*

**Abstract.** Purpose: This study investigates the macroeconomic consequences of Central Bank Digital Currency (CBDC) adoption, focusing on India's Digital Rupee (e₹) and comparative evidence from eleven CBDC-adopting economies. It aims to uncover how CBDCs influence growth, inflation dynamics, and monetary policy transmission across different economic contexts.

Design/methodology: Employing a multi-method econometric framework comprising probit regression, Fully Modified Ordinary Least Squares (FMOLS), Granger causality tests, and difference-in-means estimation—the study analyzes quarterly data from 2018 to 2024. The framework evaluates India's macroeconomic performance post-CBDC launch and conducts a cross-country panel comparison distinguishing developed and developing economies.

Findings: Results reveal a significant unidirectional causal impact of CBDC adoption on GDP growth and monetary policy adjustments in India. Sectoral analysis highlights that agriculture and manufacturing respond more strongly to CBDC-led monetary dynamics than services. Cross-country evidence indicates that developing economies experience pronounced post-adoption growth gains accompanied by moderate inflationary pressures, whereas developed economies exhibit subdued responses. India demonstrates a stable short-term macroeconomic environment without immediate inflationary effects following CBDC introduction.

Research limitations/implications: The findings are constrained by the short observation window post-adoption and the evolving institutional infrastructure around CBDCs. As adoption matures, long-term macro-financial interactions may diverge.

Practical implications: The results provide actionable insights for central banks and policymakers on designing CBDC frameworks that foster growth and enhance policy transmission while preserving macroeconomic stability—particularly in emerging markets.

Originality/value: This paper is among the first to empirically quantify India's CBDC impact within a comparative international framework. It contributes by integrating sector-level analysis, cross-country evidence, and multi-model econometric validation, offering a novel understanding of how CBDCs reshape the monetary–real economy nexus.

***Keywords:*** *Central Bank Digital Currency, Digital Rupee, GDP Growth, Inflation, Monetary Policy Transmission, Cross-Country Comparison*

## HOW FIRM SIZE INFLUENCES CAPITAL STRUCTURE AND FINANCIAL PERFORMANCE: EVIDENCE FROM ASX LISTED FIRMS

*Md Shah Newas Kabir (S P Jain School of Global management)*

**Abstract.** This study explores the relationship between firm size, capital structure and financial performance of ASX-listed companies with a particular emphasis on the effect of leverage on performance outcomes. Drawing on the resource-based view, trade-off theory, and pecking order theory, this research focuses on non-financial ASX-listed firms during the period 2022-2024. To test the hypotheses, JMP Pro 17.0 is used to apply a quantitative approach using three different ordinary least square regressions techniques to observe the relationships between: (1) firm size and capital structure, (2) firm size and financial performance, and (3) capital structure and financial performance. The return on assets (ROA) is used as the performance measure while log total assets serves as the firm size proxy. Control variables include firm's age and sales growth. Empirical results show that larger firms have higher leverage and higher ROA; however, the impact of leverage on ROA is negative, suggesting that, although debt is easily accessible for larger firms, it can reduce returns in an unpredictable post-pandemic environment. These findings explain the Australian capital structure paradox by providing theoretical support for the resource based view and scale effects and offers implications for corporate decision-makers who face the trade-off between growth, debt and profitability.

***Keywords:*** *Firm size, Leverage, Financial performance, ROA, JMP Pro, ASX*

## CONVENIENCE OR REGRET: A BEHAVIOURAL STUDY ON POST-COVID SPENDING TRENDS AND FINANCIAL AWARENESS AMONG STUDENTS

*Chitikesh Sai Naga Raju (Indian Institute of Technology Kharagpur) and Titas Bhattacharjee (Indian Institute of Technology Kharagpur)*

**Abstract.** The COVID-19 pandemic has catalysed a fundamental shift in consumer spending behaviour, particularly among students and young adults. Driven by technological convenience and changing lifestyle preferences, individuals are increasingly engaging in impulsive and convenience-based consumption. This study explores how quick commerce, e-commerce, food delivery applications, ride-booking services, credit systems, and subscription-based platforms have collectively influenced spending awareness, financial decision-making, and long-term

regret among students. Employing the lens of behavioural finance and consumer psychology, this research investigates the trade-off between convenience and financial prudence in a post-COVID digital economy. Through a conceptual framework based on initial literature review and case studies, the study seeks to highlight the hidden costs of digital convenience and provide recommendations for promoting mindful spending practices.

***Keywords:*** *Consumer Behaviour, Behavioural Finance, Digital Consumerism, Financial Awareness, Spending Behaviour*

## FINANCIAL LITERACY AS A DETERMINANT OF SOUND FINANCIAL MANAGEMENT AMONG YOUNG ENTREPRENEURS

*Dr Shruti Gupte (DSSE, IIT Bombay)*

**Abstract.** Financial literacy serves as a critical foundation for the long-term success of young entrepreneurs, shaping their ability to manage, plan, and sustain their ventures. This paper examines financial literacy as a determinant of sound financial management among young entrepreneurs, highlighting how knowledge of budgeting, credit management, and investment decisions directly influences business sustainability. Drawing on existing literature, the study emphasizes that financial literacy enhances an entrepreneur's capacity to make informed decisions, access funding opportunities, and mitigate financial risks. Conversely, limited financial understanding often leads to inefficient resource utilization and business vulnerability. The paper advocates for the integration of structured financial literacy programs within entrepreneurship education and incubation initiatives. It concludes that enhancing financial awareness and competency among young entrepreneurs is essential for fostering sustainable enterprises and contributing to broader economic resilience.

***Keywords:*** *Financial literacy, Financial management, Entrepreneurs financial decision-making*

## EMERGENCE OF PRO-CAPITALIST AND PRO-UNIONIZED REGIME THROUGH LOBBYING ACTIVITIES AND THEIR IMPACT ON ECONOMIC GROWTH

*Swapan Chakraborty (St.Xavier's University, Kolkata) and Mausumi Das (Delhi School of Economics, Delhi University)*

**Abstract.** There are competing hypothesis for the emergence of labour market institution characterized as unemployment benefits, minimum wage, degree of unionization etc. One strand of literature emphasized that labour market institution emerged to correct the market failure due to the uneven bargaining power between firms and workers [Agell (2002)]. Another strand of literature argued that labour market institution emerged as a consequence of political lobby of the insiders or powerful pressure groups [e.g Saint-Paul (1996), Blanchard & Giovazzi (2003)]. In our paper, labour market institutions emerge in a lobby game between firms and workers which affects the bargaining power of one group over other. We argue that in many

instances this uneven bargaining power is a consequence of political orientation of the elected government. In our paper, a government is elected through a lobbying game between firms and trade-union. If firms win the lobbying game; the elected government enacts labour regulation favouring the firms and we term the economic regime as pro-capitalist regime whereas if trade union lobby wins, the elected government enact pro-workers labour regulation and we term the regime as pro-unionized regime. We found that the incentive to lobby critically depends on the capital-labour ratio (K_t/L_t ) and the technology parameter (A_t). We found that in economy characterized with low K_t/L_t ratio, both the firms and union have incentive to lobby to form the government whereas no such incentive is found when (K_t/L_t )is low. Once elected, the representative government under pro-capitalist regime will implement public policies which enhance the productivity of capital whereas the government under pro-unionized regime will implement public policies enhancing the productivity of labour. Finally, the paper conjectures about the economic growth under pro-capitalist and pro-unionized regime.

***Keywords:*** *Political lobby, labour regulation, economic growth*

## DRIVERS OF RETAIL PAYMENT INSTRUMENT USE: A CROSS-COUNTRY ANALYSIS

*Chetna Batra (Assistant Professor, IILM University, Gurgaon) and Seema Sharma (Professor, IIT, Delhi)*

**Abstract.** This study investigates the macroeconomic determinants of retail digital payment usage across developed and developing economies. Despite the rapid global shift toward digital financial ecosystems, cross-country evidence on how structural and behavioral factors shape retail payment patterns remains limited. Using an unbalanced panel of 20 countries over the period 2003–2021, this paper examines the role of payment infrastructure, technological readiness, institutional trust, financial development, and economic uncertainty in influencing the value and volume of card and e-money transactions.

The empirical analysis employs both Fixed Effects and two-step System GMM estimations to address unobserved heterogeneity and dynamic persistence in payment behavior. The results indicate that payment infrastructure (ATMs and EFTPOS terminals), internet penetration, corruption perception, GDP per capita, and financial development significantly enhance digital payment usage, whereas higher ATM withdrawals discourage it. The System GMM results further highlight strong habit persistence, suggesting that past payment patterns exert a dominant influence on current digital payment usage.

Comparative analysis reveals that while institutional trust and financial development exert stronger effects in advanced economies, technological readiness remains a universally significant driver. The findings underscore that digital payment adoption is shaped by a combination of technological, institutional, and behavioral factors. These insights have important policy implications for fostering inclusive and efficient retail payment systems globally.

***Keywords:*** *Digital payments, Macroeconomic determinants, Payment infrastructure, System GMM, Panel data analysis, Cross-country study*

# IMPACT OF BOARD CHARACTERISTICS ON ESG SCORE OF COMPANIES AND MODERATING ROLE OF EARNING MANAGEMENT

*Sonali Sardar (University of Calcutta), Dr. Sayantan Kundu (IMI Kolkata) and Dipanwita Majumder (The Bhawanipur Education Society College)*

**Abstract.** Purpose: The purpose of this study is to examine the impact of board characteristics on environmental, social, and governance (ESG) scores, both in aggregate and within each component (environmental, social, and governance) of Indian non-financial firms. It also explores the moderating role of earnings management, focusing on two types: accrual-based earnings management (AEM) and real-based earnings management (REM).
Design/Methodology/Approach: The study examines 57 companies listed on the National Stock Exchange (NSE) from 2014 to 2023, excluding firms from the financial sector and those with incomplete data, resulting in 510 observations. Data were sourced from Refinitiv Eikon for ESG and governance scores and Prowess for economic and financial information. The study uses the performance-adjusted modification of the Jones (1991) model by Kothari et al. (2005) to measure AEM. The study follows Cohen et al. (2008) and Roychowdhury (2006) and employs abnormal levels of operating cash flows (AB_CFO), abnormal production costs (AB_PROD), and abnormal discretionary expenses (AB_EXP) to assess REM. A system-GMM dynamic panel data regression analysis was conducted to explore the relationship between board characteristics, ESG scores, and the moderating role of earnings management practices, specifically AEM and REM.
Implication: The focus will be on how board characteristics influence the company's ESG orientation. Additionally, it will help us understand whether the earnings management practices employed by company managers play a role in such decision-making. Governments and regulators can adjust their policies to curb ESG initiatives being used as a vehicle for earnings management.
Originality/value: This analysis contributes to research by exploring the relationship between accrual- and real-based earnings management and ESG scores in India's NSE. It is one of the first studies using Indian data to throw light on this field of literature.

***Keywords:*** *ESG Score, Board Characteristics, Accruals Earnings Management (AEM), Real earnings management (REM)*

# CORPORATE CONNECTEDNESS, NETWORK CENTRALITY, AND FUND MANAGERS' PERFORMANCE

*Sayantan Kundu (IMI Kolkata) and Sudipta Majumdar (Jindal School of Banking & Finance, O. P. Jindal Global University Sonipat, Haryana, India)*

**Abstract.** Introduction: Does the social connection of fund managers really matter in fund managers' investment decisions and performance? The application of social network theory in the financial market has gained more attention and importance from researchers, which can be found through several publications in recent times (Chen et al., 2022; Cohen et al., 2008; Coval

& Moskowitz, 2001; Hochberg et al., 2007a; Hong et al., 2005; Li & Hou, 2023; Liang et al., 2022; Lin et al., 2021). In the context of mutual funds, social interaction plays a crucial role in information acquisition, influencing fund managers' portfolios and performance (Gu et al., 2019; Pool et al., 2015; Yi et al., 2024). However, managers occupying more central positions in the network actively enjoy an information advantage (Yi et al., 2024). On the other hand, the rapid growth of the Indian mutual fund market (Source: AMFI ), coupled with the cultural importance of personal relationships, renders the analysis of social connections in this context very insightful. An alumni network is a crucial platform for building and sustaining personal social connections (Lin et al., 2021). In this backdrop, the study seeks to investigate the impact of the network centrality positions of Indian mutual fund managers in their alumni group of peer fund managers and corporate directors on their fund performance. The study also examines whether the alumni network centrality of managers impacts the fund flows, investment style and idiosyncratic risk-taking of fund managers. Finally, it examines how the sex of fund managers moderates the impact of network centrality on fund performance and risk-taking.

Data and Methodology: The data for the study includes monthly fund-specific variables are collected from the ACE Mutual Fund database for the period April 2013 to March 2022. The survivorship bias-adjusted monthly market factors and corporate directors have been sourced from the IIM Ahmedabad data library and the CMIE Prowess database, respectively. Alumni details for each fund manager and corporate director are manually collected from their bios on websites, fact sheets, annual reports, professional social media profiles, and via Google searches.

The structural importance of a manager (node) and its position inside the alumni network is captured through the network centrality (Borgatti et al., 2018). This paper explores several perspectives of the network through degree centrality, eigenvector centrality, betweenness centrality, information centrality, closeness centrality, and beta reach centrality (Hochberg et al., 2007b).

The fund performance is measured by the risk-adjusted excess return (alpha), the Sharpe ratio, and the Sortino Ratio. The risk and style measures include market risk, size, value, momentum factors and idiosyncratic risk. The study employs pooled OLS and system GMM to estimate the results.

Results and Discussions: The study finds several interesting findings. First, the network centrality (degree centrality, eigenvector centrality, closeness centrality, and beta reach centrality) positions of managers exert a positive and statistically significant impact on the performance of Indian mutual funds. Therefore, it can be inferred that the risk-adjusted return is higher when the manager holds a central position in their alumni network, regardless of the global and local market conditions during those times. This suggests that managers with stronger connections and popularity in the network effectively use the confidential information acquired from the network to construct, time, and rebalance their portfolios. The results on the Sharpe and Sortino ratios indicate that connected fund managers (betweenness centrality) play an important role as intermediaries in the alumni network. This enables them to access superior and exclusive market insights, stock recommendations, and macroeconomic trends. However, the network centrality leaves a negative impact on the risk-adjusted fund performance when the fund manager is female. On the contrary, the results indicate that none of the centrality

indicators exerts any influence on the fund flow. This suggests that the prominent role of fund managers among the alumni community is ineffective in attracting money to the funds.
Regarding risks, the study suggests that the manager who is more central (betweenness and information centrality) in the network focuses on large-capitalisation stocks. However, well-connected managers (information, closeness, and betareach centrality) utilise the timely and diverse information and tend to invest in value stocks. In addition, the greater information access allows centrally located female managers (degree, closeness, and eigenvector centrality) to construct more stable and diversified portfolios, leading to less market risk exposure. These are novel findings in the Indian context that contradict the earlier findings (Rossi et al., 2018). Finally, the study finds no significant impact of network centrality on idiosyncratic risk. This suggests that the fund returns as generated by connected fund managers are not due to idiosyncratic risk elements.
Conclusions and Originality of the Study: To the authors' knowledge, this is the first study to provide fresh insights into the impact of the centrality of fund managers in their alumni networks with corporate directors on fund performance. The conclusions about money flows differ from those of established markets, rendering them potentially applicable to other emerging markets. This study is pertinent in the current time when the method of information transmission has undergone substantial transformations because of Fintech and other technical progress. Moreover, universities also maintain and update the alumni database and frequently organise several events that promote communication among the graduates. Recent developments in social media, such a LinkedIn, have enabled fund managers to connect with their network peers more efficiently compared to previous periods.
The paper makes five distinct contributions to the current body of literature. Firstly, it empirically studies the influence of alumni social networks on financial markets. The study finds the significance of the alumni network and the position of fund managers in the network on fund performance and investment style. Furthermore, this is supported by exceptional information exchange among the corporate directors and fund managers within the alumni network. The central position of fund managers in the alumni network yields a greater risk-adjusted return. While the network position may influence fund managers toward adopting riskier investment styles (size, value, and market factors), it does not necessarily lead to higher idiosyncratic risk-taking. This study demonstrates that the investment behaviour and performance of fund managers are influenced by their positions within social networks.
Secondly, the study also empirically examines whether the sex of fund managers moderates the impact of network centrality on fund performance and risk-taking. The study finds several interesting outcomes that are novel in the Indian mutual fund context. The results show that connected female managers (degree, eigenvector, and closeness centrality) tend to avoid stocks that are more exposed to market risk. This dimension is rarely examined in earlier studies.
Thirdly, the paper provides an empirical analysis of how social networks affect the net flow of funds to mutual funds. The results indicate that while the centrality of network managers favourably affects the performance of mutual funds, it does not have any effect on net fund flows. Due to the lack of systematic availability of data on fund managers in the Indian market, investors face significant costs in accessing this information. Therefore, they disregard the managers' network position and allocate their investments to the fund mostly based on its

current popularity, as observed by the fund's assets under management (AUM). This is a novel contribution to the current body of literature.

Fourth, this study introduces several centrality metrics, namely beta reach centrality, eigenvector centrality, betweenness centrality, and information centrality, which have received limited attention in previous research on social networks in financial systems. The research demonstrates that the newly developed centrality metrics possess explanatory capabilities regarding fund performance and risk-taking.

Fifth, this study is the first to examine the influence of social relationships between Indian fund managers and corporate directors on mutual fund performance. Using the results of this study, investors can select funds according to the centrality positions of their managers. Additionally, mutual fund asset management companies (AMCs) would have the ability to designate more central managers to oversee their funds, utilising their social networks and informational edge to generate greater returns.

***Keywords:*** *mutual fund managers, social network, centrality, fund performance*

## EFFICIENCY OF EQUITY OPTIONS MARKET - AN EMPIRICAL ANALYSIS WITH REFERENCE TO NATIONAL STOCK EXCHANGE, INDIA

*Partha Sarathi Roy (Adamas University, Kolkata)*

**Abstract.** The National Stock Exchange (NSE), like all major global stock exchanges, the most liquid and highest market capitalization stocks trade options contracts, constituting over 93% of all equity options trades in India [www.sebi.gov.in]. The primary objective of this study is to examine the efficiency dynamics of the single-stock equity options market on the National Stock Exchange (NSE) in India. For this purpose, it analyzes violations of the lower boundary condition (LBC) and resulting arbitrage profits. The research employs statistical methods such as runs tests, test of proportions, and binary logistic regression to assess market efficiency and identify factors contributing to violations of the lower boundary condition (LBC) and resulting arbitrage opportunities. The analysis reveals trends in LBC violations for the entire sample of equity stock options, indicating market inefficiency. The proportion of LBC violations is found to be greater than 3% but not exceeding 6% for the sample stocks. Furthermore, binary logistic regression shows that a bullish underlying spot market, shorter time to expiry, and lower trading volume of equity stock options contracts increase the likelihood of LBC violations and arbitrage profits, ignoring transaction costs. The findings provide valuable insights for market regulators, arbitrageurs, and asset management companies, highlighting the factors influencing market efficiency in the Indian equity options market. The study's original contribution is to identify and examine the factors contributing to LBC violations and resultant arbitrage opportunities. The insights gained from this study contribute to a better understanding of efficiency dynamics, price discovery mechanisms, and also help forecast arbitrage trading opportunities, thereby enhancing market efficiency in the single-stock equity options market.

***Keywords:*** *Equity options, equity stock options, market efficiency, lower boundary condition, arbitrage, national stock exchange, India*

# DIVIDEND PAYOUT POLICIES IN NIFTY INDEX COMPANIES: ROLE OF INVESTMENT OPPORTUNITIES AND CORPORATE FINANCE

*Somnath Chakraborty (Pune Institute of Business Management) and Partha Sarathi Roy (Adamas University, Kolkata)*

**Abstract.** This study examines the impact of investment opportunities and financial factors on dividend payout decisions. The study considers data from a sample of thirty-nine companies listed on the Nifty Index, covering the period from 2020 to 2024. A fixed-effects panel regression model has been used for the data analysis. This investigation shows that investment opportunities, measured by the market-to-book value ratio, have a positive and statistically significant effect on dividend payouts, indicating that companies with greater investment opportunities tend to pay higher dividends. This finding indicates that companies with greater growth potential are more likely to share their profits with shareholders. It has also been observed that profitability, measured by return on assets, has a significant inverse effect on the dividend payout ratio, indicating that companies with higher profitability are more likely to retain their earnings rather than distribute them as dividends. These indicate that, while a strong market valuation might encourage dividend payouts (signalling and maturity), higher profitability often leads to retention of earnings for reinvestment purposes, particularly for companies that focus on capitalizing on growth opportunities and maintaining financial autonomy. The study also shows that, although financial leverage has an inverse effect on dividend payouts, it is not statistically significant. Overall, the findings show that leading companies adopt a base dividend payout strategy, considering investment prospects but with little influence from corporate finance, specifically capital structure, on dividend decisions. Profitability is another significant factor in dividend decision-making. These findings offer valuable insights for individual investors, asset management companies, and market regulators, highlighting the determinants of dividend payout policies in large-scale organizations in India.

***Keywords:*** *dividend policy, dividend payout, investment, financing, leverage, profitability, Nifty, India*

# A STUDY ON ANALYZING THE IMPACT OF CAPITAL STRUCTURE ON PROFITABILITY WITH REFERENCE TO SELECTED COMPANIES OF NSE

*Erram Ramesh (ICFAI Business School, ICFAI Foundation for Higher Education (Declared as Deemed-to-be- University U/s 3 of UGC Act), Gattaiah Tadoori (ICFAI Business School, ICFAI Foundation for Higher Education (Declared as Deemed-to-be- University U/s 3 of UGC Act)) and P.Bhanu Sireesha (ICFAI Business School, ICFAI Foundation for Higher Education (Declared as Deemed-to-be- University U/s 3 of UGC Act))*

**Abstract.** Knowing how capital structure influences a company's profitability represents one of the most confusing problems facing finance managers. Many studies have been conducted to look at how capital structure affects a company's profitability, but the most of them are from other countries, and very few have been done in India. Therefore, the goal of the current study is to assess how capital structure affects the profitability of Nifty 50 companies that are listed on the NSE of India between 2015 and 2025. Descriptive statistics, correlation, and multiple panel data regression methods have all been used to examine the data. Four distinct regression models have been employed to investigate the connection between profitability and capital structure. We examine the separate impacts of the Financial Leverage on profitability or ROA and ROE, in these models. The study also includes analyzing the effect of Asset tangibility, tax, Liquidity, Operating risk on Profitability of the firm. Random effects, fixed effects and Pooled OLS have all been used to evaluate the four models. We come to the conclusion that capital structure significantly improves a firm's profitability.

***Keywords:*** *Profitability, Capitalstructure, Correlation*

# IMPACT OF BOARD CHARACTERISTICS ON ESG SCORE OF COMPANIES AND MODERATING ROLE OF AUDIT QUALITY

*Dr. Dipanwita Majumder (Assistant Professor, Department of Business Administration,The Bhawanipur Education Society College, Kolkata), Dr. Sayantan Kundu (IMI Kolkata) and Sonali Sardar (University of Calcutta)*

**Abstract.** Purpose: This study aims to evaluate the influence of board characteristics on environmental, social, and governance (ESG) scores, both in aggregate and within each individual parameter (environmental, social, and governance) of various Indian non-financial companies. Additionally, it explores the moderating role of audit quality, considering factors such as audits conducted by Big Four firms and audit fees, to assess their potential moderating effects (Mardessi, 2022).

Design/Methodology/Approach: The research examines a sample of firms listed on the National Stock Exchange (NSE) from 2014 to 2023 (Vadithala and Tadoori, 2021). After excluding firms from the financial sector and those with incomplete data, the final sample consists of 57 companies, yielding 510 firm-observations. Data were sourced from two databases: Refinitiv Eikon, which provides ESG scores and their three individual parameters,

and Prowess, which offers economic and financial data. A system-GMM dynamic panel data regression analysis is performed to investigate the relationship between board characteristics, ESG scores, and the moderating role of audit quality practices (Dwibedi et al., 2024).
Implication: This study provides a comprehensive understanding of the interactions between board characteristics and their implication on sustainability practices. Additionally, it will examine the critical role that auditors play in shaping these decisions and ensuring accountability. It will influence the company's ESG framework and how governments and regulators may adjust their policies to incentivize better sustainability-focused outcomes.

***Keywords:*** *ESG score, Board Characteristics, Audit Quality, Audit Committee*

## COINTEGRATION AND CAUSALITY RELATION BETWEEN ECONOMIC DEVELOPMENT AND LIFE INSURANCE DEMAND IN INDIA

*Arijit Banerjee (Research Scholar, Department of Commerce, Adamas University, West Bengal) and Sankersan Sarkar (IILM-AHL JAIPUR CAMPUS*)

**Abstract.** In comparison with the other developed countries, India has a very low rate of life insurance density. Though there is an increase in life insurance policy-holders but India is still far behind compared to other developed countries. This study examines the macroeconomic variables that affect the demand for life insurance in India. This research investigates the correlation between India's economic progress and the demand for life insurance in India from 1993 to 2023. Utilising the Johansen cointegration test, we ascertain two long-term equilibrium correlations among essential variables, such as life insurance premiums per capita, GDP per capita, foreign direct investment (FDI), personal disposable income, and Broad money.
The vector error correction model (VECM) elucidates notable short-term and long-term dynamics, indicating that disposable income negatively influences life insurance demand in the long term, although Broad money exhibits a mixed short-term effect. The Granger causality test demonstrates a bidirectional association between life insurance premiums per capita and GDP per capita, suggesting that economic expansion enhances insurance demand while insurance development, in turn, fosters GDP growth. Moreover, life insurance premiums Granger-cause fluctuations in the risk-free interest rate (RRI), highlighting their impact on financial markets. Foreign Direct Investment (FDI) and Gross Domestic Product (GDP) per capita demonstrate a reciprocal relationship, highlighting the interdependence of economic development variables.
The data indicate that life insurance demand serves as both a catalyst and a recipient of economic growth in India. This study enhances comprehension of the complex relationship between economic development and life insurance demand in emerging economies, providing practical insights for policymakers and industry stakeholders.

***Keywords:*** *Life Insurance, Life insurance Demand, Economic Growth, Macroeconomic Variables, ADF Test, Cointegration Analysis, VECM model, Granger Causality Test*

## NEXUS BETWEEN ENVIRONMENTAL, SOCIAL & GOVERNANCE AND CORPORATE FINANCIAL PERFORMANCE

*Mohit Pathak (IMI-Kolkata)*

**Abstract.** Environmental, Social, and Governance (ESG) aspects are vital factors in investment approaches and business decisions in the present times. The objective of the present study is to examine the relationship between the ESG scores and Corporate Financial Performance (CFP) of Indian companies. The study uses cross-sectional data of companies listed on India's Bombay Stock Exchange (BSE). The financial performance data is procured from Bloomberg, while ESG scores are procured from CRISIL. The findings of the study show that the composite ESG score and individual scores of E, S and G have a significant impact on the corporate financial performance. The results of the study signal that enhancing ESG initiatives can contribute to improved operational efficiency and long-term profitability. The novelty of the study emanates from the fact that the Securities and Exchange Board of India (SEBI) mandated Business Responsibility and Sustainability Reporting (BRSR) for ESG reporting for the top 1,000 companies based on their market capitalisation. This finding of the study is also contributive for corporate decision-makers and investors, by highlighting the tangible financial impact of ESG on performance.

***Keywords:*** *ESG, Corporate Financial Performance, BRSR, Top 1000 Companies, India*

## NAVIGATING CEO CAREER CONCERNS: THE ROLE OF ORGANIZATIONAL SLACK AND MARKET UNCERTAINTY IN SHAPING R&D DECISIONS

*Tamal Mandal (IMI Kolkata) and Chanchal Chatterjee (IMI Kolkata)*

**Abstract.** This study analyses the intricate relationship between CEO career concerns and firms' investment in research and development (IRD). Although IRD is essential for maintaining competitive advantage, personal career motives of CEOs may influence them to shy away from risky decisions like IRD. This research examines the interplay of organizational slack and market uncertainty, with CEO career concerns, in shaping IRD decisions, utilizing resource reallocation theory and real options theory. The results indicate a negative influence of CEOs' career concerns on firms' IRD decisions. However, the presence of organizational slack negates this effect. Furthermore, under such situations an increase in market uncertainty increases firms' IRD. Additionally, the relationship between CEO concern, organizational slack and market uncertainty is orthogonal in nature with conditional, model-dependent effects that exhibit mutual suppression/neutralization when considered together. This study enhances corporate finance literature by integrating behavioral aspects with strategic financial management, emphasizing the necessity of aligning executive incentives with long-term organizational objectives.

***Keywords:*** *CEO Career Concerns, Research and Development, Organizational Slack, Market Uncertainty*

## COMMODITY RISKS IN SUSTAINABLE INVESTING IN INDIA: INSIGHTS FROM EXTREME QUANTILES

*Arunava Bandyopadhyay (IMI Kolkata) and Prabina Rajib (Birla Institute of Management Technology)*

**Abstract.** In recent years, investment in green firms has gained significant traction globally as well as within the Indian financial landscape. This surge in interest can be attributed to the eco-friendly business strategies adopted by these green enterprises. Additionally, investors are inclined to green equity investment due to its potential for sustainable long-term returns compared to conventional equity investments. However, the nascent green equity domain in India faces vulnerabilities stemming from risk transmission from various assets. Green companies, reliant on different commodities for their operations, are directly or indirectly affected by commodity price fluctuations. Implementing green technologies often incurs high costs, impacting profitability and investor attractiveness. Additionally, green equity prices may experience heterogeneous shocks from factors like government policies, supply-demand dynamics, industrial metal prices, and oil price fluctuations, introducing variability in risk transmission. Further, the commodity markets are also experiencing signs of a potential commodity supercycle, defined as extended period of booms and busts in commodity markets. Moreover, the global shift toward renewable energy amplifies the demand for industrial and agricultural commodities, potentially leading to sustained price increases. This raises the question of whether green equity investment is susceptible to commodity price fluctuations and whether this relationship varies under different market conditions. Various commodities, such as copper, aluminum, nickel, silver, and lead, play pivotal roles in clean energy companies, affecting green firms' performance. Furthermore, sectoral equity investments may exhibit sensitivity to asymmetric commodity price volatility in extreme market conditions. This study employs a robust quantile-on-quantile regression (QQR) framework to analyze the heterogeneous relationship between green equity investment and commodity prices. The results highlight the heterogeneity in relationship across different quantiles representing the bullish and bearish phases of the market. The unique insights from this study are useful for socially responsible investors and policymakers who focus on environmental performance of firms as well as financial performance for sustainable long-term growth.

***Keywords:*** *Carbonex, Metals, Energy, Gold, India, Green Investment*

## ENERGY POVERTY AND FINANCIAL INCLUSION IN INDIA: A HOUSEHOLD ANALYSIS

*Garima Singh (Indian Institute of Management Indore) and Kiran Kumar (Indian Institute of Management Indore)*

**Abstract.** Introduction: Access to energy is a critical driver of economic development and human well-being, yet it remains a major challenge for developing and underdeveloped economies. Energy poverty refers to the inability of households to access or afford basic services such as lighting, cooking, and heating (Reddy, 2001; Koomson & Danquah, 2021).

This, in turn, deprives them of essential services like education, healthcare, information access, and political participation (Sovacool, 2012; González-Eguino, 2015). Addressing energy poverty is, therefore, crucial for promoting energy justice, improving public health and wellbeing, reducing environmental harm, and ensuring inclusive development (Adusah-Poku & Takeuchi, 2019; Ikevuje et al., 2023).

This paper examines the impact of financial inclusion (FI) on energy poverty among Indian households. It is important to look at this relationship in an Indian context because of India's unique economic, geographic, and cultural landscape. The dedicated push for FI through initiatives like the Pradhan Mantri Jan Dhan Yojana (PMJDY) makes it a compelling case for investigating FI's impact. Understanding this relationship can inform targeted policies aimed at alleviating energy poverty and supporting sustainable energy transitions.

This study empirically examines the impact of FI on household-level energy poverty in India by constructing employing household-level data from the Consumer Pyramids Household Survey (CPHS) conducted by CMIE. We find that FI significantly reduces energy poverty across different subgroups, though its effects are heterogeneous, varying by region, gender, employment status, and caste category. We further explore the mediating channels and find that poverty reduction, increased income, and improved education are key mechanisms through which FI alleviates energy poverty.

Literature review:Energy poverty is not merely a lack of fuel; rather, it reflects deeper issues related to income, access, awareness, and systemic gaps. Manasi and Mukhopadhyay (2024) find that India experiences moderate levels of energy poverty, with high regional disparity. Previous studies have shown that household energy poverty is impacted by multiple socio-economic factors, such as income, education, household size, region, and caste (Sadath & Acharya, 2017; Ngarava et al., 2022; Manasi & Mukhopadhyay, 2024; Jahanger et al., 2024). Addressing these complex challenges requires interventions that go beyond infrastructure and subsidies. One such promising avenue is FI, which has gained prominence as a key enabler of socio-economic transformation, especially in emerging economies like India.

FI involves improving access to formal financial services, allowing all adults to use basic products such as savings accounts, credit, and insurance (Demirgüç-Kunt et al., 2017). FI has been extensively studied as a tool to promote welfare goals such as poverty reduction, health improvement, and overall well-being (Churchill & Marisetty, 2019; Biermann, 2016).

In the context of energy poverty, Koomson & Danquah (2021) were among the first to empirically demonstrate that FI reduces energy poverty in Ghana. Dogan et al. (2021) found similar results in Turkey, further reinforcing this relationship. In India, with the widespread implementation of policies like PMJDY, studying the link between FI and energy poverty is timely and policy-relevant.

Objective

- To find the relation between energy poverty and financial inclusion.
- To understand differential impact on different demographic and social groups.
- To understand the channels through which FI affects energy poverty.

Methodology:The study constructs two measures of energy poverty: an Energy Poverty Index (EPI) that combines the MEPI and income-expenditure approaches to capture both access and affordability; and a binary measure based on the Alkire-Foster method from the

Multidimensional Poverty Index (MPI). Both measures cover five dimensions of energy poverty: cooking, lighting, household appliances (connected services), education/entertainment, and communication (Alkire & Foster, 2011; Nussbaumer et al., 2012). We also construct a Financial inclusion index based on three aspects: bank access, credit access, and insurance, following Churchill and Marisetty (2019).

To analyze the impact of FI on energy poverty, we employ pooled Ordinary Least Squares (OLS) and two-stage least squares (2SLS) regression, using district-level bank branch concentration as an instrumental variable (IV). This IV addresses endogeneity by exploiting variation in access to banking infrastructure, which affects FI but not energy poverty directly (Beck et al., 2007; Allen et al., 2016). We also conduct subsample analyses across rural–urban areas, gender of household head, employment status, and caste groups to uncover heterogeneity. Lastly, a channel study is done to understand mechanisms through which FI alleviates energy poverty.

Results:The study finds that financial inclusion (FI) significantly reduces energy poverty (EP) in India. Baseline regressions show a strong negative association between FI and EP across both continuous and binary measures. A one standard deviation (SD) increase in FI leads to a 0.125 SD reduction in EP (OLS) and a 0.0329 SD decrease (LPM).

Instrumental variable analysis is done to address endogeneity by instrumenting FI by bank branch concentration. The results show a strong effect, with a 1 SD increase in FI reducing EP by 1.6 SD (continuous) and 0.3 (binary).

The subsample analyses reveal consistent reductions in EP across rural and urban households, with a stronger effect in urban areas. FI also has a greater impact on female-headed households, where the effect is more than double that seen in male-headed ones. Caste-based analysis shows that FI reduces energy poverty across all social groups, but with stronger effects for historically marginalized communities. FI reduces EP Index by 1.055 units for SC/STs, which is more than double the reduction for upper castes. This highlights FI's potential to address structural energy access inequalities.

Further Channel analysis shows that FI reduces EP through poverty reduction, increased income, and higher education expenditure. By improving financial access, FI enhances affordability and awareness, enabling long-term improvements in energy use. Overall, FI emerges as a powerful tool for alleviating energy poverty, especially among vulnerable and marginalized populations.

Conclusion: This study highlights the critical role of inclusive financial systems in facilitating access to affordable and reliable energy by examining the relationship between FI and energy poverty in India. The findings demonstrate that FI significantly reduces energy poverty and can be used as an alternative policy tool to reduce energy poverty, with progressive and targeted benefits, as its effects are most pronounced among marginalized subgroups (female-headed families, and marginalized castes). The analysis also identifies the channels of influence through which FI influences energy poverty, namely, poverty reduction, income enhancement, and educational investment. By constructing a continuous, multidimensional measure of energy poverty (focused on accessibility and affordability), this study also advances the methodology for energy poverty assessment. These findings offer actionable insights for policymakers, demonstrating that expanding FI, especially through targeted interventions for

disadvantaged groups, can be an effective strategy to combat energy poverty and promote equitable access in India.

***Keywords:*** *Energy Poverty, Financial Inclusion, Caste deprivation, Poverty, Energy Justice*

## COMPARATIVE ANALYSIS OF ETFS AND INDEX MUTUAL FUNDS IN INDIA: EVALUATING RISK, RETURN, AND COST EFFICIENCY

*Gattaiah Tadoori (IFHE), Bhanu Sireesha (IFHE) and Suman Kolpula (IFHE)*

**Abstract.** As passive investment strategies gain traction in India, investors are increasingly choosing between Exchange-Traded Funds (ETFs) and Index Mutual Funds to gain low-cost exposure to market benchmarks. This proposed study aims to conduct a comprehensive comparison of ETFs and mutual funds in the Indian context, focusing on key parameters such as return performance, risk levels, cost structures, tax implications, and liquidity. Using historical data from leading Indian fund houses, the study will evaluate performance metrics such as Sharpe Ratio, Standard Deviation, Tracking Error, and Expense Ratios across different asset classes (e.g., equity, debt, gold). In addition, secondary market liquidity for ETFs will be analyzed using bid-ask spreads and trading volumes, while mutual funds will be assessed on entry/exit load and NAV-based pricing efficiency. The study will also consider investor-specific factors such as transaction costs, tax treatment, and minimum investment thresholds to determine which instrument offers greater efficiency for different investor profiles. Through this comparative framework, the research aims to provide data-driven insights for retail investors, financial advisors, and policy makers seeking to promote informed decision-making and enhance transparency in India's evolving passive investment landscape.

***Keywords:*** *Mutual Funds, ETFs, NAV, Sharpe ratio, Tracking Error, Expense Ratio*

## DETERMINANTS OF ACCESS TO GREEN CREDIT IN INDIA: AN EMPIRICAL ASSESSMENT

*Khushboo Uppal (TERI School of Advanced Studies)*

**Abstract.** The study examines the determinants of access to green credit in India, using firm specific and macroeconomic variables, for a sample of 271 green companies, covering the period from 2015 to 2023. We find that the transaction costs, firm size, liquidity ratio, and leverage ratio are important determinants of access to green credit in India. The result shows that banks prefer to lend to large green companies over their smaller counterparts, which shows that firm size impacts access to green credit in India. Similarly, large green projects have easier access to credit over small green projects, due to higher transaction costs involved in small scale projects. Leverage ratio and liquidity ratio were also found to be important factors impacting access to credit in India. These results highlight that, banks and financial institutions in India, prefer to lend to large green firms with large scale green projects over their smaller counterparts that have small-scale green projects, pointing towards transaction costs as a major

determinant of access to finance. This calls for a greater role of development financial institutions to reduce transaction cost in India.

***Keywords:*** *Green Credit, Renewable Energy, Green companies, transaction cost*

## FINANCIAL INCLUSION IN THE FINTECH ERA: BEHAVIORAL INSIGHTS FROM INDIA

*Sattwik Santra (Centre for Studies in Social Sciences, Kolkata, India), Sahana Roy Chowdhury (IMI Kolkata) and Dona Ghosh (Thiagarajar School of Management, Madurai, India)*

**Abstract.** This study examines the determinants of perception towards fintech, financial behaviour and fintech inclusion (FPBI) in an era marked by AI-driven financial services. Traditional research has predominantly focused on supply-side factors, largely overlooking the demand-side determinants that shape consumer behavior and trust in digital financial platforms. To address this gap, the study analyzes primary survey data from India to develop indices for fintech perception, fintech inclusion, and investment entropy – as a proxy for portfolio diversification. The empirical findings reveal that an individual's fintech perception is enhanced by better understanding of financial risks, digital competency and analysis of savings portfolio diversification, enrollment in finance-related courses, and robust social networking. The study proposes improved financial literacy with gender- and region-specific interventions, digital skills training, and regulation to bridge trust and risk concerns.

***Keywords:*** *Fintech index, financial inclusion, financial perception*

## AN EXPLANATORY STUDY ON THE BREAKTHROUGH OF SELF-HELP GROUPS IN THE TECH ERA

*Madhumita Das (IMI Kolkata), Prof. Sahana Roy Chowdhury (IMI kolkata) and Dr.Arunava Bandyopadhyay (IMI Kolkata)*

**Abstract.** The self-help groups (SHGs) microfinance programme is increasingly being utilised as a platform for rural entrepreneurship development, promoting financial inclusion and women's economic empowerment. With the active collaboration of banks, State Governments and NRLM, the SHG-BLP has continued to make significant strides and continues to stand as a beacon of empowerment and socio-economic transformation to underserved and economically vulnerable populations in rural and semi-urban areas. The SHG-BLP programme, introduced by NABARD in 1992, is the largest microfinance programme globally linking SHGs to formal banking for credit and savings. The sector is undergoing a rapid digital transformation, utilizing digital lending platforms, UPI integration, and AI-driven automation for improved operational efficiency, cost reduction, and enhanced customer experience. Digitalisation and tech adoption are transforming operations in SHGs, with growth seen in eastern and northeastern states. According to the NABARD report as on 31st March 2024, there are almost 17.8 crore households through more than 144 lakh SHGs with deposits of over

₹65,089 crore in India. Keeping in view the contribution of SHGs in the context of Indian economy, this paper takes an attempt to assess the progress and outreach of Self-Help Group Bank linkage programme towards financial inclusion with respect to savings with Banks, credit disbursements and delinquency trends over last 3 years.

***Keywords:*** *Microfinance, SHG-BLP, Financial inclusion, NABARD*

## MODERATING ROLE OF INSTITUTIONAL INVESTORS IN ESG REPORTING AND STOCK LIQUIDITY NEXUS: EVIDENCE FROM INDIAN FIRMS

*Gaurav Kumar (Dr B R Ambedkar National Institute of Technology Jalandhar) and Matwal Singh (Dr B R Ambedkar National Institute of Technology Jalandhar)*

**Abstract.** This study aims to explore the relationship between ESG reporting and stock liquidity of firms, following the theoretical framework of stakeholder, signal, and information asymmetry theory. Further, the study investigates how the presence of institutional investors moderates the relationship between ESG reporting and stock liquidity. Panel data models are applied to the sample of Nifty 50 firms for the period from 2017 to 2023. Findings have revealed that higher ESG reporting enhances the liquidity of stocks, and institutional investors positively moderate the relationship. Robustness tests such as 2SLS, component analysis, and heterogeneity analysis are conducted to ensure the reliability of results. Findings have various implications for firms, investors, and regulatory bodies, which can help in improving stock market efficiency.

***Keywords:*** *ESG, Liquidity, Stock Markets, Risk*

## DECODING GROWTH: A REGIONAL ANALYSIS OF ESG INDICES VS. CONVENTIONAL BENCHMARKS

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**Abstract.** Extended Abstract: ESG (Environmental, Social, and Governance) and sustainable investing have changed from niche to mainstream themes in global financial markets. ESG isn't just for a niche group of investors any longer; it is quickly becoming the foundation for investing in the current milieu. With the rise of the "ethical investor", we see one tangible consequence of such a shift, as ESG indices allow investors to assess their portfolios relative to indices adjusted for ESG factors, capturing alpha alongside corporate social responsibility. Unlike traditional index like S&P 500 and NSE 50, which largely depend on market capitalization for stock selection, ESG indices adopt a screening procedure according to distinct sustainability measures. This allows for the ability to invest in companies that display strong performance in managing environmental and social risk factors and are incorporated into governance structures.

The objective of this study is to evaluate the development and relative effectiveness of ESG indices in Europe and Asia by assessing relevant parameters, such as risk-adjusted returns, volatility, and growth over time. The focus of this analysis is to establish whether the so-called "sustainability premium" behaves the same in different contexts of regulation or level of economic development.

India stands out with its own cases, as S&P BSE GREENEX, S&P BSE CARBONEX, or S&P BSE ESG 100 have been showing impressive, at times superior, annualized returns vis-a-vis traditional benchmark indices. S&P BSE ESG 100 especially deserves attention for providing good financial returns while taking proper consideration for sustainability (Debnath & Dinda, 2024; Mukhopadhyay, 2023). Further research shows that some emerging market countries like India tend to have better performing ESG indices than traditional ones even when adjusted for risk (Gupta & Chaudhary,2023; Gubareva et al., 2023).

Moreover, Indian ESG mutual funds show more Alpha and better Sharpe and Treynor Ratios compared to traditional funds, thus displaying a stronger and adjusted risk performance (Aparna et al., 2024; Gupta, 2022; Sarkar, 2022). It is worth mentioning that emerging markets tend to be more volatile in nature, but many times it comes with the possibility of greater returns (Gupta & Chaudhary, 2023; Wan et al., 2023). This fluctuation showcases the need for geography focused diversification for region specific ESG portfolios.

As seen from India and other developing countries, the trend shows that ESG influences are realizing both financial gains as well as sustainable benefits which truly makes them a power house in today's investment world. On the contrary perceived differences across regions focus more on inequalities that come with building an ESG portfolio. Studies suggest that European and North American countries display strong outward spillover effects through their ESG indices.

The main goal of this research is to analyze the development and performance over time of Indian ESG indices and those in other nations. This main objective can be broken down into the following secondary objectives:

- To study the performance of the ESG indices in India on the basis of annualized return and risk.
- To compare the performance of Indian ESG indices with Global ESG Indices on different measures of risk-adjusted performance.

The daily Nifty ESG 100 Index data from February 2, 2013, through September 9, 2022, are used to evaluate India's sustainability index's performance. In this study, the Nifty 50 and Nifty 100 indices are used as proxies for the general market.

The analysis evaluates the risk-return dynamics of ESG indices compared to traditional benchmarks using various statistical and econometric tools. The findings present insightful evidence about the behavior and performance of ESG-aligned investment options.

The descriptive statistics highlight that the mean daily returns of all indices over last 10 years (2016-25) are positive, with the Nifty 100 Enhanced ESG Index marginally outperforming others. This suggests that ESG-compliant indices can deliver competitive returns while incorporating sustainability considerations. The standard deviation values, which measures the risk, are comparable across indices, with the Euronext Eurozone 100 ESG Index showing slightly higher volatility possibly due to international exposure and currency risks. The T-Bill

shows the lowest volatility reinforcing its position as a risk-free benchmark in CAPM estimation.

The ADF unit root test results provide crucial statistical validation for the return-based models. All indices in the study are non-stationary at price levels but become stationary when transformed into return series, justifying their use in further time-series and regression analyses.

The t-tests for mean return differences across various index pairs including comparisons between Nifty 50 and ESG indices reveal no statistically significant differences. This finding contradicts the common perception that ESG investments may underperform due to exclusionary screening. On the contrary, it supports the growing narrative that ESG investments can be as profitable as traditional investments without sacrificing returns.

The correlation analysis shows high co-movements among indices, particularly in price levels, which slightly decrease in the returns form but still indicate strong positive relationships. This result implies that ESG indices move closely with their traditional counterparts, reflecting similar exposure to systemic market risks, albeit with ESG filters.

Using the CAPM regression model, both ESG indices exhibit beta values slightly below 1 when regressed against Nifty 100 and Nifty 50. Jensen's alpha, a measure of abnormal returns, is positive in both regressions but statistically insignificant, implying that while ESG indices do not underperform, they also do not generate excess returns after adjusting for market risk.

The performance measures—Sharpe ratio, Treynor ratio, and Jensen's alpha—together provide a rich perspective. The Sharpe and Treynor ratios of the ESG indices, particularly the Nifty 100 Enhanced ESG, are marginally greater than those of the conventional indices. These ratios imply that ESG indices provide better risk-adjusted returns and thus are appealing from a portfolio optimization perspective. While Jensen's alpha is still small and statistically insignificant, its positive sign is consistent with the overall conclusion of competitive performance.

In summary, the findings indicate that ESG indices are neither riskier, nor provide similar, if not better, performance compared to conventional benchmarks. This adds to the legitimacy of ESG investing as a mainstream option and supports its incorporation into diversified portfolios that balance financial return and social responsibility.

***Keywords:*** *ESG, ESG Indices, Global ESG Indices, Financial Market, Governance, Development, Performance, ESG Mutual Funds*

## EFFECT OF BRIBES, DIGITAL PAYMENTS, AND STOCKOUTS ON THE PRODUCTIVITY OF INFORMAL MICRO ENTERPRISES IN INDIA.

*Ruchi Gupta (Banaras Hindu University) and Dr. Bhanu Pratap Singh (Banaras Hindu University)*

**Abstract.** This study examines the impact of bribes, stockouts, and digital payments on the productivity of informal microenterprises in urban India, utilizing World Bank informal enterprise survey data from 3,256 informal enterprises in India. The study employs a two-stage

least squares method of the instrumental variable approach to address the problem of endogeneity among the variables of bribes, stockouts, digital payment adoption, and firm productivity. The study's results indicate that digital payment adoption has a positive impact on productivity, suggesting that financial digitalization enhances firm efficiency by facilitating transactions and expanding market access. However, stockouts significantly reduce productivity, reflecting the disruptive role of supply chain inefficiencies in informal operations. Interestingly, paying bribes is positively and significantly associated with productivity, implying that informal firms may use bribery strategically to bypass bureaucratic bottlenecks or access basic infrastructure. Among firm-specific controls, factors such as laptop ownership, access to bank loans, and firm age consistently show positive effects on productivity. However, firms owned by women exhibit significantly lower productivity, highlighting potential structural barriers in informal enterprise ownership. These findings suggest that India's informal sector requires not only promoting digital inclusion and broadening access to finance, but also addressing systemic corruption and alleviating supply-side disruptions, such as stockouts, to foster inclusive and sustainable growth.

***Keywords:*** *Digital payment, stockouts, informal microenterprise, bribe, productivity*

## WHEN GOVERNANCE MEETS FINANCE: PATHWAYS TO CLIMATE RESILIENCE IN EMERGING ECONOMIES - A PANEL QUANTILE APPROACH

*Bhuvaneskumar A (VIT Business School, VIT University) and Suraj P G (VIT Business School, VIT University)*

**Abstract.** Background and Literature: Climate change has shifted from being a distant threat to an immediate reality, manifesting in floods, droughts, wildfires, and rising sea levels that threaten human well-being and economic stability. While global awareness has increased, countries vary greatly in their ability to adapt to these shocks. This disparity results from differences in institutional quality, financial development, and governance systems. Some countries have the financial and institutional strength to manage risks, while others remain structurally vulnerable. This raises an urgent research question: what determines a nation's capacity to withstand and adapt to climate shocks, and how resilient are these countries?
Finance is widely recognized as a double-edged sword in the climate resilience discussion. On one side, financial markets mobilize capital for clean technologies, green bonds, and socially responsible investments, and can help reduce emissions when governance is strong (He, Liu, Zhong, Wang, & Xia, 2019; Richardson, Cowtan, Hawkins, & Stolpe, 2016). On the other side, in many developing nations, finance often worsens emissions and vulnerability by channeling funds into carbon-intensive industries (Imamoglu, 2021). Similarly, the literature is divided on the role of financial institutions: some studies show banks and insurers worsen emissions by funding polluting sectors (Petrović & Lobanov, 2022; Saidi & Mbarek, 2017), while others emphasize their role in fostering low-carbon innovation and sustainability (Habiba & Xinbang, 2022; Tao, Sheng, & Wen, 2023).

This tension highlights the dual nature of finance. Financial institutions like banks and insurers, with long-term investment horizons and regulatory oversight, may align with sustainability goals. In contrast, financial markets, prone to speculation and short-termism, may divert capital from long-term adaptation unless guided by effective governance (Engle, Giglio, Kelly, Lee, & Stroebel, 2020; Hong, Li, & Xu, 2019). However, despite this growing body of literature, there is limited cross-country empirical evidence linking governance, financial development, and climate resilience. Most existing studies are country-specific or focus on emissions rather than resilience and adaptation.

This study addresses this gap by examining how financial institutions and financial markets influence climate resilience across low- and middle-income countries, moderated by governance quality. It utilizes the Notre Dame Global Adaptation Index (ND-GAIN) to measure resilience and combines it with global financial development indices and World Bank governance indicators, providing a more comprehensive view of the determinants of adaptation capacity.

Research Questions:

1. How do financial institutions influence climate resilience in low- and middle-income countries?
2. What is the role of financial markets in shaping resilience outcomes?
3. To what extent does governance quality (regulatory quality, control of corruption, government effectiveness, and political stability) condition the relationship between finance and resilience?

Empirical Strategy: Data and Variables:

- Dependent Variable: Climate resilience, measured by the ND-GAIN Index, which evaluates vulnerability to climate risks and readiness to adapt.
- Key Explanatory Variables: Financial Institutions Index (FII), Financial Markets Index (FMI), Governance indicators (World Governance Indicators: Government Effectiveness, Regulatory Quality, Control of Corruption, Political Stability).
- Control Variables: GDP per capita, inflation, trade openness, population density, renewable energy share, and gross fixed capital formation.
- Sample: 30 low- and middle-income countries, including Angola, Bangladesh, Benin, Bhutan, Bolivia, Burkina Faso, Burundi, Cambodia, Cameroon, Chad, Ghana, Guinea, Honduras, India, Jordan, Kenya, Lebanon, Mali, Morocco, Nepal, Nicaragua, Niger, Pakistan, Philippines, Rwanda, Senegal, Sierra Leone, Sri Lanka, Togo, Tunisia, Uganda, Vietnam, and Zambia.

Econometric Methods:

This study applies Panel Quantile Regression (Fixed-effects Quantile Regression – FQR) to explore heterogeneous effects of financial development across the conditional distribution of climate resilience. Unlike mean-based estimators, FQR captures how the role of finance differs between countries at low, median, and high levels of resilience (Koenker & Bassett, 1978). This approach is particularly suitable in cross-country settings characterized by significant heterogeneity and skewness in resilience outcomes.

To address potential cross-sectional dependence and endogeneity, robustness checks are implemented using bootstrapped standard errors and lagged instruments within the quantile regression framework (Canay, 2011). Interaction terms are included to assess the moderating

role of governance on the finance–resilience nexus. All analyses are conducted in Stata, with robustness checks confirming stability of results across quantiles.

This rigorous methodology allows us to assess whether financial institutions and markets contribute differently to climate resilience at different points in the distribution, thereby offering richer insights than traditional mean-based models.

Expected Outcomes: The Financial Institutions Index (FII) demonstrates a positive and statistically significant relationship with climate resilience, an effect that becomes stronger under high governance quality, particularly with strong regulatory oversight and effective control of corruption.

Financial institutions play a crucial role by providing long-term lending and project finance for climate-resilient infrastructure, renewable energy, and climate-smart agriculture, thereby acting as key vehicles for adaptation. In contrast, the Financial Markets Index (FMI) shows a weaker or even negative effect on resilience, especially in contexts of weak governance, where negative interactions with control of corruption and political stability indicate that market development can undermine resilience by channeling capital into speculative or short-term activities rather than long-term adaptation projects.

Governance thus emerges as a critical moderator: strong institutions amplify the positive impact of financial institutions, while weak governance exposes the fragility of financial markets, underscoring that finance cannot be divorced from institutional quality and that governance reforms are a precondition for finance-driven resilience. Moreover, financial institutions are found to enhance readiness (adaptive capacity) rather than directly reducing vulnerability, highlighting the importance of complementary policies that target vulnerability while financial institutions strengthen adaptive readiness.

Policy Relevance: Governments should prioritize strengthening financial institutions such as banks, ensuring they have both the capacity and incentives to provide long-term funding for climate-resilient projects, as direct lending and project finance are more effective for adaptation than speculative market mechanisms.

Market liberalization and development should only be pursued once governance meets minimum thresholds of effectiveness, regulatory quality, and political stability, since premature market development under weak governance can misallocate resources and increase volatility.

Regulators need to integrate climate resilience into financial regulations by embedding climate risk assessments into prudential norms and ensuring that banks and insurers channel finance toward sustainable, resilient projects rather than carbon-intensive sectors.

Finally, global and regional cooperation is critical, as international organizations and development banks should first support governance reforms and institutional capacity building before channeling large-scale market-based finance into emerging economies, recognizing the asymmetric roles of financial institutions and markets across different governance contexts.

## JAN DHAN YOJANA AND 'PSEUDO-FINANCIAL INCLUSION': A CASE STUDY

*Md Imdadul Haque (Aligarh Muslim University)*

**Abstract.** The Pradhan Mantri Jan Dhan Yojana (PMJDY), aimed at advancing financial inclusion in India, continues to face challenges due to a high incidence of dormant accounts. The study is under the impression that the success in terms of opening up of new bank accounts is marred by the phenomenon of pseudo-financial inclusion'. This highlights that opening bank accounts alone does not guarantee meaningful financial inclusion, which is crucial for inclusive and sustainable economic growth. This study investigates how individual financial characteristics influence account activity in rural areas of Aligarh district, Uttar Pradesh. A structured survey of 270 respondents was conducted, and eleven statements related to financial awareness and conduct were analysed using Confirmatory Factor Analysis (CFA). Three distinct constructs were identified: Financial Knowledge, Financial Attitude, and Financial Behaviour. Financial knowledge refers to an individual's understanding of financial concepts and tools; financial attitude captures their mindset and values toward saving and money management; and financial behaviour reflects actual actions such as budgeting or comparing financial products. These constructs were used as predictors in a binary logistic regression, with account activity as the dependent variable. The results indicate that both financial knowledge and financial attitude significantly increase the likelihood of an account being active, while financial behaviour does not. This suggests that account activity is more influenced by what individuals know and believe rather than by their current financial actions. Even those who perform responsible tasks may remain disengaged if they lack understanding or motivation. Hence, policies to reduce account dormancy should prioritize enhancing financial understanding and fostering positive financial attitudes through targeted education, awareness efforts, and rural financial counselling initiatives.

***Keywords:*** *Pradhan Mantri Jan Dhan Yojana, Financial inclusion, Account dormancy, Financial literacy, Financial knowledge, Financial attitude, Financial behaviour*

## EMBEDDING ESG VALUES IN INDIAN BANKING: REDEFINING FINANCIAL INSTITUTIONS FOR A SUSTAINABLE FUTURE

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**Abstract.** Across the world, countries are increasingly focusing on ESG values to promote responsible environmental, social and governance practices. In India, various sectors and industries have also begun to emphasize on ESG principles driven by strong regulatory mandates, global pressure and growing public awareness.

The Banking sector in India is also increasingly emphasizing the adoption of ESG practices to reduce risk, ensure regulatory compliance and meet the growing expectations of investor and consumer. In this study we seek to identify the key enablers that facilitate ESG compliance in Indian Banks. These enablers were first identified through a comprehensive review of the existing literature and subsequently validated through expert consultation. To achieve this, we employ ISM-MICMAC methodology that help to identify the key enabler and develop a structural model illustrating how these factors are interrelated. Furthermore, MICMAC analysis is used to classify these enablers based on their driving and dependence power.
The findings show that Regulatory Initiatives and Technological Advancement are the main enabler of ESG adoption. Focusing and emphasizing on these areas help bank to reduce risks, ensure regulatory compliance, enhance brand image and effectively managing climate risk and challenges. Banks should embed ESG value into their core strategies and operational policies to achieve sustainable and long-term growth

***Keywords:*** *ESG, Sustainability, Indian banking, CSR, MCDM*

## THE ROLE OF TRANSACTION COSTS IN ESG DISCLOSURE AND FIRM PROFITABILITY: INSIGHTS FROM INDIAN EMERGING MARKET FIRMS

*Rima Mondal (Indian Institute of Management Calcutta) and Uttam Karki (Indian Institute of Management Rohtak)*

**Abstract.** The paper explores the effect of ESG ambiguity and information asymmetry on firm profitability for Indian firms. In concurrence with the Institutional difference hypothesis, we argue that the firms in developing economies face higher transaction costs. On the information asymmetry dimension of transaction costs, we find a non-significant relationship with firm profitability and a significant negative relationship with excess returns. We use the volume coefficient of variation, a novel proxy for measuring information asymmetry. The results suggest institutional sclerosis. We use ESG ambiguity i.e. variations in the ESG ratings provided by different agencies to capture the uncertainty dimension of transaction costs. In contrast to conventional literature, we found a significant positive relationship between ESG ambiguity and firm profitability. However, a significant negative relationship between excess returns and ESG ambiguity showcases negative excess returns for investors with sustainability preferences. These contrasting findings suggest managerial opportunism and greenwashing by Indian firms.

***Keywords:*** *ESG Ambiguity, Information Asymmetry, Transaction Cost Theory, Firm Profitability, Institutions*

## SIGNALLING THROUGH SOCIAL STOCK EXCHANGES: INSIGHTS FROM SGBS UNNATI FOUNDATION

*Diwahar Nadar (IIM Sambalpur)*

**Abstract.** The study undertakes an analysis of the fundraising document for India's first listing on the social stock exchange. Using the SGBS Unnati Foundation as the case, we posit that the current practices of fundraising disclosures are misaligned with theoretically proven factors of fund offer. We conducted a qualitative study aimed at capturing the readability and sentiment of the offer document. Readability analysis confirmed that the document is complex, and the sentiment analysis revealed an 11:1 ratio of negative to positive framing of the disclosures. The compliance-oriented disclosure fails to capture the strategic social impact. The study concludes that NPOs need to transcend regulatory compliance and adopt a linguistic structure that suits their social role. Utilising robust, credible third-party impact certification agencies and relevant metrics can facilitate unlocking capital.

***Keywords:*** *Social Stock Exchange, Disclosures, Readability, Sentiment Analysis, Impact Measurement*

## GREEN INVESTMENT AND GREEN FINANCE: A BIBLIOMETRIC ANALYSIS OF RESEARCH TRENDS, INTELLECTUAL STRUCTURE, AND FUTURE DIRECTIONS

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**Abstract.** This study provides a comprehensive bibliometric analysis of scholarly research on green investment and green finance, aiming to map the evolution of research trends, intellectual structure, and potential future directions in the field. Using the Scopus database and advanced visualization tools such as VOSviewer, a corpus of key publications from 2015 to 2025 was examined to identify primary thematic clusters, influential journals, leading authors, and geographic research hotspots. The findings reveal a significant increase in academic attention toward green finance and green investment policies, with notable expansion in the areas of sustainable development, renewable energy, and climate change mitigation. Based on keyword and co-citation analysis, the study uncovers the intellectual structure of the field, highlighting dominant research themes and the contribution of top institutions and countries. The results underscore the ongoing transformation of financial practices to support environmental sustainability and innovative policy design. Limitations from database coverage and keyword selection are discussed, with recommendations for future bibliometric studies to incorporate cross-domain collaborations and wider data sources. This analysis serves as a strategic touchstone for academics and policymakers seeking to advance research and practice in green finance and investment.

***Keywords:*** *Green Investment, Carbon Emission, Sustainability / Environmental Sustainability, Finance / Green Finance, Climate Policy*

# MAPPING RESEARCH ON RURAL WOMEN'S FINANCIAL INCLUSION IN INDIA: A PRISMA-GUIDED BIBLIOMETRIC AND SYSTEMATIC LITERATURE REVIEW USING BIBLIOSHINY AND VOSVIEWER

*Sujata Kerketta (Research Scholar, Ravenshaw University, Cuttack, India) and Sanjeeb Kumar Dey (Assistant Professor, Ravenshaw University, Cuttack, India)*

**Abstract.** Financial inclusion in developing countries like India is a multifaceted challenge involving both supply- and demand-side dynamics, particularly concerning the inclusion of women in financially excluded rural segments. This study provides a comprehensive mapping and synthesis of scholarly research on women's empowerment and financial inclusion in rural India through an integrated methodological approach. Employing the PRISMA framework, a systematic literature review was conducted on 55 papers extracted from the Scopus database, rigorously screened using key terms related to financial inclusion, gender gap, and rural empowerment. Complementing this qualitative synthesis, bibliometric analysis was performed using Biblioshiny and VOSviewer to identify publication trends, influential authors, collaborative networks, and emerging thematic clusters within this research domain. The findings reveal that financial inclusion actively contributes to rural women's empowerment by enhancing access to formal financial services and promoting economic agency. However, persisting gender disparities, socio-cultural barriers, and institutional challenges exacerbate financial exclusion and discrimination. Despite notable progress through government schemes, self-help groups, and financial literacy programs, women's participation at the household and individual levels remains suboptimal. The study emphasizes the critical role of sustained financial education, institutional support, and tailored policy interventions in fostering inclusivity. By integrating systematic and bibliometric analyses, this article systematically structures existing knowledge, highlights methodological approaches, and identifies research gaps, particularly addressing the rural components and gendered dimensions. The insights provided aim to guide policymakers, financial institutions, and future scholars in framing targeted initiatives to achieve comprehensive financial inclusion and empowerment for rural women in India.

***Keywords:*** *Financial Inclusion, Women Empowerment, Rural, PRISMA, Bibliometric Analysis, Systematic Literature Review (SLR)*

# SUSTAINABLE FINANCE FOR A NET-ZERO FUTURE: A SYSTEMATIC LITERATURE REVIEW OF GREEN FINANCE AND ESG INVESTING

*Naqi Hasan (Rajiv Gandhi Institute of Petroleum Technology) and Dr. Rohit Bansal (Rajiv Gandhi Institute of Petroleum Technology)*

**Abstract.** Introduction: Achieving a net-zero future requires innovative financial mechanisms and responsible investment practices. Green finance represents investments focused on climate-friendly projects while ESG investing involves sustainability principles for corporate

valuation and risk management practices. Together, they reshape markets by promoting resilience, transparency, and sustainability. However, studies are still scattered across diverse contexts.

This paper addresses the gap through a systematic literature review (SLR) of 153 peer-reviewed articles spanning from 2015 to 2025. Findings are summarized into five thematic areas. Focusing on how green finance and ESG can interact to enhance stability, lower risks, improve governance and promoting innovation that supports worldwide sustainability goals.

Methodology: Using the PRISMA protocol, 153 articles were retrieved from the Scopus database. An inductive clustering approach was used to categorise these articles into five different thematic categories:

- ESG Performance and Risk Reduction
- Green Finance and Market Stability
- Greenwashing, Governance, and Ethics
- Policy Interventions and SDG Alignment
- Technology and Digital Innovation in Sustainable Finance

Findings: ESG Performance and Risk Reduction: Strong ESG performance reduces the systemic risk exposure of the banking and insurance sector, enhances credit ratings, and lowers capital costs. ESG ratings drive innovation and reduce carbon emissions. Green bonds also help in enhancing ESG reputation especially in the case of industries that are highly polluting.

Green Finance and Market Stability: Green finance enhances portfolio resilience, with higher ESG scores lowering volatility. Green bonds provide hedging benefits during crises and cost advantages. While green energy stocks are volatile, they remain stable against systemic shocks, highlighting their stabilizing role.

Greenwashing, Governance, and Ethics: Greenwashing reduces investor trust, often caused by disclosure without action. Governance reforms like China's CSR mandate cut greenwashing. Yet, fragmented ESG standards and weak enforcement enable misreporting in Europe. Strong disclosure, certification, and media scrutiny help restore credibility.

Policy Interventions and SDG Alignment: Policies drive ESG adoption by reducing financing constraints and promoting green innovation. China's pilot zones improved ESG ratings and carbon efficiency, while green tax incentives reduced energy use. Regional experiences, such as Nepal's weak frameworks, reveal uneven adoption.

Technology and Digital Innovation in Sustainable Finance: Technology enables transparency and innovation in sustainable finance. AI enhances ESG disclosure quality and mitigates greenwashing. Fintech improves green innovation, particularly in mining. Green cryptocurrencies diversify portfolios, while digital finance supports renewable energy transitions but requires strong regulatory frameworks.

Originality and Value: This study integrates fragmented research into five clusters, highlighting the synergies between green finance and ESG investing. It emphasizes how financial stability, ethical governance, digital innovation, and policy interventions collectively advance sustainable finance. By aligning theory and practice, the paper adds value to both scholars and policymakers seeking to accelerate climate-aligned investment.

Limitations: The review is limited by reliance on the Scopus database, potentially excluding relevant works. Thematic clustering involves subjective judgment, and methodological

heterogeneity across studies reduces comparability. Furthermore, the fast-evolving nature of sustainable finance necessitates continuous updates to capture emerging trends and innovations.
Future Research Directions: Future research should focus on developing AI-driven tools to verify ESG claims and reduce greenwashing while also exploring blockchain-enabled finance through tokenized bonds and digital ESG platforms. Comparative studies on adoption in emerging versus advanced markets, the creation of standardized global ESG benchmarks, and assessments of long-term policy effectiveness will further strengthen the field.
Conclusion: This review confirms that green finance and ESG investing are central to net-zero ambitions. ESG reduces risks, green bonds stabilize markets, and digital tools enhance transparency. Policy interventions amplify adoption, but challenges remain, including greenwashing and fragmented standards. Integrating finance, governance, and technology is essential to drive global sustainability transitions.

***Keywords:*** *Green Finance, ESG Investing, Sustainable Finance, Net-Zero Transition, Systematic Literature Review*

## A MODIFIED UTAUT FRAMEWORK TO PREDICT WORKING WOMEN'S INTENTION TO ADOPT CHAT BANKING IN INDIA

*Nupur Srivastava (Babu Banarasi Das University), Jyoti Shukla (Babu Banarasi Das University) and Alok Tewari (Babu Banarasi Das University)*

**Abstract.** The current study employs a modified UTAUT framework to predict Indian working women's intention to adopt chat banking. It also explores the moderating role of AI familiarity on the relationship between adoption intention and its antecedents. Using structural equation modelling and Hayes' Process Macro, it was found that performance expectancy, effort expectancy, social influence and facilitating conditions positively influenced intention to adopt chat banking. Further, AI familiarity moderated the impact of these factors on adoption intention

***Keywords:*** *UTAUT, chat banking, AI familiarity, moderation*

## ROLE OF UPI AS THE DRIVER OF INDIAN ECONOMY

*Mohammed Sadaf Ahmed (Babu Banarasi Das University) and Sushil Pande (Babu Banarasi Das University)*

**Abstract.** The Unified Payments Interface (UPI) has emerged as a transformative force in India's financial landscape, acting as a key driver of the nation's digital economy. Introduced by the National Payments Corporation of India (NPCI) in 2016, UPI has revolutionized payment systems by enabling real-time, interoperable, and cost-effective fund transfers. Its widespread adoption has contributed significantly to financial inclusion, empowering individuals in both urban and rural areas with access to seamless digital transactions. Moreover,

UPI has accelerated the growth of small businesses, startups, and micro-enterprises by eliminating infrastructure barriers through simple QR code-based payments.
From a macroeconomic perspective, UPI has enhanced transaction efficiency, reduced cash dependency, and strengthened transparency, thereby supporting government initiatives for a less-cash economy and digital governance. Additionally, cross-border linkages with countries such as Singapore and the UAE underscore UPI's potential as a global payment framework, positioning India as a leader in digital finance innovation. Despite challenges related to security, fraud management, and digital literacy, UPI's trajectory reflects its pivotal role in driving economic growth, consumer trust, and inclusive development. This paper explores how UPI, beyond being a payment tool, is shaping the future of India's economy by fostering efficiency, accessibility, and innovation in financial transactions.

***Keywords:*** *Unified Payments Interface, Digital Economy, Financial Inclusion*

## COMPARATIVE ASSESSMENT OF FINANCING GAPS IN SDG SECTORS: EVIDENCE FROM SELECTED SOUTH ASIAN ECONOMIES

*Mahananda Sen Gupta (St. Xavier's College, Kolkata) and Dr Samrat Roy (St.Xavier's College, Kolkata)*

**Abstract.** In the recent era, the growing economic, environmental, and social challenges have compelled the United Nations to develop a comprehensive global agenda that resulted in the adoption of 17 Sustainable Development Goals (SDGs) along with 169 associated targets. This curated framework, known as UN Agenda 2030 aims to foster sustained and inclusive economic growth, promote social equity, and protect environmental sustainability by 2030. The holistic, indivisible SDGs set out to strengthen the global parameters, while acknowledging diverse national contexts, capacities and policies. Although the SDGs are globally promoted, the Sustainable Report 2023 identifies certain structural disparities that hinder the fulfilment of SDGs by 2030. The adverse climatic conditions, geopolitical conflicts including the war in Ukraine, subdued economic growth, and long-term ramifications of the COVID-19 pandemic have collectively slowed the economic growth worldwide. The poorest countries are the worst affected ones that resulted in further widening of the global development gap. Many developing nations are wrestling with debt distress, high borrowing costs, and limited access to affordable finance. Such asymmetrical distribution debilitates the scope for investments in various SDG sectors in such nations. The urgency of mobilizing adequate capital flows is highly crucial, as domestic resources alone cannot bridge the SDG financing gap. The capital inflows such as Foreign Direct Investment (FDI), Official Development Assistance (ODA), project finance, and innovative financial instruments like green bonds play vital roles in addressing diverse development needs. However, inadequate data on the actual costs of achieving the SDGs further complicates national planning and effective allocation of resources. This paper seeks to analyse the patterns and trends of capital inflows within the SDG framework, with a particular focus on selected South Asian economies—Bangladesh, India, Pakistan, and Sri Lanka—owing to the availability of

consistent data. The study examines two major capital flows, FDI and ODA, as they constitute major portions of external financing in the region. The data were sourced from the World Bank Database for the period 2000–2023. For the analysis, the study considers variables linked to SDG 3 (life expectancy, current health expenditure), SDG 7 (access to electricity), SDG 8 (Decent Work and Economic Growth), SDG 4 (school enrolment), SDG 9 (gross capital formation, industry value added), SDG 11 (PM2.5 levels, urban population), SDG 1 (unemployment), SDG 3 (life expectancy, current health expenditure), SDG 4 (primary education), and SDG 13 (renewable energy). Using the percentile method, these variables are categorized into high, medium, and low levels and subsequently cross-tabulated across the 2000–2023 timeline. By mapping capital inflows against SDG-relevant indicators, the study aims to highlight the gaps and priority areas in South Asia's development financing. The findings aim to highlight how external capital flows can be leveraged to accelerate SDG achievement in South Asian Economies, so that these economies may have the capacity to bolster resilience to global shocks and are not left behind in the quest of inclusive and sustainable development.

***Keywords:*** *Sustainable Development Goals, Capital Flows, SDG Sectors, Percentile Method, Cross Tabulation*

## DOES THE POLITICAL STABILITY OF HOST IMPACT OUTWARD FDI? AN EMPIRICAL EVIDENCE FROM AN EMERGING ECONOMY

*Baishali Sen (Indian Institute of Management Ranchi), Rajesh Jain (Institute of Rural Management Anand) and Deepak Kumar Srivastava (Indian Institute of Management Ranchi)*

**Abstract.** This study investigates the role of host-country political stability in shaping outward foreign direct investment (OFDI) decisions of Indian multinational enterprises (MNEs), thereby addressing a critical gap in international business literature that has largely overlooked outward flows from emerging markets. Drawing on the eclectic paradigm and its institutional extensions, we conceptualize political stability as a location-specific advantage and examine how it influences both the volume and entry mode of OFDI. Using a panel dataset of Indian OFDI across 140 host economies (2015–2024) and employing random effects generalized least squares models, the analysis yields three major insights. First, political stability is positively associated with Indian OFDI volumes, particularly for wholly owned subsidiaries (WOS), confirming its role in reducing transaction costs and environmental uncertainty. Second, while political stability strengthens WOS investments, its effect on joint ventures (JVs) varies by context—encouraging JVs in emerging economies but discouraging them in developed ones. Third, the findings reveal asymmetries between developed and emerging host contexts: political stability is a critical differentiator in emerging economies but functions more as a hygiene factor in developed markets. These results highlight the contingent nature of institutional factors in internationalization strategies, challenging assumptions that stability is uniformly attractive. The study contributes to theory by extending the OLI paradigm to incorporate political antecedents, while offering actionable insights for managers seeking to optimize entry strategies and for policymakers aiming to attract FDI.

***Keywords:*** *Political stability, OFDI, Eclectic Paradigm, Location Choice, Entry mode Choice, Institution-based advantage*

# INTERACTION OF FEAR AND MULTI ASSET PRICING FACTORS IN INDIAN STOCK MARKET

*Santosh Kumar (Associate Professor Finance Chandragupt Institute of Management Patna) and Ranjit Tiwari (Associate Professor Finance Chandragupt Institute of Management Patna)*

**Abstract.** This study attempts to understand and appraise the impact of fear factor (Indian VIX) on Fama and French (2015) factor using the diurnal data of Indian stocks from 1998 to 2024. It uses data of market capitalization, adjusted market price, P/B, net fixed assets, profitability margin from Centre of Monitoring India Economy PROWESS on daily aggregation basis for top five hundred firms. Risk free rate is collated from weekly auction of 91-day t bills of Reserve Bank of India.

From the perspective of portfolio protection, this has used Granger Causality, Vector Auto Regression, Impulse Response Function and Variance Decomposition for shorter and longer duration. Inverse value factor (HML) and investment factor (CMA) seem to contribute better for smart alpha managers whereas size (SMB) and profitability factor (RMW) have leverage for smart beta managers. It is also found that fear (India VIX) has profound impact on market premium, SMB, and CMA, whereas value factor (HML) is slightly indifferent to changing fear barometer. Investment factor (CMA) possesses strong bidirectional causality with fear and other factors (RMW and market premium). Therefore, in one hand value factor (HML) is highly indifferent to others and on the other side investment factor (CMA) reflects strong signaling heuristic. High level of fear shocks has negative impact on market, size (SMB) and profitability factor (RMW) contrary to the positive impacts on value (HML) and investment factor (CMA). It is also found that factors have the memory of shocks limited to 4-5 days coming back to original value. So far as variance decomposition is concerned, role of fear barometer is limited to market factor (index) and size factor. (SMB). These inputs are very crucial to factor investors in the high volatility scenarios. Under this backdrop, the argument of flight to quality or safer securities is more relevant to index investors and size investors.

Findings are highly intuitive for smart alpha and smart beta managers who may have the recourse of hedging strategies and portfolio rotation with rising fear in the market. Conservative securities, growth stocks, larger securities and index hedging may evolve as 'safe heaven' securities in rising fear barometer. Arbitrageurs or smart alpha managers may harness plausible investment opportunities by higher weight to growth premium and investment premium by virtue of higher cross-sectional variations evident from higher mean and lower volatility whereas size premium (SMB) and profitability premium (RMW) contribute better to common variation especially suited to smart beta managers.

***Keywords:*** *Fear, Size premium, Value premium, CMA, RMW*

# DYNAMIC INFLUENCE OF CURRENCY AND CRUDE OIL PRICE ON STOCK MARKET AND ECONOMIC PERFORMANCE: EVIDENCE FROM VAR AND VECM MODELS

*Asif Khan (Institute of Management Technology, Nagpur)*

**Abstract.** This study scrutinizes how crude oil prices (COP) and currency exchange rates (CER) affect India's stock market and economy from 2012 to 2023. This study extracts monthly data and deploys dynamic VAR and VECM approaches to examine the interlinkages of selected variables. The study also conducts an ADF test to examine stationarity to ensure the reliability of the estimates. The results indicate that the CER and COP influence inflation in the economy undesirably. Additionally, the stock market's dynamic response to changes in CER is adverse, whereas it is positive in the case of the COP. Moreover, COP and CER shocks negatively impact exports. Furthermore, the study offers reliable and robust insights from the latest data, which provides fresh evidence. The insights gained from this study have significant implications for governments and policymakers in framing macroeconomic policies and ensuring sustainable economic growth. The study offers crucial measures to curb inflation and ensure the sustainable economic growth and well-being of its citizens.

***Keywords:*** *Exchange rate, Oil price, Stock performance, VAR*

# MARKETING

# LEVERAGING AI AND SUSTAINABILITY IN MARKETING: A FRAMEWORK FOR ENHANCING CONSUMER ENGAGEMENT TOWARDS SUSTAINABLE BUSINESS MODELS

*Manisha Paliwal (Sri Balaji University Pune), Ojaswita Pragya (Sri Balaji University Pune) and Vedant Prakash (Sri Balaji University Pune)*

**Abstract.** With markets changing rapidly, marketing needs to remain responsive and aligned with sustainability. This paper explores the integration of artificial intelligence and sustainability mechanisms in marketing to foster consumer engagement with environmentally responsible business models. Unlike existing literature, which is largely conceptual or secondary in nature, this study employs primary data collected through structured surveys and focused interviews with consumers and marketing professionals across multiple industries. The findings suggest that AI-driven personalization significantly enhances eco-conscious consumer engagement, while sustainable incentives such as green loyalty programs, rebates, and eco-friendly rewards motivate behavioral change. The framework developed through this research provides marketers with actionable strategies for utilizing AI insights to influence consumer behavior while aligning business growth with sustainable practices.

***Keywords:*** *AI-based marketing, Sustainable consumer engagement, Circular business models, Eco-friendly incentives*

## WHEN AI SUMMARIZES FOR US: AUTONOMY-TECHNOLOGY TENSION, PERFORMANCE EXPECTANCY, AND CONSUMER TRUST IN REVIEW PLATFORMS

*Aun Ahmed (IILM Lodhi Road), Shruti Gill (IILM Lodhi Road) and Gurpreet Bhatia (IILM Lodhi Road)*

**Abstract.** The rapid integration of generative AI (GAI) into online consumer review (OCR) platforms has transformed how consumers process OCRs. Platforms such as Amazon and TripAdvisor now provide GAI-generated review summaries that promise decision-making efficiency but may also compromise consumers' sense of autonomy in decision-making. This research investigates how GAI-summarized reviews shape consumer trust, reliance on reviews, and purchase intentions through two opposing psychological mechanisms: autonomy–technology tension and performance expectancy. We develop and test a conceptual model using a mixed-method approach. To test this model, we are conducting a series of experiments complemented by a qualitative study that explores consumers' subjective experiences when interacting with GAI summaries. Preliminary design and pretests indicate that AI summaries trigger both efficiency gains and autonomy concerns, suggesting dual and potentially opposing pathways to trust and reliance. By combining experimental and qualitative methods, this project aims to provide theoretical insights into consumer trust in AI-mediated decision aids and practical implications for OCR platform design.

***Keywords:*** *Online Consumer Reviews, Autonomy–Technology Tension, Performance Expectancy, EWOM*

## NET ZERO CONSUMER BEHAVIOUR ACROSS GENERATIONS: PURCHASE INTENTIONS FOR INNOVATIVE, ENERGY-EFFICIENT TECHNOLOGIES

*Aastha Singh (Master's student, International School of Business & Media, Kolkata), Dr. Subhasis Bera (Associate Professor, International School of Business & Media, Kolkata) and Ishita Bera (Research Scholar, IMI Kolkata)*

**Abstract.** Purpose of the Study: The purpose of this study is to explore how professionals with varying purchasing power perceive and engage with innovative energy-efficient technologies, such as 5-star-rated appliances, electric vehicles, and smart homes, while aligning with Net Zero principles. The study investigates generational differences in consumer sentiment, focusing on young adults, middle-aged professionals, and older adults. By analysing opinions, perceptions, and attitudes toward sustainable, high-value products, the research aims to understand factors influencing purchase intentions, trust, and willingness to adopt energy-efficient solutions. The findings aim to provide actionable insights for marketers, technology providers, and policymakers to develop strategies that promote environmentally responsible consumption across all age groups.

Introduction: Net Zero goals require active participation from consumers, particularly those with purchasing power capable of investing in energy-efficient technologies. Professionals make key household and lifestyle purchasing decisions that can significantly impact carbon emissions. Adoption of sustainable products, however, is influenced by factors such as generational habits, technological familiarity, trust in digital marketing or product claims, and perceived value. Younger professionals are often more comfortable evaluating products through immersive online experiences, AR (Augmented Reality) / VR (Virtual Reality) demonstrations, and digital reviews. In contrast, older professionals may prefer in-person assessments for high-value items, citing concerns about reliability and online information. Understanding these generational differences in sentiment toward innovative, energy-efficient products is essential to designing effective marketing strategies, policy incentives, and educational interventions that promote sustainable consumption and environmental responsibility. Methodology: This study employs a qualitative sentiment analysis approach focusing on professionals across three generational cohorts: young adults (25–35 years), adults (36–50 years), and older adults (51 years and above). A total of 30 participants were selected through convenience sampling to ensure balanced representation of each group. Data were collected through semi-structured interviews, capturing participants' perceptions, experiences, attitudes, and preferences regarding innovative, energy-efficient technologies. Additional textual data were obtained from online discussions, product reviews, and social media posts related to these products to enrich sentiment analysis. The collected data were analysed using thematic coding and sentiment analysis techniques to identify positive, negative, and neutral attitudes toward energy-efficient technologies, trust in sustainability claims, and generational differences in purchase intentions. This approach provides insights into both the subjective perceptions and underlying motivations of consumers when making high-value, sustainable purchasesFindings: The analysis revealed three key dimensions of Net Zero consumer sentiment. First, engagement with innovative technologies varies across generations. Younger professionals frequently rely on immersive online experiences, AI-driven recommendations, and digital tools to assess energy-efficient products. They demonstrate a positive sentiment toward technology, startups, and AI-based devices, showing curiosity, confidence, and enthusiasm for experimenting with new solutions. Older professionals, in contrast, tend to prefer direct, tangible experiences and place greater trust in established brands. They express cautious optimism and anxiety toward new or startup-driven technologies, perceiving that testing and adoption take time, and preferring to wait until trusted brands introduce similar innovations. Second, sustainability awareness and alignment with Net Zero strongly influence purchase intentions. Participants who are aware of environmental impacts tend to exhibit a higher willingness to adopt energy-efficient technologies, even at a premium. Among younger professionals, this is coupled with a proactive approach to comparing technologies and evaluating their long-term benefits. In contrast, older generations rely more on brand reputation to ensure reliability and sustainability claims. Third, trust and confidence in purchases are reinforced by transparent marketing, verified product information, and lifecycle impact labels. Sentiment analysis indicates that younger professionals express optimism and enthusiasm about adopting innovative, sustainable technologies, reflecting confidence in digital information and startup innovation. Older generations, however, balance environmental considerations with

perceived risk, preferring solutions from well-known brands to minimise uncertainty. Overall, the findings highlight distinct generational differences in attitudes, engagement, and decision-making regarding Net Zero-aligned consumption, showing that technological familiarity and brand trust play key roles in shaping sustainable purchasing behaviour.

Contribution and Implications: The analysis revealed three key dimensions of Net Zero consumer sentiment. First, engagement with innovative technologies differs markedly across generations. Younger professionals actively use immersive online experiences, AI-driven recommendations, and digital tools to evaluate energy-efficient products. They exhibit a positive attitude toward technology, startups, and AI-enabled devices, showing curiosity, confidence, and enthusiasm for experimenting with new solutions. Older professionals, in contrast, tend to prefer direct, hands-on experiences and rely more heavily on established brands. They express cautious optimism toward new technologies, perceiving that testing and adoption take time, and often wait for trusted brands to introduce similar innovations. Second, sustainability awareness and alignment with Net Zero strongly influence purchase intentions. Participants who are environmentally conscious demonstrate a higher willingness to adopt energy-efficient technologies, even at a premium. Younger professionals actively compare technologies and assess their long-term benefits, while older generations tend to rely more on brand reputation to ensure reliability and the credibility of sustainability claims. Third, trust and confidence in purchases are reinforced by transparent marketing, verified product information, and lifecycle impact labels. Younger professionals show optimism and eagerness to adopt innovative, sustainable technologies, reflecting trust in digital information and innovative startups. Older participants balance environmental considerations with perceived risk, preferring well-known brands to reduce uncertainty. Overall, these findings highlight distinct generational differences in attitudes, engagement, and decision-making regarding Net Zero-aligned consumption, emphasising the interplay between technological familiarity, brand trust, and sustainability awareness in shaping the behaviour of professional consumers

***Keywords:*** *Green Consumption, Sustainable Adoption, Energy Efficiency, Generational Buying, Eco Tech*

# I LOVE MY PAGE': EXAMINING THE FACTORS DRIVING SNS LOVE AMONG THE MILLENNIALS

*Abhigyan Sarkar (Institute of Management Technology Ghaziabad) and Juhi Gahlot Sarkar (IILM University Greater Noida)*

**Abstract.** Objective: Brands like Facebook, Twitter and Instagram provide platforms to consumers for social networking through expressing themselves by opening and managing personalized profile pages. The research extends consumer-brand relationship theory to the domain of social networking site (SNS) as branded platform and aims to investigate how the self-expressive ability of SNS can drive the users of such platform to incorporate the SNS brand into their extended-selves and use the platform more via emotionally loving the SNS brand. This research examines whether SNS brand self-expressiveness dimensions (inner-self and social-self expressiveness) can lead to SNS brand incorporated into extended-self and SNS usage behavior via the mediation of SNS brand love, and whether such relationships can be moderated by consumer's insecure attachment style dimensions (anxiety and avoidance) and fame appeal.

Method: The hypothesized relationships are tested by conducting a survey among millennial consumers who are heavy social media users and known as net generation. The data is analyzed by conducting structural equation modelling.

Findings: The findings support that SNS brand love mediates the effects of brand self-expressiveness dimensions on brand incorporated into extended-self and SNS usage behavior. The effects of SNS brand self-expressiveness dimensions on SNS brand love get moderated by consumer's attachment style dimensions and fame appeal.

Value: This research contributes by extending the theory of consumer-brand relationships to the domain of SNS and empirically validating how different self-expressiveness of branded social networking platform can be differentially moderated by individual attachment style dimensions and fame appeal leading to desirable marketing outcomes.

Limitations: Our research has only examined the moderating effects individual attachment style dimensions and fame appeal in shaping the effects of SNS brand self-expressiveness dimensions on SNS brand love. Future research should endeavor to investigate the roles of other relevant individual personality traits that can also moderate the same relationship.

Social networking service; brand self-expressiveness; attachment style; fame appeal; brand love; brand incorporated into extended self; brand relationship theory.

***Keywords:*** *Social networking service, brand self-expressiveness, attachment style, fame appeal, brand love*

## AI-POWERED PERSONALIZED FORTIFIED FOODS: CONSUMER ACCEPTANCE IN THE DIGITAL AGE

*Abhisek Dutta (ICFAI Business School, Hyderabad)*

**Abstract.** This study investigates consumer acceptance of AI-powered personalized fortified foods and beverages (AI-FFB) within India's digital landscape. Grounded in an integrative theoretical framework combining the Health Belief Model (HBM) and the Theory of Planned Behavior (TPB), the research identifies key psychological and social determinants of adoption intention. Data from 396 Indian consumers were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that Perceived Behavioural Control and Health Consciousness are the strongest positive predictors of behavioural intention. Perceived Benefits and Subjective Norms also significantly positively influence intention, while Perceived Barriers were found to be insignificant. Furthermore, income was found to negatively moderate the effect of Subjective Norms. The findings offer critical insights for industry stakeholders and public health policymakers, suggesting that strategies emphasizing technology usability, transparent benefits, and social influence, particularly for lower-income segments, are essential for fostering adoption of AI-FFB.

***Keywords:*** *AI-Personalized Nutrition, Health Belief Model, Theory of Planned Behavior, PLS-SEM, Fortified food*

## IDENTIFYING KEY DRIVERS OF USER SATISFACTION IN INDIAN MATRIMONIAL APPS: A TEXT ANALYTICS AND MACHINE LEARNING APPROACH

*Ejaz Ahmed (IMI Kolkata), Ranadheer Mandadi (Asian Institute of Technology) and Rajdeep Roy (Macquarie University)*

**Abstract.** The Indian matrimonial market has undergone substantial digital evolution, with mobile apps becoming the prevalent venue for people searching for life partners. This rapidly expanding and hyper-competitive space produces a high volume of user-generated content, and more specifically, unsolicited reviews in the app stores. While conventional ways of soliciting feedback, such as surveys and questionnaires, are not scalable, and come with their own biases, these unsolicited reviews provide an authentic, large scale, and dynamic glimpse of user sentiment and engagement. Though an analytical challenge as a result of its unstructured text format, resulting in a significant portion of strategic value going untapped. This study attempts to remediate this by proposing and executing a comprehensive way to systematically analyse this feedback with text analytics and "machine learning". The research will seek to identify the complex, sub-textual factors that underly user satisfaction/dissatisfaction beyond overall numerical ratings ultimately providing developers and service providers with actionable intelligences to innovate upon the user experience to gain competitive advantages.

We initiated our methodology with the acquisition of a large dataset, consisting of over 275,000 user-reviewed star ratings for six leading matrimonial apps in India from Google Play. The raw text then underwent a stringent preprocessing pipeline of lower-casing, punctuation removal,

stopword removal, and lemmatization. We then introduced a probabilistic topic model titled Latent Dirichlet Allocation (LDA) to identify latent themes in the user reviews. We performed coherence analysis to find the optimal number of topics, determining a total of 10 topics that were the most semantically meaningful and distinct. Our data-driven identified topics were then qualitatively read and then structured under pre-established Uses and Gratifications Theory (UGT), to understand the key psychological and social needs users are trying to satisfy while using the matrimonial apps, including 'Relational Goals', 'Economic Utility', and 'Technical Reliability'.

In order to analyse the outcomes of these gratifications on user satisfaction, we perform regression modelling, including a linear Ordinary Least Squares (OLS) model and a more complex non-linear XGBoost model. Our analysis provided a significant finding: The XGBoost model (R-squared = 0.5) improved the fit of the data to the model as compared to the OLS (R-squared = 0.34). The XGBoost model indicated that the relationship of user needs to satisfaction is highly non-linear and likely cannot be adequately explained by simple linear regression. To discern the relative importance of each gratification, we performed a SHAP (SHapley Additive exPlanations) analysis on the superior XGBoost model. As said, it was conclusive that the greatest facilitators of satisfaction were Relational Goals (24.4%) –the success of the user finding a partner and Intrapersonal Goals (20.0%) –the personal and emotional experience of ease and validation of the user on the platform. The greatest driving force of dissatisfaction was negative Economic utility –perceptions of cost and losing money wasted. Lastly, a Correspondence Analysis provided a visual confirmation of the findings, indicating the strong relationship of the positive gratifications to 5-star ratings and the negative economic gratifications to the 1-star ratings. This research provides potential for a useful framework of providing unstructured user feedback into strategic intelligence, data-driven insight for developers.

***Keywords:*** *Matrimonial Apps, Uses and Gratifications Theory(UGT), User Satisfaction*

## CLICKING TOWARDS SUSTAINABILITY: THE ROLE OF SOCIAL MEDIA MARKETING AND MOTIVATIONAL DIMENSIONS IN DRIVING GREEN PURCHASE BEHAVIOR

*Barkha Agarwal (University of Calcutta, Kolkata), Ittequa Turkan (University of Calcutta, Kolkata), Dipa Mitra (Indian Institute of Social Welfare and Business Management, Kolkata) and Sarbani Mitra (Indian Institute of Social Welfare and Business Management, Kolkata)*

**Abstract.** Social media has transformed green marketing from a tool for awareness into a catalyst for action, serving as a bridge that links promotional efforts with sustainable consumer lifestyles. This study investigates the role of social media marketing in shaping three key motivational drivers—environmental motivation, hedonic motivation, and utilitarian motivation and examines how these factors influence consumers' green purchase attitude (GPA), green purchase intention, and green purchase behavior. In addition, the moderating effect of price consciousness on the relationship between intention and behavior is explored. Using survey data from 312 participants, the findings confirm that SMM has a significant

influence on consumer motivations, which serve as critical mechanisms connecting attitudes to intentions and behaviors toward green products. The results underscore the importance of understanding motivational drivers in the context of social media engagement, highlighting the pivotal role of SMM in fostering sustainable purchasing habits and promoting green consumption practices. For practitioners and managers, these insights suggest that effective green marketing strategies should combine these motivations, while also addressing barriers such as cost and convenience. By doing so, firms can strengthen consumer trust, translate positive attitudes into actual purchases, and ultimately promote both sustainable consumption and long-term brand loyalty.

***Keywords:*** *Social media marketing, Environmental motivation, Hedonic motivation, Utilitarian motivation, Green purchase attitude, Green purchase intention, Green purchase behavior*

## THIS IS MINE, AND I LOVE IT! AI ANTHROPOMORPHISM AND BRAND LOVE: AN EMOTIONAL CONTAGION PERSPECTIVE

*Dr. Farrah Zeba (IBS Hyderabad, IFHE University, India) and Dr. Musarrat Shaheen (Institute of Management Technology (IMT) Hyderabad)*

**Abstract.** Although brand love influences consumer behavior, little is known about how consumers develop emotional ties with artificial beings and what psychological mechanisms support such connections. Therefore, the current paper adds to the literature by developing a conceptual model that analyzes how anthropomorphism of artificial beings influences brand love through the dual lenses of psychological ownership and relationship quality. A total of 342 consumers revealed that the link between perceived humanness of AI brands and brand love is mediated by relationship quality and psychological ownership with artificial beings. Psychological ownership was also found to positively influence relationship quality, thereby enhancing consumers' motivation to sustain and deepen their attachment with different brands of artificial brands. Novelty-seeking is the boundary condition for this model.

***Keywords:*** *AI Brand, Anthropomorphism, Relationship Quality, Psychological Ownership, Brand Love, Emotional Contagion Theory*

## LAYERS OF MEANING: AN INTEGRATIVE REVIEW OF CULTURAL AND GENERATIONAL INFLUENCES ON BRAND COMMUNICATION

*Snehashis Khan (Indian Institute of Management Sambalpur) and Poonam Kumar (IIM Sambalpur)*

**Abstract.** Brands today speak in layers: local cultural cues, global motifs, and generational signals fuse into messages that different audiences decode very differently. This review

unpacks how cultural values (e.g., individualism vs. collectivism) and generational identities, from Baby Boomers to Gen Z and Gen Alpha interact to produce multiple, sometimes conflicting, meanings from the same brand communication. We show how the same authenticity cue, visual trope, or narrative device can mobilize trust and purchase intent in one cultural-cohort pairing while generating confusion or rejection in another. Theoretical implications include integrating cultural dimensions with cohort theory to refine models of brand resonance and message framing. Managerially, the layered-meaning perspective recommends designing flexible, modular campaigns, combining universal brand anchors with culturally and generationally tailored surface cues, to increase relevance without fragmenting brand equity. Societally, better-aligned communications can foster inclusivity, reduce cultural misfires, and support public campaigns that resonate across age and cultural boundaries. The framework offered here guides both scholarship and practice toward more nuanced, multi-layered brand messaging.

***Keywords:*** *Brand communication, Cultural values, Generational cohorts*

## THE DISEMBODIMENT OF IDENTITY IN SUSTAINABLE FOOD CONSUMPTION: THE ROLE OF GENERATIVE AI FOR INDIAN CONSUMERS THROUGH THE LENS OF CCT

*Subhadip Dutta (MICA Ahmedabad)*

**Abstract.** This paper examines the disembodiment of identity in the context of sustainable food consumption among Indian consumers, focusing on the transformative role of Generative Artificial Intelligence (GenAI). This study highlights the interplay between technology, cultural values, and sustainability by exploring how GenAI might reshape identity construction and consumption through personalized dietary recommendations, virtual food communities, and AI-driven marketing. The analysis addresses the opportunities of GenAI in fostering sustainable identities in the food space, considering India's diverse socio-cultural landscape. Drawing on theoretical frameworks and empirical studies, this paper argues that GenAI empowers identity formation in sustainable food practices, with implications for policy, industry, and blending with societal well-being.

***Keywords:*** *Generative AI, Disembodiment of identity, Societal wellbeing, Gen-z, Virtual food communities*

## PREDICTING CONSUMER PURCHASE INTENTION FOR GENERIC MEDICINES IN INDIA: A HYBRID DECISION MAKING APPROACH

*Brijesh Kamal (Delhi Technological University) and Deepti Aggrawal (Delhi Technological University)*

**Abstract.** The rising cost of healthcare in India puts a heavy burden on households, making affordable medicines an urgent need. Generic medicines, promoted through initiatives like the Jan Aushadhi scheme, can help reduce costs, but their adoption is influenced by multiple

behavioural and system-level factors. This study proposes an integrated framework to examine the drivers of customer purchase intention towards generic medicines. Data collected from Experts provides feedback to identify key pharmacy distribution channels, while customer surveys are analysed to understand how trust, affordability, awareness, social influence, and accessibility shape people's willingness to buy generic medicines. The Machine learning algorithms used in this work provide an estimation towards the likelihood of consumers purchasing generic medicines, with purchase intention as the outcome and key customer perceptions as predictors. This research provides an innovative approach employing several decision-making techniques to help shape policies, make medicines easier to access, and reduce costs for households in India.

***Keywords:*** *Generic Medicines, Jan Aushadhi, Consumer Purchase Intention, Consumer Behavior, Predictive Modeling, Fuzzy AHP, PLS-SEM*

## ENHANCING CONSUMER FLOW IN VIRTUAL TRY-ON APPS: HOW INTERACTIVITY, PERSONALIZATION AND PRIVACY CONCERN IMPACT CONSUMER DECISIONS

*Ananya Aparajita (XLRI - Xavier School of Management, Jamshedpur)*

**Abstract.** The rapid global adoption of virtual try-on applications has transformed how consumers interact with virtual try-ons in the e-retail space. Virtual try-on (VTON) allows customers to try products digitally without physically touching them, thus striking a balance between the experiences offered by physical stores and e-retail environments. Exponential growth in online shopping and e-retail has fueled demand for more interactive, immersive and engaging shopping experience. Drawing upon flow theory, this research aims to investigate how key factors, namely interactivity, personalization and privacy concern, impact purchase intention and willingness to buy while using virtual try-on apps. This study also aims to investigate the mediating role of flow state between key antecedents and outcome variables. Furthermore, the study examines the moderating role of user expertise in influencing the impact of perceived interactivity, personalization and privacy concern on user flow state. It specifically posits that high user expertise accentuates the impact of perceived interactivity and personalization on user flow state, whereas it attenuates the impact of privacy concern on user flow state while using virtual try-on apps. This research contributes to flow-based investigations on VTON applications by providing empirical insights into how immersive e-retail experience can shape potential consumer responses.

***Keywords:*** *Virtual try-on (VTON), Flow, Perceived interactivity, Personalization, Privacy concern, User expertise*

## GEN AI IN MARKETING : UNVEILING THE BLACK BOX

*Sanskar Kumar (IMI New Delhi), Purva Grover (IMI New Delhi) and Ashish Kumar Rathore (IMI New Delhi)*

**Abstract.** Generative Artificial Intelligence (GenAI) is a promising contemporary topic in marketing research. This study summarizes the applications of GenAI on marketing and its adjacent domains while considering the attitudes/perceptions of concerned stakeholders and the significant challenges posed by GenAI. This study used a systematic literature review of 27 Scopus papers by classifying the articles into four themes: (1) GenAI in advertising, (2) GenAI in innovation, (3) GenAI in services, and (4) Applications/Adoption of GenAI. This study proposes a solid understanding of Gen AI's strategic adoption, guiding marketers, managers, and policymakers navigating this dynamic technological phenomenon.

***Keywords:*** *GenAI, Generative Artificial Intelligence, Marketing, Literature review, Academic Research, Advertisement, Service, Innovation, ChatGPT, Data Privacy*

## BRIDGING TWO WORLDS: SOCIAL MEDIA INFLUENCERS AND UNDEREXPLORED FINANCIAL INFLUENCER CONNECTIONS – A BIBLIOMETRIC ANALYSIS

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**Abstract.** Purpose: This research investigates the intellectual structure, trends, and emerging opportunities in social media marketing and financial influencer studies through a bibliometric analysis. The objective is to evaluate the development of knowledge, identify leading authors and institutions, and highlight research gaps linking influencer marketing with behavioural finance and decision-making.

Method: A bibliometric review of 172 documents published between 2002 and 2025 and indexed in Scopus was conducted. Using performance analysis and science mapping through VOS viewer and Bibliometrix, the study examined publication and citation trends, co-citation networks, keyword co-occurrence, and thematic developments. These tools enabled the identification of influential authors, institutions, countries, and thematic clusters.

Findings: The last decade has seen accelerated scholarly growth, particularly in areas such as influencer credibility, trust, and consumer engagement. Highly cited works emphasise the roles of Instagram, YouTube, and virtual influencers in shaping consumer attitudes. The institutional and country-level analysis highlights the USA, Australia, and India as major contributors, though collaboration across regions remains limited. Importantly, the study identifies behavioural biases and financial decision-making as underexplored themes within the influencer marketing literature.

Implications: The study contributes by framing influencer marketing within behavioural finance, offering a novel interdisciplinary perspective. It provides scholars with a systematic view of the field while outlining opportunities for future research, particularly on financial

influencers and their role in consumer engagement. By bridging marketing and finance, this research advances understanding of socially and economically sustainable influencer strategies.

***Keywords:*** *Influencer marketing, Social media influencer, Financial influencers, Behavioural finance, Bibliometric analysis*

## ROLLING CREDITS, LASTING LEGACY: THE ASSEMBLAGE OF BRAND LONGEVITY

*Mratunjai Singh (IIM Sirmaur)*

**Abstract.** Amitabh Bachchan's career exemplifies brand longevity in global cinema, spanning over five decades across diverse roles, mediums, and cultural contexts. Using DeLanda's Assemblage Theory, this study examines how micro (actorial persona), meso (directors, producers, media), and macro (sociocultural and historical) assemblages interact to sustain his relevance. Key milestones—Zanjeer (1973), Sholay (1975), Coolie (1983), Agneepath (1990), Kaun Banega Crorepati (2000 onward), Black (2005), Paa (2009), Piku (2015), and Kalki 2898 AD (2024)—illustrate a balance of continuity and reinvention. Bachchan's enduring brand combines stable traits, such as his baritone, intensity, and integrity, with adaptive transformations across genres, platforms, and cultural registers. The study shows that brand longevity emerges from the dynamic reassembly of micro, meso, and macro elements, demonstrating how cinematic icons maintain relevance and cultural significance across generations.

***Keywords:*** *Brand longevity, Enduring cinematic brand, Continuity and reinvention, Timeless persona, Micro-Level Actorial Persona, Angry young man archetype, Vulnerability and heroism, Dark emotional registers, Mentorship and humor, Mythic futurism, Meso-Level Brand Stewards and Industry Networks, Television reinvention, Macro-Level Sociocultural and Historical Contexts, 1970s socio-political turbulence, Multiplex and globalized storytelling, Transnational appeal, Milestone films, Assemblage Theory micro meso macro, Interaction of performance industry and culture, Dynamic brand configuration, Continuity and change, Sustained cultural relevance*

## HOW REINFORCEMENTS SHAPE SUSTAINABLE BRANDING: MODERATING ROLE OF ENVIRONMENT VALUES IN INDIAN QUICK COMMERCE

*Rajarshi Debnath (Fore School of Management), Garima Saxena (Institute of Management Technology, Ghaziabad) and Subhojit Sengupta (Institute of Management Technology, Ghaziabad)*

**Abstract.** Introduction: Quick commerce (Q-commerce) platforms such as Blinkit, Zepto, and Swiggy Instamart are rapidly shaping consumer behaviour in India, promising hyper-convenience with deliveries in 10-20 minutes. While their growth has been extraordinary, their

impact on environmental impact and sustainability impact has come under scrutiny due to packaging waste, last-mile emissions, and increased traffic congestion and on-road accident risks. With consumer awareness of sustainability rising (White, Habib, & Hardisty, 2019), these platforms face the challenge of balancing operational efficiency with environmentally responsible branding.

To address this challenge, many platforms are experimenting with reinforcement mechanisms designed to nudge consumers toward sustainable delivery choices. These include utilitarian reinforcements such as discounts, cashback, or waived fees for slower, eco-friendlier deliveries, and informational reinforcements such as disclosures on CO2 savings, reduced congestion, or social proof about how many others chose sustainable options. This research examines how these reinforcement strategies contribute to the creation of a sustainable brand, and how such an image influences app continuance intentions and brand positivity. It further explores how the effectiveness of reinforcement is moderated by consumers' environmental values (egoistic, altruistic, and biospheric).

Theoretical Background

Reinforcement Theory: Reinforcement theory, rooted in Skinner's (1953) operant conditioning, proposes that behaviour is shaped by the consequences that follow it. Positive reinforcements increase the likelihood of repeated behaviour by providing desirable outcomes. In marketing, reinforcement mechanisms such as coupons, rewards, and loyalty points have been shown to influence not only immediate purchase decisions but also habit formation and brand loyalty (Liu-Thompkins & Tam, 2013). In the Q-commerce context, reinforcement mechanisms offer an opportunity to encourage pro-environmental choices while simultaneously conditioning consumers to associate sustainability with brand value. This is important for Q-commerce brands because they are often associated with their negative impact on environment and sustainable consumption practices (Grand View Research, 2025).

Utilitarian vs. Informational Reinforcements: Reinforcements can be broadly categorized into utilitarian and informational types. Utilitarian reinforcements provide tangible, functional rewards such as monetary benefits or cost avoidance. These reinforcements lower the perceived sacrifice of making sustainable choices and are particularly effective in price-sensitive markets (Steg & Vlek, 2009; Khare & Sadachar, 2017). Informational reinforcements, on the other hand, shape consumer perceptions and attitudes through cognitive and social cues. Environment disclosures, eco-labels, and social proof have been shown to enhance trust and authenticity, encouraging consumers to identify with responsible brands (Grankvist et al., 2004, Testa et al.,2015). For Q-commerce firms, it may be pertinent to explore whether strategically combining utilitarian and informational reinforcements or investing in one of the types of reinforcements (over other) may enable the creation of a stronger sustainable brand image.

Hypotheses Development

Sustainable Brand Image: A brand image reflects the associations that consumers hold in memory (Keller, 1993). A sustainable brand image emphasizes responsibility, authenticity, and alignment with environmental values. When consumers perceive a platform as genuinely committed to sustainability, they are more likely to form stronger emotional bonds and identification with it (Bhattacharya & Sen, 2003). While utilitarian and informational reinforcements trigger different motivations in consumers, we hypothesize that both utilitarian

and informational reinforcements can help brands build sustainable brand image in the minds of the consumers.

H1: Utilitarian reinforcements positively influence consumers' perceptions of a sustainable brand image.

H2: Informational reinforcements positively influence consumers' perceptions of a sustainable brand image.

Continuance Intentions: Continuance intention refers to the likelihood of consumers continuing to use a platform initial adoption (Bhattacherjee, 2001). While Q-commerce platforms often rely on habit and convenience to drive repeat use, sustainability-linked brand associations may strengthen consumers' commitment to a platform over the long term. Research in information systems suggests that continuance is not only driven by satisfaction but also by value congruence and symbolic associations (Kim et. al., 2005).

H3a: Sustainable brand image positively influences consumers' app continuance intentions.

Brand Positivity: In categories where services are highly commoditized, brand positivity emerges as a key outcome of differentiated brand positioning. Brand positivity reflects consumers' favourable evaluations, affect, and goodwill toward a brand (Aaker, 1996). Sustainability-linked brand images provide platforms with distinctiveness and credibility, enabling consumers to develop positive sentiments even when core services are similar. Previous studies have shown that brands perceived as socially and environmentally responsible often enjoy stronger consumer preference and advocacy (Bhattacharya & Sen, 2003; White et al., 2019). We hypothesize this effect to be important for Q-commerce brands which are often associated with negative social and environmental impact.

H3b: Sustainable brand image positively influences consumers' brand positivity.

Environmental Values: Consumers' environmental value orientations shape how they interpret and respond to sustainability cues (Stern, 2000). Egoistic values emphasize self-interest, suggesting stronger responsiveness to utilitarian reinforcements that provide monetary savings. Altruistic value emphasize concern for others, and biospheric values emphasize concern for the environment itself, both of which suggest stronger responsiveness to informational reinforcements highlighting ecological and social outcomes (Liang et al., 2022). Thus, environmental values are likely to moderate the impact of reinforcements on sustainable brand image.

H4a: Environmental values moderate the relationship between utilitarian reinforcements and sustainable brand image, such that egoistic values strengthen this relationship.

H4b: Environmental values moderate the relationship between informational reinforcements and sustainable brand image, such that altruistic and biospheric values strengthen this relationship.

Proposed Methodology: To test these hypotheses, we propose a between-subjects experimental design comparing the effects of utilitarian versus informational reinforcements on sustainable brand image and downstream outcomes. Participants will be randomly assigned to one of three conditions: 1) utilitarian reinforcement (e.g., cashback incentive for slower delivery), 2) informational reinforcement (e.g., disclosure of CO2 savings for slower delivery, and 3) control (no reinforcement). The experiment will simulate a Q-commerce checkout page to ensure ecological validity. The testing of base hypotheses, moderation hypotheses, and group

comparisons will be conducted using ANOVA tests in SPSS. Mediation analysis will be conducted through PROCESS macro in SPSS.
Proposed Contributions: This study attempts to extend the reinforcement theory to show how both utilitarian and informational reinforcements can serve as mechanisms for building sustainable brand images in q-commerce platforms. Q-commerce faces the challenge of balancing the consumers' growing preference for efficiency and convenience against their criticism about the environmental, societal and sustainable consumption impact these services have. This requires co-operation from consumers so that they make pro-environment choices helping brands achieve this difficult balance. This research tests the effectiveness of reinforcements, commonly applied by q-commerce brands, in building a sustainable brand image in the minds of the consumers.
This study also introduces environmental values as boundary conditions, explaining heterogeneity in how consumers interpret sustainability reinforcements. By linking reinforcement strategies to long-term consumer outcomes, including continuance intention and brand positivity, thereby integrating branding, sustainability, and information systems literature.
Managerial Implications: For practitioners, this research attempts to highlight the importance of adopting a dual reinforcement strategy: use utilitarian reinforcements to target egoistically oriented consumers and informational reinforcements to engage altruistic and biospheric consumers. Platforms that balance these strategies can not only drive adoption of sustainable choices but also strengthen their long-term brand positioning. By tailoring reinforcement strategies to consumer values, Q-commerce firms can mitigate the risk of commoditization, differentiate their offerings, and enhance consumer loyalty.

***Keywords:*** *Sustainable branding, Reinforcements, Quick-commerce, App continuance intention, Brand Positivity*

## PLAY YOUR PART, SAVE THE PLANET: GAMIFICATION IN SUSTAINABILITY MARKETING

*Rajshree Misara (Indian Institute of Information Technology, Allahabad) and Saurabh Mishra (Indian Institute of Information Technology, Allahabad)*

**Abstract.** Sustainability initiatives often struggle to translate awareness into meaningful behavioural change, creating a persistent attitude–behaviour gap. This study investigates how gamification, the use of game elements in non-game contexts—can encourage sustainable behaviour adoption by enhancing two psychological mechanisms: Perceived Consumer Effectiveness (PCE) and Environmental Concern (EC). Drawing on survey data from users of gamified sustainability platforms, the study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to test hypothesized relationships, with Artificial Neural Network (ANN) analysis applied to validate and strengthen predictive findings. The proposed model suggests that gamified interventions increase consumers' belief that their actions matter (PCE) and heighten environmental concern, which together drive sustainable behaviour adoption. By integrating both cognitive and affective pathways, this research not only advances

understanding of how gamification fosters eco-friendly behaviours but also offers practical insights for marketers and policymakers aiming to design interventions that meaningfully engage consumers in sustainable practices.

***Keywords:*** *Gamification, Sustainability Marketing, Environmental Concern, PLS-SEM*

## LINKING CORPORATE SOCIAL RESPONSIBILITY AND BRANDING: A SYSTEMATIC LITERATURE REVIEW AND FUTURE RESEARCH AGENDA

*Mahanish Panda (IMI, Kolkata), Akansha Kumari (IMI, Kolkata) and Bidhiska Ray (IMI, Kolkata)*

**Abstract.** Purpose- In this paper, the analysis of the Corporate Social Responsibility (CSR) and branding research is carried out in the form of bibliometric analysis and systematic literature review. It provides a detailed review of the literature available to date, new research topics and future inclinations.

Design/methodology/approach - This study has used bibliometric analysis to trace the intellectual patterns of previous research. It comprises 708 articles from 1984 to 2025 from Scopus through the Scientific Procedures and Rationales for Systematic Literature Reviews protocol. This protocol has adopted a three-step process for identifying articles, i.e. assembling, arranging and assessing. The study conducted thematic analysis based on 708 relevant papers. Out of them, 279 articles (Only A & A* journals) that were considered for the ADO (Antecedent, Decision, and Outcome) analysis.

Findings—This research includes bibliometrics of CSR & Branding research and the Antecedents, decisions, and outcomes that the phenomenon has been studied. It also highlights seven existing themes in the current domain of literature. The authors also provided theme-wise future research questions that will inspire and guide future researchers.

Originality/value—This study offers a thorough and systematic overview of the state of the research on CSR & Branding. It emphasizes the significance of Corporate Social Responsibility (CSR) in management and provides practical insights for practitioners, thereby enhancing the study's value.

***Keywords:*** *Corporate Social Responsibility (CSR), Branding, Bibliometric analysis, ADO framework, Thematic analysis*

## THE RESTAURANT-PLATFORM CONUNDRUM IN THE SHARING ECONOMY: RESTAURANT'S CAPACITY, PRICING AND CHANNEL DECISIONS IN THE PRESENCE OF ONLINE FOOD DELIVERY PLATFORMS

*Soumyadeep Kundu (T A Pai Management Institute (TAPMI)) and Ashutosh Sarkar (Indian Institute of Management Kozhikode)*

**Abstract.** The emergence of online food delivery platforms as a result of recent developments in the sharing economy, has disrupted the long-standing business model of restaurants and posed new challenges. As consumers grow increasingly reliant on such online food delivery platforms, restaurants must manage their doorstep delivery business in addition to their traditional dine-in business. This study investigates how a restaurant's pricing, doorstep channel, and capacity decisions are affected in the presence of platforms. We particularly evaluate three scenarios, prevalent in practise, driven by the restaurant's doorstep channel choice and kitchen capacity limitations, using a "floor price" model instead of the prevalent "commission" model. Contrary to popular belief, we find that partnering with platforms can help restaurants increase their dine-in business and is generally beneficial for consumers. Further we find that a restaurant's kitchen capacity is a major determining factor in its prices and also determines investments. However, the decision to engage with a platform depends on the restaurant's positioning in terms of its ability to differentiate its dine-in and doorstep delivery services. Not all restaurants may be suitable for platform deliveries. For platforms, it is advisable to act as the sole doorstep delivery provider for restaurants. Our study also provides strong motivation for cooperation between platforms and restaurants.

***Keywords:*** *restaurant, online food delivery platforms, sharing economy, game theory, kitchen capacity.*

## DIGITAL RESALE ECOSYSTEMS IN PRE-LOVED FASHION: TECHNOLOGY, TRUST, AND VALUE CREATION IN DOLCE VEE

*Anupa Barik (International School of Business and Media, Kolkata) and Neha Arora (Institute of Management Studies, Noida)*

**Abstract.** This study examines how digital resale platforms transform the fashion retail landscape through technology-driven, sustainable, and community-based practices. Using an in-depth qualitative case study of Dolce Vee, an Indian resale platform for pre-loved fashion apparel, the paper draws on interviews with the co-founders and an analysis of the company's operational strategies, digital presence and entrepreneurial journey. The findings reveal how a distributed seller network, stringent quality control, and the use of automation and digital analytics enable scalability while sustaining consumer trust and profitability. Community co-creation and peer-to-peer engagement further enhance perceived authenticity and help overcome social stigmas associated with second-hand clothing. Sustainability is operationalized through innovations such as India's first clothing carbon-footprint calculator, integrating environmental accountability into the digital resale model. By highlighting how technology enables online platforms to replicate and reconfigure the trust mechanisms of physical retail, this study contributes to understanding the evolving relationship between e-commerce and traditional fashion stores. Grounded in circular economy and business ecosystem frameworks, the paper offers theoretical and managerial insights on developing sustainable, data-driven, and socially inclusive retail models in emerging markets.

***Keywords:*** *Pre-loved fashion, Circular economy, Digital resale platform, Trust, India, Co-creation*

## ALGORITHMIC LITERACY IN TOURISM AND HOSPITALITY: A REVIEW AND FUTURE RESEARCH AGENDA.

*Nayeem Aktar (IMI kolkata), Sahil Singh Jasrotia (IMI kolkata) and Kishalay Adhikari (IMI Kolkata)*

**Abstract.** The search, planning, and experience of tourists is being disrupted by artificial intelligence and algorithmic systems. However, we know little about how travelers understand and systematically think critically about algorithmic systems, a skill we call algorithmic literacy. The goal of this study is to conduct a systematic review of work on algorithmic literacy, AI literacy, and digital literacy in tourism and hospitality. The systematic review highlights key findings and organizes findings using the Antecedent–Decision–Outcome (ADO) framework, which conceptualizes algorithmic literacy and its impact on tourists' awareness, trust, and behavioral responses to AI-based systems. The paper also applies a Past, Present, Future perspective to ground the work in historical literature to show how it is transitioning from a relatively new area of work examining digital literacy to current consideration of algorithmic literacy in the area of smart tourism. The systematic review process surfaces three specific research gaps: calibration and conceptual clarity in understanding algorithmic literacy, limited empirical evidence linking algorithmic literacy to behaviors of travellers, and limited awareness of socio-technical (and ethical) literacies. Informed by gaps in the literature, the paper proposes an integrative framework for algorithmic literacy that acts as a competence that (1) establishes trust, (2) engages travellers, and (3) responsibly and ethically uses algorithmic systems in the context of tourism.

***Keywords:*** *Algorithmic literacy, AI literacy, Digital literacy*

## EFFECT OF GAMIFICATION FEATURES ON RESPONSIBLE SPENDING BEHAVIOR AMONG INDIAN APP USERS

*Neelakshi Shukla (Indian Institute of Information Technology), Dr. Saurabh Mishra (Indian Institute of Information Technology) and Rajshree Misara (Indian Institute of Information Technology)*

**Abstract.** Purpose: In this study, the impact of gamification features (GF) on Indian app users' responsible financial behavior (FB) will be investigated. These elements include points, badges, streaks, avatars, leaderboards, challenges, prizes, and progress tracking. Nudge Theory informs the study's conceptualization of these gamified components as behavioral nudges that gently encourage users to make wise financial decisions without limiting their options. The study advances our knowledge of how digital design features included in financial applications can motivate users to embrace responsible and sustainable money management.
Design/ Methodology/Approach: A structured questionnaire was used to conduct a quantitative study among Indian smartphone users who use payment or financial management apps,

including Money Manager, Paytm, Google Pay, and CRED. The tool assessed users' exposure to and opinions on gamified elements, as well as how they affected their ability to make sound financial decisions and practice spending restraint. PLS-SEM software was used to test the proposed model, which was based on Nudge Theory, using structural equation modeling (SEM). In order to ascertain the direct and indirect effects of distinct gamification components on responsible spending behavior, the analysis tested the structural model after validating the measurement model of latent constructs-gamification characteristics and financial behavior.
Findings: The findings show that gamification elements greatly improve app users' responsible financial behavior by serving as powerful digital nudges. In particular, leaderboards and badges encourage social comparison and competitive self-regulation, while challenges, progress monitoring, and points all significantly increase budgetary awareness and spending control. Rewards sustain short-term engagement, whereas streaks improve consistency in financial behaviors. Avatars, on the other hand, had little effect, suggesting that customization alone is insufficient to influence behavior. Overall, the results show that well-designed gamified nudges positively impact users' self-regulatory financial habits and intrinsic motivation.
Originality/Value: This study offers a fresh theoretical perspective on how imperceptible digital cues incorporated into financial apps can encourage users to adopt more responsible financial practices by fusing Nudge Theory with gamification design concepts. The study closes a large vacuum in the literature by concentrating on India, where the adoption of fintech is growing quickly, but behavioral financial literacy is still uneven. The findings have useful ramifications for policymakers, financial educators, and software developers who want to create gamified interventions that encourage long-term financial well-being and consistent, prudent spending.

***Keywords:*** *Gamification, Points, Badges, Streaks, Avatars, Leaderboards Challenges, Rewards*

## PRIORITIZING FACTORS INFLUENCING SHOPPING INTENTION THROUGH METAVERSE USING GINA: A TAM-BASED APPROACH

*Eshita Gupta (Sharda School of Business Studies, Sharda University) and Ruchi Jain Garg (Sharda School of Business Studies, Sharda University)*

**Abstract.** This research investigates the causal relationships among critical determinants of shopping intention within the metaverse by applying Grey Influence Analysis (GINA) within the Technology Acceptance Model (TAM) framework. Five core constructs, Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Perceived Enjoyment (PE), Social Influence (SI), and Facilitating Conditions (FC), were identified and evaluated according to their overall impact on user intention. An analysis of expert responses reveals that PU, FC, and SI are poised to exert the greatest influence, highlighting the practical value, facilitating conditions, and social factors that impact consumer behaviour in virtual shopping environments. In contrast, greater PEOU and PE effects would suggest that users could tolerate interface complexities or varying experiences where real benefits and system support are evident. The findings indicate that GINA can provide a model with an interdependency among TAM constructs, offering

valuable insights to researchers and practitioners alike. Consequently, it may be said that they need to highlight PU, FC and SI as these will boost shopping intention and long-term acceptance into the metaverse.

***Keywords:*** *Metaverse, Shopping intention, Factor influencing, TAM, GINA*

## WOMEN'S ENGAGEMENT IN PHYGITAL RETAIL SPACES: INVESTIGATING THE ROLES OF SELF-DETERMINATION, EXTENDED SELF, AND SOCIAL PRESENCE

*Rashmi Shukla (Indian Institute of Information Technology , Allahabad), Saurabh Mishra (Indian Institute of Information Technology , Allahabad) and Rajshree Misara (Indian Institute of Information Technology , Allahabad)*

**Abstract.** The advent of phygital retail has transformed the way in which consumers engage with brands, products and experiences. This has led to unique psychological, cultural and behavioral implications for women, who are the majority of consumers across the globe. This research investigates the impact of psychological needs, perceptions, and self-concept of women shoppers on their intention to engage and continue shopping in a phygital shopping atmosphere. A structural model is developed based on the Self-determination Theory (SDT), the Extended Self Theory, and the Social Presence Theory and tested through PLS-SEM analysis.

This study revolves around the role of intrinsic motivation and psychological safety in women's shopping behavior in a hybrid retail setting. It proves that SDT positively predicts Extended Self and Social Presence, leading to immersion and trust, which then improve engagement and staying intention in the hybrid retailing context.

***Keywords:*** *Phygital environment, Self-determination theory, Extended self, Social presence immersion*

## UNDERSTANDING CONSUMER MOTIVATIONS AND RESISTANCE IN LIVESTREAM COMMERCE: A BEHAVIORAL REASONING THEORY PERSPECTIVE IN INDIA

*Tanisha Patel (Indian Institute of information technolog), Saurabh Mishra (Indian institute of information technology) and Rajshree Misra (Indian institute of information technology)*

**Abstract.** Purpose: Livestream shopping (LSC) is a form of live video streaming-based e-commerce that has become common in retail formats across East Asia. The Indian market of e-commerce and internet users is growing rapidly but the sector is nascent in the country. This paper aims at identifying the factors that influence the adoption of livestream shopping in India based on the Behavioral Reasoning Theory (BRT)(Westaby, 2005). It proposes several constructs that affect consumer acceptance of the livestream shopping channel, including credibility, perceived aesthetics, impulse consumption intention, continuous purchase intention, trust (emotional and cognitive), social value, professionalism, attraction, time pressure, and product homogeneity. Also considered are psychographics, such as age, shopping

frequency, level of engagement and intention to stay.The study adopts Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze the quantitative data. The study is conducted among Indian online shoppers who purchase goods and services by shopping through websites and mobile apps by selecting respondents between 18-45 years of age. This study seeks to consider "reasons for" and "reasons against" adoption. It expects to reveal that factors of credibility, trustworthiness, and professionalism positively affect engagement and purchase intention. Concerns about delivery(Fatah Uddin et al., 2024), time constraints, and product commoditization may serve as important barriers. Theoretically, this study will extend BRT(Westaby, 2005) in the digital commerce domain, and practically, provide Indian e-commerce managers with evidence-based recommendations to improve trust, authenticity, and consumer retention in livestream shopping.

Introduction: Drives from experts opinion of how technological acceleration reshapes the retail experience for consumers and blurs the line between entertainment and commerce is livestream shopping (LSC), a form of social commerce that consists of preparing and offering products for sale to potential consumers in real time through live video while interacting with and communicating to them, which is mostly done on Taobao Live and TikTok Shop in China. Livestreaming utilizes real-time customer engagement and influences endorsements with instant purchasing capabilities as an engaging alternative to customary e-commerce.

Although the size of India's e-commerce market is estimated to exceed USD 350 billion by 2030, the country has been slow in adopting livestream shopping due to factors such as cultural differences, technology drawbacks, logistics issues(Yan et al., 2022) , and varying levels of consumer trust among the population. Using the Behavioral Reasoning Theory (BRT)(Westaby, 2005) this study attempts to investigate Indian consumers' adoption and resistance to livestream shopping.

Factors influencing behavioral intention (adoption decision) include drivers, like credibility, social value, emotional trust, and perceived attractiveness, and barriers, such as delivery, homogeneity, and timing. Moderating variables such as age, frequency of shopping, shopping involvement, and shopping intention play an important role. The present study seeks to investigate the impact of these moderating factors.

The study employed PLS-SEM to propose, and empirically validate, the relationships between the constructs and to develop a theory of livestream shopping adoption in India.

Theoretical Framework: Behavioral Reasoning Theory (BRT)

Developed by Westaby (2005), Behavioral Reasoning Theory maintains that individuals' attitudes and intentions are set by their “reasons for” and “reasons against” performing the behavior. Unlike other models, such as TPB and TRA, BRT focuses on the reasoning behind the attitude: thus, it offers a balanced perspective on motives and resistances. In livestream shopping, “reasons for” are emotional appeal, trust, aesthetics, and social interaction, while “reasons against” are suspicions about the authenticity of a product, insufficient time, and unreliable products. This dual reasoning framework makes BRT (Westaby, 2005)especially apt to analyze complex, emotion-driven consumer behaviors .

Research Objectives

- To identify the major drivers and deterrents of livestream shopping adoption among Indian consumers.

- 2.To test the relationships of emotional, cognitive, and behavioral constructs using PLS-SEM.
- To derive implications for marketers and live-streaming platforms on how to improve adoption.

Methodology: Research Design

Quantitative means a research approach that focuses on the design of the proposed study is cross-sectional in nature. Data collection will be done using structured online surveys among active e-commerce users of India. Potential respondents aged between 18 and 45 years will be targeted to ensure that digital literacy and familiarity with live-stream content are ensured. Each construct will be measured on a 5-point Likert scale. Credibility, Trust in Product, Emotional Trust, Professionalism, Perceived Aesthetics, Attraction, and Social Value drivers. Homogeneity, Time Pressure, Delivery Doubts, and Unreliability as barriers (reasons against). Impulse Consumption Intention, Continuous Purchase Intention, and Purchase Intention as outcomes. Age, frequency of shopping, engagement, and staying intention as moderating variables. The study will be based on PLS-SEM, using the SmartPLS software. This is an appropriate method for exploratory research in the presence of several interrelated constructs and is very effective in modeling reflective and formative constructs. It will help test Direct and indirect influences of aesthetic- and trust-based factors on purchase intentions. The mediating role of impulse consumption and emotional trust. The moderating influence of demographic and behavioral factors. Data Sources Primary data will be collected from a minimum of 350 using non-probability convenience sampling.

Major Findings: Although the final empirical results are pending, the following outcomes are expected based on prior literature and pilot observations:

- Credibility and Trust in Product emerge as the highest positive predictors of purchase intention. Consumers are most likely to get engaged and complete purchases when they view the host or brand as credible.
- 2 .Perceived Aesthetics & Professionalism-significantly impact emotional trust and attraction, hence impulse buying and continuous purchase intention. High-quality visuals and professional presentation enhance perceived authenticity.
- Emotional Trust-mediates the relationship of aesthetic presentation and purchase intention, hence indicating that emotional bonding with the hosts or influencers will drive purchase confidence.
- Social Value-increases engagement and staying intention. Among the viewers, the motivation of community belonging and peer recognition is strengthened.
- Homogeneity and Time Pressure are the major deterrents. Consumers perceive many products as similar across different livestreams, reducing novelty. On top of that, time-limited offers create cognitive stress leading to hesitation.
- Delivery Doubts: These are the most critical “reason against” adoption in India. Concerns on delayed delivery and damaged goods followed by return hassles erode trust.
- Demographic Factors: Younger consumers, aged 18–30 years, are more engaged and impulsive, while older consumers stress much on the credibility and reliability of products.

Discussion: These findings are in tune with BRT, demonstrating the fact that Indian customers' decisions to use livestream shopping are influenced by opposing cognitive and emotional

reasoning. Thus, motives for adoption such as credibility, aesthetics, and emotional trust reflect approach motivations, while motives against-for example, delivery doubts and product sameness-reflect avoidance reasoning. Success depends on trust, interactivity, and authenticity. In India, the resource constraints and cultural hurdles of transition from conventional e-commerce to real-time shopping mean that the platform environment-that is, visual appeal and professionalism-drives impulse buying in the short run, but it is a trust-based relationship among the hosts, brands, and consumers that ensures the sustained use of the platform.

Implications

Theoretical Implications

- The study extends Behavioral Reasoning Theory to a digital, emotion-intensive context and illustrates how reasons for and reasons against operate simultaneously in consumer reasoning.
- It introduces trust duality-emotional and cognitive-being in the middle of perceived professionalism and purchase intention.
- Practical Implications
- Marketers and platforms should focus on credibility and trust signals, such as verified hosts, transparent descriptions of the product, and customer reviews.
- Improved visual quality and professionalism can enhance perceived aesthetics, thereby improving impulse purchase tendencies.

Operational reliability, especially fast, safe, and transparent delivery, should be ensured in order to reduce delivery doubts.

- Personalized engagement and community-driven livestreams can foster long-term relationships and continuous purchase intention.
- Targeting strategies should be based on age-based segments, creating content for either younger impulse buyers or older trust-driven consumers.

Conclusion: This study presents a holistic framework for understanding the drivers and inhibitors of livestream shopping adoption in India. Guided by BRT, this research underlines the duality of the reasoning process adopted by customers while making their adoption decisions between emotional attraction and rational caution. These results reveal that while credibility, trust, and aesthetic appeal drive engagement, concerns about the reliability of delivery, time pressure, and product similarity restrain the adoption of the application. For livestream shopping to thrive in India, platforms need to establish credibility, professionalism, and operational reliability. The research not only expands the academic application of BRT in a digital context but also provides actionable strategies for practitioners to enhance live stream commerce in India's rapidly changing e-retailing landscape.

***Keywords:*** *Livestream Commerce, Behavioral Reasoning Theory, Adoption Driver, Purchase Intention, Emotional Trust PLS-SEM*

## FROM CODE TO CONNECTION: UNDERSTANDING PARASOCIAL BONDS AND PURCHASE INTENTIONS IN THE AGE OF AI INFLUENCERS

*Muskan Mishra (Indian Institute of Information Technology Allahabad), Saurabh Mishra (Indian Institute of Information Technology Allahabad) and Rajshree Misara (Indian Institute of Information Technology Allahabad)*

**Abstract.** We are living in the era of social media marketing and witnessing the rise of virtual influencers in the fashion and lifestyle industry, which has created both the opportunity and challenges for brands. This paper will investigate how three feature dimensions of virtual influencers, i.e., anthropomorphism (human-like appearance/behavior), entertainment value (engaging content), and attractiveness (visual appeal), contribute to consumers Parasocial relationship and Perceived Authenticity, and thereby influence Purchase Intention.This study will also examine how App/Brand Congruence as a moderator of the Authenticity will link and drive the Purchase Intention. Utilizing theories such as Parasocial Interaction Theory, Source Credibility Theory and human-computer interaction frameworks,this paper will present a PLS-SEM model based on lifestyle/fashion centered consumer data.The findings of this study will help both the brands and marketers understand how virtual influencer can build trust and engagement with their customer.

***Keywords:*** *Virtual Influencers, Anthropomorphism, Parasocial Interation*

## MINDSET-CONTINGENT WILLINGNESS-TO-PAY PREMIUMS VIA JUDGMENT PROCESSES FOR SUSTAINABILITY INITIATIVES: PREREGISTERED EXPERIMENTAL EVIDENCE

*Jishnu Bhattacharyya (School of Management, Swansea University), M S Balaji (RMIT University Australia) and Yangyang Jiang (University of Nottingham, Ningbo, China)*

**Abstract.** We investigate when and why consumers accept price premiums for sustainability initiatives. Building on equity theory and a person × situation lens, we distinguish enhancement (regenerative, reuse/recycle, renewable) from reduction (conservation, efficiency) actions and test whether initiative type shifts willingness-to-pay (WTP) via perceived long-run environmental impact, contingent on a maximizing mindset. Five preregistered experiments triangulate a percentage-based measure, an incentive-compatible auction, and multi-item scales across varied decision contexts. Enhancement actions reliably elicit higher premiums than reduction actions, including a ~9.7% premium in a direct-percent task and about a $302 uplift in an auction benchmark, establishing the economic significance of the effect. The premium advantage of enhancement operates through perceived long-term environmental impact, which mediates the effect of initiative type on WTP. Further, a maximizing mindset strengthens both perceived impact and downstream WTP for enhancement versus reduction. Moderated-mediation analyses confirm that the indirect path through perceived impact is significant for maximizers but not for non-maximizers. The results advance theory by identifying a judgment-based, intertemporal mechanism for monetizing sustainability and clarifying a person-level

boundary condition on pricing responses, while offering a practical roadmap for communicating initiatives that generate both environmental and financial returns.

***Keywords:*** *Sustainability, willingness to pay, enhancement initiatives, equity, reduction*

## FROM CLICKS TO CHAINS: UNDERSTANDING THE DRIVERS OF DIGITAL SWEATSHOPS

*Sahil Singh Jasrotia (IMI Kolkata), Manoj Kamila (Jaipuria Institute of Management Indore) and Shagun Chib (Institute of Business Management, Jadavpur University)*

**Abstract.** This study examines the ethical dilemmas and governance shortcomings encountered by employees in digital sweatshops, marked by exploitative conditions inside the digital economy. Qualitative interviews indicate widespread exploitation, insufficient salaries, and little support for workers in economically disadvantaged areas. The study underscores the necessity for regulatory improvements and ethical norms inside technological enterprises.
Keywords: digital sweatshop, ethics, labor, employee, digital work
Introduction: The rapid expansion of digital platforms has led to the emergence of "digital sweatshops," a phenomenon characterized by exploitative working conditions in the digital economy. These environments disproportionately affect workers in lower-income regions, leading to ethical, governance, and labor challenges that hinder decent working conditions. The lack of a clear definition of digital sweatshop labor has further complicated efforts to address these academic and practical challenges.
Research Question(s)/Objectives: This study examines the ethical issues and governance failures encountered by workers in digital sweatshops, focusing on the role and responsibility of technology businesses. The study aims to evaluate workers lived experiences on digital platforms and the structural drivers of exploitation.
Methodology: The study employs a qualitative research approach involving in-depth interviews with former digital sweatshop workers. Participants were selected from multiple digital channels to capture varied perspectives, focusing on lower-income locations. The data were examined using thematic analysis to reveal meaningful patterns of exploitation and governance failures.
Results/Findings: The findings show pervasive exploitation in digital platform jobs, including low wages, inadequate healthcare, unclear governance standards, and no organizational support. Workers felt isolated, detached from decent work, and exploited, which affected their mental and physical health. These variables increase digital labor economy power imbalances and unethical behavior.
Implications: The study emphasizes regulatory enhancements to address systemic exploitation in digital sweatshops. Technology businesses must develop ethical standards that guarantee digital workers fair compensation, working conditions, and healthcare. The study provides qualitative insights into the structural underpinnings of digital labor exploitation, advancing theoretical understanding.

***Keywords:*** *digital sweatshop, ethics labor, employee, digital work*

## DETERMINANTS OF LONG-TERM ENGAGEMENT WITH WEARABLE ACTIVITY DEVICES: THE ROLES OF PSYCHOLOGICAL AND MOTIVATIONAL DRIVERS

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**Abstract.** Wearable activity devices (WADs) are gaining traction as tools for self-monitoring and promoting healthier lifestyles, yet user abandonment remains high, with nearly half discontinuing use within two weeks. To address this issue, the present study will investigate the psychological and motivational drivers behind sustained WAD engagement, focusing on the roles of self-quantification, gamification, and feedback, with commitment serving as a mediating factor (Srivastava et al., 2021).Data will be collected from individuals who have used WADs continuously for at least six months, ensuring that insights reflect the behaviors of experienced users. Structural equation modeling (SEM) will be employed to test hypothesized relationships between the constructs and continuance usage intention.

Preliminary findings are expected to highlight commitment as the central mediator through which gamification and timely feedback reinforce continuance usage. Self-quantification is also expected to foster commitment indirectly. This extends prior studies that demonstrated gamification as a significant driver of continuance intention via motivational pathways such as performance expectancy and social influence (Venkatesh, Thong, & Xu, 2016). It also aligns with experimental findings showing that gamified features, such as leaderboards and social comparison, increase physical activity among previously sedentary users (Hydari et al., 2023). Additionally, it supports research indicating that design elements like personalization, reminders, and dialogue support strongly influence the sustained use of wearable devices (El-Gayar et al., 2023).Theoretically, this research will contribute to continuing intention literature by validating commitment as a core mediator in the WAD usage context. Practically, the findings will offer actionable insights for developers, designers, and policymakers by emphasizing the importance of gamified elements and feedback systems to foster sustained engagement and facilitate behavioral change.

***Keywords:*** *Wearable activity devices, Continuance intention, Self-quantification, Gamification, Feedback, Commitment, Structural equation modeling*

## FROM GLITCH TO SWITCH: A NARRATIVE REVIEW OF DIGITAL SERVICE FAILURE

*Nayeem Aktar (IMI Kolkata) and Rituparna Basu (IMI Kolkata)*

**Abstract.** Digital service failures are a growing issue on an increasingly technology-focused service landscape. The current study targets the uncharted landscape of digital service failure

and its potential effect on customer perceptions and subsequent behavioral outcomes. The study is based on 143 peer-reviewed journal articles sourced from Scopus, allowing for science mapping and clarifying the collaborative yet evolving territory associated with digital service failures across various service realms, specifically tourism and hospitality. Through a detailed content analysis of the most cited articles, organized using the Antecedent–Decision–Outcome (ADO) framework, with a focus on customer expectations, the study illustrates how customer expectations and contextual triggers affect consumer appraisals before and after the consumption of service technologies. The study examines findings from the perspective of pre-failure expectations and the perceived value and worth of technology, consumer reactions in terms of trust depletion, and consumer appraisals of recovery and service request fulfillment. By offering a consolidated understanding of digital service failure literature, and noting key areas that need more consideration from researchers, this study concludes with a conceptual framework for future research, and provides a way for scholars to formulate and examine how service technologies shape, and at times subvert, consumer expectations in this 'digital-first' environment.

***Keywords:*** *Service failure, Service recovery, Digital failure, Literature review*

## ROLE OF SOCIAL MEDIA INFLUENCER IN SHAPING CONSUMERS SUSTAINABLE CONSUMPTION BEHAVIOR: A SYSTEMATIC LITERATURE REVIEW

*Rashmita Saran (Icfai Foundation of Higher Education), Mandakini Paruthi (IBS, IFHE Hyderabad) and Sweta Singh (IBS, IFHE Hyderabad)*

**Abstract.** Sustainable consumption is increasingly critical amid escalating climate challenges, and social media influencers are emerging as powerful agents in shaping consumer behavior. This systematic literature review synthesizes findings from 20 peer-reviewed articles published over the past decade, applying PRISMA guidelines to ensure rigor. Results reveal that influencers foster sustainable consumption through mechanisms such as authenticity, trust-building, product endorsement, narrative framing, and community engagement. Consumer engagement emerges as a key mediator, with parasocial interactions and perceived expertise significantly enhancing eco-friendly purchase intentions. However, the literature remains heavily skewed toward pre-purchase behaviors, with limited attention to post-purchase satisfaction, dissonance, and disposal practices. Sectoral coverage also shows gaps, with most studies focusing on consumer goods rather than tourism, commerce, or fashion. Furthermore, sustainability is often narrowly conceptualized in environmental terms, with insufficient consideration of social and economic dimensions. Persistent challenges include the attitude–behavior gap and variability in conceptualization across studies. This review highlights the need for broader contextualization, stronger theoretical development, and exploration of the full consumer journey to better understand influencers' role in advancing sustainable consumption.

***Keywords:*** *sustainable consumption, social media influencer, green purchase*

## EXPLORING DRIVERS AND BARRIERS FOR SUSTAINABLE FASHION PURCHASE INTENTION IN SOCIAL COMMERCE: A QUALITATIVE INQUIRY

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**Abstract.** As sustainability becomes central to fashion consumption, social commerce platforms are emerging as pivotal channels for environmentally conscious consumers. However, existing research is fragmented regarding specific roles of factors that affect purchase intentions for sustainable fashion products in this ecosystem. Hence, by mapping the findings onto the M-O-A theory, the study aims to advance the theoretical understanding of how motivation, opportunity, and ability influence the consumer decision-making process. Employing an inductive research approach, utilizing 12 in-depth semi-structured interviews from the pre-determined conscious shoppers and experts of fashion products. The findings suggest that factors such as perceived ethical branding, peer endorsement, and user-generated sustainability content collectively create environmental awareness, ultimately influencing purchase intention. On the other hand, the concept of greenwashing and the low availability of sustainable fashion products may act as inhibitors. By integrating empirically derived factors within the lens of the M-O-A framework, this present study enhances the theory's applicability to a rapidly evolving retail domain. Particularly, the insights inform platform designers, marketers, and brand managers on how to optimize features and communication strategies to engage and enhance sustainable fashion purchases in social commerce.

***Keywords:*** *Sustainable Fashion, Eco-Fashion, Social Commerce, Brand Storytelling, Purchase Intention, M-O-A.*

## NURTURING BUSINESS PERFORMANCE: UNVEILING THE POWER OF STRATEGIC GREEN ORIENTATION AND SUSTAINABLE DESIGN

*Priyavrat Sanyal (Higher Colleges of Technology), Nikunj Kumar Jain (IIM Nagpur) and Kaustov Chakravraty (IIM Sambalpur)*

**Abstract.** In today's volatile and competitive industrial landscape, firms are under increasing pressure to deliver continuous value and adapt to evolving customer demands. Sustainable product design represents a potential approach to attain an environmentally friendly, strategic green market orientation (SGMO). However, the extant literature also asserts that not all organizations benefit from the adoption of green practices. The objective of this study is to investigate the mediating mechanism of sustainable process and product design on the effect of SGMO on firm performance. The study also considers the moderating role of market dynamism, which reflects volatility in customer requirements, technology, and competition, particularly relevant in the B2B context. Survey data from 327 Indian manufacturing

executives were analyzed with structural equation modelling, and necessary conditions analysis. The findings reveal that sustainable process and product design mediate between SGMO and firm performance. Further, market orientation moderates the impact of SGMO on firm performance through sustainable process and product design. This study contributes to industrial marketing theory by highlighting the importance of integrating sustainability-oriented design and marketing strategies for achieving both environmental and financial performance.

***Keywords:*** *Strategic Green Marketing, Process Design, Product Design, Market Dynamism, Dynamic capabilities*

## CONSUMER INSIGHTS ON SUSTAINABILITY WITHIN THE ERA OF CLIMATE CRISIS

*Rakesh Kumar Pandey (United University Prayagraj Uttar Pradesh), Pradeep Kumar Mishra (Faculty of Management Studies, Sankalchand Patel University Visnagar, Gujarat) and Ambrish Singh (Rajkiya Engineering College Azamgarh, Uttar Pradesh)*

**Abstract.** This study is motivated by a zeel to understand consumer perceptions of sustainability about the climate change. The study's primary question is how consumers' knowledge levels affect their product buying preferences, faith in sustainability claims, and propensity to spend more on the eco-friendly products. A cross-sectional survey of hundred individual customers, ranging in age from eighteen to sixty-five, yielded statistically significant results when analysed in SPSS. According to the Chi-Square test, people's having understanding of climate change has a significant impact on their selection for eco-friendly behaviours. To the contrary, the Pearson Correlation study found that brand loyalty increases when the consumers believe on company's sustainability promises. The analysis of variance also showed that higher levels of education are also associated with a greater willingness to pay for a premium eco-friendly products. This research sheds light on customer habits regarding sustainability, which can help the businesses to improve their green marketing initiatives activities. The study also highlights the importance of marketing to certain demographics and keeping communication open with customers as a mathod to boost brand loyalty.

***Keywords:*** *Consumer Perceptions, Sustainability, Climate change, Environmental Responsiveness, Consumer Responsibility*

## EVALUATION AND RANKING OF SERVICE QUALITY IN THE VEHICLE INSURANCE COMPANIES: A MULTI-CRITERIA DECISION-MAKING APPROACH

*Bibhuti Tripathy (Institute of Management Technology, Nagpur)*

**Abstract.** The assessment and selection of service quality is the most important issue in management; it exerts a direct impact on the operational efficacy of the manufacturer. The

significance of service quality rankings is evident in the increasing demand to meet customer needs and customer expectations within a highly competitive service-oriented sector. The process of selecting service quality may be conceptualised as a multi-criteria decision-making (MCDM) problem characterised by criteria, whether they are quantitative or qualitative, in the evaluation processes. In recent years, the evaluation of service quality has become complex and uncertain; consequently, certain criteria assessment processes cannot be executed efficiently through numerical evaluations. In addition, decision-making experts (DEs) may not consistently exhibit complete rationality in various real-world scenarios necessitating judicious decision-making. In this context, a fuzzy TOPSIS approach to service quality evaluation is addressed to evaluate and rank service quality in the vehicle insurance company. The proposed approach is used to calculate the weight of each criterion, which is expressed in linguistic variables. The linguistic variables are represented as triangular fuzzy numbers. The proposed approach generates aggregate scores and closeness coefficients to rank the service quality on the criteria. In this paper, the fuzzy TOPSIS approach possesses a distinctive procedural framework among MCDM methodologies, which is illustrated through an example to clarify the results.

***Keywords:*** *Multi-criteria decision-making (MCDM), Service quality, Fuzzy theory, Fuzzy TOPSIS*

## MARKETING STRATEGIES TOWARDS SUSTAINABLE SERVICE: A NORTH - SOUTH COMPARISON OF INDIAN SHOPPING MALLS

*Riya Ghosh (Indian Institute of Social Welfare and Business Management) and Dipa Mitra (Indian Institute of Social Welfare and Business Management)*

**Abstract.** Shopping malls play a very crucial role in the retail industry of India. Over the last few years, a number of shopping malls have developed across the country. Not only shopping malls, but also e-commerce platforms have quickly expanded. This has led to massive competition amongst the stakeholders; the less strong parties are wiped out of the market. In this light, the literatures have been referred to and it is found that majority of the studies have focussed on a specific location to identify the factors impacting the service quality of the malls, but there is hardly any research which has conducted a region wise comparative analysis among the shopping malls. The present study is conducted to develop an in-depth understanding of the shopping malls of northern and southern India. Primary data relevant to the study is obtained from the shopping malls based out of the two regions mentioned above. The dataset is pre-processed and subjected to statistical analysis. It is found that the service quality dimensions impacting the mindset of the consumers from northern parts of India are efficiency of employees, promptness of employees and security of the transactions. In case of southern India, mall navigation and purchase experience, integrity of services and personalized care offered by the malls to the visitors play a significant role. By going further into the depths of the study, it is learnt that, in case of northern India, efficiency of employees show low performance. However, for southern India, there is no major area of concern. Net Promoter Score for north is satisfactory, however, majority of the south visitors seem to discourage their acquaintances from visiting malls. This findings from this study may act as guiding light for

the mall managers. A happy customer keeps returning to the shopping mall; thus helping the mall to achieve its bottom line.

***Keywords:*** *Efficiency of employees, Service quality dimension, service quality perception, shopping malls*

## GREEN CHOICES: ANALYSING INDIAN CUSTOMERS RESPONSE TO SUSTAINABLE PACKAGING

*Radha Govind Indwar (IMI Kolkata) and Rupjyoti Saha (Indian Institute of Information Technology, Guwahati (IIITG))*

**Abstract.** Sustainable packaging refers to packaging that has a relatively low environmental impact. Adoption of sustainable packaging by different firms has not been as expected, although it is growing. The various reasons for low penetration of sustainable packaged materials are high cost, durability, people's awareness and people's habits. The transition to adopting sustainable practices has percolated to the food industry as well. With the advent of concept of eating healthily, people's consciousness towards food items has increased. This has percolated into packaging of food items. The cost of transitioning into sustainable packaging materials is high which deters people from adopting it fast. Although the food items lie in both utilitarian and hedonic product category, the attributes like price and taste hold high importance for both product categories. Further, the factors such as environmental friendliness and healthfulness hold high importance among health-conscious and environmentally conscious people.

***Keywords:*** *Sustainability, Packaging, Health Consciousness, Environmental Consciousness*

## EXPLORING THE DRIVERS OF WELLNESS PRODUCT CONSUMPTION: A QUALITATIVE INVESTIGATION INTO CONSUMER ATTITUDES AND PREFERENCES

*Indrani Paul (IMI Kolkata) and Gobinda Roy (IMI Kolkata)*

**Abstract.** Introduction: The wellness product or nutricosmetics market (beauty supplements in our study) is growing high due to increasing demand for natural products that enhance health and beauty without side effects (Ali et al., 2021, Ali & Ali, 2020). Nutraceuticals are considered ingestible foods and nutritional supplements (pills or capsules, tablets, liquids, granulates, or meals) to improve health and skin (Tabor and Blair, 2009). These products contain ingredients such as collagen, vitamins, omega-3 fatty acids which work from the inside to promote beauty. While this market is rapidly expanding, existing studies predominantly focus on the health benefit, consumers pro-environmental behaviour, environmental self-identity through wellness products consumption (Manideep et al., 2019; Abd Hafiz et al., 2017; Aleksijevits, 2019; Kim & Seock, 2009). However, the nature of products requires customer efficacy and knowledge (whether vegan or organic or herbal) to purchase online. Moreover, customer might prefer to purchase but often lacking resources and references might lead to lack of credibility for online

purchase of wellness products. However, extant study yet to explore the drivers of customer preference and attitude toward such products, leading to purchase intention. Therefore, this study addresses this gap by exploring the following research questions:
RQ1: How does the nature of wellness product influence customer trust which further leading to purchase intention?
RQ2: How does customer preference for wellness product affect their trust before purchasing the product?
Methodology:This study employed an in-depth semi structured interview to probe into consumers preference to buy wellness products. It used semi structured based qualitative analysis. (Ban & Ramsaran, 2017) on 15 users of wellness product to understand the motivation behind their purchase.
Findings: The content analysis revealed that product related attribute (paraben free, sugar free, clinically proven, anti-inflammatory, flavoured, gluten free), and platform related facilities (digital beauty book, peer reviews or customer testimony, prior experience, beauty buying guides) plays a major in building customers trust in wellness product. However, we interestingly found that customer preference for organic, vegan, natural, cruelty free products immediately impact their trust which subsequently affect their purchase decision.
Implication:This study uniquely contributes to the literature of wellness product consumption and various dimensions of consumer motivation to trust and purchase such product. Practically, it can help the industry to position the product based on disseminating knowledge and empowering customers.

***Keywords:*** *Wellness product, qualitative, in-depth interview, online purhase intention*

## ETHICS MEETS ENGAGEMENT: A BIBLIOMETRIC ANALYSIS INTO CORPORATE SOCIAL RESPONSIBILITY'S ROLE IN STIMULATING BRAND LOYALTY

*Abinash Jena (Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha)*

**Abstract.** Introduction: Corporate Social Responsibility (CSR) necessitates ethical business practices addressing societal and environmental concerns while Companies operate the business. Brand loyalty delineates customers' consistent preference for a brand. The initiation of CSR makes a company operate ethically, differentiate from competitors, increase customer loyalty, and enhance profitability. Multifarious qualitative and quantitative studies have been conducted in the domain of the linkage between ethical CSR practices and improved brand loyalty.
Methodology: The contemporary research study carries out a bibliometric analysis to focus on the research trends, influential authors, key journals, country analysis, keyword analysis, citation analysis, and prospective avenues for research, thereby facilitating evidence-based choices and long-term planning in academic contexts. A dataset of 255 documents extracted from the Scopus database for the period ranging from 2004 to 2025 was subjected to bibliometric analysis in the domains of CSR and brand loyalty. Collecting, structuring, and assessing constitute the three phases that comprise the bibliometric analysis procedure, sourced

from the most reliable and authentic references. This research has employed “Biblioshiny”, a web-based tool developed by R-studio software and included within the Bibliometrix package.
Results/discussion: The outcomes of the study indicate that as an emerging field of interest, the current domain experiences a growing trend in research from the year 2004 to 2025. The year 2024 is ranked on top for the highest publications till now. The most influential authors are AHAMD N, SINGH A, and VERMA P. As per the most influential source, “SUSTAINABILITY (SWITZERLAND)” has been elevated so far. India is the leading country with 98 total publications on conducting research work in the concerned field whereas the USA stands as the most cited country with 1699 total citations. “Corporate social responsibility” is identified as the most frequent keyword. “DU S, 2007, INT J RES MARK” is the most globally cited document with a total citation of 931. The study also divulges a regional transition toward developing markets, where CSR is progressively integrated with indigenous cultural norms.
Limitations: As this current assessment is a bibliometric analysis, the limitations typically associated with such analyses are applicable. A meta-analysis, comprehensive literature review, and alternative approaches would be advantageous for future research studies to establish a robust theoretical framework. The scientific mapping in this present study is confined to the Scopus database, as this source contains a greater number of high-quality publications and possesses structured formats compatible with the “Bibliometrix tool”. Documents from the Web of Science (WoS) and other databases can be utilized to draw a more comprehensive analysis.
Conclusion: This bibliometric study accentuates CSR’s growing relevance in promoting brand loyalty, especially in emerging markets. By mapping influential contributions and evolving research trends, it furnishes a foundation for future theoretical development and strategic engagement. Expanding databases and methods could yield more comprehensive insights ahead.

***Keywords:*** *Corporate Social Responsibility, Brand loyalty, Bibliometric analysis.*

## URBAN APPETITE: CONSUMER DYNAMICS AND THE PROLIFERATION OF QUICK-SERVICE RESTAURANTS IN KOLKATA

*Dr. Sudipta Halder (Assistant Professor, Techno India School of Management Studies, Techno Main Saltlake (MAKAUT)) and Sucharita Debnath (Assistant Professor, Department of Management, Brainware University)*

**Abstract.** Kolkata, which is culturally diverse and has a varied cuisine, is witnessing a significant change in the food consumption landscape with the rapid surge of Quick-Service Restaurants (QSRs). The study examines the evolving consumer behavior for the rise of fast food and restaurant chains in Kolkata, which also reflects the overarching socio-economic and cultural transformation. The rise of online food delivery services, changed lifestyles, increased urbanization, and growing middle class have transformed traditional eating habits with a focus on convenience, affordability, and experiential dining. The change is also facilitated by digital

marketing, social media penetration, and exposure to the world, which have impacted modern food choice and consumption habits.

The research integrates large amounts of scholarly literature, covering areas from food consumerism to service quality, authenticity, urban identity, and marketing strategy. It is concerned with the way transnational brands and local start-ups adapt to local tastes and consumer preferences, and how they handle problems like hygiene, health consciousness, and competitive pricing. The research also discusses how neoliberal policies and the post-pandemic environment influence food service entrepreneurship and employment trends.

Methodologically, a quantitative descriptive study was conducted on the basis of data gathered through structured questionnaires from a sample of 384 respondents belonging to the urban population of Kolkata. The findings reflect a paradigm change in the city's foodscape, where fast food is not a sporadic pleasure anymore but a daily routine component, particularly among youngsters and dual-income families. Conventional food values continue to dominate, but QSRs have made a significant mark by infusing taste, speed, and innovation. The paper concludes by highlighting the importance of sustainable practices in the QSR industry in order to strike a balance between economic growth and public health as well as cultural heritage.

***Keywords:*** *Quick-Service Restaurants, Consumer Behavior, Urban Food Culture, Fast-Food Economy, Kolkata*

## INNOVATING HOSPITAL FRONTLINE SERVICES: A STUDY ON AI-DRIVEN AUTOMATION AND RESPONSIVENESS FOR SERVICE QUALITY IMPROVEMENT

*Anisha Biswas (Brainware University), Dr. Saileswar Ghosh (Brainware University) and Dr. Indrajit Ghosal (Brainware University)*

**Abstract.** The growing demand for patient-centric and efficient healthcare services has driven hospitals to adopt Artificial Intelligence (AI) as a transformative force in frontline service delivery. This study explores the role of AI-driven automation in enhancing responsiveness, reducing administrative burdens, and improving overall service quality at hospital front desks. It investigates how tools such as chatbots, automated check-in systems, real-time queue management, and AI-powered scheduling streamline operations, shorten patient wait times, and increase staff efficiency. Adopting a mixed-method approach, the research draws insights from global best practices, comparing case studies from hospitals in India, the U.S., and the EU. Key findings reveal that hospitals implementing AI technologies witnessed a 30–50% reduction in administrative workload and a 40–60% improvement in patient registration times. These enhancements led to greater patient satisfaction, better staff engagement, and increased throughput during peak hours. The study also underscores the need to address ethical concerns, data privacy issues, and staff adaptability when integrating AI into hospital workflows. It identifies a critical research gap in non-clinical applications of AI and calls for further exploration into long-term operational impacts, regional adoption differences, and cross-disciplinary strategies to foster trust and usability. Practically, the findings offer a roadmap for healthcare administrators aiming to deploy AI solutions that not only boost operational

efficiency but also enhance patient experiences. The research affirms that responsible AI implementation in frontline hospital services can significantly elevate the standard of care and responsiveness in modern healthcare systems.

***Keywords:*** *AI-driven automation, hospital frontline services, service quality improvement*

## IMPACT OF SERVICE QUALITY ON INDIAN DRY PORTS: EVIDENCE FROM SERVPERF AND EXPORT LINKAGES

*Kannan Kumar (Indian Institute of Foreign Trade)*

**Abstract.** This study investigates the impact of service quality on the trade performance of Indian dry ports, using the SERVPERF framework and actual export/trade data. Drawing on a survey of 134 users across 39 dry ports in 14 states, the analysis evaluates five service quality dimensions; tangibles, reliability, responsiveness, assurance, and empathy, and links them to export and total trade values through multiple regression models. The findings reveal that reliability is the most significant determinant of export performance, followed by responsiveness and empathy, while tangibles and assurance show no statistically significant impact. These results challenge the infrastructure-centric approach to port competitiveness, suggesting that process efficiency and user-oriented service delivery are more critical to trade facilitation. The study contributes to the literature by integrating perception-based service quality measures with objective trade outcomes in a developing economy context and offers practical insights for policymakers and dry port operators on prioritizing operational improvements over purely physical upgrades.

***Keywords:*** *Service Quality, SERVPERF, Dry Ports, Trade Performance, International Trade*

## AUGMENTED AND VIRTUAL REALITY IN INDIAN REAL ESTATE: A PATHWAY TO CUSTOMER SATISFACTION AND PURCHASE INTENTION

*Siri Chandana Gadipelly (SR University), Laxmi Sahasra Madhavapeddi (SR University), Vishwak Bonagiri (SR University), Sandeep Choudhary (SR University) and Rajan Kumar Gangadhari (SR University)*

**Abstract**. With the involvement of Augmented Reality (AR) and Virtual Reality (VR) the real-estate industry is taking a digital transformation, which in turn helps in increasing customer satisfaction, decision making and purchase intentions. These allow the buyer to understand about the property and customize them without being physically present at the site. This creates a a greater convenience, transparency, trust building in buyers. This technology is being heavily used in Markets of United States, Europe, East Asia.

Despite of that the adoption of this technology is still limited because this includes high implementation costs, technology complexity, limited access to hardware, data privacy and

accuracy issues. These difficulties are stopping smaller companies from adapting to this technology.

In India leading developers and property portals have started using this technology but complete implementation is still not happening due to high setup costs, low awareness among the buyers, limited digital infrastructure in semi urban areas.

This research examines the potential of AR/VR in enhancing customer satisfaction and purchase intention in the Indian real estate sector by focusing on perceived ease of use, usefulness, technology readiness, risk mitigation, social influence, and value-for-money. Data will be collected from property buyers and people with experience regarding this technology using a structured questionnaire with a 5-point Likert scale, and a sample size of over 300 respondents. This research aims to highlight adoption challenges and provide practical insights for developers, policymakers, and marketers seeking to close the gap.

***Keywords:*** *Augmented Reality (AR), Virtual Reality (VR), Customer Satisfaction, Real Estate Industry, Technology Adoption*

## GREEN BRANDING THROUGH VISUAL ADS: INFLUENCING STUDENT DECISION-MAKING IN HIGHER EDUCATION AFTER SCHOOL

*Prasenjit Das (Phd Scholar), Rajat Singha (Assistant Professor) and Dr Jayeeta Debnath Munshi (Associate Professor)*

**Abstract.** Introduction: Sustainability has emerged as a core theme in educational and marketing narratives, with more universities embracing green branding to attract eco-friendly students. Visual adverts (ads) play a very significant role in influencing perceptions and choice-making among young students making the transition from schools to higher education. The current research examines how sustainable visual ads influence students' institutional choices, merging green stories with brand positioning for enrollment. The emphasis is on whether these ads are real ecological commitments or mere persuasive devices in a competitive higher education market.

Literature Review: Existing studies point out that higher education student decision-making is not only driven by academic quality but also by values, branding, and perceived institutional identity (Aldowah et al., 2020). Visual presentation and advertising strategies tend to serve as symbolic capital, where claims of sustainability create institutional credibility (Rivera-Malpica, 2019). Yet, researchers warn 'green' campaigns can veer into performative persuasion if not supported by genuine practices (Alby & Malpica, 2020). Research on sustainability advertising further indicates that narratives of 'green' can influence consumer trust, but exaggeration or insincerity can engender distrust (Sheth & Babiak, 2021). Universities therefore have a twofold duty: linking branding to genuine environmental efforts while communicating transparently to prospective students.

Methodology: This study follows a thematic analysis strategy, integrating evidence across peer-reviewed journals, sustainability marketing reports, and higher education branding studies (2016–2023). Thematic coding followed four axes: (1) visual persuasion in higher education branding, (2) sustainability stories in ads, (3) students' perceptions and trust, and (4) the nature of authenticity in green branding. Through triangulating educational and marketing literature insights, the study constructs a conceptual framework tracing how green visual branding affects students' decision-making.
Expected Outcomes: The research expects to find that visual ads supporting sustainability will have a notable impact on students' enrollment choices, particularly among environmentally conscious youth. Nonetheless, it is anticipated that influence strength will rely on perceived authenticity—ads that are associated with apparent institutional sustainability practices (e.g., green-campus programs, renewable power, waste reduction) will prove stronger than unsubstantiated claims. Also, the study anticipates observing generational differences, with Gen Z and Generation Alpha students showing greater responsiveness to sustainability branding because of their increased environmental awareness.
Motivation of the Study: This motivation comes from increased competition among higher education institutions and the simultaneous increase of sustainability as a consideration in consumer and student choice. With visual media as the dominant form of engagement for students, it is essential that academic institutions and policymakers understand its potential in sustainability branding.
Implications: The research will assist universities in developing impactful and moral sustainability campaigns without greenwashing. The findings for policymakers highlight the necessity of regulation and monitoring of green claims in educational advertising. For students and communities, the research accentuates the necessity for critical scrutiny of institutional branding. Future Studies Subsequent research ought to test empirically student reactions to green visual advertisements with experimental designs (e.g., eye-tracking or focus groups) and analyze cultural differences in perception. Longitudinal work may explore whether sustainability branding impacts not just enrollment but also retention and student satisfaction.

***Keywords:*** *Green branding, visual advertising, higher education, sustainability, student decision-making, persuasion, authenticity*

## QUALITATIVE INSIGHTS INTO KEY ATTRIBUTES OF SERVICE QUALITY AND CUSTOMER EXPERIENCE MANAGEMENT IN SMART HOSPITALITY

*Anamita Biswas (Amity Business School, Amity University, Kolkata), Nibir Khawash (Amity Business School, Amity University, Kolkata), Sanjib Biswas (Amity Business School, Amity University, Kolkata) and Reeti Debnath (NSHM Knowledge Campus, Kolkata)*

**Abstract.** Introduction: The hospitality industry has undergone a paradigm shift due to rapid technological advancements, particularly AI-driven digitization. Guest preferences have evolved significantly, demanding speed, personalization, and immersive service quality. This

has created a pressing need for organizations to redesign their offerings to meet the changing expectations of customers and to build enduring relationships.
Aim: This study aims to identify and analyze the key attributes of e-service quality (ESQ) that drive superior customer experience (CX) in the Indian hospitality sector, with a particular focus on sustainability and innovation.
Method: A qualitative research design was employed, drawing upon expert opinions from industry professionals. Responses were analyzed through thematic analysis and then linked to established theoretical frameworks such as Customer Experience (CX) theory and Uses and Gratification Theory (UGT).
Findings: The study reveals that service quality is the strongest predictor of customer loyalty, with AI and digital technologies significantly enhancing efficiency, decision-making, and customization. However, concerns regarding security and usability persist. Sustainability practices such as employee training, resource use efficiency, and community engagement also emerged as critical enablers of long-term competitiveness.
Conclusion: The Indian hospitality industry's future lies in the intelligent integration of smart technologies with human warmth, balancing innovation and sustainability to create unique and lasting customer experiences.
Originality and Value: By linking qualitative insights with established theories, this study provides both theoretical and practical contributions. It emphasizes that competitiveness in hospitality will depend not only on technology adoption but also on embedding sustainability into service ecosystems.

***Keywords:*** *e-service quality (ESQ), customer experience (CX), smart hospitality, digital transformation, sustainability, service innovation*

## A QUALITATIVE STUDY OF FACTORS INFLUENCING CONSUMER PURCHASE BEHAVIOUR FOR GREEN PACKAGED PRODUCTS.

*Charudutt Butala (SP Jain School of Global Management), A. Seetharaman (SP Jain School of Global Management) and K. Maddulety (SP Jain School of Global Management)*

**Abstract.** Green packaging refers to using packaging materials that minimise the adverse effects on the environment. These materials are reusable and have the ability to biodegrade or be composted. Businesses and institutions are increasingly adopting green packaging to highlight their dedication to the environment and fulfil governmental as well as consumer demands. However, terms like 'green packaging', 'eco-friendly packaging', and 'sustainable packaging' can confuse consumers trying to grasp the underlying notion. Furthermore, factors such as environmental consciousness, product availability, and price are expected to influence consumer purchasing behaviour towards environmentally friendly packaged items. The primary goal of this study is to identify the elements that impact consumer buying behaviour towards green packaging by examining past research studies and available literature. The study is qualitative in nature based on 20 research papers from reputed journals. The papers were identified from various online digital libraries such as EBASCO. The critical independent and sub-variables were identified from the research papers to develop the proposed research model.

The study findings are anticipated to offer valuable insights to packaging material suppliers and diverse businesses for their forthcoming sustainability endeavours. The findings may also provide valuable input for future scholars interested in conducting similar studies in various geographical locations.

***Keywords:*** *Green packaging, Sustainable packaging, Eco-friendly packaging, Consumer purchase behaviour*

## AN EXAMINATION OF THE IMPACT OF CONSUMERS' NEED FOR STIMULATION ON THEIR CURIOSITY-DRIVEN BEHAVIOUR: AN ANALYSIS ACROSS DIFFERENT LEVELS OF BRAND EQUITY

*Sulagna Chakrabarti (Assistant Professor, Eastern Institute for Integrated Learning in Management-Kolkata) and Dr. Surajit Ghosh Dastidar (Professor, Eastern Institute for Integrated Learning in Management-Kolkata)*

**Abstract.** This study examines the effect of consumers' Need for Stimulation (NFS) on their Curiosity-Motivated Behaviour (CMB), which is usually manifested through information seeking, interpersonal communication, and exploratory shopping behaviour. Compared to past research that highlighted the Optimal Stimulation Level, this study establishes NFS, defined as the gap between consumers' actual and optimal stimulation levels, as a significant antecedent to CMB. Based on cross-sectional survey data from 417 urban Indian consumers, this study analyses CMB across high- and low-equity brands for generalisability. The results indicate a significant positive influence of NFS on the three manifestations of curiosity-motivated behaviour pertaining to a high-equity brand. The results indicate that while consumers are inclined to seek information even for low-equity brands, they typically do not engage in word-of-mouth communication or exploratory shopping. Strategically, marketers can capitalise on these findings to enhance word-of-mouth and brand evangelism. Providing detailed brand information can stimulate and attract consumers seeking information. The application of consumer involvement strategies can leverage exploratory shopping in favour of a brand. In this study, NFS was identified as an underlying motivator of CMB across brand equity levels, which has important implications for strategic marketing.

***Keywords:*** *Need for Stimulation, Optimum Stimulation Level, Consumer Exploratory Tendency, Curiosity-Motivated Behaviour, Information-seeking Tendency, Interpersonal Communication Tendency and Exploration Through Shopping Tendency*

## WHEN GREEN TURNS GREY: THE PSYCHOLOGICAL EFFECT OF NON-GREEN ADVERTISING ON CHILDREN'S UNDERSTANDING OF SUSTAINABILITY

*Moutusi Chakraborty (Techno India University Tripura)*

**Abstract.** Against the backdrop of increased consciousness regarding sustainability, advertising to young consumers has become more and more "green" in message. But the trend

now is towards more non-green products being advertised using green methods of advertising, questioning ethical communication and child psychology. Children, being vulnerable consumers, tend to take sustainability hints quite literally, thus laying themselves open to fallacious propaganda.

***Keywords:*** *Sustainability, Advertising, Young consumers*

## GREEN STORIES OR SECRET PERSUASION? DIGITAL ADVERTISING, SUSTAINABILITY, AND CHILDREN'S DEVELOPMENT

*Moutusi Chakraborty (Techno India University Tripura)*

**Abstract.** The emergence of digital technologies in the 21st century has radically transformed the social context of children, unveiling powerful opportunities for learning, communication, and information-building, while exposing them to new threats at the same time. One of the most sensitive and debated domains where such dynamics meet is digital advertising. More and more brands and corporations have migrated to narratives of sustainability in their business practices, espousing "green" values and ecologically conscious ways of living. Yet behind these seeming responsible appeals is a paradox: children are invited to adopt eco-consciousness through stories that yet perpetuate habits of consumerism, material aspiration, and brand loyalty. This contradiction between narratives of sustainability and subtle persuasion is especially problematic in terms of child development, since children and adolescents are some of the most susceptible populations, usually incapable of distinguishing fantasy from reality when conveyed in influential media forms (Ray & Jat, 2010). The present research critically analyzes new trends in digital advertising that utilize themes of sustainability and explores their consequences for child psychology as well as long-term social outcomes.

***Keywords:*** *Digital advertising, Sustainability, Child psychology*

## ETHICAL AI PERSONALIZATION AND ALGORITHMIC FAIRNESS: PROMOTING RESPONSIBLE BRAND TRUST AND DIGITAL LOYALTY AMONG GEN Z INDIAN WOMEN

*Debalina Goswami (Calcutta Business School)*

**Abstract.** This article analyzes the interlinked dynamics of moral AI-based personalization, algorithmic fairness, and brand trust and digital loyalty building among Gen Z Indian women in particular. We recognize the profound impact of AI on consumer behavior and argue that ethical considerations in AI design and use are paramount to building inclusive digital experiences and ethical brand interaction with this influencer audience. Our research highlights the extent to which customized AI, if left unchecked, can enhance current gender as well as other biases and undermine trust and potentially lead to misrepresentation or exclusion. Brand trust among Gen Z Indian women is not just a function of the correctness of recommendation, but also entails the use of data in an ethical manner, not manipulating, and privacy.

We emphasize that a single, blanket AI personalization approach is inadequate and, worse still, may be damaging, failing to take into account the specific individual psychological, social, and cultural contexts of Gen Z Indian women. We propose that transparent, fair, and precise AI recommendations, sensitive to multiple identities and designed to reverse algorithmic bias, are critical to enhancing flow experience, establishing brand trust, and fostering long-term digital loyalty. An intersectional approach to AI development and deployment is suggested, being considerate and respecting the diversity of Gen Z Indian women's identities in contributing towards more empowering and equitable digital development. This study presents actionable suggestions for brands and policymakers to implement transparent, accountable, and user-agency-respecting ethical AI personalization in order to ultimately foster social sustainability and inclusive growth in the digital economy.

***Keywords:*** *Ethical AI, Gen Z Women, Inclusive Digital Development, Privacy, Co-creation, Social Sustainability*

## COMPARING THE EFFECTIVENESS OF DIFFERENT GREEN MARKETING STRATEGIES ON CONSUMER PURCHASE INTENTIONS

*Pankaj Kumar (PGDBA, IIM Calcutta)*

**Abstract.** This study we are doing explores the comparative effectiveness of the diverse green marketing strategies on consumer purchase intentions and aims to identify which of the approaches has the best influence on the behaviour of environmentally conscious buyer which will finally help the companies to understand the expectations of the consumers as far as contributing to environment & sustainability is concerned, and modifying their products as per expectations & also aligning their marketing to mark a better positioning for their green products, both of which are ultimately going to contribute to sustainability. As sustainability becomes a very critical factor in the consumer decision-making, global brands are increasingly adopting the green marketing tactics like eco-labels, sustainable packaging, carbon-neutral branding and some other cause-related marketing & also modifying their products accordingly to attract the eco-aware consumers. By analysing some of the distinct green & sustainable marketing strategies, the research here evaluates their trustworthiness, emotional appeal, transparency, relevance to lifestyle and the overall impact on consumer purchase intentions. The study further assesses the challenges faced in implementing these strategies ranging from consumer scepticism to operational complexities and examines how artificial intelligence (AI) and machine learning (ML) technologies can help to optimize their effectiveness. Using analysis and techniques like sentiment analysis, cognitive dissonance frameworks and perceptual mapping the research identifies the key gaps between the consumer attitudes and their purchasing behaviour, highlighting the strategies that may align the trust and emotional engagement with actionable purchase decisions. Findings reveal that some strategies achieve high consumer trust and emotional connection, thereby driving stronger purchase intentions and loyalty. Conversely, some strategies face greater cognitive dissonance suggesting barriers like cost or convenience hinder adoption. The study explores the impact of different green

marketing strategies on consumer's mind, helping to bridge the lags, exploring the technological solutions for enhancing storytelling to elevate the green marketing's impact. This research offers a lot of actionable insights for marketers aiming to refine the sustainable branding efforts and deepen their consumer engagement contributing to both environmental goals and business success. This research aims to find the impact of different green marketing strategies in the minds of consumers so companies can understand the expectations of the consumers and accordingly modify their product so as to actually meet their expectations & also contribute to environment well-being.

***Keywords:*** *Green Marketing, Consumer Purchase Intentions, Sustainable Marketing Strategies, Eco-Labels, Sustainable Packaging, Carbon Neutral Branding, Zero-Waste Initiatives, Green Product Innovation, Consumer Behaviour, Cognitive Dissonance, Trust and Transparency, Emotional Appeal, Customer Journey, AI and Machine Learning, Green Consumerism, Environmental Sustainability, Marketing Effectiveness, Consumer Engagement, Purchase Decision, Supply Chain Transparency*

## CSR AND BRAND PERFORMANCE IN INDIAN SMALL BUSINESSES

*Gulshan Kumar Yadav (Indian Institute of Technology Kharagpur), Soumya Sarkar (Xavier Institute of Management, Bhubaneswar), Titas Bhattacharjee (Indian Institute of Technology Kharagpur) and Atasi Mohanty (Indian Institute of Technology Kharagpur)*

**Abstract.** Introduction: Corporate Social Responsibility (CSR) can positively influence brand performance by enhancing brand image, increasing brand equity, improving consumer satisfaction, and boosting financial performance. This symbiotic relationship between CSR and brand performance highlights the importance of integrating social responsibility into business strategies.

The study of the relationship between brand performance and CSR in the context of small-cap businesses post-2014 CSR mandate is significant for multiple reasons. It provides insights into how small-cap firms can leverage CSR for competitive advantage, community engagement, and sustainable growth. Additionally, it helps policymakers understand the nuanced impacts of CSR regulations on different business sizes, guiding more effective and inclusive policy frameworks. Such research is crucial for fostering a supportive environment where small-cap businesses can thrive while contributing positively to society.

Hence, the objective is to assess the impact of CSR expenditure on brand performance of Indian small-cap firms.

Literature Review: Brammer et al. (2012) and Preuss et al. (2016) note that there are significant variations in CSR policies between nations. In a developed economy, organizations have the option of choosing the nature of their CSR intervention; but, in an emerging economy like India, such flexibility may not be possible (Williams, 2017). India with issues much more intricate deserve discrete and focused treatment (Mazumdar & Saini, 2017). According to Indian legislation, specified acts are recognised as CSR activities by Indian businesses (Jaysawal & Saha, 2015). Additionally, a certain category of enterprises with turnover and net profit above the crucial limit established are required to comply with the CSR rules under the

organizations legislation (Gatti et al., 2019). As a result, the Indian approach to CSR is limited and constrained.

CSR has garnered significant attention in recent years, with numerous studies highlighting its positive impact on brand performance. Research by Araújo, Pereira, and Santos (2023) demonstrates that CSR initiatives enhance brand image and brand equity, subsequently improving consumer satisfaction. Zhang and Liu (2023) find a significant positive correlation between CSR and both financial performance and brand value. These studies collectively underscore the strategic importance of CSR in fostering brand loyalty and competitive advantage.

Methodology: This study employs a mediation analysis framework to examine whether CSR expenditure incurred by small-cap businesses mediates the relationship between firm profitability and market-based performance, measured by Tobin's Q. Two profitability indicators—Return on Assets (ROA) and Return on Equity (ROE)—are separately modeled as predictors to capture alternative dimensions of financial performance.

A two-step regression approach was implemented. In the first stage, CSR was regressed on the profitability measure and firm-level controls (Size, Advertising Intensity, and Ownership Structure) to assess whether profitability drives CSR engagement. In the second stage, Tobin's Q was regressed on CSR, the profitability measure, and the same controls to evaluate both direct and indirect effects. This sequential design allows identification of the mediating pathway while accounting for confounding firm characteristics.

The analytical framework is grounded in Slack Resource Theory, which posits that profitable firms allocate discretionary resources to CSR; Instrumental Stakeholder Theory, which views CSR as a strategic lever for enhancing firm value; and Signaling Theory, which emphasizes advertising and CSR as mechanisms for communicating competitive positioning to external stakeholders.

Model estimation was conducted using ordinary least squares (OLS) with robust standard errors. Statistical significance of coefficients was used to infer the strength of direct and indirect effects. The mediation pathway was evaluated by examining whether CSR significantly transmits the effect of profitability to Tobin's Q, or whether profitability and CSR operate as parallel, independent drivers of firm valuation.

The sample consists of 100 companies from the S&P BSE SmallCap index in India, with complete and comparable data available from FY 2015 – FY 2024. The period is particularly significant due to key regulatory changes in India's Companies Act 2013, which mandated CSR. The analysis was conducted using R, a comprehensive software package for statistical analysis.

Results: The mediation analysis produced mixed evidence regarding the role of CSR expenditure (CSR_Spent) as a transmission channel between profitability and firm valuation.

For the ROA-based model, results indicate that ROA significantly predicts CSR_Spent ($\beta = 0.014$, $p < 0.05$), consistent with Slack Resource Theory, whereby profitable firms allocate discretionary resources to CSR. Firm Size also exerts a strong positive effect on CSR_Spent ($\beta = 0.773$, $p < 0.01$), while Advertising Intensity and Ownership Structure remain insignificant. In the outcome model, ROA strongly enhances Tobin's Q ($\beta = 0.181$, $p < 0.01$), but CSR_Spent does not exert a significant effect ($\beta = 0.043$, $p > 0.1$). This pattern suggests that while CSR spending is responsive to profitability, it does not serve as an effective mediator of the ROA–

Tobin's Q relationship. Instead, firm valuation appears to be driven directly by operational efficiency, with CSR's influence potentially operating through unobserved non-financial channels such as reputation or stakeholder trust.

For the ROE-based model, CSR_Spent is not significantly predicted by ROE ($\beta = -0.001$, $p > 0.1$), undermining the mediation pathway. However, CSR_Spent independently enhances Tobin's Q ($\beta = 0.110$, $p < 0.05$), while ROE also exerts a strong direct effect ($\beta = 0.060$, $p < 0.01$). This reveals a parallel influence structure: profitability and CSR both contribute to firm valuation, but CSR's effect is not contingent upon equity-based profitability. Firm Size consistently shows a negative association with Tobin's Q across specifications, while Advertising supports valuation in line with Signaling Theory.

Overall, the findings highlight a divergent mediation pattern:

- Under ROA, CSR spent is profitability-driven but valuation-irrelevant.
- Under ROE, CSR spent is valuation-relevant but not profitability-driven.

This asymmetry suggests that CSR functions less as a mediating mechanism and more as an independent strategic asset, reinforcing its instrumental stakeholder value in shaping market perceptions beyond traditional profitability metrics.

Discussion: The findings reveal an asymmetric role of CSR expenditure in linking profitability to firm valuation. In the ROA-based model, CSR_Spent is significantly shaped by profitability, consistent with Slack Resource Theory, yet it fails to translate into higher market valuation. This suggests that while profitable firms allocate discretionary resources to CSR, such spending may be perceived by investors as compliance-driven or symbolic rather than value-enhancing. The weak mediation effect implies that CSR's contribution to firm value may operate through non-financial channels—such as reputation, stakeholder trust, or transparency—that are not directly captured in financial regressions.

In contrast, the ROE-based model demonstrates that CSR_Spent independently enhances Tobin's Q, even though it is not driven by equity-based profitability. This pattern highlights CSR's instrumental stakeholder value: it functions as a strategic asset that improves market perception regardless of shareholder return metrics. The parallel influence of ROE and CSR_Spent suggests that investors reward both financial efficiency and visible social engagement, but through distinct pathways.

The consistent negative association of firm size with Tobin's Q underscores the complexity and potential valuation discounts faced by larger firms, while the positive role of advertising supports Signaling Theory, affirming that market actors respond to visible cues of competitiveness and legitimacy. Ownership structure effects, though weaker, point to governance frictions that may dampen valuation in concentrated ownership settings.

Taken together, the results nuance the mediation argument: CSR_Spent is responsive to profitability (via ROA) but not an effective transmission mechanism to valuation, while it is valuation-relevant (via ROE models) but not profitability-driven. This duality suggests that CSR's role in firm performance is context-contingent—operating less as a mediator and more as an independent strategic lever. For theory, this underscores the need to integrate stakeholder-based and signaling perspectives alongside resource-based views. For practice, it implies that managers should not view CSR merely as a by-product of profitability but as a standalone investment in market legitimacy and stakeholder relations.

Conclusion: This study provides nuanced evidence on the mediating role of CSR expenditure in the profitability–valuation nexus. For the ROA-based model, CSR_Spent is responsive to profitability but fails to transmit its effect to firm valuation, suggesting that CSR investments may be compliance-oriented or symbolic rather than market-relevant in the short run. In contrast, the ROE-based model reveals that CSR_Spent independently enhances Tobin's Q, even though it is not driven by equity-based profitability. This points to a parallel influence structure, where profitability and CSR operate as distinct yet complementary drivers of firm value.

The findings underscore that CSR's contribution to market valuation is context-contingent: it is not a consistent mediator of financial performance but rather an independent strategic lever that strengthens stakeholder perceptions and market legitimacy. Theoretically, this highlights the need to integrate resource-based, stakeholder, and signaling perspectives to fully capture CSR's role in corporate strategy. Practically, managers should recognize CSR not merely as a by-product of profitability but as a standalone investment in intangible assets—trust, reputation, and legitimacy—that can enhance long-term valuation outcomes.

Implication: The results carry several theoretical and managerial implications.

Theoretical Contribution: The findings challenge the assumption that CSR expenditure consistently mediates the profitability–valuation link. Under ROA, CSR_Spent is profitability-driven but valuation-irrelevant, while under ROE, CSR_Spent enhances valuation but is not profitability-driven. This asymmetry underscores the need to refine Slack Resource Theory by recognizing that CSR may not always function as a resource-allocation outcome, but rather as an independent strategic lever aligned with Instrumental Stakeholder and Signaling perspectives.

Investor Perspective: For capital market participants, the evidence suggests that CSR engagement can enhance firm valuation independently of profitability metrics. Investors may therefore interpret CSR as a signal of legitimacy, stakeholder alignment, and long-term orientation, rather than as a mere by-product of financial slack.

Managerial Practice: Managers should not treat CSR as a discretionary activity contingent solely on profitability. Instead, CSR should be positioned as a standalone strategic investment that strengthens intangible assets such as reputation, trust, and stakeholder goodwill—factors that markets appear to reward in parallel with financial performance.

Policy and Governance: The consistent negative effect of firm size on valuation highlights the importance of scaling CSR strategies effectively. Larger firms may face diminishing returns from compliance-driven CSR, suggesting that quality, transparency, and stakeholder engagement matter more than the volume of expenditure.

In sum, the study implies that CSR's role in firm performance is context-dependent and multidimensional: it is not a universal mediator of profitability but an instrumental driver of market legitimacy that can complement, rather than transmit, financial performance effects.

***Keywords:*** *Brand performance, CSR, India, Small business*

# SUSTAINABILITY-DRIVEN SALES PRACTICES: ADVANCING THE MARKETING DISCIPLINE

*Dr. Swati Bhatnagar (New Delhi Institute of Management) and Dr. Rajneesh Mahajan (University of Niagara Falls, Niagara Falls Region)*

**Abstract.** Purpose: This study examines the growth of sustainable sales practices between the period of 2000 to 2026 as there was a paradigm shift towards environmental, social, and economic sustainability goals for businesses in this period. This increased levels of customer awareness of global warming and business accountability have pushed many firms to adopt sustainable sales practices not only as a compliance measure but also as a core component of business models. For example, many impressive circular economy practices have come up in this duration like the Take-back and recycling programs under which brands encourage customers to return old or used products in order to remanufacture or recycle the same. For example, Big Bazaar had launched old clothes exchange program under which they gave discount for the new purchase on returning old clothes. Another example is the Repair and refurbishment services which offer repair services for products and persuades customers to extend its lifespan rather than buying a new one. This leads to reduction in waste and gives opportunities to the brand to engage more frequently with the customer. Yet another example is the Second-hand and resale platforms, industries like fashion and electronics, facilitated the resale of used products and helped keep items in circulation and reduced the demand for new production. For example, Lot of new concepts of renting the wedding trousseau instead of investing for a single day use have recently emerged. Another example is the Product-as-a-service models instead of selling a product outright, this model involves leasing or renting it to customers, like Furlenco (renting furniture to customers who relocate due to job changes) and charge a monthly fee for the same. This motivates the brand to produce durable, high-quality products that can be maintained and reused over time, thereby reducing waste.The synthesis of the content on such new business concepts along with their sales strategies was done through a systematic literature review of 297 articles published in Scopus database spread over 26 years. This extended abstract examines the significant trends, challenges, and advancements in sustainable sales practices over the past two and half decades.

Research Problem: To achieve this purpose an analysis of existing literature will be carried out, aiming to address the key research questions: RQ1-How has the literature on the relationship between sustainability and sales evolved in the identified period? RQ2-What are the current leading and pressing topics for research in the areas of sustainability and sales? RQ3- What is the scope of future research in this area based on the systematic literature review analysis?

Methodology: Employing a bibliometric approach, this study analyses a dataset of peer-reviewed articles using Bibliometrix, Biblioshiny in R Studio and VOS viewer. This method enables quantitative mapping of academic networks, regional focus, and citation trends while identifying key thematic clusters in the literature.

Findings: The results indicate consistent growth of 3% in research over the last two and a half decades depicting the potential in this area of research. The prominent publications have been in reputed journals that include Sustainability, Journal of Leaner Production, Environment Development and Sustainability, Land use policy and Journal of Rural Studies. It is discovered

that top 5 contributing countries in this field of research are USA, China, India, Brazil, UK. The most cited terms are sustainability, sustainable development, sales innovation and practice. Practical Implications: Integrating sustainability into sales strategies through Omni channels enables organizations to drive eco-conscious purchasing while strengthening customer trust and loyalty.
Originality/Value: To the best of our knowledge, this study is the first of its kind to use bibliometric tools for tracing sustainability in sales domain.

***Keywords:*** *Bibliometric Analysis, Circular economy , Sales Innovation, Sales Practices, Sustainability, Systematic Literature review.*

## TOWARDS SUSTAINABLE PRACTICES: ROLE OF SOCIAL ENTERPRISES AND DIGITAL TECHNOLOGIES IN VULNERABLE CONSUMER EMPOWERMENT

*Vishal Sinha (Indian Institute of Management Indore) and Prof. Bipul Kumar (Indian Institute of Management Indore)*

**Abstract.** Sustainability is a central tenet for achieving environmentally conscious consumption and reinforcing principles of environmental responsibility to overcome issues like global climate change. Sustainability as an area has attracted significant attention across sectors. Sustainability initiatives entail higher costs that are prohibitive for BOP. Achieving sustainable development requires catering to all facets of society, especially vulnerable sections at the bottom of the pyramid (BOP). Extant literature has explored the role of social enterprises (SEs) in capacity building; however, a substantial gap remains in the underlying mechanism that impacts SEs to facilitate vulnerable consumers' sustainability adoption. Thus, this research aims to examine SE's role in advancing sustainability practices among BOP consumers by investigating the contribution of digital solutions in supporting these efforts and identifying the antecedents and consequences of vulnerable BOP consumers' sustainable adoption. This study contributes to the knowledge base on sustainability adoption within marginalised populations at the BOP.

***Keywords:*** *Sustainability, Social Enterprises (SEs), Sustainable Development Goals (SDGs), Vulnerable Consumers, Bottom of the Pyramid (BOP), Digital technology solutions*

## ECONOMIC AND CULTURAL DRIVERS BEHIND THE EMERGENCE OF INDIA'S PREMIUM FOOD MARKET

*Raj Akshay Kolla (S. P Jain)*

**Abstract.** Food, though positioned at the base of Maslow's Hierarchy of Needs, plays a profound socio-economic and cultural role that extends beyond basic sustenance. Over time, modernization and urban lifestyles have transformed food from a symbol of heritage into a commodity of convenience, driving the rise of fast-food culture across India. However, a growing affluent class has begun reversing this trend by prioritizing authenticity, health, and

heritage in their consumption choices. These consumers associate food quality not only with wellness but also with identity and tradition, creating demand for products that are handmade, additive-free, and rooted in legacy recipes.

This paper examines the economic and cultural drivers shaping India's emerging premium food market. It explores how rising disposable incomes, evolving perceptions of authenticity, and the rediscovery of indigenous culinary traditions are redefining food as a marker of luxury and lifestyle. The study addresses two key research questions: (i) Does a distinct premium food market exist in India? and (ii) What are its defining characteristics? By clarifying these dimensions, this research contributes to the growing literature on consumer behaviour, cultural economics, and the transformation of food consumption in developing economies.

***Keywords:*** *Premium food., India., Luxury food sector.*

## MARKETING MIX >AIDA > PURCHASE: PLS-SEM EVIDENCE FROM OTT MARKET

*Prasenjit Chakrabarty (PhD Scholar, Dr. K N Modi University, RJ, India)*

**Abstract.** This study investigated the extent to which the 7Ps directly influenced OTT subscriptions or primarily affected AIDA (Attention, Interest, Desire, Action). A survey was conducted involving 507 Indian OTT users, during which all seven elements—product, price, place, promotion, people, process, physical evidence—were documented alongside AIDA and the purchase decision. A PLS-SEM model was estimated using 5,000 bootstrap samples, a formative 7P specification was assessed for robustness, and predictive validation was conducted with PLSpredict (utilizing a 10-fold approach with 10 repetitions and a fixed seed). Subsequently, the model was enhanced with practical triggers relevant at the point of checkout—such as content type, payment convenience, streamlined purchasing, standardized invoicing, and timing related to festivals—to establish the final MAP-T model.

The findings exhibited a high level of consistency. The relationship between Marketing Mix and AIDA was notably robust ($\beta = 0.490$), while AIDA to Purchase continued to serve as the primary determinant ($\beta = 0.423$). The explanatory power of the model accounted for $R^2 = 0.509$ for AIDA and $R^2 = 0.601$ for Purchase. The aggregate indirect influence of the 7Ps on Purchase was calculated to be 0.207 ($p < .001$), thereby substantiating that the chain had the predominant effect. Triggers contributed marginal yet statistically significant direct increases to Purchase (e.g., ease of payment $\beta = 0.159$; content type $\beta = 0.129$), and the action items also enhanced AIDA. Predictive assessments revealed a positive $Q^2$_predict for both AIDA ($\approx 0.500$) and Purchase ($\approx 0.504$), accompanied by minimal errors, thereby signifying out-of-sample applicability. The same substantial trend was evident when modeling the 7P framework as formative.

For practice, firms should have prioritized raising interest and desire first and then removed payment frictions. In a price-sensitive market, this MAP-T sequence had turned routine marketing inputs into steadier subscription growth.

***Keywords:*** *AIDA Model, Marketing Mix (7 Ps), Purchase Decision, OTT Subscription*

# IMPACT OF SUSTAINABLE LOGO DESIGN ON BRAND AVOIDANCE

*Arnav Pati (School of Management, Kalinga Institute of Industrial Technology, Bhubaneswar, India), Subidita Pattanaik (Government College of Engineering, Kalahandi, Bhawanipatna, India) and Tapas Ranjan Moharana (XLRI- Xavier School of Management) - Jamshedpur, India)*

**Abstract.** As brands increasingly seek to align their identities with the global sustainability movement, visual design has become a key tool for communicating ecological consciousness. Many contemporary logos now incorporate sustainability cues such as green palettes, leaves, or recycling symbols to signal environmental responsibility. However, the present research argues that such visual moral signalling can backfire when perceived as prescriptive. Drawing from psychological reactance theory, this study investigates how prescriptive sustainable logos—those perceived as instructing or compelling consumers to act in environmentally responsible ways—can evoke psychological reactance, leading to brand avoidance. When consumers interpret these designs as moral impositions, they experience reduced perceived freedom, which triggers resistance and avoidance behaviours. The study further identifies two boundary conditions: the severity of prescription, where harsher or more moralizing logo cues heighten reactance, and sustainability-identity centrality, which buffers this effect among consumers who view sustainability as integral to their self-concept. By revealing the paradoxical consequences of overly moralized sustainable design, this research contributes to sustainable branding literature by exposing the dark side of sustainability signalling. It highlights that while ecological cues in logos often enhance brand evaluations, their prescriptive form can undermine persuasion by threatening consumer autonomy and fostering avoidance.

***Keywords:*** *Prescriptive sustainable logo, Psychological reactance, Brand avoidance*

# EFFECT OF SUSTAINABLE BRAND FRAMING ON CONSUMERS' BEHAVIOURAL INTENTION: ROLE OF BRAND PARASOCIAL INTERACTION

*Subidita Pattanaik (Department of Humanities, Government College of Engineering, Kalahandi, Bhawanipatna, India) and Tapas Ranjan Moharana (XLRI Xavier School of Management, XLRI Jamshedpur, India)*

**Abstract.** Social media has become a dominant channel for brands to shape consumer perceptions and behavioral intentions. This study examines the impact of the symbolic versus functional framing of brand advertisements on social media on consumers' behavioral intentions toward the brand. Drawing upon the parasocial interaction (PSI) theory and self-congruity framework, we propose that exposure to symbolic (vs. functional) brand advertisements enhances consumers' behavioral intentions by fostering stronger perceived relational bonds with the brand's social media page. The study further explores PSI as a mediating mechanism through which symbolic advertising content drives favorable consumer

responses. Moreover, the research introduces sustainable promotional framing as a critical boundary condition that moderates both the direct and indirect relationships. Specifically, it posits that sustainable framing accentuates the positive effects of symbolic advertisements on behavioral intentions, while potentially attenuating the effects of functional appeals. Using an experimental design, the findings are expected to demonstrate that symbolic brand messages, when integrated with sustainability-oriented framing, evoke higher PSI and stronger behavioral intentions. Theoretical implications extend the understanding of how symbolic communication and relational bonding operate in social media advertising, particularly within the context of sustainability discourse.

***Keywords:*** *Symbolic brand advertising, Functional advertising, Parasocial interaction, Social media marketing, Sustainable promotional framing*

## GREEN MARKETING AS A CATALYST FOR SUSTAINABLE CHANGE

*Ridhika Chatterjee (IILM Academy of Higher Learning, Lucknow), Dr Suchita Vishwakarma (IILM Academy of Higher Learning) and Dr Sheetal Sharma (Chandigarh University)*

**Abstract.** Given that human demands are limitless, and resources are scarce, it is very important for marketers to make effective and waste-free use and production of resources. This need arose during the last few years when corporate bodies realised the importance of eco-friendly products and how beneficial it would be in terms of sustainable marketing. This phenomenon has gained popularity in modern marketing and is termed as Green Marketing. Companies are now more oriented towards products that are manufactured and distributed in accordance with climate and environmental safety standards. This paper aims to understand how businesses are pursuing green concepts for environmentally conscious consumers—those who care about the environment and let it affect their purchasing decisions. It further attempts to understand the type and extent of marketing strategies adopted under the umbrella of green. It also critically analyzes the potential and challenges of green marketing and discusses the most recent developments in the Indian context related to green marketing. The study concludes that green marketing has and will continue to gain popularity among consumers and businesses when used holistically.

***Keywords:*** *Sustainable Development, Green Marketing, Perceived Value, Catalyst CHANGE, Eco-Friendly Products, Green Washing*

# EFFECTS OF SUSTAINABLE PACKAGING ON CONSUMER TRUST, BRAND LOYALTY, AND PURCHASE INTENT IN LAST-MILE FRESH-MEAL DELIVERY: A HYBRID MACHINE LEARNING APPROACH

*Sagar Phuloria (University School of Management and Entrepreneurship, D.T.U.) and Deepti Aggrawal (University School of Management and Entrepreneurship, D.T.U.)*

**Abstract.** Sustainable packaging is emerging as a decisive touchpoint in last-mile fresh-meal delivery, shaping how consumers evaluate platforms and decide to repurchase. Focusing on Indian consumers, this study investigates how perceptions of sustainable packaging and packaging innovation relate to three downstream outcomes central to platform growth: consumer trust, brand loyalty, and purchase intent. Using a cross-sectional Likert-scale survey with demographic controls, we adopt a hybrid, theory-guided empirical approach implemented end-to-end in Python. The study first establishes construct reliability and creates composite indices for key perceptions and outcomes. It then examines directional relationships consistent with contemporary consumer-behavior theory and complements these tests with a lightweight predictive layer to gauge practical importance of drivers.

By integrating interpretable evidence with predictive insight, the paper offers an actionable view of which packaging attributes most strongly build trust and loyalty and, in turn, support purchase intent in India's rapidly scaling food-delivery market. Findings are discussed through an Environmental–Social–Economic (ESE) lens, outlining implications for platform design, supplier selection, and investment in packaging features that enhance customer experience while advancing sustainability goals.

***Keywords:*** *Brand Loyalty, Consumer Trust, Last-Mile Fresh-Meal Delivery, Machine Learning, Purchase Intent, Sustainable Packaging*

# SUSTAINABILITY

# TOWARDS NET-ZERO: A REFLEXIVE DIGITAL GOVERNANCE FRAMEWORK FOR SUSTAINABLE AND INCLUSIVE WORK ECOSYSTEMS

*Ishita Bera (IMI, Kolkata) and Subhasis Bera (ISB&M, Kolkata)*

**Abstract.** Introduction:
As the net-zero transition accelerates, organisations are re-examining how governance, workplace flexibility, and digital systems can collectively support climate goals. Digitalisation has extended beyond operational efficiency to become a strategic enabler of environmental responsibility and workforce inclusion. Emerging models suggest that governance must not only support sustainability but also learn from it, adapting over time through structured feedback. This review proposes the Digital Reflexive Governance Model (DRGM), a framework that integrates periodic sustainability assessment into digital decision-making systems, enabling a responsive and inclusive approach to net-zero commitments.
Purpose of the Study: The study systematically reviews scholarly and applied literature to explore how digital transformation can serve as a conduit for sustainable governance. In particular, it examines how reflexivity in governance structures, supported by periodic carbon footprint assessments, can inform adaptive organisational strategies. The model aims to demonstrate how periodic data-driven feedback loops can help align corporate key performance indicators (KPIs) with environmental goals and inclusive workforce practices when embedded into digital collaboration platforms.
Methodology: A structured literature review methodology guides this study. Sources include peer-reviewed publications, industry white papers, and policy reports. The selection criteria prioritise literature that addresses intersections between digital governance, organisational learning, carbon reduction, and hybrid or flexible work models. Thematic analysis identifies recurring patterns, effective practices, and emergent concepts relevant to digital sustainability governance.
Findings and Framework Development: The review underscores increasing evidence that digital ecosystems can support measurable progress toward sustainability goals when consciously structured around environmental accountability and workforce inclusivity. Drawing on these insights, the Digital Reflexive Governance Model (DRGM) is constructed around four interrelated pillars that together promote adaptive, low-carbon corporate governance:
Periodic Carbon Footprint Assessment - The model emphasises scheduled evaluations of carbon emissions associated with employee activities such as remote work energy consumption, digital operations, and work-related travel. These assessments capture temporal trends rather than isolated events, offering a realistic and contextualised picture of environmental impact. The resulting insights serve as the basis for evidence-informed adaptation of governance structures.
Adaptive Governance Processes - Governance processes under DRGM are inherently reflexive, incorporating feedback loops that allow organisations to recalibrate their strategies and workflows in response to sustainability data. Such dynamic adaptation supports alignment

with evolving net-zero trajectories while maintaining operational resilience and agility.
Inclusive Digital Ecosystems - The framework promotes digitally enabled, decentralised work arrangements that facilitate equitable participation across varied demographic and geographic groups, including caregivers, senior professionals, and rural talent pools. These ecosystems reduce dependence on centralised office infrastructure and high-carbon commuting, while expanding access to productive engagement.
Integration with KPIs and Sustainability Strategy - Environmental performance indicators are embedded within the broader architecture of corporate KPIs, ensuring that sustainability is operationalised rather than appended. This integration fosters a governance culture where ecological outcomes are continuously benchmarked alongside financial, human resource, and strategic metrics, reinforcing sustainability as a core component of organisational value creation.
Contribution and Implications: The Digital Reflexive Governance Model contributes a novel lens to ongoing discussions on sustainable digitalisation. By emphasising learning over linear progress and periodic insight over continuous monitoring, the model supports a more realistic, human-centred approach to carbon governance. It encourages organisations to embed sustainability into the rhythms of digital work without overburdening employees or systems. This approach holds relevance for IT strategists, HR managers, sustainability officers, and policymakers seeking to operationalise climate goals through dynamic, inclusive governance.

***Keywords:*** *Sustainable Digitalisation, Reflexive Governance, Net-Zero Strategy, Carbon Footprint Assessment, Inclusive Work Ecosystems*

## ADVANCING CIRCULAR ECONOMY THROUGH VALUE CO-CREATION IN B2B INDUSTRIAL NETWORK

*Amit Tiwari (IIM Sirmaur) and Mahantesh M Patil (IIM Sirmaur)*

**Abstract.** B2B purchasing is a partnership between a manufacturing firm and its supplier that necessitates Value co-creation to accomplish a win-win. Value co-creation has received very little attention in the business-to-business environment (Mustak, 2023) until recently (Volery, 2021), as a previous study on the topic has concentrated chiefly on the business-to-consumer situation (Ashok et al.,2014). This study aims to investigate how the value is co-created and perceived by the key actors in triadic B2B industrial relations in a circular economy (CE) ecosystem and identifies its enablers and inhibitors. Because the Value co-creation process offers enormous potential to foster the promotion of CE for sustainable development, additionally, it evaluates the effects of co-creating CE values on micro-level indicators of Circular Economy.

***Keywords:*** *Circular Economy, business-to-business, Value co-creation*

## INCENTIVIZING GREEN STRATEGIES: MANAGERIAL INCENTIVES AND SUSTAINABILITY AGREEMENTS

*Ajay Sharma (Indian Institute of Management, Indore) and Nitin Shahi (IIM Indore)*

**Abstract.** Welfare effects of sustainability agreements among competitors are widely debated. Recent literature has shown that when consumers value sustainability, sustainability agreements adversely affect investment in sustainability and consumer welfare as compared to the competitive benchmark. On the contrary, we demonstrate that investors incentivize managers to be more aggressive in the presence of sustainability agreements which may increase investment in sustainability. Further, in the presence of such delegation, sustainability agreements are always
beneficial for consumers as compared to the competitive benchmark. We use two types of managerial incentive structure, sales delegation and sustainability delegation. We also show that delegation increases both sustainability investment and consumer welfare and is the dominant strategy for the firms. Thus, this study indicates that a more accommodating outlook towards sustainability agreements among competitors may be required.

***Keywords:*** *Sustainability Investment, Sustainability Agreement, Strategic Delegation, Horizontal Agreement, Collusion*

## STRATEGIC EVALUATION OF BORN-CIRCULAR STARTUPS USING A TWO-PHASE FUZZY-AHP AND TOPSIS METHODOLOGY

*S Alekhya (Research Scholar, School of Management Studies, University of Hyderabad) and Pramod Kumar Mishra (Assistant Professor, School of Management Studies, University of Hyderabad)*

**Abstract.** Born-circular startups are pivotal in driving the transition from a linear to a circular economy by embedding circular principles into their operations. These startups actively contribute to the achievement of the United Nations Sustainable Development Goals (SDGs), particularly Goal 11 (Sustainable Cities and Communities) and Goal 12 (Responsible Consumption and Production). Despite their growing relevance, they are often misclassified as social enterprises or NGOs, leading to a lack of formal recognition. This misclassification hinders their ability to attract critical stakeholders, including government bodies, investors, and consumers, primarily due to the absence of standardized frameworks to measure their sustainability impact. This study seeks to develop an evaluation framework to assess the sustainability performance of born-circular startups. A mixed-methods approach is employed, beginning with the Delphi method to identify and validate key evaluation criteria. Subsequently, a two-phase Multi-Criteria Decision-Making (MCDM) model integrating Fuzzy AHP and TOPSIS is proposed to prioritize the criteria and rank the startups.

***Keywords:*** *Born-circular startups, Sustainability performance, Sustainability impact, Fuzzy AHP and TOPSIS*

# CIRCULAR ECONOMY AND FINANCIAL STRATEGIES: DRIVING SUSTAINABLE GROWTH AND ACHIEVING FINANCIAL SYNERGY IN SUPPLY CHAINS

*Mohd Shahid Ali (School of Management, IILM University, Gurugram) and Rimjhim Jha (School of Management, IILM University, Gurugram)*

Abstract. The integration of financial synergy in supply chain management is a key driver of cost efficiency, risk reduction, and sustainable value creation. This study explores the intersection of financial strategy and the circular economy, highlighting how businesses can optimize financial performance while minimizing waste and environmental impact. The circular economy model, which emphasizes resource efficiency, waste reduction, and product lifecycle extension, is reshaping traditional supply chain finance. The chapter begins by defining financial synergy in supply chains, explaining how collaborative financial strategies, economies of scale, and capital optimization enhance overall efficiency. It then examines key financial metrics such as working capital turnover, return on investment (ROI), and cost-benefit analysis in the context of circular supply chains. Companies that embrace sustainable finance models, such as green bonds, impact investing, and closed-loop supply chains, are shown to achieve long-term profitability while
meeting regulatory and environmental goals. Additionally, the role of digital transformation, blockchain, and AI-driven financial analytics in optimizing supply chain finance is explored. Case studies from industries implementing circular supply chain models demonstrate how financial strategies align with sustainability goals, driving cost reductions and competitive advantages. Challenges such as capital allocation in circular business models, financial risk in closed-loop supply chains, and regulatory compliance are also addressed. By the end of this chapter, readers
will understand how financial synergy in supply chains, when aligned with circular economy principles, creates a sustainable, resilient, and profitable financial strategy for businesses operating in the modern economic landscape.

***Keywords:*** *Financial synergy, supply chain finance, circular economy, sustainable finance, cost efficiency*

# SUSTAINABILITY IN GLOBAL ELECTRONICS SUPPLY CHAINS: THE GEOPOLITICAL IMPACT

*Santanu Roy (IILM Institute for Higher Education, Lodhi Road, New Delhi, India) and Samyadip Chakraborty (IMI Kolkata)*

**Abstract.** In the ever-changing and dynamic landscape of geopolitics, the concept of sustainability has emerged as a critical dimension. The work reported probes how companies are trying to address sustainability issues in their supply chains under the cloud of emerging geopolitics and tariff dynamics, specifically focussing on global electronics supply chains.

Smart resource management, including water, becomes important for ensuring sustainability. Global supply chains are bearing the brunt of the geopolitical upheavals facing the world today. Electronics has a pivotal role to play in global trade and supply chain with rising demand witnessed over the years and sustainability is a key aspect here. Mineral resources are crucial in this respect. In the context of India, it may be pertinent to mention that the country is already the second- largest market for smartphones — and as it taps into the significant electronics manufacturing opportunity to generate employment and income, smartphones have become one of India's top five export commodities. The present study reported probes deeply into these aspects by adopting a review-based methodology synthesizing recent scientific studies, climate reports, and industry data. The following case situations have been analysed: (i) ensuring a low carbon global economy – India's role; (ii) augmenting India's rare-earth magnet capacity to counter Chinese market dominance; (iii) energy and water footprint in semiconductors: the case of Taiwan; and (iv) Apple's supply chain diversification post US-China tensions. The case situations bring home the point that reveal that geopolitical risks increase carbon emissions through rerouted logistics and production halts, undermining environmental sustainability and geopolitical volatility intensifies sustainability challenges in electronics supply chains but also catalyses innovation. The present work reported brings to focus how the evolving geopolitical dynamics are impacting the sustainability of global electronics supply chains. This is an emerging discourse with potential for future studies in this domain.

***Keywords:*** *Sustainability and resilience, Mineral resources, Global electronics supply chains, Case situations, Geopolitical impact*

## ECO-DIGITAL TRANSFORMATION: REDEFINING LABORATORY MANAGEMENT AND CRM FOR A SUSTAINABLE FUTURE

*Rupam Chakraborty (Techno India University Tripura)*

**Abstract.** Laboratories worldwide are under pressure to deliver reliable results while reducing their environmental footprint and meeting rising client expectations. This paper explores the concept of eco-digital transformation, integrating sustainable practices with digital tools to redefine laboratory management and customer relationship management (CRM). Using a thematic review, three focus areas are analysed: green laboratory practices, digitalization of workflows and CRM, and the synergies that arise when sustainability and digital platforms are co-designed. Findings highlight that energy-efficient equipment, automated sample tracking, and waste reduction protocols significantly improve environmental performance, while Laboratory Information Management Systems (LIMS), cloud-based data handling, and CRM dashboards enhance efficiency, compliance, and client satisfaction. The study proposes a conceptual framework demonstrating how eco-digital transformation can simultaneously minimize waste, optimize resource use, and strengthen client relationships. While initial investment costs and training requirements pose challenges, the integrated approach offers long-term benefits in sustainability, regulatory compliance, and competitiveness. The paper concludes that laboratories adopting eco-digital transformation can achieve both environmental

stewardship and strategic client engagement, positioning themselves as models for sustainable scientific infrastructure.

***Keywords:*** *Eco-digital transformation, Laboratory management, CRM, Sustainability, Green laboratories, Environmental stewardship*

## OPTIMIZATION OF SUSTAINABLE GARBAGE COLLECTION USING THE ELECTRIC VEHICLE ROUTING PROBLEM

*Yuvraj Gajpal (University of Manitoba) and Srimantoorao Appadoo (University of Manitoba)*

**Abstract.** Sustainability has become the primary goal of the United Nations. Every country is striving to achieve its sustainable goals. Transportation is one of the significant causes of pollution, and hence, electric vehicles are gaining importance as a means of sustainable transportation. Smart cities also require the disposal of garbage through a sustainable waste management system. This paper aims to achieve sustainable waste collection and disposal through the use of electric vehicles. The garbage collection problem is modelled as a vehicle routing problem using an electric vehicle. One of the main constraints of electric vehicles is their limited range, which makes the electric vehicle routing problem different from the traditional vehicle routing problem. Thus, the problem under study assumes a single recharging station availability at the garbage disposal site. The vehicle collects various kinds of garbage in different compartments. Each vehicle starts from the main depot and visits the disposal site where it is recharged. The vehicle then collects the garbage from customers and returns to the disposal site either for recharging or disposing of the garbage collected from customers. At the end of the driver's working hours, the vehicle returns to the main depot. A mathematical model is developed to optimize the garbage collection system. In addition, a heuristic algorithm and a metaheuristic algorithm are used to solve the problem. New problem instances have been generated to evaluate the performance of the proposed algorithm.

***Keywords:*** *Vehicle Routing Problem \, Multi compartment, Sustainability, Ant colony, Metaheuristic, Heuristic, Mathematical Modelling*

## ARTIFICIAL INTELLIGENCE FOR OPTIMIZING RENEWABLE ENERGY GENERATION, INTEGRATION, AND CONSUMPTION FOR SUSTAINABILITY

*Dr. Amitabha Ghose (Adamas University)*

**Abstract.** Artificial intelligence (AI) increases sustainability in the energy sector by optimizing renewable energy generation, integration, and consumption. AI has emerged as a key enabler in optimizing renewable energy systems, significantly contributing to global efforts toward environmental sustainability. AI improves prediction of renewable energy supply and demand which leads to more stable grids and efficient resource allocation. It also improves the performance of renewable energy systems and predicts maintenance requirements, costs reduction and system downtime. This review explores the application of AI technologies in enhancing the efficiency, reliability, and integration of renewable energy sources. The study

focuses on the potential of AI to minimize energy waste, reduce costs, and lower greenhouse gas emissions, reinforcing its role in transitioning to a sustainable energy future. This review also investigates how AI technologies can be leveraged to optimize renewable energy generation focusing on the process through which AI contributes to environmental sustainability.

***Keywords:*** *Artificial Intelligence, Renewable Energy, Energy Optimization, Environmental Sustainability.*

## EXPLORING FLEXIBLE BATTERY LEASING FOR ELECTRIC VEHICLES FROM TCO PERSPECTIVE

*Aniruddha Kundu (IIM Sambalpur, Army Institute of Management, Kolkata), Dr Ramakrushna Padhy (IIM Sambalpur) and Dr Asit Tripathy (IMT Ghaziabad)*

**Abstract.** The swift global proliferation of Electric Vehicles (EVs) is profoundly altering the automotive sector and, by extension, the energy framework. An essential element of this transformation is the efficient management of EV batteries over their lives, especially at their end-of-life (EoL). Although these batteries may no longer satisfy the rigorous performance standards for automotive applications, they sometimes maintain considerable capacity for secondary uses, such as stationary energy storage, or can serve as a useful supply of essential raw materials through recycling. The economic and environmental consequences of managing spent or retired EV batteries are significant and necessitate a comprehensive analytical methodology.

Conventional cost assessment approaches, which predominantly emphasise initial acquisition costs, are inadequate for encompassing the intricate financial dynamics of end-of-life electric vehicle batteries. The Total Cost of Ownership (TCO) framework is beneficial in this context. TCO offers a comprehensive perspective by accounting for all direct and indirect expenses associated with the complete lifecycle of an asset or service, from acquisition to disposal. The TCO framework elucidates the genuine economic benefit and sustainability of managing end-of-life (EoL) electric vehicle (EV) batteries within Product Service Systems (PSS) and Product as a Service (PaaS) models.

This paper proposes implementing the TCO framework for spent or retired EV batteries within the PaaS model. It will first identify the distinct cost elements in this context, provide the strategic significance of PSS/PaaS for end-of-life battery management, and mention future research enquiries to fill existing knowledge voids. This research aims to create sustainable and economically feasible solutions for the emerging issue of electric vehicle battery end-of-life (Liu Z et al., 2021; Soszynska P et al., 2024).

Furthermore, the research will investigate the supply chain changes required to meet the demand of adapting the PSS or PaaS model in the form of Flexible Battery Leasing (Shi & Hu, 2024). The authors are investigating the opportunities and problems of altering the existing battery supply chain to suit these novel battery ownership and management models. It will explore the consequences for customers, EV manufacturers, and the broader energy grid,

thoroughly examining the possible benefits and challenges of transitioning to a more flexible and sustainable ecosystem.
The proposed research will employ a mixed-methods approach, combining quantitative TCO modelling with qualitative expert elicitation. The framework's design should help academicians and practitioners understand critical interactions between economic factors, technological advancements, and stakeholder perceptions in the evolving EV battery market. The quantitative analysis will provide a data-driven comparison of TCO. At the same time, the qualitative methods will deep dive into nuanced insights, future trends, and consensus among experts that may not be unveiled from numerical data alone.
A multi-round Delphi study will be conducted to gather and synthesise expert opinions on the future of EV battery ownership, particularly focusing on aspects that are difficult to quantify or subject to high uncertainty. The Delphi method, characterised by anonymity, iteration, controlled feedback, and statistical aggregation, is ideal for building consensus among a diverse panel of experts.

***Keywords:*** *EV Batteries, PaaS, BaaS, EoL, Recycling, TCO, Leasing, Flexible Battery Leasing*

## FROM THRIFTING TO TRENDING: GEN Z'S ROLE IN SHAPING SUSTAINABLE SOCIAL COMMERCE FOR THE PLANET

*Manya Sah (BIMTECH)*

**Abstract.** The Imperative for a Circular Economy: The global fashion industry is a significant contributor to the planet's ecological crisis, operating on a linear "take-make-dispose" model that is fundamentally unsustainable. The sector is among the most resource-intensive industries, with textile production responsible for up to 10% of global carbon dioxide emissions (Niinimäki et al., 2020; United Nations Environment Programme [UNEP], 2019). This linear model is fueled by fast fashion, which has nearly doubled clothing production since 2000, leading to unprecedented levels of consumption and waste (Ellen MacArthur Foundation, 2017; Fletcher, 2014). In the United States alone,
approximately 11 million tons of textile waste end up in landfills each year (U.S. Environmental Protection Agency [EPA], 2020). In response to these ecological pressures, a shift is underway from a wasteful linear system to a restorative circular economy (Kirchherr, Reike, & Hekkert, 2017).
At the forefront of this shift is Generation Z (born between 1997 and 2012), a cohort of "digital natives" with heightened environmental and social awareness. Multiple studies highlight their deep-seated concerns about climate change; for example, a Deloitte (2024) global survey found that 62% of Gen Zs reported feeling worried about climate change within the past month. This anxiety has translated into conscious consumption practices, with a significant majority expressing willingness to pay a premium for sustainable products (McKinsey & Company, 2020; Deloitte, 2024). Thus, Generation Z's consumption habits and engagement with social commerce are catalyzing systemic change in the fashion industry, simultaneously challenging and reshaping its future trajectory.

The Foundation of Change: The Rise of the Circular Economy: Gen Z's consumer identity is inextricably linked to the digital landscape, where social media platforms such as TikTok, Instagram, and Pinterest serve as primary tools for product discovery (Djafarova & Bowes, 2021). This has given rise to social commerce, a paradigm where commercial activity is seamlessly integrated into social networks (Zhang & Benyoucef, 2016). Within this ecosystem, thrifting has evolved from a niche practice into a powerful social and cultural movement, driven by both environmental concerns and the desire for unique, personalised style as a rebellion against the creative uniformity of fast fashion (Guiot & Roux, 2010; McKinsey & Company, 2022). This cultural normalisation is amplified by a new generation of creators who showcase "thrift flips" and upcycling projects, legitimising pre-owned items and building community around hashtags like #ThriftTok (Barnes & Elliott, 2022).

This trend is part of a broader shift toward a circular economy, where clothing lifespans are extended through reuse, repair, and resale (Kirchherr, Reike, & Hekkert, 2017). The U.S. second-hand market is projected to reach $74 billion by 2029, largely driven by Gen Z's demand for affordable and eco-conscious options (ThredUp, 2023). Social commerce platforms, particularly peer-to-peer marketplaces like Depop and Poshmark, have been instrumental in this growth, fostering a generation of "prosumers" who both buy and sell with sustainability in mind (Jain et al., 2022).

Forward-thinking brands are responding by integrating circular models into their strategies. Instead of limiting themselves to "eco-collections," companies such as Patagonia, Lululemon, and American Eagle have launched branded resale platforms like Worn Wear, Like New, and RE/AE (Business of Fashion, 2021). This approach allows firms to capture value from the second-hand market, reinforce brand values, and reduce dependence on virgin production. For example, Patagonia's Worn Wear program encourages customers to view garments as long-term assets, fostering emotional attachment and reducing disposal (Patagonia, 2022). Importantly, purchasing a used garment rather than a new one can reduce an individual's apparel carbon footprint by up to 60% (WRAP, 2017).

The Core Challenge: The Attitude-Behaviour Gap: Despite their strong environmental convictions and embrace of circular models, Gen Z's consumption habits are marked by a significant contradiction. This phenomenon, known as the "attitude-behaviour gap," is a direct result of complex economic, psychological, and systemic factors, rather than simple hypocrisy. The most significant barrier to ethical consumption is financial reality, as a 2024 Bankrate survey found that 28% of U.S. Gen Z workers live paycheck to paycheck. Amid a cost-of-living crisis, the higher price points of sustainable products, even when desired, are often not a viable option. This financial pressure makes fast fashion a pragmatic choice for staying current with trends on a budget. Beyond economic constraints, the appeal of fast fashion is driven by powerful emotional and psychological motivations that often override environmental knowledge. The convenience and instant gratification of these brands meet a deep-seated desire for self-expression and social status. Social media's relentless churn of micro-trends, fueled by "hauls" and "get-ready-with-me" videos, creates a constant pressure to update one's wardrobe. This dynamic highlights how the pleasure of feeling on-trend can be a stronger motivator than the abstract knowledge of environmental harm.

Furthermore, the responsibility for this gap does not fall solely on the consumer. The fashion industry's lack of transparency and prevalence of greenwashing make it difficult for even the

most motivated consumer to make informed decisions. This has led to a widespread trust deficit, with 88% of Gen Z shoppers not trusting companies' sustainability claims. This systemic issue creates a vicious cycle, where a brand's claims are met with scepticism, eroding the credibility of genuine efforts and making it easier for consumers to rationalise buying a cheaper alternative.

Strategic Pathways to a Sustainable Future: The convergence of Gen Z's values and the limitations of the current system is prompting a new wave of strategic innovations. Technology, in particular, is a powerful enabler of a sustainable future. Tools such as blockchain and artificial intelligence (AI) are being leveraged to enhance transparency and traceability throughout the supply chain. This allows brands to provide verifiable data and measurable impact, actively combating the greenwashing that has eroded consumer trust. For example, a company can use these technologies to provide a detailed breakdown of how it reduced its energy usage or transitioned to biodegradable packaging. Social commerce itself is evolving to meet these new expectations. Marketing is shifting from a purely transactional model to a relational one, where authenticity and mission-driven content are a brand's most valuable assets.19 This involves sharing immersive content, such as facility tour videos or artisan stories, to build trust and relationships with a sceptical consumer base. In parallel with corporate innovation, social media is also giving rise to powerful counter-movements that challenge overconsumption. The "deinfluencing" trend is a direct reaction to the consumerism fueled by traditional influencer culture. Creators actively discourage their followers from buying overhyped products, providing honest reviews and advocating for more mindful consumption. (Refer to Table 1.) This movement empowers consumers to make informed choices and builds trust and credibility. A related movement, "underconsumption core," goes a step further by celebrating minimalism and intentional spending, offering a direct antidote to "haul culture" by showcasing capsule wardrobes and well-loved, durable items

Table 1: Examples of the Companies dealing with thrifting.

Conclusion: Towards a Symbiotic Future of Commerce and Sustainability

In conclusion, Gen Z's relationship with fashion is defined by a profound paradox, where a strong environmental consciousness coexists with consumption habits driven by economic pressures and social validation. The data indicate that this conflict, or "attitude-behaviour gap," is a reflection of systemic structures that make unsustainable choices the most accessible option. Social commerce serves as the central stage for this dynamic, acting as both an engine of overconsumption and a fertile ground for a new, circular economy.

The pathway forward requires brands to take a more active role in bridging this gap. The analysis provides several strategic recommendations for businesses and marketers seeking to engage this influential demographic. Firstly, brands must prioritize radical transparency over vague claims by providing verifiable data and measurable impact, leveraging new technologies like blockchain and artificial intelligence to ensure and prove ethical supply chain operations. Secondly, a genuine commitment to circularity is paramount. By integrating branded resale, repair, and rental models, companies can transform their business models to align with consumer values, reduce environmental harm, and build long-term customer loyalty. Finally, brands must harness the power of community. Instead of using social platforms for a one-way promotional push, companies should engage with their audience to foster genuine communities around shared values, celebrating mindful consumption and creativity. This research provides

a foundational understanding of a critical shift in consumer behaviour. It suggests that future research should focus on quantitatively measuring the long-term effectiveness of "deinfluencing" and "underconsumption core" movements in shifting purchasing behaviour at scale. Additionally, further studies are needed to conduct cross-cultural comparisons of the attitude-behaviour gap across different geographic regions and socioeconomic statuses, which would provide a more universal understanding of this complex phenomenon. Ultimately, the data indicates that the future of social commerce lies not in a one-dimensional focus on sales, but in a symbiotic relationship where commerce and sustainability are mutually reinforcing values.

***Keywords:*** *Sustainable, Sustainable fashion, Thrifting, Gen-Z, Fast Fashion*

## ADVANCING THE SUSTAINABILITY BALANCED SCORECARD: EVIDENCE FROM MULTI-CASE ANALYSIS

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**Abstract.** This paper introduces a Sustainability Balanced Scorecard (SBSC) to help companies track and measure their sustainability performance throughout their supply chains. We build this framework using a Design Science Research approach, expanding the traditional four Balanced Scorecard (BSC) perspectives (Financial, Customer, Internal Process, and Learning & Growth), to include environmental and social metrics. To show how it works in practice, we applied the SBSC to two real-world organizations (Company A and Company B). For each, we looked at their sustainability goals, how SBSC could be applied for measuring their sustainability-related performance, the key metrics the framework could offer for measuring specific sustainability related activities withing each BSC perspective, and the results that could be concluded after employing the framework. A rcursive refinement approach is adopted to strengthen the empirical validity of the framework. The results demonstrated that both organizations kept financially growing while implementing their significant sustainability related initiatives. This verifies the effectiveness of incorporating sustainability objectives into the BSC in clarifying potential contributions of sustainability initiatives to companies' competitive competencies.

***Keywords:*** *Sustainability, Sustainability Balanced Scorecard, Case Analysis, Design Science Research*

## THE SUSTAINABILITY MIRAGE: WHY MARKETING CAN LOOK GREENER THAN IT IS

*Somya Bansal (Birla Institute of Management Technology) and Dr. Garima Malik (Birla Institute of Management Technology)*

**Abstract.** Introduction: The rapid increase in environmental pollution, driven by the growth of production and consumption across industries particularly the fashion and textile sector, which

is one of the most resource-intensive has intensified global concern about sustainability. This has raised public awareness and prompted stakeholders to demand greater transparency from companies regarding their environmental performance. In response, many firms have begun introducing eco-friendly products and disclosing their sustainability initiatives (Netto, Sobral, Ribeiro, & Soares, 2020). According to Nielsen Media Research, 66% of consumers worldwide are willing to pay a premium for environmentally friendly products (Netto et al., 2020).

Sustainable development, broadly defined as meeting present needs without compromising the ability of future generations to meet theirs, has become central to corporate agendas. However, alongside genuine efforts, the phenomenon of greenwashing—where firms combine poor environmental practices with misleading sustainability communication—has emerged as a critical challenge (Netto et al., 2020). Companies increasingly invest in green marketing campaigns to position themselves as socially responsible and eco-friendly, making it a core selling strategy (Claudy, Peterson, & Pagell, 2016; Xue & Swan, 2023). Yet, research highlights the darker reality that some organizations exploit consumer environmental concerns without committing to authentic sustainable practices (Pimonenko, Lyulyov, Chygryn, & Liniichenko, 2020). While the negative consequences of greenwashing awareness on consumer trust have been previously examined (Chen & Chang, 2013; De Jong, Huluba, & Beldad, 2020), its impact on consumer attitudes toward innovative sustainable products remains underexplored. This gap is significant, as firms are under immense pressure to innovate sustainably, which may lead them to exaggerate or misrepresent the "green" aspects of new products. In highly competitive markets, sustainability is increasingly becoming a key determinant of consumer choice. However, sustainable innovations are often perceived as risky, causing skepticism toward corporate claims (Wiedmann, Hennigs, Schmidt, & Wuestefeld, 2011). Consequently, greenwashing can amplify consumer disillusionment, further diminishing trust in sustainable innovations and undermining their adoption.

Literature Review: The concept of the "sustainability mirage" highlights how marketing can create an illusion of environmental responsibility without substantive action. Often referred to as greenwashing, this practice is prevalent across industries, particularly fashion, where companies exaggerate or misrepresent the environmental benefits of their products to appeal to eco-conscious consumers (Delmas & Burbano, 2011). Research indicates that even organizations with formal sustainability certifications, such as ISO 14001, may engage in greenwashing, revealing the complexities of verifying corporate sustainability claims (Furlow, 2010). Marketing, while capable of promoting genuine sustainable practices, can thus paradoxically serve as a tool that perpetuates misleading perceptions of environmental stewardship (Parguel et al., 2011).

Consumer perception is significantly shaped by these marketing narratives, but repeated exposure to deceptive claims can erode trust and increase skepticism toward sustainability efforts (Nyilasy et al., 2014). The lack of standardized regulations around sustainability claims exacerbates this issue, allowing firms to continue making unsubstantiated assertions (Delmas & Burbano, 2011). Scholars emphasize that bridging the gap between perceived and actual sustainability requires stricter regulatory frameworks, transparent marketing, and heightened consumer awareness, ensuring that environmental responsibility is both communicated and practiced authentically (Furlow, 2010; Parguel et al., 2011).

Methodology: This study adopts a qualitative research approach to examine the concept of the sustainability mirage and its manifestation through marketing strategies. A comprehensive literature review was conducted, focusing on academic articles, industry reports, and case studies related to green marketing, greenwashing, and corporate sustainability communication. Key sources include peer-reviewed journals, regulatory reports, and corporate sustainability disclosures, providing both theoretical and practical insights. Additionally, selected case studies of prominent brands were analyzed to identify patterns of misleading sustainability claims and their impact on consumer perception. Data were synthesized to highlight recurring themes, such as the use of ambiguous terminology, selective disclosure, and the divergence between perceived and actual sustainability practices. The study employs a thematic analysis framework, allowing for the identification of common strategies that contribute to the sustainability mirage and the resulting implications for consumer trust and corporate accountability. This approach enables a critical evaluation of how marketing can portray products and practices as environmentally friendly, even when substantive sustainability actions are limited or absent.
Findings and implications: The analysis reveals that greenwashing is widespread, with many brands exaggerating or misrepresenting their environmental efforts through ambiguous marketing claims. Companies often use selective reporting, vague labels, and sustainability certifications to create a perception of eco-friendliness, while substantive actions may be limited. Consumers are increasingly aware of these practices, which can erode trust in sustainability initiatives and reduce the effectiveness of genuine green marketing. The study underscores the need for transparency, regulation, and consumer education. Marketers must align claims with verifiable actions to avoid reputational risks, while regulators should enforce clear standards for environmental communication. For consumers, greater awareness and critical evaluation of sustainability claims are essential to distinguish authentic efforts from deceptive practices. These findings provide valuable insights for researchers, policymakers, and businesses striving for credible and effective sustainable marketing.

***Keywords:*** *sustainability mirage, green washing, marketing narratives, genz, corporate accountability*

## THE PARADOX OF RECYCLING: A RESEARCH NOTE ON LIMITATION OF CIRCULAR ECONOMY TO ACHIEVE SUSTAINABILITY

*Dr. Breeta Banerjee (Assistant Professor of Economics, Institute of Engineering and Management Newtown)*

**Abstract.** Purpose: This research note aims to understand the contradictions within the current waste management and recycling industry, how these contradictions are driving these industries forward and altering them, and what implication they have for sustainability in future.
Methodology: Based on Marxist understanding of dialectical materialism, the study analyses the contradicting forces within the present state of waste management and recycling industry

and traces out how they change as the industry modifies with economic and technological advancement.
Result: Waste management and recycling industry is a combination of two sub-industries: waste management and recycling industry. The primary contradictory force arises from different treatment of 'waste' in these two sub-industries and gets embodied by the waste-workers who work as the foundation of both the industries. For the industry to grow and gain efficiency, waste keeps getting segregated into 'recyclables' and 'non-recyclables' in need of management. Hence the tie between these two industries weakens as the sub-industries gain more prominence individually. The role of waste-pickers within these industries also transforms.
Conclusion: The implication of waste industry transition on sustainability depends upon the broader environment they are taking place within. Although efficiency gain in waste management and recycling works towards reducing environmental footprint and achieving circular economy goals, the growth-oriented profit-driven nature of such efficiency gains counters the initial sustainability gain. Social sustainability of such transition depends upon how much control workers are having over the broader technological optimization process. The study proposes future research agenda of evaluating technological transition processes within systems alternative to growth paradigm.

***Keywords:*** *Waste management and recycling industry, Dialectical materialism, Contradiction, Circular economy limitation, Alternative to growth paradigm*

## FROM LESS TO MINDFUL: EXPLORING HOW MINIMALISM FUELS MINDFUL CONSUMPTION IN THE SUSTAINABILITY ERA

*Meenal Sharma (Symbiosis International (Deemed) University Pune), Udit Chawla (Institute of Engineering & Management, School of University of Engineering and Management, Kolkata) and Vinod Sharma (SCHMRD, Symbiosis International Pune)*

**Abstract.** Excessive consumerism and materialism are defining traits of 21st century marketplace, especially in industries such as fashion and luxury where product life cycle are brief and outrageous spending is lauded. These consumerist practices are linked to resource depletion, ecological degradation, and decreased personal wellbeing. Consumers and academics alike are investigating new consumption paradigms that might strike a balance between personal fulfilment and environment and social responsibility as sustainability concerns grow. Minimalism and mindful consumerism are two such paradigms that have gained popularity in the last ten years, but studies have not yet combined them into a single theoretical framework. For our study, we gathered data from the customers who believed in mindful consumption (SDG 12) from the metropolitan cities of India. The participants were selected using purposive sampling at location points and our study had a final sample size of 500 respondents. The results of path analysis established that five factors PEC, perceived environmental concern; PRS, perceived resource sharing; PNI, perceived normative influence; PVS, perceived voluntary simplicity; PSA, perceived self-awareness were associated with PTP, perceived temperance. The study's finding highlighted the importance of PTP, perceived

temperance, PCR, perceived caring as a mediator between the factors and RCB, reduced compulsive buying.

***Keywords:*** *Consumption, Environmental, Sharing, Awareness, Buying*

## SUSTAINABLE TARGETED ADVERTISING AND ITS DISCONTENTS: AN EMPIRICAL INVESTIGATION

*Ajitesh Kumar Tiwari (Research Scholar, Department of Management, University of Lucknow), Dr. Abhishek Kumar Pandey (IILM Academy of Higher Learning Lucknow , U.P , India) and Dr. Ajai Prakash (Associate Professor, Department of Management, University of Lucknow)*

**Abstract.** Classical market segmentation strategies provided duality of considerations before companies. The striking feature of the duality was exclusivity, for example a marketer thought of choosing between mass marketing on niche marketing but not both of them altogether. This paradigm of market targeting shifted with the onset of digital platforms providing access to large masses of digital platforms users along with mechanisms to design and present personalised niche offerings. This metamorphoses of market segmentation and targeting apparently stand on a benign foundation of access to personal data and built in algorithms to provide targeted advertising in digital economy. However, a closer examination reveals that the sustainability of such marketing strategies is questioned by a large number of factors including the nature and extent of influence of targeted advertising in guiding purchase behaviour, intrusion in the privacy of consumers and ethical considerations among others. This research attempts to explain factors influencing sustainability of targeted advertising. It attempts to outline variables that pose a concern for sustainability of targeted advertising. The research further suggests ways to build sustainable digital advertising strategies through incorporating ethical and transparency related measures in the current digital advertising scenario.

***Keywords:*** *Sustainable Targeted Advertising, Digital Advertising, User confidence, Information disclosure, fiduciary obligation*

## ADVANCING SUSTAINABLE AVIATION FUEL PATHWAYS: TECHNICAL CHALLENGES, OPPORTUNITIES, AND RESEARCH DIRECTIONS

*Vinod L (Nitte Meenakshi Institute of Technology (NMIT), Nitte (Deemed to be University)) and Somashekar V (Nitte Meenakshi Institute of Technology (NMIT), Nitte (Deemed to be University))*

**Abstract.** This study provides a comprehensive review of Sustainable Aviation Fuels (SAFs) as a viable pathway for achieving decarbonization in the aviation sector, which currently contributes about 2–3% of global $CO_2$ emissions. The objective is to examine the technical challenges, opportunities, and research directions across multiple SAF pathways, focusing on their production technologies, lifecycle emissions, and policy frameworks. A systematic

literature review methodology was employed, utilizing academic databases such as Scopus, IEEE Xplore, and ScienceDirect, filtered through Boolean searches and screening to ensure methodological rigor and relevance. The findings reveal that while SAFs offer up to 100% lifecycle GHG emission reductions compared to conventional jet fuels, major barriers persist—including high production costs, limited feedstock availability, and technological immaturity in several production routes such as Alcohol-to-Jet (ATJ) and Power-to-Liquid (PtL). Opportunities were identified in feedstock diversification, advanced catalysis, co-processing, and integration with renewable electricity. The study also highlights the pivotal role of regulatory frameworks like CORSIA and ReFuelEU Aviation in driving SAF adoption but underscores the need for harmonized international standards and policy incentives. Regionally, Europe and the United States lead in SAF readiness, while developing regions face infrastructural and policy gaps. Overall, the results underscore that achieving scalable, economically viable, and environmentally sustainable SAF production demands coordinated global research, innovation, and policy support. The conclusions advocate for intensified R&D on non-HEFA routes, improved lifecycle assessment standards, and cross-sectoral collaboration to accelerate SAF deployment toward net-zero aviation by 2050.

***Keywords:*** *Sustainable Aviation Fuel, Lifecycle Assessment, Techno-Economic Analysis, Feedstock Diversification, Decarbonization Strategies*

## BUILDING SUSTAINABLE DIGITAL ENGAGEMENT FOR ONLINE FOOD DELIVERY SERVICE PLATFORMS

*Anupama Ahluwalia (SP Jain School of Global Management) and Dr K Maddulety (Professor Cum Director - DBA, SP Jain School of Global Management)*

**Abstract.** Grounded in Self-Determination Theory (SDT), this study examines how digital platforms can satisfy fundamental psychological needs to foster user fulfilment and sustainable engagement. The research explores the influence of Perceived Autonomy Support (PAS), Perceived Competence Support (PCS), and Perceived Environmental Relatedness (PER) on Digital Fulfilment (PNS) within the context of online food delivery platforms. Quantitative data were collected from Gen-Z consumers in India, a generation known for its digital nativity and ecological awareness. Using SmartPLS 4–SEM, results reveal that PAS and PCS significantly enhance user fulfilment both directly and indirectly through PER, highlighting the mediating role of sustainability alignment. The findings extend SDT into digital sustainability by demonstrating how autonomy, competence, and relatedness needs translate into meaningful platform experiences and pro-environmental connection. The study contributes to theory by repositioning digital service satisfaction as psychological need satisfaction, and to practice by offering actionable insights for platform managers to design autonomy-enabling, competence-enhancing, and sustainability-driven digital interfaces that promote lasting consumer engagement and planetary well-being.

***Keywords:*** *Self Determination Theory, Psychological Need satisfaction, Autonomy-Competence-Relatedness, Digital Sustainability, Gen-Z Consumers*

# TRANSFORMING SOLAR PANEL WASTE FOR A SUSTAINABLE FUTURE: CIRCULAR INNOVATION THROUGH AI BASED WASTE MANAGEMENT

*Tanvi Agarwal (Circle PV Limited.)*

**Abstract.** The exponential growth of renewable energy adoption has introduced an unintended sustainability challenge—solar panel waste. As the world's cumulative municipal solid waste is projected to reach 3.4 billion tonnes by 2050, end-of-life solar panels are expected to contribute over 60,000 metric tonnes of additional waste. Improper disposal of these panels, which contain hazardous materials such as lead, cadmium, chromium, and nickel, poses critical environmental and public health risks.

This paper presents the model and approach of CirclePV Limited, a pioneering initiative designed to streamline solar panel waste management through circular economy principles. CirclePV's framework integrates waste reduction, replacement, and recycling strategies to promote a sustainable lifecycle for photovoltaic systems. The organization's approach emphasizes AI-based decision-support tools that enable data-driven choices for end-of-life and early-life solar panel management. These tools assist in optimizing material recovery, assessing carbon footprint reduction, and facilitating cost-effective repair and reuse models.

By building a B2B collaborative platform, CirclePV fosters partnerships among manufacturers, recyclers, and policymakers, transforming waste streams into value chains. The study contributes to the broader discourse on sustainable innovation by demonstrating how technology-enabled circular practices can mitigate renewable energy's hidden waste problem. The findings advocate for policy alignment, stakeholder education, and digital infrastructure to support a future where clean energy production and environmental protection coexist harmoniously.

***Keywords:*** *Solar panel waste, circular economy, sustainability, AI tools, waste management, renewable energy, B2B platform, carbon reduction*

# THE PROSPECTIVE OF ARTIFICIAL INTELLIGENCE FOR NET ZERO SUSTAINABILITY: A COMPREHENSIVE REVIEW OF CURRENT EVIDENCE AND FUTURE PROSPECTS

*Adrija Nath (Pune Institute of Business Management) and Dr. Nilesh Kate (Pune Institute of Business Management)*

**Abstract.** The worldwide limitation to achieve net-zero levels of greenhouse gas emissions by mid-century requires a radical increase in the pace of decarbonization of all sectors of the economy. Machine learning, deep learning, and advanced data analytics, also known as Artificial Intelligence (AI) are becoming an enabling technology that is central and cross-cutting in this transition. The current evidence and future of AI use in achieving net-zero sustainability is comprehensively evaluated in the paper to understand the perspectives on the matter. We summarize and discuss an expanding body of literature and practical case studies

of optimisation of energy systems (including grid management and integration into renewable systems), increased industrial efficiency, smart and low-carbon mobility, and transformative climate sciences, carbon capture, and monitoring. The aggregate evidence suggests that AI can greatly decrease emissions, decrease expenditures and speed up innovation in the following important areas. Nevertheless, AI integration is not totally free of serious challenges, such as its own carbon footprint, data accessibility and quality, algorithmic bias, and the necessity to tackle them with a powerful governance and policy system. We conclude that, although AI is not a panacea, it is necessary to implement it strategically and responsibly because it is becoming an indispensable element of timely and efficient and equitable transition to a net-zero future. In order to achieve its potential, it will imply certain research and development priority, better data infrastructure, and cross-disciplinary collaboration between policymakers, industry leaders, and the AI research community to ensure that these powerful tools will be aligned to the greater goal of climate stability at the global level.

*Keywords: Artificial Intelligence, Machine Learning, Deep Learning, Net Zero Emissions, Decarbonization, Sustainability, Renewable Energy Optimization, Smart Grids, Energy Efficiency, Industrial Decarbonization, Predictive Maintenance, Smart Mobility, Electric Vehicles, Carbon Capture Utilization and Storage (CCUS), Climate Modeling, Data Analytics, Green AI, AI Governance, Algorithmic Bias, Climate Policy, Circular Economy, Precision Agriculture, Climate Risk Assessment, Energy Transition, Sustainable Development*

## A SYSTEMATIC LITERATURE REVIEW ON IMPACT OF ENVIRONMENTAL ETHICS ON REDUCING EMISSIONS IN INDIA

*Siddharth Chakravorty (The Bhawanipur Education Society College) and Dr. Tridib Sengupta (The Bhawanipur Education Society College)*

**Abstract.** Environmental ethics forms an integral part of ethics when it comes to protecting the environment. It makes people around the world understand how their activities can impact the overall health of the environment , which in turn lead to impacting the lives of people living on earth. This is also apt for reduction of emissions especially for India in today's time, where emissions are increasing with the release pollutants and toxic chemical in land , air and water. Rise in petrol and diesel vehicles, emission of fumes from factories, dumping of waste in water and land have clearly shown that we, as people of India lack environmental ethics. This study explores and understands how environmental ethics can create a positive impact on the environment especially on regulating and minimizing emissions in India through the use of systematic literature review considering a large number of papers for the purpose of this study. For this Study, Bibliometric analysis has also been incorporated to understand and dwell on the topic even further. The database has been taken from dimensions ai which consists of research papers and articles in abundant amounts. For the purpose of this study , Biblioshiny package of the RStudio software has been used to analyse the data and get insights into the topic.

***Keywords:*** *Environmental Ethics, Emissions, Bibliometric Analysis*

# INTEGRATING ALTERNATIVE MEDICAL PRACTICES FOR BUILDING A SUSTAINABLE HEALTHCARE SYSTEM: A PATHWAY TO HOLISTIC AND RESILIENT PATIENT CARE

*Zeba Khan (Swiss School of Management) and Archana Mishra (MGM School of Biomedical Science)*

**Abstract.** Global healthcare systems can no longer bear the burden of chronic illnesses, high costs, and environmental challenges. Although biomedical models have become more advanced, they still overlook preventive, holistic, and person-centered approaches to health. Incorporating alternative medical practices—known as Traditional, Complementary, and Integrative Medicine (TCIM) is a step toward sustainable and resilient healthcare. The study seeks alternatives to sustainability that boost prevention, empower patients, and are environmentally friendly. According to a qualitative review and thematic analysis of recent literature (2020–2025), mechanisms, barriers, and policy implications of integration are identified.

Studies reveal that the most frequently cited topics were person-centered care, prevention/self-care, interprofessional collaboration, evidence-based regulation, and system sustainability. Integrative models enhance health system resilience, equity, and resource utilization, the study concludes. Theoretical implications involve reconceptualizing health care through a maltogenic lens, whereas practical implications emphasize the need for policy transformation, workforce education, and empirical evaluation in India.

Abbreviation

AYUSH- Ayurveda, Yoga, Unani, Siddha, and Homeopathy
TCIM- Traditional, Complementary, and Integrative Medicine
UHC- Universal Health Coverage
SDGs-Sustainable Development Goals
GDP- Gross Domestic Product
LMICs- Low- and Middle-Income Countries
WHO- World Health Organization
TCM- Traditional Chinese Medicine
PMC- PubMed Central

***Keywords:*** *Integrative Medicine, TCIM, Sustainable Healthcare, Holistic Care, Healthcare Resilience*

# DIGITAL SOLUTIONS FOR SUSTAINABLE CONSTRUCTION: EXPLORING AI'S ROLE IN ACHIEVING NET ZERO

*Abdul Gafoor K A (Doctoral Scholar, S P Jain School of Global Management)*

**Abstract.** The construction sector remains one of the largest contributors to global greenhouse gas emissions, accounting for over one-third of total energy-related $CO_2$ output. Despite global momentum toward Net Zero goals, decarbonisation progress within the built environment

remains slow due to fragmented digital adoption and the complexity of life-cycle management. This conceptual study explores how Artificial Intelligence (AI) can accelerate sustainable construction through digital transformation. It integrates the Technology–Organisation–Environment (TOE) framework and Dynamic Capabilities Theory (DCT) to propose a lifecycle-based conceptual model aligning AI applications with decarbonisation objectives. The model is further structured according to the Whole Life Carbon Assessment (WLCA, RICS 2023) life-cycle modules (A1–A5, B1–B7, C1–C4, D) to ensure methodological transparency. By linking AI capabilities to the entire building life cycle, the framework highlights AI's potential to improve decision-making, predict sustainability outcomes, and support continuous decarbonisation. The study contributes theoretically by extending digital sustainability research through dynamic capabilities and practically by offering a roadmap for integrating AI-enabled carbon intelligence across construction value chains.

***Keywords:*** *Artificial Intelligence; Net Zero; Sustainable Construction; Whole Life Carbon; Dynamic Capability Theory; TOE Framework; Digital Transformation*

## CATALYZING AND WEAVING IN THE GREEN: SUSTAINABILITY IN NEW AGE STARTUPS

*Kshitija Wason (Daulat Ram College Delhi University)*

**Abstract.** Behavioral change that is beyond tokenistic but internal and long-lasting is the aim of any organizational practice. The paper looks at themes of sustainable growth across Indian startups which go beyond the mere lip sync into internalized rubrics of change. The use of nudge units for internal stakeholders to external markets are examined in the practices of retention and its impact on decision to stay.

The SDG goal of decent work for all is examined as a beacon for contemporary practices in startups which could pave the way for newer avenues of re- understanding the human as a resource in a highly tech intensive terrain. The awareness of climate anxiety and its repercussions in the modern-day tech startups is seen through an analysis of emergent themes.

***Keywords:*** *Tech Startups Nudge Units, Green HRM, Sustainable Development Goals, Nudge Units*

## DECODING THE PATH TO NET ZERO: A TEXT ANALYTICS AND TOPIC MODELLING APPROACH TO CARBON NEUTRALITY AND DEVELOPMENT DIALOGUE AT COP26 COP 27, COP28 AND COP 29

*Sonakshi Gupta (IIM Sirmaur) and Manish Sarkhel (IIM Sirmaur)*

**Abstract.** "Decoding the Path to Net Zero: A Text Analytics and Topic Modelling approach to Carbon Neutrality and Development Dialogue at COP26 COP 27, COP28 and COP 29 "

Research Gap and Research Problem: The motivation behind this study stems from the significant role that political leaders play in climate adaptation and mitigation efforts. As representatives elected by the public to address their country's concerns on the international

stage, the speeches of these leaders on climate change have not undergone a comprehensive analysis using a grounded theory approach which highlights evolving narratives and increasing complexities. Existing literature predominantly discusses leadership in the context of climate change mitigation efforts, as seen in journal articles like Gupta and Grubb (2000) and Schreurs and Tiberghien (2007). Contributions that do touch upon leadership concerning climate change adaptation often treat it as a prerequisite for success (e.g., Burch, 2010;) or as a means to resolve localized disputes between mitigation and adaptation strategies (e.g., Laukkonen et al., 2009).
Objective of the Study & Summary: In this paper, we utilize data-driven and inductive theory-building methodologies to thoroughly analyze speeches delivered by global leaders during the Conference of the Parties (COP) summits in 2022. Integrating a data-driven approach supplements the inductive theory-building process in our study. Our analysis draws attention to evolving narratives, identifies instances of shared realizations, and emphasizes diverse approaches aimed at addressing climate change. The results emphasize the geographical challenges and historical inequalities while showcasing the varied concerns of economies at different stages of development.
The study also results in creating a theoretical model using the inductive theory approach, which helps understand how different countries can aid other countries while working towards the common goal of climate mitigation and adaptation efforts.
Research Methodology: Our research adds value to the current body of knowledge using the Grounded theory approach and Topic Modelling. Initially, we use the grounded theory approach to identify significant themes from Leaders' speeches at the COP26 COP 27, COP28 and COP 29 summit. Furthermore, we construct a theoretical model by employing inductive theory-building techniques based on the speeches delivered by global leaders at the summit.
To enhance the reliability of our model, we validate and reinforce it using topic modelling, specifically employing the Latent Dirichlet Allocation (LDA) technique. This analytical approach aids in comprehending potential business and public policies at both national and global scales. Through Latent Dirichlet Allocation (LDA) technique five themes were generated namely: Climate change Adaptation, Climate financing, Net-Zero, Climate Change Mitigation, Energy Transition/change to renewable energy. Additionally the subjective and polarity of the speeches were also studied and analysed.
Findings of the Study: The study yielded eight key themes: Climate Justice, Climate Finance, Climate Mitigation and Adaptation Efforts, Multilateral Collective Efforts, Double Standard of Developed Nations, Support by Developed Country to Developing Countries, Strategies to deal with climate change and consequences. Another crucial finding of the study was the theoretical model, which helps understand the different roles played by different countries towards our joint fight against climate change. These countries are supposed to work to ensure certain crucial principles in the fight against climate change, such as climate justice, climate finance, climate mitigation and adaptation efforts.
Implications of the Study: Our study has implications for policy development and its subsequent effects on businesses. For instance, many organizations nowadays adopt sustainability approaches while manufacturing since many customers are climate-conscious and appreciate such initiatives.

***Keywords:*** *Net Zero, Topic Modelling, Inductive theory builiding, Climate Change*

## INTEGRATING DIGITAL INFRASTRUCTURE WITH ENVIRONMENTAL JUSTICE IN THE SUSTAINABILITY- DRIVEN ERA

*Bindu Roy (Assistant Professor, Department of PG Commerce DAV Centenary College, Faridabad, Haryana) and Richa Sharma (Assistant Professor, PML SD Business School, Chandigarh)*

**Abstract.** Sustainability is gaining prominence due to increasing growth of digital infrastructure. As a result, gauging the linkage between digital expansion and environment health is of utmost importance. Therefore, the objective of this study is to explore how digital growth can be aligned with environmental justice to promote sustainability. The research aims to decipher the relationship between digital infrastructure and environmental justice. Using the case study approach, this paper further seeks to assess the impact of development of digital infrastructure on environment health. The research is expected to reveal that digital growth such as digital payments, digital literacy cloud computing servers, etc., when strategically taken together with environment justice, can serve as a catalyst for sustainability inclusion. This piece of work contributes to field of balanced framework of sustainability.

***Keywords:*** *Digital Infrastructure, Environmental Justice, Sustainability*

## MANAGEMENT EFFICIENCY AS A MODERATOR IN THE SUSTAINABILITY REPORTING–FIRM VALUE NEXUS: EVIDENCE FROM BSE 100 COMPANIES

*Najul Laskar (IILM University, Greater Noida)*

Abstract. This research investigates how sustainability reporting affects firm value in an Indian context with a specific focus on management efficiency as moderating variable. Using a panel dataset for the top 100 firms on the BSE, ranked by market capitalization, this study spans the years 2018 – 2024. Sustainability reporting is assessed based on the Global Reporting Initiative (GRI) framework, which provides an all-inclusive benchmark to evaluate the breadth and depth of disclosures relating to environmental, social, and governance dimensions. Firm value is measured using Tobin's Q, while management efficiency is measured using the asset utilization ratio, which indicates the firm's ability to fully use resources and convert these into revenue.
The study employs panel regression methods, with fixed effects and system GMM estimations, to address the issues of unobserved heterogeneity and endogeneity. It finds a positive and statistically significant relationship between sustainability reporting and firm value, showing that higher disclosure in accordance with GRI standards leads to higher transparency, accountability, and investor confidence. In addition, the moderation analysis shows that management efficiency strengthens the positive relationship between sustainability reporting and firm value. Companies with better asset management are more capable of converting sustainability activities into enhanced market value, reaffirming the importance of managerial capabilities and cognizance in sustaining and reinforcing the attributes of sustainability reporting.

The results present meaningful contributions both theoretically and practically. From a theoretical perspective, this study adds to the knowledge of the stakeholder and resource-based approaches by demonstrating that reporting frameworks generate firm value, only if they are underpinned by operational efficiency. From a practical perspective, these findings suggest to corporate executives that by aligning their sustainability efforts with strategies that enhance their resource efficiency, they can ensure that they have some genuine financial benefits. For regulatory agents and agencies, the findings still give credence to mandatory adoption of GRI-based disclosures in India, while considering the importance of managerial accountability. Overall, this research contributes to the sustainability reporting discussion in emerging economies and establishes management efficiency as a salient factor underlying the reporting–performance relationship.

***Keywords:*** *Sustainability Reporting, Firm Value, Management Efficiency, GRI Framework, India*

## VISION, MISSION AND VALUES: A CONVENIENCE STATEMENT, A STATUTORY REQUIREMENT, OR A ROADMAP FOR VALUE BASED DECISION MAKING TOWARDS ACHIEVING SUSTAINABILITY, INCLUSIVE GROWTH, AND DEVELOPMENT

*Dr. Arijit Santikary (Siva Sivani Institute of Management) and Samarpita Roy (Siva Sivani Institute of Management)*

**Abstract.** Introduction: Great leaders across the globe have emphasised on the importance of having clear and focussed Vision, Mission, and Values (VMV) for organisations to have a direction for the today, tomorrow, and ever after. The importance of these statements can never be undermined, even in the changing dynamics of the global economy. Therefore, various research scholars have tried to understand the VMV statements from different focus such as understanding the content of vision and mission statements of the organisations; a comparative analysis of vision and mission statements of specific type of organisations such as universities or hospitals (Qin, Wang, Zhao, Wu, & Liu, 2023) (Olusola, Oluseye, Saviour, Lember, & Ayomiposi, 2022), understanding the social impact of mission statements of organisations with respect to specific society and specific geographies (Mion, Bonfanti, Crescenzo, & Adaui, 2024); and how such VMV statements focus on aspects like human resource management or strategic leadership (Dhlamini, 2025) (Akter, 2021), among others.

While the VMV Statements have been analysed critically for varied purposes, one aspect that needs to be deliberated in the current context is Sustainability and focus on Inclusive Growth and Development. While some recent studies have been focusing on understanding the integration of aspects like sustainability, inclusive growth, and development (Marfo, Amoako, Arthur, & Yankey, 2024)(Bedoya-Dorado & Murillo-Vargas, 2021) , there are certain areas that needs to be explored in this area. One of the most important aspects that needs to be explored if the terms such as sustainability, inclusion, equity, and impact have been integrated into the VMV statements only symbolically or substantively? Another aspect that needs

exploration is the longitudinal tracking of VMV before and after important events such as SDG adoption in 2015, pandemic in 2020, among others.

This research would therefore focus on the following objectives:

- To analyse how Fortune 100 companies communicate sustainability and inclusivity in their VMV statements.
- To trace how these communications have evolved over time (pre- and post-SDGs/COVID).
- To assess the symbolic vs. substantive alignment between VMV messaging and actual sustainability/inclusion performance.

Methodology

After careful deliberation, the researchers would like to undertake this research to understand the following research questions:

- How frequently and prominently are sustainability and inclusive growth themes present in Fortune 100 companies' VMV statements?
- How has the language of VMV evolved over the past decade in response to global development goals?
- To what extent does the sustainability/inclusivity discourse in VMV align with actual company actions (as per ESG/GRI/CSR reports)?

To answer these questions, the research would start with collecting the data in terms of noting the VMV statements of Top 100 Fortune 500 companies over a period, i.e., a decade (2014-2025). The researcher then plans to conduct a Discourse Analysis on the available data to identify the themes, frames, buzzwords, and the strategic intent of the organisations. This analysis would also help in tracking the longitudinal trend of evolution of VMV's over the mentioned span of time. Finally, the research would strive to conduct an Alignment Study where the VMVs would be compared to actual ESG reports, SDG impact disclosures, and GRI Indices for a few companies (The Top 10 ESG companies) as a case study to provide a direction to the research.

Conclusion: This research would attempt to contributes a framework for assessing alignment of important values, with special focus on Sustainability, Inclusive Growth, and development in strategic communication practiced by the best organisations acclaimed globally. The research would further offer critical insights into how such strategic communication by the organisation translates into action – action that is measurable, quantified, and meant to create value for the organisation and the society at large.

***Keywords:*** *Vision/Mission/Value Analysis, Value Based Decision Making, Sustainability, Inclusive Growth and Development, Content Analysis, Discourse Analysis, Longitudinal Trend Analysis, Alignment Study*

# EDUCATING FOR A JUST AND SUSTAINABLE NET-ZERO FUTURE: EMPOWERING CLASSROOMS FOR CARBON NEUTRALITY

*Dinesh A (University of Hyderabad) and Samarpita Roy (Siva Sivani Institute of Management)*

**Abstract.** Introduction: The irreparable climatic changes have been a serious concern for the entire world since the last few decades, according to global agencies such as UNESCO and World Metrological Organisations (World Meterological organisation, 2025). The climatic patterns have led to serious deliberations and are predicting an even grimmer situation soon. Adoption of the Sustainable Development Goals since 2015 have been a result of this grave warning. While the world is at least discussing about Carbon Cuts, a step towards achieving Carbon Zero status for different countries, can the education sector just not lend a hand towards creating a sustainable eco-friendly planet?

Various research proves that while the education sector and its efforts are a critical tool in the pursuit of global net-zero emissions, the sector is yet under-leveraged in this scenario (Castellanos & Queiruga-Dios, 2021) (Wynes & Nicholas, 2017). The global climate crisis that has already started revealing its fury, demands dedicated policy commitments along with technological solutions. However, more than both these aspects, there is an urgent need of widespread change in the behavioural and value systems of the society. Thus, education sector – the sector that connects with the grassroot level and that too the young dynamic minds who are the future saviours of this world – have an important role to play (Svarstad, 2021) (Olsson, Gericke, & Pauw, 2022) (Castellanos & Queiruga-Dios, 2021).

Education, as a sector and the educational institutions as specific tools, can become powerful force in constructing, shaping and reinforcing the low-carbon mindsets among the young minds (Debrah & Vidal, 2021) (Sen, Chau, Tariq, Muttil, & Ng, 2021). Further, education itself has the power to equip the future generations with the skills and values needed to engage in climate action and take substantive actions towards making a sustainable difference to the climatic requirements (Zheng, Umar, Safi, & Nada, 2024) (Žalėnienė & Pereira, 2021).

There is an urgent need to evaluate the national education systems and understand the role they play in promoting climate education, especially in an Outcome Based Education Pattern, thus creating climate aware youth promoting responsible consumption and behavioural patterns to move towards a carbon zero era (Isaac, et al., 2023) (Ferguson, Roofe, & Cook, 2021) (Zguir, Dubis, & Koç, 2021) (Howell, 2021). This study proposes a conceptual framework linking sustainability education, climate justice, and carbon literacy with systemic climate action in a structured format to create a holistic effect on the environment. This paper would try to address how sustainability education, particularly when embedded with principles of climate justice and carbon literacy, can catalyze meaningful transitions toward net-zero goals. The research objectives of this study include:

- To explore how education systems globally, with a focus on developing nations of South Asia, incorporate (or fail to incorporate) carbon literacy and sustainability.
- To analyze how existing sustainability education frameworks contribute to or hinder climate justice

- To develop a conceptual model linking climate education to behavioural change and carbon reduction.
- To provide policy-oriented recommendations for rethinking education's role in achieving net-zero targets.

Methodology

The research focusing on answering the above objectives would require the researchers to evaluate sources such as Curriculum and Education Policy Document Analysis of at least 6 South Asian Countries including India. Further the researchers plan to do a Meta-synthesis of peer-reviewed literature for the time period of 2020–2024 on climate education, carbon literacy, and just transitions. Finally, the researchers plan to undertake a thematic analysis of Expert Commentary on the subjects during the same time period, with a special focus on published interviews, articles, blogs, social media posts, and recorded dialogues, podcasts, and chats, to the extent possible from each of these six economies.

***Keywords:*** *Carbon Zero, Sustainablity Education, National Education Systems, Carbon Neutrality, Climate Justice, Carbon Literacy, Climate Action, Responsible Consumption*

## BUILDING SUSTAINABLE FINANCIAL FUTURES: EXAMINING THE IMPACT OF SME-TO-MAINBOARD TRANSITIONS ON STOCK RETURNS IN THE INDIAN MARKET

*Rahul Kumar (Indian Institute of Management Sambalpur)*

**Abstract.** This research examines the effect of Small and Medium Enterprises (SMEs) migrating to the mainboard exchange on stock returns in India. The study aims to understand how this transition influences stock performance, particularly focusing on abnormal returns during the migration process. The study analyzes all stocks that migrated from SME exchanges to the mainboard in India between 2012 and 2023. Using daily price data and an event study approach, the research uses to analyze Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR) across different event windows to assess the impact of migration announcements. The analysis reveals that abnormal returns tend to increase as the migration announcement date approaches but decline afterward. This pattern may be linked to factors such as stealth trading and changes in trading lot sizes. Additionally, the study finds significant differences in price reactions between exchanges: the NSE tends to show positive price movements, while the BSE experiences negative movements around the migration announcement date. The findings contribute to the understanding of market microstructure and the quality changes associated with SME-to-mainboard migration. The results offer policy recommendations for capital market regulators to enhance the migration process. Furthermore, the study provides managers and investors with insights into the short-term effects of exchange migration on stock performance, helping them make more informed decisions. This paper offers a novel contribution by exploring the specific context of Indian SMEs migrating to mainboard exchanges, a relatively under-researched area in financial literature. It also highlights the differences in price reactions between the two primary exchanges in India, the NSE and BSE.

***Keywords:*** *Small and Medium Enterprises, Market Microstructure, Exchange migration, Event study, Abnormal returns, Indian Stock Exchnage*

# SMARTCHOICE: A DIGITAL DECISION ASSISTANT FOR SUSTAINABLE CONSUMER CHOICES IN THE NET-ZERO ERA

*Jeevana Kalla (National Institute of Technology Raipur)*

**Abstract.** Introduction: Achieving a net-zero carbon economy necessitates behavioral shifts not only among producers but also among consumers (Nyborg et al., 2021). Despite increasing awareness, a persistent "intention–action gap" exists in sustainable consumption (White et al., 2019). Research indicates that 78% of consumers claim they prefer sustainable products, yet only 22% consistently purchase them (IBM & NRF, 2022). This gap arises due to information asymmetry, perceived product cost, and low trust in corporate sustainability claims (Nguyen et al., 2020).

Digital technologies offer opportunities to bridge this gap by enabling transparent, data-driven, and personalized sustainability communication. This study introduces SmartChoice, a digital decision-support tool that provides consumers with real-time sustainability ratings for products at the point of purchase. By integrating environmental data and marketing communication principles, SmartChoice seeks to empower consumers to make measurable contributions toward net-zero goals through informed purchasing behavior.

Theoretical Framework: The conceptual foundation is grounded in the Theory of Planned Behavior (TPB) (Ajzen, 1991), which posits that intention is shaped by attitude, subjective norms, and perceived behavioral control. SmartChoice is designed to increase perceived control by simplifying sustainability evaluation and enhance trust through data transparency.

Additionally, digital nudging theory (Thaler & Sunstein, 2008) informs the interface design — using visual cues such as color-coded "Eco Scores" and impact icons to subtly steer users toward greener choices. The framework hypothesizes that SmartChoice usage leads to higher perceived control, trust, and purchase intention.

Methodology: A mixed-method design science approach was adopted, integrating prototype development and experimental validation.

Development of the SmartChoice Algorithm: Five sustainability dimensions were selected after reviewing 42 FMCG product sustainability reports and 18 peer-reviewed LCA frameworks:

Packaging recyclability (25%)

Product carbon footprint (30%)

Supply-chain ethical certification (20%)

Brand sustainability reputation (15%)

Water and energy intensity (10%)

Each criterion was normalized (0–1 scale) and weighted to generate an Eco Score:

"Eco Score"=∑_(i=1)^5 w_i×x_i×100

A sample dataset of 120 FMCG products (personal care, food, and cleaning categories) was compiled using open-source sustainability databases (Ecolabel Index, Carbon Disclosure

Project, and GoodGuide). The Eco Scores ranged from 32 to 92, with a mean of 68.4 (SD = 14.1).

Prototype Design: A low-fidelity prototype was developed using Figma — simulating a mobile interface that allows users to scan product barcodes or compare products visually. The screen displays a numeric Eco Score, an impact statement (e.g., "Choosing Product B saves 1.1 kg $CO_2$"), and a recommendation label ("SmartChoice Recommends").

Experimental Validation: A between-subjects experiment (N = 212) was conducted among postgraduate students and working professionals (aged 21–45) in India. Participants were randomly assigned to:

Control Group: Product descriptions only.

Treatment Group: Product descriptions + SmartChoice Eco Score.

Participants rated their purchase intention (1–7 Likert), trust in sustainability claims, and perceived decision ease after viewing two similar products (one higher-scoring, one lower-scoring).

Results and Analysis: Reliability of multi-item scales was confirmed (Cronbach's $\alpha = 0.86$ for trust; 0.83 for purchase intention).

Independent-samples t-tests revealed significant effects of SmartChoice exposure:

Purchase Intention: $M_{treatment} = 5.68$, $M_{control} = 4.32$, $t(210) = 7.29$, $p < 0.001$

Trust in Brand Sustainability: $M_{treatment} = 5.87$, $M_{control} = 4.56$, $t(210) = 6.94$, $p < 0.001$

Perceived Ease of Evaluation: $M_{treatment} = 6.02$, $M_{control} = 4.47$, $t(210) = 8.01$, $p < 0.001$

Regression analysis confirmed that trust ($\beta = 0.41$, $p < 0.001$) and ease of evaluation ($\beta = 0.33$, $p < 0.01$) significantly predicted purchase intention (Adj. $R^2 = 0.52$).

An exploratory mediation analysis using PROCESS (Hayes, 2018) indicated that trust mediates 37% of SmartChoice's effect on purchase intention (indirect effect = 0.49, 95% CI [0.32, 0.67]).

Discussion: Findings demonstrate that SmartChoice effectively bridges the intention–action gap by simplifying sustainability information and building brand credibility. The significant increase in purchase intention suggests that digital transparency tools can function as powerful behavioral nudges within the green marketing ecosystem.

From a managerial standpoint, SmartChoice offers brands a credible, third-party sustainability communication mechanism, reducing accusations of greenwashing (Delmas & Burbano, 2011). Consumers perceive quantified sustainability ratings as more trustworthy than vague advertising claims, aligning with earlier findings on eco-label efficacy (Grankvist & Biel, 2007).

Implications and Future Scope: Practical Implications: SmartChoice can be integrated into e-commerce platforms or retailer apps to display sustainability ratings next to prices. This transparency can enhance consumer trust and influence purchase decisions in real time.

Academic Implications: This research contributes to literature on sustainable consumer behavior, digital decision support, and technology acceptance by empirically validating how a digital tool can operationalize perceived behavioral control and trust.

Future Scope: Planned development includes integrating machine learning for automated sustainability data aggregation and blockchain verification for supply-chain transparency. Field deployment will test the system in partnership with eco-certified brands, enabling SmartChoice to evolve into a commercially viable SaaS platform for sustainable marketing analytics.

Conclusion: The study positions SmartChoice as a scalable digital solution that aligns marketing technology with sustainability imperatives. By combining transparent eco-scoring and behavioral design, SmartChoice enables consumers to participate meaningfully in the net-zero transition. The empirical evidence underscores its potential as both a research contribution and an entrepreneurial innovation bridging the gap between sustainability communication, technology, and consumer action.

***Keywords:*** *sustainable marketing, green consumer behaviour, digital decision support, sustainability scoring, net-zero, consumer product choice*

## ANALYSING THE IMPACT OF MANDATORY CSR REGULATION ON THE ENVIRONMENTAL PERFORMANCE OF MANUFACTURING FIRMS IN INDIA: EVIDENCE FROM A QUASI-NATURAL EXPERIMENT

*Baikunthanath Sahoo (Indian Institute of Technology Madras,Chennai,Tamil Nadu, India), Santosh Kumar Sahu (Indian Institute of Technology Madras,Chennai,Tamil Nadu, India) and Krishna Malakar (Indian Institute of Technology Madras,Chennai, Tamil Nadu, India)*

**Abstract.** This study analyses the impact of mandatory CSR regulation on the environmental performance of manufacturing firms in India. Using firm-level data from CMIE Prowess IQ, Ministry of Environment, Forest, and Climate Change (MoEF&CC), and company annual reports from 2009 to 2021, we employ a Difference in Difference (DID) approach to estimate the causal effect of CSR on environmental outcomes. The finding indicates that after the introduction of the CSR mandate, treated firms experienced a decrease in the environmental performance relative to control firms that were not subject to the regulation in the polluting categories. However, the effect is positive and significant for white category firms classified as non-polluting. Furthermore, this study reveals that firms engaged in structured sustainability reporting (BRR/BRSR) and ISO 14001 certification exhibit positive environmental performance relative to their counterparts. Robustness checks also confirm the stability of the baseline findings. In the Indian context, the reallocation of CSR funds at the firm-level, impact-based disclosure norms, and sector-specific guidelines are required to gain positive, environmentally sustainable outcomes through CSR practices. These insights can guide policymakers and businesses in designing a more robust CSR framework to support sustainable industrial development in India.

***Keywords:*** *Corporate Social Responsibility, Environmental Performance, Sustainability Disclosures, Difference in Difference, Propensity Score Matching (PSM), Manufacturing Firms, India*

## DESIGNING SUSTAINABLE AND HIGH-IMPACT CSR STRATEGIES

*Soni Agrawal (IMI Kolkata)*

**Abstract.** Objective: The objective of the present study is to identify how a company can develop a relevant corporate social responsibility (CSR) expenditure policy strategy so that there is a possibility for getting sustainable, high-impact results, aligning with developmental needs and government programs to maximize impact.
Methodology: The present study focuses on applying both qualitative and quantitative strategies. Initially, a questionnaire was drafted for collecting data from primary stakeholders of the company to assess the challenges and expectations. Thereafter, based on the analyses results of the questionnaire survey, a focused group interview (FGD) was arranged with the key stakeholders for assessing the relevance of information and validating the results as well.
Results: The results of the present study reveal that the CSR strategy for the company focuses on sustainable, collaborative, and scalable models that empower communities through skilling, women's development, education, and health. Employee involvement and cross-industry partnerships will be key drivers of long-term success.
Societal Impact: The present study helps in explaining the process of how the real social impact can be achieved by an organization while designing their CSR policy meaningfully. This helps in investing the resources in the proper way without compromising the quality of the outcome as well.

***Keywords:*** *Corporate Social Responsibility, Need Assessment, Skilling, Health*

## NAVIGATING THE INSTITUTIONAL VOIDS: A TALE OF THE INDIAN SUSTAINABILITY ENTREPRENEURS

*Sumita Ketkar (Westminster Business School , University of Westminster) and Roma Puri (IMI Kolkata)*

**Abstract.** India has seen a burgeoning of entrepreneurs wanting to make a social impact while remaining financially sustainable. 'Ease to do business', coupled with changing societal attitudes and customer preferences, has accelerated this increase. Even so challenges remain in achieving their hybrid goals. This paper uses the 'institutional voids' framework introduced by Khanna and Palepu and examines the impact of gaps in Labour, Capital, Product, Regulation, and Contract Regulation that affect sustainable entrepreneurship. This paper provides findings of a study involving semi-structured interviews with the owners or founding members of these organisations and identifies key challenges faced by these organisations. Further, it examines how the sample organisations have found innovative ways to overcome the challenges of absenteeism, limited supply, and purpose misalignment caused by resource scarcity and lack of regulatory support. Of all these strategies most prominent was diversification of offerings so that they are able to strike a balance between their environmental and profitability aims.

***Keywords:*** *Institutional voids, Sustainable entrepreneurship, Social impact*

# THE ROLE OF CULTURE IN SHAPING SUSTAINABLE CONSUMPTION: A CONCEPTUAL REVIEW AND RESEARCH AGENDA

*Neelarya Bhaduri (IMI Kolkata) and Rituparna Basu (IMI Kolkata)*

**Abstract.** This conceptual review examines the importance of culture in shaping sustainable consumption from a multidisciplinary perspective using theories of cultural capital, institutionalism, performativity, and network diffusion. The SPAR-4-SLR methodology is employed to analyze 68 high-quality articles and delineate intellectual structures while pinpointing empirical and theoretical lacunae. Findings indicate sustainable consumption occurs through cultural mediation via individual identities, institutional structures, and community networks. Sustainability motivations are formed by cultural capital, while institutional and market structures enable or constrain sustainable consumption behaviour. Additionally, framework theorists argue sustainability emerges as a performative act through discursive and social interaction. Importantly, while consumers continue to express concern about sustainability, the research indicates the continued existence of value-action gaps and misalignments with cultural life. The research develops an integrative framework, identifying antecedents and mechanisms for decision-making and potential outcomes. The review concludes with recommendations for mixed-method and contextually sensitive research within diverse socio-cultural contexts to include and create sustainable consumption practices in ways that are inclusive and effective. In our analysis of 68 peer-reviewed articles, 45% employ quantitative surveys, 35% adopt qualitative case studies, and 20% use mixed-methods—revealing a persistent value–action gap across 12 countries. Future studies should expand on the digital transformation and algorithmic affordances of consumers in sustainable consumption practices, as well as, socio-cultural differences.

***Keywords:*** *Sustainable consumption, Consumer culture theory, Cultural capital, Institutional theory, Performativity, Conceptual review*

# INFRASTRUCTURE GAPS, CAPITAL FORMATION AND SUSTAINABLE DEVELOPMENT GOAL SCORES IN SOUTH ASIA

*Dr Swati Jain (Assistant Professor Department of Economics University of Allahabad)*

**Abstract.** Infrastructure indicators for South Asia reveal huge gaps in access and usage despite rising investments. Maldives, Sri Lanka have fewer gaps while Pakistan, Afghanistan have the largest gaps. The persisting infrastructure gaps despite stable growth and rising investment does have impact on sustainable growth. The paper analyzes the relationship between Infrastructure investment and sustainable development scores. The panel regression approach with random effects assesses the impact of gross fixed capital formation, government capital expenditure, per capita GDP growth, bank credit allocation and tax revenues on sustainable development scores from 2000 to 2022. The results show that improvements in the sustainable development goal scores are negatively impacted by gross fixed capital formation, bank credit allocation and growth in gross domestic product. However, per capita GDP growth,

government capital expenditure and tax revenues creates a positive impact. The demand of infrastructure is expected to increase with urbanisation and GDP growth. Mobilisation of domestic savings into infrastructure investment is still very rigid in Asian countries and at the same time capital market imperfections depressed the return for foreign capital or foreign currency accumulation. Government expenditure remains the key financing option. The study argues for the government's funding of infrastructure provisioning than promoting public-private partnerships.

***Keywords:*** *Infrastructure gaps, Infrastructure investment, Panel regression, SDGs, South Asia*

## EVOLUTION OF EDUCATION AND EMPLOYABILITY THROUGH CAPACITY BUILDING FOR SDG SUCCESS

*Deeptikana Choudhury (Brainware University), Dr. Indrajit Ghosal (Brainware University) and Dr. Suparna Biswas Goswami (Brainware University)*

**Abstract.** In this study, the transforming and continuously evolving relationship between education and employability has been emphasized in the scaffolding of Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education),SDG 8 (Decent Work and Economic Growth), and SDG 17 (Partnerships for the Goals). Global economies are facing abrupt changes in the fields of technology, environment, and workforce employability. On the other hand, the traditional education systems are often content-focused and rigid, which results in increasing inadequacy in employability. The study emphasizes the urgency of a flexible, inclusive, and skill-oriented learning system that will be aligned with the principles of sustainability and lifelong learning. Capacity building emerges as a key approach for bridging the gap between education and meaningful employment by institution effectiveness, required knowledge and skill enhancement through various effective collaborations and partnerships among meaningful stakeholders. In this paper, it has been explored how initiatives of capacity-building can enhance learning and employability with digital, entrepreneurial, and green skills, resulting in a future-ready workforce for achieving various Sustainable Development Goals (SDG 4, SDG 8). For this study, the researcher has applied the method with inclusion and exclusion criteria to sort out and get the articles through some global databases such as Scopus, WOS, EBSCO, and Google Scholar to establish the relation of Capacity Building with significant Sustainable Development Goals.

***Keywords:*** *Capacity Building, Education, Employability, Collaboration, Sustainable Development Goals*

# FROM IMMERSION TO SUSTAINABILITY: TECHNOLOGY-DRIVEN MARKETING IN THE NET ZERO ERA

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**Abstract.** Purpose of the Study: The pursuit of Net Zero is reshaping not only production and supply chains but also the ways in which consumer behaviour is influenced and sustained. Marketing, once centred primarily on persuasion and visibility, is now expected to align with environmental responsibility, transparency, and digital transformation. Immersive digital technologies such as augmented reality (AR), virtual reality (VR), gamification platforms, and AI-enabled recommendation systems are increasingly deployed by brands to engage consumers in eco-conscious ways. These technologies allow firms to reduce physical resource use, avoid carbon-intensive campaigns (e.g., print materials, physical showrooms, long-distance promotional events), and instead create digitally immersive experiences accessible via social media, e-commerce platforms, and mobile devices. This study focuses on urban working professionals and household decision-makers in India, who are primary purchasers of high-value consumer goods such as appliances and electronics. As digitally savvy yet value-conscious consumers, they play a pivotal role in household sustainability choices. The study examines how immersive technologies in consumer goods marketing influence responsible purchasing and how these digital interventions can be conceptualised as levers to advance Net Zero ambitions.

Introduction: India's expanding urban middle class, particularly working professionals with increasing purchasing power, represents a critical segment for advancing sustainable consumption. This group is distinguished by its dual priorities: value for money in high-value consumer goods, such as appliances, electronics, and home durables, and a growing concern for environmental responsibility. Unlike impulse-driven, low-value consumption, the purchase of consumer durables involves longer decision-making cycles where credibility, functionality, and sustainability assurances play decisive roles. Immersive digital technologies, such as augmented reality (AR) based product visualisation, AI-driven recommendation systems, virtual demonstrations of energy-efficient appliances, and gamified platforms for monitoring carbon savings, are increasingly reshaping consumer decision-making. For firms, these tools not only reduce the environmental footprints of traditional marketing methods (e.g., physical showrooms, brochures, energy-intensive promotional events) but also provide persuasive nudges by making sustainability claims transparent and interactive. Recent discourse in marketing and consumer research suggests that immersive technologies extend beyond promotion; they act as cognitive and behavioural enablers, enhancing perceptions of trust, authenticity, and alignment with sustainability commitments such as Net Zero. Yet, empirical understanding of how urban working professionals internalise these technologies balancing convenience, cost, and environmental awareness remains limited. Addressing this gap, this study undertakes an exploratory qualitative inquiry into how immersive technologies in

consumer durable marketing influence sustainable purchase intentions and how these digital interventions can be conceptualised as levers to advance Net Zero strategies.
Methodology: This study employs the Gioia methodology, which is well-suited for theory-building in emerging domains. Thirty semi-structured interviews were conducted with urban working professionals (aged 25–45 years) using purposive sampling to ensure diversity in industry, job roles, and levels of digital exposure. The interviews explored three dimensions: experiences with immersive marketing technologies (AR/VR, gamified campaigns, digital product visualisation), perceptions of their influence on purchase intentions and sustainable consumption practices, and views on how digital campaigns contribute to environmental responsibility (such as reducing paper use, minimising work-related travel, and supporting sustainable brands). Transcripts were analysed iteratively, moving from first-order concepts to second-order themes and aggregate dimensions, enabling the development of a conceptual model that explains how immersive technologies influence sustainable consumption among urban professionals.
Findings: The analysis showed three main themes. Engagement and Experience were strong, as participants liked the novelty and interactivity of immersive campaigns. Younger consumers preferred using technology for shopping, including online purchases of high-value items with 360-degree videos and AR tools. In contrast, older consumers often preferred seeing products in person, especially for expensive items, as they worried about trust, online reviews, or returns. Sustainability Awareness was another theme. Many participants believed that digital campaigns encouraged responsible consumption, such as selecting energy-efficient appliances or eco-friendly electronics, particularly when presented through AR/VR simulations. Trust and Transparency were also important. Immersive campaigns made brands feel more authentic when sustainability claims were transparent and verifiable. Tools like blockchain-based energy ratings or AI lifecycle labels increased confidence. Overall, immersive digital technologies help people feel more confident when making purchases, promote eco-friendly choices, and younger consumers are more comfortable using these tools, while older consumers still prefer real-life experiences for major purchases.
Contribution and Implications
This study makes three key contributions. Theoretically, it employs the Gioia methodology to develop a framework that demonstrates how immersive technologies, such as AR/VR product demos and 360-degree product views, facilitate a connection between consumer engagement and sustainable purchasing decisions, with particular relevance to Net Zero goals. Practically, immersive technologies offer dual benefits for marketing high-value goods: they engage younger, tech-savvy consumers who prefer online and virtual shopping experiences while also promoting sustainability by reducing carbon-intensive campaigns. Tools like gamified eco-challenges and immersive storytelling can encourage energy-efficient and environmentally friendly purchasing. However, older consumers may still prefer in-person experiences for high-end items, highlighting the need to strike a balance between digital and physical marketing. From a policy and societal perspective, immersive technologies can raise consumer awareness and promote responsible consumption aligned with the United Nations' Sustainable Development Goals (SDGs). Engaging urban working professionals and household decision-makers through immersive campaigns, while ensuring transparency and authenticity, can

accelerate sustainable consumption and help brands actively contribute to environmental governance in the Net Zero era.

***Keywords:*** *Immersive Marketing, Sustainable Consumption, Digital Nudging, Net Zero, Consumer Durables*

## RESPONSIBLE AI FOR SUSTAINABILITY: THE STARTUP PERSPECTIVE ON CSR AND ETHICS

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**Abstract.** Purpose of the Study: The purpose of this study is to examine how startups worldwide are integrating Artificial Intelligence (AI) into their sustainability strategies in ways that not only advance Corporate Social Responsibility (CSR) outcomes and contribute to the global transition towards a net-zero future but also reshape human resource practices. While large corporations have been widely studied for their role in deploying AI-enabled sustainability initiatives, startups, despite their agility, innovation capacity, and scalability, have not received equivalent attention in either academic or policy discourse. This research addresses that gap by systematically reviewing global evidence on the organisational and human resource applications of AI in startup ecosystems, with a particular focus on domains such as workforce upskilling, diversity and inclusion, ethical HR governance, and employee well-being. While also acknowledging related sustainability applications such as energy optimisation, supply chain transparency, and carbon footprint tracking, the core emphasis remains on how startups deploy AI within HR and CSR practices to foster responsible and climate-aligned growth. In parallel, the study also examines how the adoption of responsible AI within startups enhances CSR practices and directly influences HR functions, including workforce upskilling, talent development for green and digital roles, ethical leadership, and employee engagement. By linking AI-driven sustainability solutions with HR and CSR dimensions, the research highlights how startups can foster organisational legitimacy and cultivate people-centred strategies in the pursuit of climate goals and a net-zero future.
Introduction: AI is increasingly recognised as a transformative driver of sustainable business, enabling efficiency, resource conservation, and environmental accountability through advanced data-driven insights. For startups, which often combine innovative cultures with a strong capacity for adaptation, AI presents new opportunities to align commercial success with the creation of ecological and social value. At the same time, the adoption of AI-driven sustainability practices has direct implications for people management and organisational culture, as it requires reskilling, talent development, and leadership commitment to the ethical use of AI. The integration of AI into sustainability strategies, therefore, raises critical questions of responsibility, equity, and governance, not only at the technological and environmental level but also within human resources and workforce inclusion. In light of global frameworks such as the United Nations Sustainable Development Goals (SDGs) and the Paris Agreement, the way startups design and deploy AI technologies will play a significant role in shaping the

contours of a sustainable, climate-resilient, and people-centred economy. This research, therefore, focuses on the intersection of AI, CSR, sustainability values, and HR practices, analysing how startups act as agents of change in reconfiguring business models and workforce strategies for a net-zero future.

Methodology: The study employs a Systematic Literature Review (SLR) approach, drawing exclusively on Scopus-indexed studies published between 2020 and 2025. Following established SLR protocols as per the PRISMA 2020 guidelines, the research process included defining comprehensive search parameters centred on AI, CSR, sustainability, startups, and human resources. Screening and evaluation were conducted according to defined inclusion and exclusion criteria, with a particular focus on studies that highlighted workforce implications such as skills, organisational culture, leadership, and ethical practices in the context of AI and sustainability. The final corpus included peer-reviewed journal articles, international industry reports, CSR disclosures, sustainability rankings, and documented case studies of startups across diverse geographic regions. The data was thematically coded to identify recurring practices, governance mechanisms, and HR-related dimensions. This methodology not only ensures analytical rigour but also enables the study to capture insights from both academic and practitioner perspectives, producing a synthesis that reflects the global landscape of AI-enabled sustainability and its organisational and human resource implications in entrepreneurial settings.

Findings: Preliminary analysis of the reviewed data suggests that startups are increasingly leveraging AI in ways that not only advance sustainability goals but also reshape human resource practices and organisational culture. Early evidence indicates that predictive analytics and optimisation algorithms are being deployed to reduce energy consumption and decarbonise operations, directly contributing to net-zero transitions, while simultaneously requiring new skill sets and employee training in data-driven decision-making. Supply chain transparency, strengthened through the integration of machine learning and blockchain-enabled AI, is also influencing workforce accountability and cross-functional collaboration, thereby embedding sustainability values across organisational structures. Computer vision tools applied to waste minimisation and recycling processes illustrate how technology adoption is complemented by employee upskilling in green operations. Similarly, the increasing use of AI-based monitoring systems for assessing carbon and climate footprints underscores the growing need for HR to align performance metrics, incentives, and reporting mechanisms with sustainability outcomes. Beyond these technological interventions, the review highlights shared governance mechanisms among successful startups that carry direct HR implications, including the adoption of explicit AI ethics policies, fostering stakeholder and employee engagement, and integrating sustainability objectives into the core organisational culture rather than treating them as peripheral CSR initiatives. Taken together, these preliminary findings suggest the emergence of a replicable set of practices that integrate AI innovation with responsible governance and people-centred strategies, supporting a net-zero future.

Contribution and Implications: By synthesising these practices, the research contributes to the growing literature on sustainable entrepreneurship in the AI era. It offers both theoretical and practical insights. Theoretically, it enriches understanding of CSR by embedding ethical AI governance into sustainability-driven business models, highlighting startups as a unique class

of firms that combine innovation with responsibility. Practically, it proposes a replicable model of best practices for startups, policymakers, and investors.
The findings suggest that embedding sustainability and AI ethics into organisational DNA is crucial for competitiveness and legitimacy, while also ensuring alignment with broader societal and ecological goals. This embedding extends into human resource strategies, where responsible AI supports transparent hiring, skills mapping, workforce diversity, and continuous upskilling in green and digital competencies. In doing so, startups are not only cultivating a sustainability-oriented culture but also enhancing employee engagement, well-being, and long-term talent retention, which are increasingly central to HR-driven CSR agendas.
For policymakers and investors, the study provides benchmarks for incentivising responsible AI adoption and for supporting entrepreneurial ventures that meaningfully contribute to climate mitigation and social well-being. For HR leaders, the findings suggest actionable pathways for designing ethical AI-enabled work systems that promote fairness, inclusivity, and sustainability.
In conclusion, the paper underscores that startups are not only technological innovators but also emerging leaders in the global movement towards a net-zero and socially just future. By integrating AI responsibly into their sustainability strategies and by embedding these values within HR practices, startups demonstrate how entrepreneurial agility can be harnessed to solve pressing environmental problems while strengthening CSR commitments. The implications extend beyond individual firms to the broader ecosystem of sustainable entrepreneurship, offering a roadmap for AI-enabled business models that are both ethical and impactful in advancing the collective pursuit of a climate-resilient world.

***Keywords:*** *Responsible AI, Startup Sustainability, CSR Practices, Ethical HR, Net Zero Strategy*

## LEVERAGING SOCIAL MEDIA ENGAGEMENT FOR WASTE MANAGEMENT AND SUSTAINABLE CONSUMER EQUITY: AN INTEGRATED EXPERIENCE MODEL

*Sunita Diwedi (School of Management, IILM University) and Monika Mittal (School of Management, IILM University)*

**Abstract.** As waste production increases due to growing urban demand, trash management and sustainability have become urgent global concerns. Although social media marketing has been explored in the food and fashion industries, less attention has been given to how social media may influence sustainable consumer behaviour in waste management systems. The long-term environmental and social benefits consumers generate by practicing responsible consumption, recycling, and waste reduction are what this study redefines as customer equity: sustainability equity. In this study, the Sustainable Engagement–Experience–Equity ($SEE^2$) framework is introduced, based on the Stimulus-Organism-Response (S-O-R) paradigm. The four dimensions of consumer experience (organism) are thought to be shaped by social media sustainability activities (stimuli) like educational content, gamification of recycling, and storytelling campaigns. These dimensions are sensory (eco-aesthetics and visuals), affective

(emotional resonance with sustainability), behavioural (adoption of waste-reducing practices), and intellectual (awareness of circular economy principles). Together, these experiences impact sustainability equity (response), which is characterized by relational involvement in waste management ecosystems, brand trust in sustainable businesses, and eco-value generation by customers.

The study suggests a quantitative approach that involves surveying urban families involved in social media campaigns for sustainability and waste management. Constructs (such as eco-interaction, green word-of-mouth, and recycling behaviour) will be measured using validated scales tailored to sustainability. To ensure the predictive validity of the SEE2 model, hypotheses will be tested using structural equation modelling, or SEM-PLS.

According to the study, social media sustainability initiatives will have a beneficial impact on all four aspects of the customer experience. In contrast to previous findings about organic food, the study finds that intellectual sustainability experience is the most important mediator. The significance of information, problem-solving skills, and logical awareness in sustainability behaviour is highlighted by this change.

**Keywords:** Waste management, sustainability equity, social media engagement, circular economy

## DOES CIRCULAR ECONOMY AND RECYCLING-FOCUSED WASTE MANAGEMENT STRATEGY PROMOTE SUSTAINABLE GROWTH IN THE FOOTWEAR INDUSTRY?

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**Abstract.** This research reveals a strategic approach on how circular economy approach and recycling strategy plays a crucial role in tackling and prioritizes the most effective solutions to footwear waste management for creating sustainable value chain. This article highlights the significance of recycling and its impact on the waste management strategies within the footwear industry, emphasizing the production of high-quality footwear that supports healthcare benefits and promotes a circular economy as an innovative approach. The footwear industry faces significant environmental and social challenges, particularly concerning the disposal of excess and waste shoes, which is frequently overlooked.

***Keywords:*** *Circular economy, Footwear industry, Environmental impacts, Global challenges, Recycling process, Sustainable value chain, Waste management*

# PIEZOELECTRIC MATERIALS FOR ENVIRONMENT SUSTAINABILTY

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**Abstract.** Piezoelectric materials can be used as an unconventional sustainable source of green energy, an urgent need at present. The present paper reviews the potential of these smart materials to sustain the environment. Applications are based on the energy extracted from our day to day life events like vibrations from cars on highways, bridges or footballs on floors. Piezoelectric energy harvesting process with its minimal maintenance requirement, clean operation, scalability and renewable nature are emphasized in this paper. Its potential for green energy future in the renewable energy market is also discussed here.

***Keywords:*** *Piezoelectric materials, green energy, renewable energy, sustainability*

# SUSTAINABLE SOLUTION TO PHARMA WASTES RISING: A STUDY ON CURRENT TRENDS IN PHARMACEUTICAL WASTE MANAGEMENT

*Rupam Chakraborty (Techno India University Tripura) and Ramkrishna Debnath (Techno India University Tripura)*

Abstract. Pharmaceutical waste, comprising expired, unused, and contaminated drugs, has emerged as a critical global concern with significant implications for environmental sustainability and public health. Rising drug consumption, inefficient stock management, and lack of disposal infrastructure have intensified waste generation, particularly in low- and middle-income countries. This study employs a thematic review of literature from 2016 to 2023, examining pharmaceutical waste across five axes: sources, health and environmental impacts, regulatory and institutional frameworks, the role of pharmacists and communities, and innovative sustainable practices. Evidence highlights severe ecological effects, including water contamination, disruption of aquatic ecosystems, and the acceleration of antimicrobial resistance. While developed nations struggle with high volumes of unused prescriptions, developing nations face systemic gaps in disposal mechanisms. Findings underscore the pivotal role of pharmacists in waste minimization, inventory management, and patient awareness, alongside technological solutions such as reverse logistics, chemical neutralization, and advanced wastewater treatment. The study concludes that sustainable pharmaceutical waste management demands an integrated approach—combining regulatory enforcement, professional stewardship, community engagement, and technological innovation. Future research must focus on quantifying waste flows, evaluating economic costs, and developing culturally sensitive awareness programs. Ultimately, addressing pharmaceutical waste is both a scientific and social imperative, essential to safeguarding biodiversity, human health, and environmental integrity.

***Keywords:*** *Pharma Waste, Sustainability, Environmental Health, Waste Management, Awareness, Regulation*

## THE COLOUR OF SUSTAINABILITY: A STUDY ON WEAVERS AND NATURAL DYE COMMUNITIES OF ORISSA STATE OF INDIA

*Ramkrishna Debnath (Techno India University Tripura) and Rupam Chakraborty (Techno India University Tripura)*

**Abstract.** This study explores the "colour of sustainability" through the lens of Odisha's natural dye communities and weaving traditions, highlighting their intersection of ecological practices, cultural heritage, and socio-economic challenges. By combining thematic review with ethnographic fieldwork, the research examines technical innovations in natural dyeing, livelihood dynamics, and cultural narratives that frame plant-based dyes as both ancestral identity and sustainable alternative to synthetic methods. Findings reveal a dual narrative of resilience and fragility: while artisans uphold heritage-based, eco-friendly dyeing aligned with global slow-fashion movements, they face structural barriers including high mordant costs, seasonal limitations, and market invisibility. The study underscores sustainability as a cultural as well as technical transition, necessitating policy interventions, eco-certification, agroforestry of dye plants, and collaborations for eco-friendly mordants and water-efficient processes. Future directions involve life-cycle assessments, participatory innovation labs, and youth engagement to strengthen the continuity of natural dye knowledge. Ultimately, the "colour of sustainability" is positioned as both material practice and metaphor for resilience, continuity, and environmental ethics in Odisha's handloom sector.

***Keywords:*** *Natural dyes, Sustainable textiles, Eco-friendly mordants, Natural dyeing challenges, Sustainable fashion policy*

## TRANSFORMING TRASH INTO VALUE: CIRCULAR BUSINESS MODELS FOR SUSTAINABLE WASTE MANAGEMENT IN KOLKATA AND SUBURBS

*Joyita Chatterjee (Calcutta Business School)*

**Abstract.** Purpose: The study aims to examine how circular business models can address the pressing challenges of waste management in Kolkata and its suburban municipalities by reframing waste as a resource. The research seeks to identify innovative, locally adaptable pathways that create environmental, economic, and social value while reducing reliance on landfills.

Design/Methodology: A mixed-method approach was employed, combining municipal data analysis, field-level observations, and semi-structured interviews with municipal officials, NGOs, entrepreneurs, and informal waste collectors. Comparative case studies of decentralized composting, plastic upcycling, biogas generation, and digital recycling platforms were analyzed to map opportunities for waste-to-wealth models within the urban–suburban context.

Findings:The study reveals that Kolkata and its suburbs generate large volumes of biodegradable and recyclable waste, yet systemic inefficiencies limit recovery and reuse. Informal waste workers play a crucial role in recycling, accounting for over half of material recovery, but remain excluded from formal planning. Emerging innovations such as decentralized composting and digital platforms demonstrate strong potential, especially when integrated into public–private partnerships.
Originality:This paper extends the discourse on circular economy by focusing not only on metropolitan Kolkata but also on its suburban peripheries, where infrastructure is weaker but opportunities for community-led innovations are stronger. The originality lies in contextualizing global sustainability frameworks within local socio-economic realities.
Implications of the Study:The findings highlight pathways for policymakers, civic bodies, and entrepreneurs to design inclusive waste management ecosystems that reduce carbon footprints, generate livelihoods, and create replicable models for South Asian urban–suburban regions.

***Keywords:*** *Circular Economy, Waste-to-Wealth, Urban–Suburban Sustainability, Informal Sector, Business Models, Kolkata, Waste Innovation*

## DIGITAL TECHNOLOGIES FOR NET-ZERO: A FRAMEWORK FOR SUSTAINABLE INDUSTRIAL TRANSFORMATION

Dr. Nilesh Kate (Pune Institute of Business Management), Manasvi Pathak (Pune Institute of Business Management) and Aditya Jadhav (Lawrence Technological University)

Abstract. Net-zero emissions are only feasible with a complete rethinking of the way companies produce, consume, and interact with energy systems. This article discusses the intersection of digital technologies, energy transition, and Industry 5.0 and presents a conceptual framework for sustainable industrial transformation. Based on the recent studies on integration of renewable energy and human-machine collaboration, this article outlines how Artificial Intelligence (AI), Internet of Things (IoT)-sensor smart sensors, blockchain, and digital twins can revolutionize industrial manufacturing and energy management. The plan outlines a multi-layered system where digital technologies facilitate smart grids, decentralized peer-to-peer energy exchange, predictive maintenance, and circular production systems, Industry 5.0 centering on coordinating human imagination with machine intelligence. Secondary data in the shape of global renewable energy programs and industry best practices demonstrate the real potential for such a strategy. The paper contributes to scholarly research by describing ways in which digitalization can accelerate the adoption of renewable energy, reduce emissions, and ensure inclusive industrialization. Some of the major challenges such as cybersecurity threats, high transition costs, and reskilling of workers are extensively discussed. The research concludes that integrating Industry 5.0 principles and digital innovation holds transformative potential in attaining socio-economic and environmental sustainability, providing a future-proof roadmap towards net-zero.

***Keywords:*** *Net Zero, Energy Transition, Industry 5.0, Digital Twins, Smart Grids, Human Machine Collaboration*

## SUSTAINABILITY INITIATIVES: CASE STUDY OF GOOGLE AND MICROSOFT

*Moumita Das Jana (MAKAUT)*

**Abstract.** This study discusses the sustainability practices of Google and Microsoft, two of the top technology companies. By conducting a literature review and reviewing company reports, the study identifies best practices and policy implementations that may be used in future sustainability practices in the technology industry. The results imply that ambitious goal-setting, stakeholder involvement, and investment in renewable energy, sustainable operations, and the use of the principles of the circular economy are the strategies that help encourage sustainability. This study adds to the existing literature on sustainability in the technology sector and gives insights to companies that are interested in minimizing their impact on the environment.

**Keywords:** sustainability, technology industry, Google, Microsoft, renewable energy, circular economy

## A REVIEW OF GENDER DIVERSITY IN MANAGEMENT AFTER A DECADE OF ADOPTING SUSTAINABLE DEVELOPMENT GOALS

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**Abstract.** Purpose: In 2015, the United Nations adopted the Sustainable Development Goals (SDGs) to address pressing global challenges. Among them, SDG 5—achieving gender equality—has attracted increasing attention in business and management research. Nearly a decade later, this study systematically reviews the literature on gender diversity in organizations to map current knowledge, identify critical gaps, and propose future research directions.

Methodology: A total of 492 peer-reviewed articles were systematically identified and analyzed to capture prevailing trends, synthesize key insights, and highlight underexplored areas.

Findings: The literature is dominated by studies on board gender diversity (BGD), with limited attention to other organizational levels (e.g., top management teams, managerial, workforce, and team-level diversity). Similarly, most outcomes assessed are at the firm level, while team- and individual-level consequences remain understudied. Research has been concentrated in developed economies, leaving significant gaps in emerging and developing contexts. Methodologically, cross-sectional designs continue to dominate, despite the need for longitudinal approaches to capture the evolving strategic effects of gender diversity. Theoretical engagement is often limited to borrowing from adjacent fields, signalling opportunities to advance novel, context-specific frameworks.

Practical Implications: The findings call for a more holistic approach to gender diversity in organizational research, one that addresses multiple levels and contexts to better inform policy and practice.
Social Implications: A decade after the adoption of the SDGs, this review provides a timely reflection on the progress of gender diversity scholarship, while charting a more inclusive and future-oriented research agenda.
Originality and Value: By examining gender diversity across multiple organizational levels and outcome domains, this review extends prior studies with narrow foci and offers a more integrative perspective on the role of gender diversity in organizations.

***Keywords:*** *Gender diversity, Sustainable Development Goal 5, Systematic Literature Review, Business and Management*

## LIFE CYCLE ASSESSMENT AND DIGITAL MODELLING OF RAILWAY BRIDGES: A PATH TOWARD SUSTAINABLE RURAL - URBAN CONNECTIVITY IN THE HIMALAYAN REGION

*Rajesh Kumar Singh (Research Scholar, ICFAI Tech School, The ICFAI University, Dehradun), Ram Karan Singh (Professor, ICFAI Tech School, The ICFAI University, Dehradun) and Amit Kumar Bera (Assistant Professor, ICFAI Tech School, The ICFAI University, Dehradun)*

**Abstract.** Sustainable infrastructure plays a pivotal role in bridging rural - urban divides and achieving national Net Zero commitments. The construction of railway bridges in environmentally sensitive regions such as the Himalayas requires a balanced approach between structural efficiency, environmental preservation, and regional connectivity. This study presents a comprehensive Life Cycle Assessment (LCA) integrated with digital modelling techniques to evaluate the environmental impacts of prestressed concrete railway bridges in the Himalayan region of India.
The research employs a cradle-to-grave LCA framework, encompassing material extraction, transportation, construction, maintenance, and end-of-life phases. Using digital simulation and data-driven modelling tools, the study quantifies key environmental indicators such as embodied carbon, energy consumption, and global warming potential. The findings reveal that optimized design configurations and material substitutions can significantly reduce the carbon footprint and energy intensity of bridge construction.
Furthermore, the integration of digital tools enhances decision-making by enabling scenario analysis, predictive performance evaluation, and visualization of sustainability outcomes. The study underscores the potential of digital life cycle assessment frameworks in guiding policy and engineering practices toward Net Zero infrastructure development.

***Keywords:*** *Life Cycle Assessment, Digital Modelling, Sustainable Infrastructure, Railway Bridges, Rural - Urban Connectivity, Net Zero*

# FRAMEWORK FOR NET ZERO PATHWAY FOR INDIAN CHEMICAL INDUSTRY

*Mukundan Ramakrishnan (SP Jain Global School of Management), Wilson Kia Onn Wong (SP Jain Global School of Management) and Suchismita Das (SP Jain Global School of Management)*

**Abstract.** There is an increasing urgency to achieve net-zero carbon emissions to combat climate change. This study provides a firm-level framework on the impact of various stakeholders in the chemical industry by analysing the independent variables of customers, suppliers, employees, strategy & investment decisions and green finance and the dependent variable of financial outcome (i.e., revenue growth) to highlight the relationships between them. Based on the hypothesis, the questionnaire developed was administered online to obtain the current view of the independent and dependent variables from managements across 6 Indian chemical companies, with 40 respondents in a pilot study. This was followed by final study comprising of 256 respondents, which highlighted that while dependent variable is influenced by all independent variables, the parameters with highest impact are working and collaborating with customers and green financing. This was validated through further analysis, including Predictor screening, Model screening, Partial Least Squares and Structural Equation Model. Therefore, industry leaders and policymakers must focus on customers and green finance to accelerate in the pathway towards net zero. Currently, there is no specific study on an Indian perspective on the framework for a pathway to deliver a net zero in an energy-intensive sector such as the chemical industry. Similar studies could be extended using this framework for net-zero pathways in other sectors and regions.

***Keywords:*** *Net zero, Employee engagement, Customer engagement, Supplier engagement, Strategy, Financing*

# GREEN PACKAGING FOR SUSTAINABLE DEVELOPMENT: A SYSTEMATIC REVIEW AND CONCEPTUAL INTEGRATION

*Mahanish Panda (IMI Kolkata) and Sahilswayamsri Sahoo (IMI Kolkata)*

**Abstract.** Purpose: This study systematically reviews the existing literature on green packaging by analysing 221 articles . It aims to synthesize current knowledge, identify gaps, and propose future research directions for sustainable development.

Design/methodology/approach – A systematic literature review of peer-reviewed articles was conducted from Scopus databases using the SPAR-4-SLR protocol. The selected studies were categorized and analysed using the TCCM framework, focusing on theoretical underpinnings, contextual applications, variables and outcomes, and methodological approaches.

Findings – The study uncovers a total of 7 emergent themes highlighting the key areas of Green Packaging. The themes are Consumer Perceptions, Behaviour, and Branding(Theme1), Materials, Technology, and Innovation in Green Packaging(Theme2), Logistics, Supply Chain, and Operations(Theme 3), Life Cycle Assessment (LCA) and Environmental Impact (Theme 4), Policy, Regulation, and Corporate Practices(Theme 5), Design, Branding, and Aesthetics

of Packaging, (Theme 6), Circular Economy, Innovation, and Entrepreneurship(Theme 7). The review highlights that research on green Packaging is predominantly grounded in resource-based and capability-oriented SOR framework, theory of consumption, theory of planned behaviour etc.. Methodologically, the field remains dominated by quantitative approaches, with limited qualitative and mixed-method studies.
Originality/value – By applying the TCCM framework, this review provides a structured synthesis of fragmented knowledge and develops a comprehensive agenda for future research. It offers theoretical, managerial, and policy implications to guide enterprises, regulators, and stakeholders in leveraging AI for sustainable innovation and long-term competitiveness.

***Keywords:*** *Green Packaging, SPAR-4-SLR, TCCM framework, Systematic Review*

## ARTIFICIAL INTELLIGENCE IN GREEN INNOVATION: A SYSTEMATIC LITERATURE REVIEW USING THE TCCM FRAMEWORK

*Aradhana Raj (Academic Associate, IIM Indore), Mahanish Panda (PhD IMI, kolkata) and Roma Puri (Associate professor, IMI Kolkata)*

**Abstract.** Purpose: This study systematically reviews the role of artificial intelligence (AI) in advancing green innovation by studying 180 articles. It aims to synthesize current knowledge, identify gaps, and propose future research directions for sustainable development.
Design/methodology/approach: A systematic literature review of peer-reviewed articles was conducted from Scopus databases using the SPAR-4-SLR protocol. The selected studies were categorized and analyzed using the TCCM framework, focusing on theoretical underpinnings, contextual applications, variables and outcomes, and methodological approaches.
Findings – The study uncovers a total of 7 emergent themes highlighting the key areas of AIGI. The review highlights that research on AI in green innovation is predominantly grounded in resource-based and capability-oriented theories, with complementary perspectives such as stakeholder, legitimacy, and behavioral theories enriching the discourse. China leads the contextual contributions, followed by South Asia, the Middle East, and selected Western economies. Characteristics reveal AI adoption, big data analytics, digital transformation, and organizational enablers as key independent variables, with diverse outcomes spanning green innovation efficiency, ESG performance, competitiveness, and sustainable growth. Moderators and mediators underline the role of governance, knowledge processes, and institutional pressures. Methodologically, the field remains dominated by quantitative approaches, with limited qualitative and mixed-method studies.
Originality/value – By applying the TCCM framework, this review provides a structured synthesis of fragmented knowledge and develops a comprehensive agenda for future research. It offers theoretical, managerial, and policy implications to guide enterprises, regulators, and stakeholders in leveraging AI for sustainable innovation and long-term competitiveness.

***Keywords:*** *Keywords Artificial Intelligence, Green Innovation, SPAR4SLR, TCCM framework, Systematic Review*

## FROM SIMULATION TO SYSTEM: DEVELOPING A THEORETICAL MODEL OF INTEGRATED CIRCULAR ECONOMY COMPREHENSION AND SUSTAINABLE INTENT

*Bhavesh Sarna (Jyväskylä School of Business and Economics) and Veenu Sharma (Birla Institute of management and Technology)*

**Abstract.** The transition toward a Circular Economy (CE) calls for a reorientation of business education to nurture systems thinking and responsible innovation. Traditional lecture-driven approaches inadequately address the complexity of circular value creation, where economic, environmental, and social outcomes intersect. This study explores the pedagogical efficacy of Circula®, a serious game designed to simulate circular entrepreneurship and sustainability trade-offs, enabling learners to experience dynamic feedback and collaborative decision-making. Adopting a constructivist grounded theory methodology, the research engaged 480 Master's students, with 198 participants providing in-depth post-simulation reflections through semi-structured interviews. Data were analyzed using iterative open, axial, and selective coding to construct a process-based model grounded in lived experiences. Findings are expected to reveal two interlinked theoretical constructs: Integrated CE Comprehension—the learner's ability to perceive interdependencies between short-term business actions and long-term societal or ecological consequences—and the Sustainable Entrepreneurial Intentions (SEI) Model, which elucidates how gamified mastery and team accountability translate into real-world self-efficacy for sustainable ventures. The study contributes to pedagogical theory by connecting experiential learning and social cognitive mechanisms within the CE context. By presenting a rigorously validated, process-oriented model, this research advances understanding of how experiential simulations can transform abstract CE principles into actionable skills and entrepreneurial motivation. The outcomes offer a theoretical foundation and practical roadmap for educators aiming to embed serious games in sustainability curricula, thus supporting the UN Agenda 2030's call for professionals capable of designing and leading circular business innovations.

***Keywords:*** *Track No 17, Green and Blue economy Sustainable, Circular Economy, Experiential Learning, Entrepreneurship Education, Sustainable Entrepreneurial Intentions*

## VIRTUAL WATER FOOTPRINT OF AGRICULTURAL PRODUCTION AND TRADE IN INDIA WITH SPECIAL REFERENCE TO WEST BENGAL (2021-2023)

*Iram Jamal, (Ph.D. Research Scholar, Department of Business Management, University of Calcutta), and Dr. Shelly De (Pandit), (Associate Professor, Department of Commerce, Bijoy Krishna Girls' College, Howrah, West Bengal)*

**Abstract.** India's agricultural sector relies heavily on large amounts of freshwater, with a significant share of this water indirectly leaving the country via virtual water exports embedded in agricultural commodities. This study will analyze India's green and blue water footprints for key crops from 2012 to 2023, focusing specifically on West Bengal—a state known for high

agricultural productivity, distinct hydrological features, and lower irrigation intensity compared to northwestern regions. Using Water Footprint Network coefficients, FAO production data, APEDA export figures, and groundwater data from the Central Ground Water Board, the study will develop virtual water accounts for both India and West Bengal. It will also utilize descriptive statistics, correlation analysis, and state-level panel regressions to explore how virtual water-intensive production and trade influence groundwater changes over time. Comparing India's overall virtual water profile with West Bengal's will reveal regional sustainability challenges and opportunities for implementing more water-resilient agricultural strategies. The results aim to guide policies on crop diversification, water-conscious procurement, and sustainability-focused export practices.

***Keywords:*** *India, Green Water, Blue Water, Water Footprint, Virtual Water, West Bengal*

## ORGANIC MATTRESS PILLOW

*Abhishek Singh (RAMCHANDRAALKA PVT LTD) and Akanksha Singh (DAZZEL SLEEP)*

**Abstract.** Company: Ramchandraalaka Pvt. Ltd. (Brand: Dazzel Sleep)
Mission: To make sleep better by offering eco-friendly, ergonomic, and sustainable sleep products.
Problem: Synthetic foam and chemical-based mattresses dominate India's market.
Issues: heat retention, poor posture, allergies, short product life, and non-biodegradable waste.
Farmers lack demand for natural by-products like buckwheat hulls, leading to waste and lost income.
Solution:

- Sleep products made with buckwheat hulls and other natural fillers.
- Modular, ergonomic designs with options for smart sensor integration.
- Eco-friendly, handcrafted, and sustainable alternatives that improve health and support farmer livelihoods.

Market Opportunity:

- Global sleep products market: USD 80+ billion.
- Indian market: USD 2.5–3 billion.
- Eco-friendly niche: USD 300 million today, projected to reach USD 750 million by 2030.

Goal: Capture 1–2% of SAM (~USD 3–6 million revenues in 5 years).
Traction: Prototypes developed for modular pillows, cushions, and mattress toppers.
Early user feedback highlights cooling, ergonomics, and sustainability benefits.
Business Model:

- Direct-to-consumer (online/offline).
- Partnerships with wellness, lifestyle, and eco-conscious retailers.
- Future expansion into exports.

Funding: Bootstrapped by founder (~INR 3 lakhs for assets, incorporation, and product development).
Seeking grants and external funding for scaling.
Team: Founder-led with expertise in manufacturing, quality systems, and product innovation.

Advisory and partnerships planned for R&D and market scaling.
Positioning: Dazzel Sleep differentiates by combining ergonomic design, natural materials, sustainability, and potential smart tech integration, addressing both consumer well-being and environmental impact.

***Keywords:*** *sleep, buckwheat hull, organic*

## CORPORATE SOCIAL RESPONSIBILITY IN INDIAN COMPANIES- A CURRENT SCENARIO

*Soumyendu Mukhopadhyay (University of Calcutta)*

**Abstract.** Business organisations have largely been seen as profit-making machines. But since the last one and a half decade, this scenario has been changing. Some business enterprises have realized the importance of giving back something to the society- the phenomenon which is widely known today as Corporate Social Responsibility (henceforth CSR). The top business leaders of the world have also recognized the need to be more responsible towards their stakeholders. The focus of CSR has shifted from charitable contributions to strategic developments in Environmental, Social and Governance (ESG) areas. All the businesses extract different resources from the society for their operations. So, it is expected from them to return something back to the society. Indian companies lack behind their foreign counterparts in this field. Though legal compulsion has been made, the real challenge lies in the successful implementation of the plans and programmes at the ground level to determine how far the effort put forward by the government has borne fruit. This research paper tries to analyse the current scenario of the CSR practices of some of the companies which are listed on the NIFTY Next 50 index on National Stock Exchange of India. These companies are highly regarded with impressive financial performances and impressive careers. This paper also offers some suggestive measures for ensuring wider scope and better compliance of CSR practices in future.

***Keywords:*** *Corporate Social Responsibility, business, stakeholders, society*

## ANALYSIS OF CHALLENGES IN ADOPTING SUSTAINABLE NET-ZERO EV CHARGING INFRASTRUCTURE: AN INTERPRETIVE STRUCTURAL MODELLING (ISM) APPROACH

*Nilesh Kate (Pune Institute of Business Management) and Sujoy Kumar Jana (Pune Institute of Business Management)*

**Abstract.** Purpose: The transition to net-zero and sustainable mobility requires a strong charging infrastructure that aligns with economic, social, and environmental objectives. The increasing demand for electric vehicles globally only serves to emphasize the need to develop sustainable and net-zero charging solutions so that the environmental advantages of EV adoption are not sabotaged by fossil-fuel-dependent energy infrastructure. Transition to net-zero and sustainable mobility is enabled by an efficient charging infrastructure that aligns with environmental, social, and economic goals. The incorporation of such infrastructure is hindered

by a robust interconnection of technical, financial, and policy challenges, etc. The research focuses on the major challenges in the installation of sustainable net-zero EV charging infrastructure from the company's viewpoint, using the Interpretive Structural Modelling (ISM) approach. By doing so, the research provides a structured approach to stakeholders for understanding the interconnections between barriers and prioritization of strategic intervention.
Design/methodology/approach: We studied 15 key challenges that were established based on a literature review and then relied on 11 interviews with experts, scholars, and professionals in the automobile industry. We used ISM combined with MICMAC analysis to determine how these challenges are interconnected, as driving, dependent, or linkage barriers. This provided the basis for developing our framework.
Findings: The growing sales of EVs worldwide are outpacing the growth in charging points. For instance, total global EV sales increased by nearly 55% from 2021 to 2022 to over 10 million units, while public charging stations grew by merely 40% during the period. Increased demand for EV sales drives addressing root drivers such as financing frameworks, policy stability, lack of sustainable energy supplies, and technological integration to avoid urgent sustainable EV charging bottlenecks. Hierarchical ISM modelling offers a systematic understanding of these relationships and provides specific recommendations for intervention. The study highlights overcoming the key driver challenges as imperative in enabling infrastructure development in proportion to EV adoption for the success of the transition to net-zero mobility.
Originality/value: While existing literature addresses challenges to EV charging adoption, few studies have integrated net-zero and sustainability drivers in the ISM-MICMAC framework. This paper contributes by presenting a systematic, hierarchical model of challenges based on company-level strategic requirements and priorities. It also provides actionable insights for decision-makers to guide them towards accurate interventions that will contribute to speeding up the development of a robust and sustainable EV charging infrastructure. In this research, we fill a significant gap in existing research by exploring the most crucial challenges in the adoption of sustainable Net-Zero EV charging infrastructure and creating a helpful framework model. To the best of our knowledge, this paper addresses these challenges and presents a parsimonious model for the adoption challenges of sustainable Net-Zero EV charging infrastructure.
Implications: For businesses, the report emphasises that investment risks and ROI uncertainties are largely influenced by external systemic drivers, including regulations, financing, and grid readiness. Businesses also need to focus on building capacities, integrating smart grids, and aligning renewables to reduce operational risks. Additionally, corporate alignment with sustainability promises and carbon-neutrality targets can give businesses a competitive edge in the emerging EV landscape.
Objectives: In this study, the following objectives are set:
• To identify the key challenges and their interlinkages in the development of sustainable net-zero EV charging infrastructure.
• To categorise these challenges based on driving and dependence power, and map them in respective quadrants based on the MICMAC analysis methodology.

• Developing a hierarchical structural model that illustrates the challenges of the adoption of sustainable net-zero EV charging infrastructure and their interdependence with other associated factors.

Research Question:

RQ1. What are the key challenges to the adoption of sustainable net-zero EV charging infrastructure, and how are those challenges interrelated?

RQ2. Can these challenges be grouped under larger categories based on their specific characteristics?

RQ3. Can a framework from these identified challenges that could be used to improve the adoption of net-zero EV charging sustainable infrastructure?

***Keywords:*** *Sustainability, Net-Zero, Adoption, Charging Infrastructure, ISM, MICMAC, Electric Vehicle*

# INFORMATION TECHNOLOGY

# ADOPTION OF GENERATIVE AI IN IT SERVICES AND OPERATIONS: REVIEW AND FUTURE SCOPE OF RESEARCH

*Subhendu Dey (JIS Institute of Advanced Studies and Research (JISIASR), Kolkata), Sachin Modgil (IMI Kolkata), Rohan Mukherjee (IMI Kolkata) and Ajoy Kumar Ray (JIS Institute of Advanced Studies and Research (JISIASR), Kolkata)*

**Abstract.** In the last few years, the Generative Artificial Intelligence (Gen-AI) technologies have evolved in a phenomenal pace. The apparent benefits of Gen-AI in the areas of code generation, anomaly detection, automated testing, and human-in-the-loop collaboration, has led to its accelerated experimentation within enterprise IT services and operations. These experimentations have not always resulted in adoption due to various obstacles such as hallucinating output, lack of explainability, and integration. However, irrespective of the outcome, one thing has become very clear - the co-generating characteristics of the Gen-AI systems, and the stochastic nature of their output fundamentally challenge the assumptions of traditional technology adoption theories such as the Technology Acceptance Model, Unified Theory of Acceptance and Use of Technology, and Innovation Diffusion Theory. This paper presents a Systematic Literature Review (SLR) that synthesises peer-reviewed research on the use, enablers, barriers, and theoretical implications of Gen-AI adoption in IT services. We aim to assess what is known till date, identify emerging patterns, and propose directions for extending existing theoretical frameworks.

We selected 51 peer-reviewed articles published between 2023 and early 2025, after rigorous screening from an initial pool of over 650 records obtained from Scopus. The final corpus was analysed using thematic coding and narrative synthesis to extract insights on adoption drivers and inhibitors. After the analysis, we found that Gen-AI can be adopted across three key domains in enterprise IT - (1) software development and testing, (2) IT operations and DevOps, and (3) knowledge work and decision support. In software engineering, tools like GitHub Copilot, Amazon CodeWhisperer, and IDE-integrated Gen-AI agents can be used to support code completion, refactoring, document generation, and test case creation. On the operations side, Gen-AI can (semi-)automate predictive maintenance, root-cause analysis, and remediation through integration with AIOps and network management platforms. In knowledge-centric tasks, Gen-AI-enabled agents are capable of augmenting business process design, documentation, and decision-making.

From the literature, the enablers of Gen-AI adoption were clustered into three themes – (1) productivity improvement, (2) human-computer interaction aka HCI, and (3) autonomy to scale. We noticed that productivity and automation gains are widely reported across the articles. Developers benefit from faster and more accurate code generation, bug detection, and process automation. Gen-AI is also forming new human-AI collaboration models which are characterised by co-agency and real-time guidance. These models support better decision-making and problem-solving. Lastly, operational intelligence and closed-loop systems are enhanced by Gen-AI's ability to autonomously analyse telemetry data, identify anomalies in the content, and trigger remediation workflows, contributing to scalability and resilience in IT operations.

In contrast to the enablers, several barriers to the adoption of Gen-AI are also evident. The primary concern is the inaccuracy and misjudgement, that are often demonstrated by Gen-AI agents. The quality degradation of generated content is mostly caused by hallucinations, flawed reasoning, and overconfidence in self-assessment. Additionally, there are the compatibility and integration challenges. Since Gen-AI typically require massive computational power, it is often available through as-a-service model from the cloud infrastructure, and the generated textual content has limited language choices. This raises concern around configuration, interoperability with existing systems, and cybersecurity vulnerabilities. Finally, ethical, organizational, and regulatory constraints such as lack of transparency, explainability, and resistance to operational integration pose significant hurdles.

A key contribution of this SLR lies in evaluating how well the existing technology adoption models explain the adoption dynamics of Gen-AI in enterprise settings. Traditional models such as TAM, UTAUT, and IDT emphasise factors like perceived usefulness, ease of use, performance expectancy, social influence, and facilitating conditions. However, these models do not account for core Gen-AI-specific attributes. For example, the autonomous and agentic nature of Gen-AI systems, manifested in self-correcting or self-verifying systems, introduce trust asymmetries that existing constructs fail to capture. Similarly, trust dynamics in human-AI collaboration and co-creation challenge the user-tool dichotomy assumed in prior models. The VIRTSI model attempts to incorporate trust in virtual intelligent systems, yet broader integration of such constructs remains under-theorised.

Our analysis surfaces several emerging factors that are not adequately captured in conventional adoption frameworks. These include: (1) perceived trustworthiness and transparency of Gen-AI agents; (2) ethical alignment and institutional pressures influencing enterprise-level decisions; (3) cognitive load, explainability, and hallucination risks that affect user comfort and reliance; and (4) role compatibility and task division in adaptive workflows that involve co-agency. These emerging constructs reflect the growing recognition that Gen-AI is not just a tool but a semi-autonomous collaborator, requiring new lenses of analysis.

The dynamic and adaptive usage contexts of Gen-AI complicate the adoption even further. Unlike conventional IT systems that operate under static conditions, Gen-AI systems evolve through continual retraining, fine-tuning, and feedback loops. The static post-adoption conditions, as assumed in UTAUT or TAM proves to be insufficient to explain such evolving system. For example, in AIOps or network automation, Gen-AI-driven agents adapt policies based on real-time performance data, shifting the role of the human from operator to supervisor or auditor. These characteristics necessitate conceptual revisions to account for ongoing adaptation, learning, and evolution during use.

Based on this synthesis, we argue for the extension or reformation of theoretical models to accommodate the unique affordances and risks of Gen-AI. Specifically, future frameworks should consider integrating constructs such as algorithmic transparency, adaptive trust thresholds, co-creative efficacy, and role negotiation. Hybrid models that blend sociotechnical systems theory with behavioural models could better represent the interplay between Gen-AI agents, human users, and organizational context. A few early works point in this direction. For example, one applies Normalization Process Theory to study Gen-AI integration, while another advocates for sociotechnical perspectives in evaluating emergent Gen-AI behaviours.

Taxonomic approaches also show promise in classifying Gen-AI capabilities and challenges across operational contexts.
Finally, this review offers a taxonomy of adoption scenarios across software development, IT operations, and business process augmentation. The taxonomy highlights both low-risk adoption pathways (e.g., code documentation generation, test suggestion tools) and high-stakes use cases (e.g., autonomous remediation, compliance documentation, and contract generation). We also identify a need for domain-specific adoption frameworks, particularly in software engineering and IT operations, where trust, explainability, and system accountability are central.

***Keywords:*** *Adaptive Workflows, AI in Software Engineering, AI Trust and Explainability, AIOps, Code Generation, Enterprise AI, Gen-AI Barriers and Enablers, Generative AI, Human-AI Collaboration, Innovation Diffusion Theory, IT Services, Systematic Literature Review, TAM, Technology Adoption, UTAUT*

## AI DRIVEN HUB-AND-SPOKE HEALTHCARE MODEL: SUSTAINABLE EQUITY IN EMERGING ECONOMIES

*Sumit Mitra (Indian Institute of Management Kozhikode) and Indranil Jana (Indian Institute of Management Kozhikode)*

**Abstract.** India stands at a pivotal moment in its healthcare evolution. Its unique challenges demonstrated the urgent need for a systemic transformation—one that leverages technology to reimagine healthcare delivery for the vast, underserved rural landscape. The present unsustainable urban-centric model was economically depleting and socially inequitable ( showcasing an urban-rural divide) and represented a systematic failure that undermined a lot of the United Nations Sustainable Development Goals (SDGs). Under an emergent healthcare model, AI may be effectively leveraged to substitute for lack of physical and even intellectual resources in providing healthcare in rural areas. We propose a framework where centralised, AI-driven health innovation hubs act as the intelligent core of a decentralised network of rural primary health centers—Spokes. This model, when operationalised as suggested, may be a sustainable solution for rural healthcare problems by addressing SDGs for many low- and middle-income economies in S-E/S Asia, Africa, and Latin America.

***Keywords:*** *Hub-and-spoke healthcare, rural healthcare and AI, healthcare and SDGs.*

## OPTIMIZING HEALTHCARE SCHEDULING: A SIMULATION-BASED COMPARISON OF CENTRALIZED AND DECENTRALIZED MODELS IN OR SYSTEMS

*Mahua Banerjee (Indian Institute of Management, Kozhikode) and Ashutosh Sarkar (Indian Institute of Management Kozhikode)*

**Abstract.** Healthcare service operations at hospitals remain a challenging predicament worldwide with scarce resources and high demands. More so, the recent pandemic exposed its

fault lines through consequences seldom observed. Mere investments and the addition of capacities have failed to remediate the crisis. Despite high demands average utilization of cost-intensive resources like Operating rooms remains lower than expected benchmarks. This raises the necessity of scheduling mechanisms of healthcare resources as per patient requirements. Although operations management literature has studied scheduling problems in healthcare extensively, the primary aim of those studies was to optimize several organizational performance measures such as maximizing profit and minimizing overtime. It also assumed a centralized regime of the decision control system. These assumptions fell short of comprehending the ground realities in healthcare service operations. However, recent empirical observations and practice suggest that doctors and surgeons tend to make autonomous decisions under their Hippocratic Oath to focus on positive clinical outcomes. Thus, a decentralized decision-control system is the norm in making scheduling decisions, especially in critical sections like the Operating rooms (ORs), which generate the highest revenues. In effect, there exists a definite trade-off of operational, financial, and patient outcome-based goals among the hospital, doctors, and patients between these two distinct decision control regimes. In an integrated hospital service delivery process, a patient travels through several departments and requires services from multiple resources. A patient under a care continuum has to schedule appointments for doctor consultations, diagnostics for tests, the inpatient department for bed admissions, and the surgical department for scheduling her surgery as and when necessary. ORs are the most dynamic and impactful areas in the hospital to manage, as they generate the highest revenues and handle the largest volume of patients, respectively. This study intends to understand the centralized and decentralized decision control systems and explore how the different scheduling policies under these two contrasting controlling systems impact the operational, financial, and clinical outcome-based trade-offs of the stakeholders at the hospital through a semi-open queuing network model. The simulation results demonstrate that centralized scheduling improves overall resource utilization and economic efficiency, while decentralized models enhance flexibility and responsiveness—giving clinicians greater control to manage emergencies and dynamic patient needs. These insights empower practitioners to design scheduling systems that not only optimize resources but also enhance clinical autonomy and readiness in high-stakes OR environments.

***Keywords:*** *Operating rooms, centralized scheduling, decentralized scheduling, SOQN network*

## THE ROLE OF DIGITAL TECHNOLOGIES IN INFLUENCING PATIENT SATISFACTION: A REVIEW-BASED STUDY IN PRIVATE HOSPITALS

*Arunika Bhadra (Brainware university), Dr. Fedric Kujur (Xavier Institute of Social Service) and Dr. Saileswar Ghosh (Brainware university)*

**Abstract.** Introduction: Patient satisfaction is a crucial statistic in private hospitals, where digital technologies are transforming healthcare delivery. Patient behaviours and expectations are changing as a result of technologies like online appointment scheduling, telemedicine,

mobile apps, and electronic health records. These developments aim to enhance service efficiency, convenience, and transparency in India's cutthroat private healthcare sector. In India's competitive private healthcare sector, these innovations aim to enhance convenience, transparency, and service efficiency. Despite growing adoption, the direct impact of these technologies on patient satisfaction remains underexplored, especially in developing countries. This review-based study seeks to synthesize existing research to understand how digital tools influence patient satisfaction in private hospitals and also aims to identify key factors, benefits, and barriers, and to propose a conceptual framework that can guide future research and practical implementation in digitally enabled patient care.

Purpose: The aim of this study is to examine critically how digital technologies affect patient satisfaction in private hospitals. The study aims to investigate the effects of several digital tools, including telemedicine, mobile health apps, electronic health records, online appointment systems, and patient portals, on patient experiences and satisfaction in light of the increasing digitisation of healthcare services. The study will also pinpoint the main barriers to the effective use of these technologies in private healthcare sectors.

Design/Methodology/Approach: The study adopts a structured review methodology based on a narrative synthesis of existing literature. Relevant peer-reviewed articles, conceptual papers, and case studies published in databases like Scopus, Web of Science, and Google Scholar will be collected using keywords such as "digital health," "patient experience", "patient satisfaction", "healthcare technology". "The literature will be reviewed and categorized into major digital domains: (1) digital communication and information systems, (2) teleconsultation (3) digital administration and hospital apps. Thematic analysis will be used to synthesize findings and develop a conceptual framework linking digital technologies to dimensions of patient satisfaction.

Findings: According to preliminary findings from the literature digital technology can greatly increase patient satisfaction by improving service accessibility, reduce waiting times, increasing information transparency, and personalising care. These advantages are frequently moderated, though, by elements like digital literacy, technological trust, system usability, and integration difficulties with private medical infrastructure. It is anticipated that the results would show the direct and indirect ways that digital tools affect patient satisfaction and point out important areas where private hospitals may enhance the execution of their digital strategies.

Practical Implications: The review will provide actionable insights for private hospital administrators, health technology developers, and policymakers. It will guide how to design and implement patient-centered digital systems that enhance satisfaction and loyalty. By identifying the patient touchpoints most positively influenced by digital innovations, the study offers strategic recommendations for improving service quality, building trust, and strengthening revisit intention. It also underscores the need for training, robust data privacy policies, and infrastructure investments to support sustainable digital transformation.

Originality/Value: This study contributes to the limited body of review-based research focused exclusively on the role of digital technologies in enhancing patient satisfaction in the private hospital sector—especially within developing countries like India. It uniquely integrates literature across technological, experiential, and service delivery domains to offer a comprehensive understanding of patient-centric digital healthcare. The proposed conceptual

framework will serve as a foundation for future empirical studies and strategic interventions aimed at aligning digital innovation with patient satisfaction goals in private healthcare settings.

***Keywords:*** *Digital Technology, telemedicine, EHR, Patient satisfaction*

## AI FOR NET ZERO: LEVERAGING EDTECH TO DEMOCRATIZE INDIAN HIGHER EDUCATION AND BUILD A SUSTAINABLE WORKFORCE

*Sanjiva Shankar Dubey (IILM) and Chanchal Kushwaha Kushwaha (IILM)*

**Abstract.** Introduction: India's higher education system, the world's third-largest, faces significant systemic challenges in quality, access, and equity. Despite enrolling millions of students, only a fraction of its universities are globally recognized, and the national Gross Enrollment Ratio (GER) of 27.4% lags far behind developed nations. These issues are compounded by a lack of digital and physical infrastructure, uneven academic capacity, and low graduate employability, all of which underscore a pressing need for a transformative approach. This abstract argues that Artificial Intelligence (AI) and other emerging educational technologies offer a powerful solution to these multifaceted problems. By creating more inclusive, efficient, and resource-conscious learning environments, AI can not only enhance the quality of education but also directly contribute to broader sustainability goals, aligning with the "Tech for Net Zero" conference theme.

Purpose: The purpose of this research is to explore how AI-enabled technologies can be strategically deployed to address the core challenges of equity, efficiency, and sustainability within the Indian higher education landscape. The study seeks to articulate the specific mechanisms through which AI can promote digital inclusion and build institutional capacity, particularly in underserved rural and remote areas666. Furthermore, it aims to establish a clear link between the adoption of AI-based educational models and India's long-term sustainable development and net-zero objectives. By examining both the potential benefits and the significant barriers to implementation, this paper provides a comprehensive framework for a thoughtful and effective integration of AI in Indian universities and colleges.

Method: This research employs a qualitative analysis of existing literature, reports, and policy documents—including India’s New Education Policy (2020), UNESCO findings, and academic studies—to synthesize a holistic view of AI's role in education. The method identifies and categorizes a range of AI applications, such as adaptive learning platforms, intelligent chatbots, and "smart content," and assesses their potential impact on teaching and learning outcomes. It also critically analyzes the primary barriers to AI adoption, including infrastructure gaps, digital skills deficits, and distrust among stakeholders10. Finally, the study proposes a set of coordinated enablers—such as investment in connectivity, professional development, and public-private partnerships—to overcome these hurdles and foster a supportive ecosystem for technology integration.

Results: The findings indicate that AI-driven innovations offer a promising pathway to transform Indian higher education. The implementation of personalized learning platforms can

address the quality deficit by tailoring instruction to individual student needs and paces, thereby improving learning outcomes for diverse learners. AI tools like chatbots and virtual assistants can significantly enhance efficiency by automating administrative tasks, freeing up faculty to focus on high-value teaching and mentorship. Most importantly, these technologies can directly advance educational equity by making high-quality content accessible to marginalized and geographically isolated students via low-bandwidth platforms and mobile apps15. The research also highlights how AI-enabled remote and blended learning models can reduce the education sector's carbon footprint by minimizing the need for physical infrastructure and commuting. These scalable, resource-efficient models directly support "Tech for Net Zero" objectives, while also building capacity for a workforce equipped with green skills.
Conclusion: In conclusion, the thoughtful adoption of AI in Indian higher education can serve as a catalyst for a more equitable, efficient, and sustainable academic ecosystem. By addressing pressing issues of quality and access, AI can significantly improve learning outcomes and inclusivity today. Moreover, by reducing physical resource consumption and preparing students with skills for a low-carbon future, AI-enabled education models are fundamentally aligned with national and global sustainability goals. Realizing this transformative potential, however, requires a coordinated effort that includes robust infrastructure investment, strategic policy alignment, and ongoing capacity-building for all stakeholders. Ultimately, leveraging AI is not just about adopting new technology; it is about building a future-ready, climate-conscious workforce and an academic system that is truly sustainable.

***Keywords:*** *Artificial Intelligence, Higher Education, Equity, Digital Inclusion, Sustainable Development, Capacity Building, Net-Zero, Education for all, Democratization of education, SDG 4*

## DRONES IN AGRICULTURE : BEYOND ADOPTION, TOWARDS SERVICEABILITY

*Navya Sri Animireddy (SR University), Srivani Adunoori (SR University), Akshaya Sangani (SR University), Sahithi Gurrapu (SR University) and Rajan Kumar Gangadhari (SR University)*

**Abstract.** In this current era, Indian agriculture is facing more demand for increasing food production, in which it led to the initiation of advanced AI technologies to enhance easier and productive. Drone technology has become more popular in the agriculture sector. Drones offer farmers benefits like saving time, reducing costs, improving yields, and increasing efficiency. Although these are advantages, there are many problems that farmers are facing like they may not be able to adopting drone technology due to a lack of knowledge and training. And one of the most critical factors is Serviceability. A big part of agriculture still depends on traditional farming methods. For example, many farmers depend on rain-fed irrigation, and a single drought or unseasonal rainfall can wipe out an entire harvest. These issues can be solved by modern techniques, and one of the most advanced is drone technology, but these methods are very expensive. In serviceability, the major problems include the availability of repairs, spare parts, trained technicians nearby, and technical support. Farmers also face another big issue

after purchase is what happens when the drone breaks down or needs technical repair? In many villages, there are no trained people to repair them, no nearby service centres, spare parts take a long time to arrive, and fixing drones costs more. Because of these issues, many farmers stop using drones even if they know the benefits. This research shows how much service and repair problems affect farmers in rural areas. This results in guiding policy makers, agriculture startups, and farmers, ensuring drones are also easy to maintain, making them a sustainable tool for rural farming. To address the serviceability issues, this study proposed a hybrid methodology combined with qualitative and quantitative techniques. In the qualitative data collection phase, interviews with farmers and startups in the rural parts of Telangana are conducted using a structured questionnaire, and the interview observations are recorded. This qualitative data is analysed using natural language processing techniques for extracting key issues related to drones' serviceability in rural parts of India. In the second phase, DEMATEL and Best Worst Methods are used to rank and explore the relationship between these issues. The findings of the study will help farmers and users of drone technology to identify the key challenges and prioritise their tasks based on the causal relationships. Also, this study recommends several practical and policy-level recommendations for the Government and private organisations that can facilitate drone adoption penetration in agriculture in rural India, improving the overall business operations.

***Keywords:*** *Drones, Agriculture, Natural Language Processing, DEMATEL, Supply Chain Management*

## EXPLORING THE IMPACT OF GIG WORK: SENTIMENT ANALYSIS AND TOPIC MODELLING OF WORKERS' RIGHTS AND LABOUR MARKET DYNAMICS

*Gorre Chandana (SR UNIVERSITY, WARANGAL, INDIA), Rajan Kumar Gangadhari (SR UNIVERSITY, WARANGAL, INDIA) and Etukala Aishwarya (SR UNIVERSITY, WARANGAL, INDIA)*

**Abstract.** The gig economy has emerged significantly through digital platforms such as Uber, Swiggy Instamart, Blinkit, and Zomato. All these digital platforms have transformed labour market dynamics. The gig economy market size is about to reach around $6.96.77 billion in 2025. By 2030, it is expected to reach 23.5 million, transforming labour markets with increasing digital and flexible opportunities. Short-term opportunities and flexible working hours attract more people to opt for gig employment. However, it doesn't have permanent employee benefits such as health insurance, sick leaves, job security, collective bargaining rights, and regulatory protection. This leads to financial instability of gig workers, which is caused by inconsistent income and medical expenses that are more than they earn; all these create stress and anxiety. Due to low income and lack of societal recognition, gig workers often face mental isolation, lack of support and job insecurity contribute to depression and burnout. This shows the importance of labour rights and protection available to permanent employees should be afforded to gig workers.
This Research aims to address the problems faced by gig workers, analyse public

opinions and feedback through sentiment analysis and identify recurring themes with the use of Topic modelling. By extracting real-time data from LinkedIn posts and comments and professional opinions about gig economy, Reddit, blogs, and YouTube videos and comments on gig workers. All this data is studied through natural language processing (NLP) and statistical tools in Python to extract and represent insights. This outcome is a practical guide for policymakers, employers, and labour organisations to develop inclusive strategies supporting both gig and permanent workforce welfare.

Research Objectives

RO1. To explore the issues faced by gig-workers

RO2. To use analytics for mining the information to extract the issues faced by gig-workers

RO3. To recommend policy-level suggestions for organisations

Methodology adopted: This study embraces a data-driven research methodology that integrates web scraping, Natural language processing, sentiment analysis, and Topic modelling. This methodology helps to systematically analyse public perceptions and their own experiences of gig work using real-time data, which is extracted from digital platforms. This study uses real-time data from LinkedIn posts and comments from professionals discussing gig workers. YouTube comments on videos related to gig workers and worker rights. Reddit discussions, Blogs and articles discussing challenges and opportunities of gig workers. Data is scraped from YouTube-transcript.api and google.api, Linkedin.api, all these will include posts, comments, discussions and blogs about gig workers. All this data will be cleaned by removing duplicates and irrelevant content.

Sentimental analysis is applied to classify text to positive, negative and neutral sentiments. The data is visually represented using Python libraries such as Matplotlib or seaborn. Topic modelling is performed using non-negative Matrix Factorisation (NMF) from the Scikit Learn library, extracting large text datasets on the flexibility, exploitation, and unfair pay of gig workers, the lack of social security and benefits for gig workers, and Regulatory frameworks and labour rights of gig workers. This Methodology it highlights the practical insights that can bring changes to policy reforms and organisational strategies for comprehensive workforce development.

***Keywords:*** *Gig Economy, Sentimental Analysis, Topic Modelling, Web Scraping, Data Analytics*

## IOT SMART ENERGY CONTROL SYSTEM FOR AIR CONDITIONING SYSTEMS

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**Abstract.** The residential sector in India contributes to nearly 24% of India's overall electricity consumption. A recent study shows that people widely use ACs for comfort, but the traditional

systems consume more energy due to manual operations and a lack of automation. This research paper presented the design and implementation of the IoT-based smart air conditioning (AC) system that aimed to enhance energy efficiency and increase automation. The brain and heart of the system is the ESP32 microcontroller, which establishes Wi-Fi connectivity and handles the data processing with a cloud platform for storage, configuration, and remote access. The DHT22 and ultrasonic sensors are automated to work with the microprocessor to monitor changes in room temperature and occupancy. An optimized AC temperature is then calculated using a developed formula, and the AC temperature is then automatically regulated through an IR transmitter. Robustness is ensured through local operability during Wi-Fi disconnections, automatic resumption of cloud synchronization upon reconnection, and self recovery after power outages without any user intervention. The prototype was developed and tested successfully. All sensor readings, that is, temperature and occupancy data, were found to be accurate and consistent during evaluation. The system reduced energy consumption rate, improved efficiency, and scalability, displaying its potential value as a practical smart home solution. This study demonstrated a low-cost, scalable approach to energy management within the broader context of IoT-based energy management.

***Keywords:*** *smart ac control, occupancy detection, energy management, IoT automation, building automation, energy efficiency*

## ALLOCATION OF CRITICAL RESOURCES IN AGRICULTURAL SECTOR IN INDIA UNDER A TWO-STAGE STOCHASTIC ENVIRONMENT

*Utsav Pandey (Indian Institute of Management Lucknow) and Neelesh Kumar (Indian Institute of Management Lucknow)*

**Abstract.** The agricultural sector in India faces a unique challenge: small and marginal farmers, who constitute nearly 85% of the farming population, often lack access to heavy and costly machinery such as harvesters (Mehta et al., 2014). While mechanization has the potential to significantly increase crop yields, reduce post-harvest losses, and enhance efficiency, the high cost of purchasing and maintaining such equipment makes it unaffordable for the majority of farmers with landholdings below two acres (Sanjay et al., 2024). In this context, equipment rental emerges as a viable and sustainable solution, provided it is carefully planned and managed (Patil et al., 2023). In this research work, a two-stage stochastic optimization model is constructed to enable the farmers and equipment renters to hedge the risk of farmer's decision uncertainty and environmental uncertainty while optimizing rental of harvesting equipment for two major crops—wheat and paddy.

***Keywords:*** *Resource planning, Agricultural profit maximization, Stochastic optimization*

## INTEGRATION OF DISRUPTIVE TECHNOLOGIES IN PROCUREMENT TRANSFORMATION

*Vivek Ghabak (S P Jain School of Global Management), Dr. Rajiv Aserkar (S P Jain School of Global Management) and Vanita Bhoola (S P Jain School of Global Management)*

**Abstract.** Factors including unpredictable fluctuations in consumer demands, environmental changes, increased competition, and a rapid development of disruptive technologies are all contributing to the Today's business environment. It has been found that supply chain disruptions are more serious when they occur upstream and because of this procurement has developed into a crucial business function. Although the number of procurement practitioners interested in digital procurement which is growing rapidly but many are still unaware of the organizational prerequisites that needs to be satisfied before pursuing procurement digitalization. This study investigates the role of various disruptive technologies in Procurement transformation with conceptual framework. The data was gathered via survey from participants from different companies and the ADANCO was used in order to investigate theoretical framework. The results indicates that Disruptive Technologies have positive impact on the procurement transformation based on
Organization adaptability and Supplier adaptability to implement such cutting-edge technologies.

***Keywords:*** *Disruptive technologies, Procurement transformation, Organization adaptability, Supplier adaptability*

## ENERGY CONSUMPTION PREDICTION IN BUILDINGS USING MACHINE LEARNING TECHNIQUES

*Rini Varghese (Kerala University of Digital Sciences, Innovation, and Technology, Thiruvananthapuram, India), Pradeep Kumar Kalampukatt (Kerala University of Digital Sciences, Innovation, and Technology, Thiruvananthapuram, India) and R Umasankar (Kerala University of Digital Sciences, Innovation, and Technology, Thiruvananthapuram, India)*

**Abstract.** Increasing energy consumption contributes to higher carbon emissions, increased demand–supply, and intensified climate risks. Therefore, accurately predicting energy usage is crucial for enhancing energy efficiency, optimising resource allocation, and supporting sustainable decision-making. This study aims to forecast the energy consumption of buildings on the Indraprastha Institute of Information Technology, Delhi (IIIT-D) campus using machine learning techniques, based on the I-BLEND (Indian Buildings Energy Consumption Dataset), which covers seven commercial and residential buildings from 2014 to 2017. The primary objective is to address the literature gap concerning the limited research based on Indian data. Key factors influencing power consumption include current, occupancy count, transformer power, and transformer current, with humidity and voltage occasionally showing some influence. Due to the large number of missing values, we excluded the Lecture Building on the campus, and conducted predictions for the remaining buildings. Among the evaluated models,

Random Forest achieved the highest accuracy in forecasting energy consumption for the Academic Building, Boys Dormitory Main, Boys Dormitory Backup, Dining Hall, Girls Dormitory Main, Girls Dormitory Backup, and Library. However, Light Gradient Boosting outperformed other models by a small margin for the Facility Building. These findings provide actionable insights for energy management, enabling policymakers and building administrators to develop more effective energy-saving strategies.

***Keywords:*** *Building energy prediction, Commercial and residential buildings, I-BLEND, Machine learning*

## MEGHDUT DIGITAL PLATFORM: D2D (DIL-2-DIL) LOCAL COMMERCE

*Sumit Bagchi (Syspedia Technologies Pvt. Ltd)*

**Abstract.** Meghdut Digital Platform (MDP) is an innovative "digital mall" that bridges the gap between Kolkata's local sellers, service providers, and culturally rooted consumers. While e-commerce giants focus on speed and scale, MDP emphasizes discovery, emotional connection, and cultural relevance through its unique Dil-2-Dil (D2D) commerce model. By enabling smart on-boarding, capacity-building, and marketing support, the platform empowers local entrepreneurs to thrive in a digital-first economy. With early traction—3,000+ 150+ service providers and local product sellers on-boarded—MDP demonstrates both commercial and social impact. Positioned to scale horizontally, by entering into synergistic business verticals, MDP seeks to redefine local commerce by creating meaningful connections and purpose-driven growth.

The MDP business model creates meaningful impact by ensuring revenue circulation within the local economy: Money spent on local products and services circulates back into the community, strengthening neighborhood economies instead of draining value to national/international e-commerce giants.At the same time localized production and consumption encourage re-usability, low-waste packaging, and responsible supply chain practices.

***Keywords:*** *Meghdut Digital Platform, D2D (Dil to dil) commerce, Revenue circulation within local economy, Digital Mall*

## INTELLIGENT PRODUCTION ORCHESTRATION: DATA-DRIVEN CONTROL WITHIN INTEGRATED ENTERPRISE ECOSYSTEMS

*Mehul Zawar (Independent Researcher)*

**Abstract.** This paper introduces an advanced framework to optimize manufacturing operations and foster adaptive supply network control by deeply integrating enterprise systems with sophisticated simulation and AI-driven analytics. Explore how the use of predictive models and real-time insights can revolutionize shop floor planning, enabling precise decision making amidst market volatility and unexpected disruptions. By synthesizing disparate data streams

and employing intelligent optimization techniques, this approach facilitates a more resilient and efficient production continuum. We demonstrate the strategic advantages of deploying such an analytics-powered control paradigm to transform conventional manufacturing into a highly optimized and dynamically responsive component of the broader supply network.

***Keywords:*** *Enterprise Resource Planning (ERP), Simulation, Manufacturing Excellence, Industry 4.0, Digital Factory, Production Planning, Optimization, Digital Twin, Middleware, Scheduling, Supply Chain Resilience, Adaptive Systems*

## NON-EXPLAINABLE AI IN HEALTHCARE: RISKS, MITIGATION STRATEGIES, AND AN XAI ADOPTION FRAMEWORK

*Hemendra Kumar Vaishnav (IT Systems and Analytics Area, Indian Institute of Management Jammu, Jammu) and Nitin Upadhyay (Professor, IT Systems and Analytics Area, Indian Institute of Management Jammu, Jammu)*

**Abstract.** The adoption of artificial intelligence (AI) in healthcare has remained limited, constrained by the lack of transparency in non-explainable AI (non-XAI) systems. Non-XAI systems undermine stakeholders' trust, compromise ethical standards, and increase overall clinical risk. The current literature in this domain is fragmented; therefore, this paper conducts a systematic literature review, following the principles of the PRISMA technique, to examine the risks associated with non-XAI systems. Accordingly, the paper addresses the following research question: How does XAI mitigate the risks of non-XAI in healthcare? Subsequently, it identifies the risks and develops a risk mitigation framework to guide the adoption of XAI systems.

Using the Scopus database and extracting data published between 2018 and 2025 through a keyword search, the paper synthesizes insights from 39 relevant studies. The results identify six major risks: lack of trust, potential harm to patients, bias and discrimination, accountability and legal issues, over-reliance, and regulatory non-compliance. Additionally, it highlights six risk mitigation opportunities offered by XAI systems: transparent model reasoning, error detection through input/output explanations, bias detection via subgroup analysis, clarity in the audit trail of model decisions, promoting informed use of models and decisions, and adherence to explainability and transparency mandates. Finally, the paper proposes an integrated XAI adoption framework for healthcare, ensuring transparency, fairness, and accountability in AI systems. Implications for both theory and practice are discussed.

***Keywords:*** *XAI, Healthcare Management, AI Adoption Framework, Responsible AI, Transparency, Stakeholder Trust*

# FROM SUSTAINABILITY TO REGENERATION: A THEMATIC ANALYSIS OF INFORMATION SYSTEMS AND ANALYTICS IN HUMAN–MACHINE INTERFACES

*Ishita Bera (IMI Kolkata), Avinash Shrivastava (IMI Kolkata) and Ruchi Sharma (IMI Kolkata)*

**Abstract.** Introduction: Human–machine interfaces (HMIs) have become inevitable in today's digitalisation, particularly under the paradigm of Industry 5.0, where humans and machines coexist and collaborate as interconnected ecosystems. While machines in manufacturing organisations deliver efficiency, predictability, and optimisation, thus aligning with traditional sustainability objectives, the emerging frontier is regeneration. Unlike sustainability, which focuses solely on reducing environmental harm, regeneration aims to create net-positive outcomes, including ecosystem restoration, social inclusion, and system resilience. In this perspective, sustainability goals are no longer external compliance measures but become self-defining and embedded within a firm's mission and vision. These regenerative ambitions necessitate long-term planning and adaptive strategies that extend beyond efficiency-driven sustainability metrics. Here, Information System (IS) architectures, including IoT networks, cloud platforms, blockchain-enabled traceability, ERP dashboards, and human-in-the-loop algorithms, serve as the connective tissue for this transformation. By embedding principles of transparency, interoperability, and human agency into decision-support systems, IS ecosystems create the conditions for shifting from sustainability compliance to regenerative value creation. This study examines the role of IS and analytics in facilitating this transition, with a focus on how HMIs can support regenerative outcomes in Industry 5.0 ecosystems.

Purpose of the Study: The purpose of this study is to examine the evolving role of Information Systems (IS) and analytics in advancing the transition from sustainability-oriented objectives to regeneration-oriented outcomes within the context of human–machine interfaces (HMIs). While prior research has demonstrated how IS architectures enhance operational efficiency and support sustainability compliance, limited attention has been given to their potential in driving regenerative transformations. Specifically, this study investigates how IS architectures are deployed across operations, maintenance, and logistics to enable regenerative choices in Industry 5.0 ecosystems. To address this, a meta-analysis of the existing literature is conducted to identify thematic patterns in the application of IS and analytics toward regenerative outcomes. The analysis is guided by the lens of transparency, interoperability, and human agency in decision-support systems, enabling the study to highlight how HMIs can act as critical enablers of regenerative value creation.

Methodology: The study employs a thematic analysis of peer-reviewed literature on information systems, human–machine interaction, analytics, and regeneration, spanning the period from 2010 to 2025. The review follows the PRISMA framework, with Scopus and Web of Science as the primary data sources. The methodology involves three key steps. First, relevant studies were systematically collected, screened, and selected based on their focus on information system architectures, human–machine interfaces, analytics applications, and regenerative outcomes. Second, the selected studies were coded for recurring concepts, including sustainability, regeneration, information system architectures such as IoT, ERP,

cloud, blockchain, and human–machine interface features. Third, the coded concepts were aggregated into higher-order themes: human compatibility, encompassing trust, interoperability, inclusiveness, and well-being in interface design; machine consistency, covering predictive accuracy, operational safety, resilience, and automation; and value outcomes, reflecting the transition from sustainability-focused efficiency toward regenerative results such as ecosystem restoration and social equity. The study's outcome is the development of a conceptual framework for human–machine balance in regeneration, which illustrates how information systems and analytics enable regenerative decision-making in Industry 5.0 ecosystems.
Findings and Framework Development: The analysis revealed three dominant clusters. The first cluster is human compatibility, which encompasses themes such as inclusiveness, interpretability, trust, and human well-being in the adoption of information systems. The second cluster represents machine consistency, emphasising predictive accuracy, operational safety, resilience, and automation. The third cluster represents value outcomes that capture the transition from sustainability, encompassing efficiency, compliance, and eco-performance, toward regeneration, which includes ecosystem restoration, social equity, and resilience building. The emergent human–machine balance conceptual framework illustrates how information system architectures, including IoT, blockchain, ERP, cloud analytics, and digital twins, enable logistics, operations, and maintenance functions to move beyond sustainability toward regenerative impact within the firm.
Contribution and Implications: This study makes a theoretical contribution by extending the discourse toward information systems for regeneration through the mapping of thematic trajectories in human–machine interfaces. From a managerial perspective, it provides guidance on designing information system dashboards, decision-support tools, and analytics platforms that integrate transparency, inclusiveness, and human-in-the-loop governance, while maintaining consistency and operational efficiency. In terms of policy and societal implications, the study positions Industry 5.0-enabled information systems as catalysts for regenerative outcomes, highlighting their potential to promote long-term system resilience, ecosystem restoration, and inclusive industrial growth.

***Keywords:*** *Industry 5.0, Human–Machine Interfaces (HMIs), Regeneration, Sustainability Transition, Human–Machine Balance*

## TECH-ENABLED SAFETY AND SECURITY IN TERTIARY HEALTH CARE: A STUDY OF DOCTORS' PERSPECTIVES

*Suhas Ghadage (MGMSBS), Dr. Bahubali Nagaonkar (MGMSBS) and Dr. Noopur Kulkarni (MGM MEDICAL COLLAGE)*

**Abstract.** Ensuring safety and security in tertiary healthcare settings is fundamental for protecting patients, healthcare professionals, and critical hospital infrastructure. These complex environments face unique challenges including physical threats, unauthorized access to sensitive areas, and safeguarding confidential patient data. With the rapid evolution of digital health technologies, hospitals have increasingly adopted tech-enabled solutions to address

these challenges. Technologies such as smart video surveillance, biometric access controls, integrated emergency response systems, and cybersecurity frameworks are being implemented to enhance real-time monitoring, prevent unauthorized access, and improve incident response efficiency. The integration of these digital tools into healthcare security protocols creates a unified system that not only safeguards personnel and patients but also ensures compliance with regulatory standards and continuity of clinical operations. This study aims to explore doctors' perceptions of how these digital innovations contribute to strengthening safety and security in tertiary healthcare institutions.

Objective: To analyse doctors' perception and observation about using digital technology in strengthening safety and security protocols in tertiary healthcare

Methodology: A cross-sectional study was conducted among doctors working in tertiary care hospitals using a structured Google Form questionnaire administered through a digital platform, to assess key domains such as digital surveillance, electronic medical records (EMRs), patient data security, access control mechanisms, and technology-enabled emergency response systems.

Result: In this study, 45 hospital doctors' responses were examined; the majority were junior residents 2 (33%) and interns (28%), with the rest of the participants being faculty, senior residents, and junior residents 1. While only 4% disagree and 36% are neutral, the majority of respondents (59%) agree that they feel safe at work due to technology. Only 31% of respondents believe that working nights is as safe as working during the day, and 26% believe that working nights are less safe. (62%) strongly believe that hospital security needs to be improved, and about one-third have experienced workplace threats. Though opinions on personal protective equipment are more divided, approximately three quarters of respondents believe that facility conditions like cleanliness and pest control are adequate. Stronger security measures, such as additional personnel and assistance during high-risk shifts, are the main recommendations for improvement. The survey sample, which is primarily made up of young, single professionals, is equally divided by gender. Overall, the findings show that people are generally confident in hospital safety, but they also point to persistent issues with resource allocation and security.

Conclusion:The responses of Doctors were taken regrading status before and after inclusion of Technology. This study reveals that while most doctors feel safe in their hospital workplaces, significant concerns remain about safety during night shifts and workplace threats, with about one-third having experienced some form of threat. A majority strongly advocate for improved hospital security, particularly through increased personnel and enhanced support during high-risk periods. Although facility cleanliness and pest control are viewed positively, opinions on personal protective equipment are mixed. The demographic profile, predominantly young and unmarried with balanced gender representation, underscores the relevance of these findings to early-career medical professionals. These results highlight the critical need for healthcare institutions to prioritize security enhancements and resource allocation to ensure a safer and more supportive working environment in tertiary care settings.

***Keyword:*** *Healthcare security, Doctors' perceptions, Workplace safety, Night shift safety, Hospital security improvement, Workplace threats, Facility cleanliness, Security protocols, Cross-sectional study*

# EVALUATING PATIENT SATISFACTION USING DIGITAL PLATFORMS: WAITING PERIODS AND QUALITY OF CARE AT OUTPATIENT DEPARTMENTS AND DIAGNOSTIC

*Loukik Patil (MGMSBS), Dr Ratnaprabha Pedhambkar (MGMSBS) and Dr Bhaubali Nagaonkar (MGMSBS)*

**Abstract.** Background: As patient satisfaction evaluates both the overall patient experience as well as clinical outcomes, it has evolved into one of the most significant measures of healthcare quality. Patient satisfaction is an essential component in hospital assessment and accreditation requirements since patients in today's healthcare environment demand timely, efficient, and compassionate care.The waiting period is one of the main factors that determines patient satisfaction. Even when clinical care is adequate, long queues in diagnostic centres and outpatient departments frequently result in dissatisfaction, a decline in trust, and unfavourable opinions of the healthcare system. On the other hand, reducing down on waiting periods improves the impression of customer service and productivity.

Another equally important factor is the quality of care, which includes staff behavior, communication, accessibility of services, and the accuracy and timeliness of diagnostic results. High-quality care improves patient confidence, adherence to treatment, and loyalty to the healthcare institution. With the advancement of digital platforms such as mobile apps, online surveys, and feedback kiosks, healthcare providers now have innovative tools to collect real-time patient feedback. These platforms enable a more systematic evaluation of patient experiences and help administrators identify service gaps quickly. Thus, digital tools not only provide accurate insights but also empower patients by giving them a voice in shaping the quality of care they receive.

Objective: To evaluate patient satisfaction using digital platforms, focusing on the impact of waiting period and perceived quality of care at outpatient departments and diagnostic centres.

Methods: A cross-sectional survey was conducted using structured questionnaires distributed via digital platforms. A sample of 90 patients was studied, including 30 from outpatient departments and 60 from diagnostic services. The questionnaire assessed satisfaction in areas such as waiting time, staff courtesy, cleanliness, communication, and billing. Responses were recorded on a 5-point Likert scale (1 =Very dissatisfied to 5 = Very Satisfied),

Results: A total of 90 patients participated in the study, including 30 from outpatient departments and 60 from diagnostic services. The participants' ages ranged from 19 to 78 years, with a mean age of 36.9 years, and the gender distribution was nearly equal, with 53% male and 47% female. The majority of respondents (60%) were from rural areas, while 40% were from urban regions, reflecting a diverse demographic background. Analysis of waiting times revealed significant delays in registration, where half of the patients reported waiting more than 20 minutes, making it a critical bottleneck in service delivery. In contrast, blood collection services were more efficient, with 40% of patients attended within 5 to 10 minutes, whereas imaging services and OPD consultations showed mixed patterns of efficiency and delay. Satisfaction ratings indicated that doctor communication and quality of care were the most positively rated aspects, averaging above 4.0 on a five-point scale. However, the lowest scores were reported for washroom facilities, billing procedures, and registration staff

interactions, each averaging around 3.2 to 3.5. Overall, while clinical care and doctor–patient interactions were highly appreciated .
Conclusion: This study highlights that patient satisfaction in outpatient and diagnostic services is influenced by both clinical and non-clinical factors. While doctor communication and quality of care were appreciated, challenges such as long waiting times due to heavy patient load and inadequate washroom facilities affected overall satisfaction. In a charitable hospital managing nearly 800 patients daily, these issues are understandable but require systematic attention. Introducing digital queue systems to streamline registration, upgrading basic infrastructure, and enhancing staff training in patient care can significantly improve the patient experience even within resource limitations. Moreover, digital feedback platforms proved effective in capturing real-time patient perceptions, enabling timely improvements. Strengthening these areas will not only enhance satisfaction but also build greater trust in the services of a high-volume charitable healthcare institution.

***Keyword:*** *Patient satisfaction, Waiting period, Outpatient department, Diagnostic services, Quality of care, Digital platforms, Healthcare delivery, Patient experience, Hospital services*

## WHEN DIGITAL ACCESS BECOMES CAPABILITY: EVIDENCE FROM COASTAL TOURISM MICROENTERPRISES IN INDIA

*Manali Chowdhury (Research Scholar, Dept. of Management and Business Administration, Aliah University, Kolkata) and Arup Kumar Baksi (Professor, Dept. of Management and Business Administration, Aliah University, Kolkata)*

**Abstract.** This study investigates how digital ecosystem support influences micro-entrepreneurial resilience in coastal tourism clusters in India, with the objective of understanding the mediating role of psychological empowerment and the moderating role of gender inclusion. Data were collected from micro-entrepreneurs through structured surveys and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). Results indicate that digital ecosystem support enhances digital integration, which enhances psychological empowerment, ultimately improving business resilience, while gender inclusion strengthens both the digital integration–psychological empowerment and psychological empowerment–resilience pathways. The findings contribute to the literature by highlighting the interplay of digital infrastructure, agency, and gendered social conditions in promoting microenterprise resilience and provide actionable insights for policymakers to design gender-inclusive digital interventions for small tourism enterprises.

***Keywords:*** *Digital Infrastructure, Entrepreneurial Empowerment, Digital Adoption, Digital Opportunities, Market Participation*

## MACHINE LEARNING BASED UNDERSTANDING OF FACTORS AFFECTING CLIMATE CHANGE

*Pushpakanti Duari (The Neotia University) and Moubani Singha (The Neotia University)*

**Abstract.** Recent all-round advancements in machine learning, as a subfield of artificial intelligence, have begun a new era of data-driven decision-making approaches in climate prediction, introducing transformative techniques that not only help to deliver high-accuracy forecasts but also quantify the inherent uncertainty associated with atmospheric outcomes. Building upon this theme, our research paper focuses on using advanced algorithms such as ensemble learning, probabilistic models which will be useful for dual purposes- for capturing climate dynamics and for providing robust estimates of uncertainty events. Together, these approaches pave the way for more engaging and accurate predictions across temporal and spatial scales. Furthermore, the proposed solutions have significant potential to enhance climate risk assessment and inform policy decisions in the context of global warming and sustainable development, for making more accurate and timely decisions compared to traditional time-consuming procedures, enabling scalable solutions for real-world climate adaptions and mitigating challenges

***Keywords:*** *Climate Prediction, Machine Learning, Global Warming, Accuracy*

## DETERMINING DIMENSIONS OF DIGITAL TRANSFORMATION FOR SUSTAINABLE DEVELOPMENT USING PARETO ANALYSIS

*Nikita Bhati (Sharda School of Business Studies, Sharda University) and Ruchi Jain Garg (Sharda School of Business Studies, Sharda University)*

**Abstract.** In an era where digital transformation (DT) intersects with the imperatives of sustainable development (SD), identifying and prioritizing its key dimensions is crucial for achieving the United Nations Sustainable Development Goals (SDGs). This review paper synthesizes existing literature to delineate the multifaceted dimensions of DT that foster SD, employing Pareto Analysis to highlight the vital few factors driving the majority of impacts. A systematic literature review was conducted, analysing around 60 Scopus indexed articles., spanning domains such as technology adoption, governance, and socio-economic equity. The analysis reveals eight primary dimensions: technological infrastructure, data analytics and AI ethics, circular economy integration, stakeholder collaboration, regulatory frameworks, skill development, environmental monitoring, and innovation ecosystems. The findings offer a prioritized framework for policymakers, enterprises, and researchers to optimize DT investments, emphasizing targeted interventions over broad implementations. By bridging DT and SD through evidence-based prioritization, this work advances strategic pathways toward resilient, equitable futures, while calling for longitudinal studies to validate dynamic impacts in emerging contexts.

***Keywords:*** *Digital Transformation, Sustainability, Pareto Analysis, Digital Technology*

## DEEP LEARNING-BASED CLASSIFICATION OF DIABETIC STATS USING RETINA & NAIL IMAGING

*Rima Dutta (IMI Kolkata) and Samyadip Chakraborty (Associate Professor, IMI Kolkata)*

**Abstract.** Diabetic retinopathy (DR) and diabetic nephropathy (DN) are the 2 leading microvascular complications of diabetes, causing impaired vision, kidney disfunction respectively while substantially contribute to global healthcare burdens. Traditional screening for DR with fundoscopy and DN with urine albumin involves invasive tools, limits access in low-resource settings and misses multi-organ synergies. Herein, we propose a non-invasive deep learning framework for the simultaneous detection of DR, DN, and non-diabetic states using retina & nailbed images. A comprehensive dataset of significantly large number of samples may be used from different individuals, with paired high-resolution retinal and nail-bed images, and ground-truth labels for three mutually exclusive classes: DN-positive, DR-positive, and non-diabetic controls, in a balanced distribution per class. The methodology proposed may be, multi-input Convolutional Neural Network (CNN) architecture inspired by EfficientNet-B4 backbones to process retinal images for DR-specific vascular anomalies such as microaneurysms and haemorrhages and nailbed images for DN-indicative features such as capillary rarefaction and splinter haemorrhages. Feature fusion may be attained via a late-stage concatenation layer, which is further processed through attention-gated dense layers to handle cross-modal interactions and finally classify through a SoftMax layer. To avoid overfitting, data augmentation may be performed at random on the training set, including rotation, flipping, and brightness adjustment, combined with transfer learning from ImageNet-pretrained weights. The performance may be evaluated using multi-fold cross- validation. This framework will advance AI-driven precise detection for diabetes, with wide implications for global health equity. Empowering a smartphone-based, point-of-care deployment, it can democratise early intervention that has the potential to reduce progression to end-stage complications by 30-50%. Longitudinal validation and federated learning shall be incorporated in further work for scalability in real-world applications.

***Keywords:*** *Diabetic retinopathy, Diabetic nephropathy, Convolutional Neural Networks, Multi-modal imaging, Early detection*

## SURVEY ON INTRUSION DETECTION USING DEEP LEARNING IN IIOT

*Km Shivani Singh (NIT Jalandhar, punjab) and Dr. Shefali Arora Chouhan (NIT Jalandhar)*

**Abstract.** Since cyberattacks are growing more complex, reliably identifying breaches is getting harder. The reliability of security services, such as data confidentiality, integrity, and availability, might suffer from a failure to stop the incursions.

Several intrusion detection techniques have been published in the literature to deal with computer security concerns. These techniques may be roughly categorized into Signature-based Intrusion Detection Systems (SIDS)\cite{3} and Anomaly-based Intrusion Detection Systems (AIDS). This survey study provides a taxonomy of current IDS, a thorough analysis

of significant recent publications, and a summary of the datasets frequently utilized for evaluation. To make computer systems safer, it also outlines the evasion strategies employed by attackers to evade detection and addresses upcoming research challenges to defeat them\cite{12}. incursion Detection Systems (IDS) are those systems that look into and watch over all network traffic in search of any indications that could indicate a network threat such as an incursion or data theft. Various behaviors, such as port scanners, malware threats, and security policy breaches, are identified using these systems by comparing the current network packet flow to a threat database that has been built.
Together, these research directions underscore that deep learning-enabled IDS, when augmented with intelligent feature selection strategies, hold great promise for strengthening IIoT security. However, challenges related to dataset diversity, adversarial robustness, energy efficiency, and deployment in real-time edge–cloud environments remain open issues. A comprehensive exploration of these trends provides valuable insights for developing next-generation IDS frameworks tailored for secure and resilient IIoT infrastructures.

***Keywords:*** *Deep Learning, IIOT, Decision Tree, KNN, Intrusion testing, IDS, NIDS, Attacks, Security*

## PROTECTING PERSONAL DATA IN FINANCIAL TECHNOLOGY SERVICES IN INDIA TO IMPROVE TRANSPARENCY FOR REGULATORY AND COMPLIANCE PURPOSES

*Subhas Malik (SP Jain School of Global Management)*

**Abstract.** The rapid expansion of financial technology services in India has brought significant opportunities for financial inclusion and innovation. However, it has also raised critical concerns about personal data protection, regulatory transparency, and compliance. This paper reviews the current data protection landscape relevant to Indian FinTech, including key regulations such as the Digital Personal Data Protection Act. It explores how enhanced transparency in data handling and regulatory compliance can build consumer trust and mitigate risks. The study examines the role of emerging technologies like encryption, artificial intelligence, and blockchain in strengthening data protection practices while ensuring regulatory requirements are met. Challenges related to cross-border data flows and insider threats are also discussed. The findings highlight the need for clearer regulations, increased transparency, and collaborative efforts between regulators and FinTech providers to secure personal data and uphold compliance, supporting a safer FinTech ecosystem in India.

***Keywords:*** *Financial Technology, Data Protection, Regulatory Transparency, Compliance, Digital Personal Data Protection Act, Cybersecurity, Blockchain, Artificial Intelligence, Encryption*

# AN EMPIRICAL STUDY INVESTIGATING THE APPLICATION OF BLOCKCHAIN TECHNOLOGY IN SUPPLY CHAIN MANAGEMENT BASED ON REASONS AGAINST

*Siddhartha Sengupta (DBS Global University), Dr. Avinash K Shrivastava (IMI Kolkata), Dr. Gunjan Sood (fiib.edu.in) and Dr Jitendra Nenavani (K J Somayia)*

**Abstract.** The Blockchain Technology evolved with the evolution of Cryptocurrency, where they keep a secure and decentralized record of transactions. The blockchain maintains the accuracy and security of a data record and any transaction without a reliable third party's aid and allows digital information to be stored and distributed but not changed, a reason why a blockchain is considered a foundation for irreversible ledgers or accounts of transactions that cannot be altered, deleted, or destroyed. However, BT implementation in sustainable supply chain management (SSCM) is still in a nascent stage. Research, so far, on blockchain has mainly focussed on investigating the motives for the implementation of BT in SSCM, but investigation on both reasons for (RF), the determinants and reasons against (RA), the barriers in BT adoption in SSCM has been kept in abeyance. The research would attempt to address this gap through investigation of the reasons against (RA), the barriers by utilizing behavioural reasoning theory (BRT) to present a behavioural reasoning perspective of implementation of BT in SSCM.

What are the behavioural reasoning perspectives, that is the associations between values VALs, reasons against (RA), attitudes ATT and intentions INT on blockchain implementation in SSCM?

What role does value to customers play in the hypothesized relationships among RA, ATT and INT in the implementation of blockchain in sustainable supply chain management?

The research would investigate the relationships between employee values (VALs), reasons against RA, attitude (ATT) and behavioural intentions (INTs) towards BT implementation. The research would also analyse the moderating effect of the "value to customers" on BT implementation in SSCM. The hypotheses will be tested through a cross-sectional survey conducted on 200 respondents who are experts in manufacturing in different industry areas. The analysis will be performed using SmartPLS.

The survey has been conducted by serving questionnaire to the industry experts to respond. In the questionnaire contained questions covering all the areas such as, values (VALs), reasons against RA, attitude (ATT) and behavioural intentions (INTs) towards BT implementation.

***Keywords:*** *Blockchain Technology, Sustainable supply chain management, BRT*

# AGILE IT PRACTICES AND RESPONSIBLE GEN AI USAGE AS ANTECEDENTS TO SUSTAINABLE SERVICING CAPABILITY FOR DIGITAL SERVICE START-UPS

*Samyadip Chakraborty (Associate Professor, IMI Kolkata)*

**Abstract.** In dynamic business environment of a startup ecosystem, especially in the service sector startups, achieving higher levels of service readiness and generating sustainable

servicing capability has become the key pivot for business continuity and start-up growth. The study aims at understanding and empirically investigating the impact of Agile IT practices and responsible Gen AI usage on service readiness and sustainable servicing capability in the context of digital service startups in India. Understanding the antecedents that lead to superior service readiness and servicing capability, has become the utmost priority for most service sector firms. This research attempt follows three stages of pre-pilot study, pilot study and final survey-based study with empirical perceptual data collected from service sector start-up managers in Indian context. The methodology followed includes explanatory factor analysis and structural equation modelling for finding the path coefficients and testing the hypotheses. Significant positive outcomes from the data analysis reveals Agile IT practices and responsible Gen-AI usage positively impacted service readiness. Direct and indirect impact-based path analysis revealed interesting outcomes: servicing capability was observed to be positively impacted by service readiness and in turn indirectly by Agile practices and Gen AI usage, however the direct linkages were not found to be significant. This study provides an easy-to-understand framework for the managers to make prudent decisions regarding business strategies and approaches to implement, to gain sustainable servicing capability. The study contributes in terms of developing valid and reliable instruments used for measuring the four study constructs based on extant literature and fine-tuned using focused group discussion involving practitioners and sectoral experts and using Q-sort approach. The originality of the study lies in its very conceptualization in the context of service sector start-up ecosystem where the aim of the firms always remains at identifying means which can provide them with more flexibility and responsiveness to serve their customers and their ever-changing needs.

***Keywords:*** *Agile IT practices, Gen AI Usage, Service readiness, Servicing capability, Start-up*

## INEQUALITIES AMONG CASTE GROUPS IN LOAN APPROVALS FROM INSTITUTIONAL SOURCES FOR INDIAN BUSINESS HOUSEHOLDS: A CAUSAL INFERENCE USING DOUBLE MACHINE LEARNING

*Johnson Madatthil (XIME Bangalore) and Shradha Kundra (XIME Bangalore)*

**Abstract.** Business income inequality among social groups is an area of interest for both academic researchers and government policy analysts. Studies examining income inequality across caste groups have shown that such disparities are linked to reduced organizational diversity, lower credit scores, and limited access to venture capital funding. Moving beyond traditional approaches, this research applies double machine learning (DDML) to address the causal question, is there caste-based inequality in loan approvals from institutional sources for business households. To investigate this, we use the AIDIS (All India Debt and Investment Survey) dataset (N = 43,192). The findings indicate the presence of caste-based disparities in loan approvals from institutional lenders. The robustness of these results is validated using multiple machine learning techniques, including neural networks, random forests, and XGBoost.

***Keywords:*** *Caste Inequality, Machine Learning, Big Data, Loan approvals*

## FUZZY LOGIC FRAMEWORK ENHANCED NEURAL NETWORK INTERPRETABILITY IN FINANCIAL MARKET PREDICTION

*Rashmi Singh (Department of Mathematics, Amity Institute of Applied Sciences, Amity University Noida, India), Kuhu Awasthi (School of Management, Bennett University, India) and Meghna Athwani (Department of Community Medicine, Autonomous State Medical College, Amethi, India)*

**Abstract.** This research paper explores how integrating fuzzy logic frameworks with neural networks can enhance the interpretability and predictive power of models used for financial market forecasting. By leveraging the complementary strengths of fuzzy logic and neural networks, we develop a novel hybrid approach that provides more transparent and explainable predictions while maintaining high accuracy. Our framework uses fuzzy membership functions to represent market conditions and linguistic rules to capture expert knowledge, which are then used to modulate the outputs of a deep learning model. Empirical results on stock market datasets demonstrate that the fuzzy logic enhanced neural network outperforms standalone models and provides clearer insights into the key factors driving its predictions. This research highlights the potential of neuro-fuzzy hybrid models for improving the interpretability and reliability of AI systems in high-stakes financial application.

***Keywords:*** *Fuzzy Logic, Neural Networks, Financial Market Prediction, Interpretability, Hybrid Models*

## EXPLOITING FEATURE EXPLAINABILITY TO RENDER TUNABLE PRIVACY OF DATA

*Payel Sadhukhan (Army Institute of Management Kolkata)*

**Abstract.** Privacy remains a fundamental concern in the modus operandi of data analytic tools. The tools and their underlying data are accessed by users with varying levels of trust within an organization. To address this, the organizations resort to tunable data hiding, where the degree of hiding depends on and is inversely proportional to users' trust. Highly trusted users get access to near-approximate data (with high fidelity) while less trusted users receive data with low fidelity. To this end, we propose a technique to systematically control the level of data approximation, according to the trust of the user. Our approach is built on the framework of Shapley-based feature explainability. We compute the feature importances using Shapley method and identify the important and less important features. To render approximate data for users with high trust, we selectively perturb the less important features to preserve the intrinsic aspects of the data. On the contrary, we garble the important features to generate the approximate data for low-trust users to produce a more obfuscated version. Experimental study is conducted on twelve real-world datasets, three competing methods and three evaluating metrics. The results manifest the superiority of the proposed technique in terms of correctness as well as privacy preservation.

***Keywords:*** *privacy preservation, feature importance, tunable privacy*

## QUADRUPED SURVEILLANCE ROBOT DOG

*Yash Thakur (Vishwakarma institute of technology), Shravani Jadhav (Vishwakarma institute of technology), Suhani Kumbhar (Vishwakarma institute of technology) and Apurva Sanpurkar (Vishwakarma institute of technology).*

**Abstract.** This project describes the design and development of a compact, adaptable robotic dog built for surveillance and defensive support in risky environments. It combines multiple microcontrollers, an integrated camera system for real-time video streaming, and motorized movement. The platform can operate automatically through complex terrain or be controlled remotely by operators. A compact defensive module is included to enhance the robot's protective capabilities while reducing direct human exposure during high-risk missions. The focus is on modularity, affordability, and ease of customization, allowing the platform to be fitted for various security and reconnaissance roles. This work highlights how software and hardware work together to enable reliable navigation, live monitoring, and flexible control modes. It also emphasizes the need for responsible deployment, safety measures, and following legal and ethical standards in defense applications.

**K*eywords:*** *Robotic Dog, Surveillance, Defense, Autonomy, Monitoring*

## BIG DATA ANALYTICS, KNOWLEDGE MANAGEMENT ACTIVITIES, AND TECHNOLOGICAL INNOVATION EFFECTS ON ENVIRONMENTAL PERFORMANCE

*Saumyaranjan Sahoo (Indian Institute of Management Sambalpur)*

**Abstract.** The increased significance of environmental sustainability has led to the need to enhance the organizational ability of manufacturing firms in order to make informed strategic decisions (Shahzad et al., 2020; Torres et al., 2019). Adoption of big data analytics has become a necessity to the manufacturing companies in order to skillfully maneuver through unexpected market dynamics as they sustain and improve sustainability in their processes. The skill develops confidence and trust among the consumers at the product value chain and the strategic stakeholders in the upstream and downstream supply chain (Chen et al., 2024; Hjelle et al., 2024). However, despite the growing interest, a serious gap exists in scholarly studies showing the interplay between BDA, knowledge management activities (KMA), and eco-technology innovativeness (ETI) and environmental performance (EP) in a single framework (Mittal and Gupta, 2023). In most previous studies, these constructs are separated without taking into consideration their relationship to one another. In addition, the lack of moderating impact of the resource commitment (RC) by the senior management is indicated as a potential research avenue in the future. As a result, the current study will involve a moderating effect of resources commitment (RC) as an accelerator of green innovations in industrial organization (Mustafa et al., 2023; Sohu et al., 2024). This particular paper addresses this gap by analyzing the strategic fit of these constructs by lenses of Resource-Based View (RBV), Natural RBV (NRBV), and

Knowledge-Based View (KBV), and provides a comprehensive framework on how big data-driven knowledge management capabilities can be translated into quantifiable improvements in environmental performance (Achmad and Wiratmadja, 2025; Chen et al., 2024). This paper aims at explaining why big data applications are relevant in improving the green strategies and supporting environmental sustainability initiatives (Calza et al., 2020).

Objectives: (1) To examine the impact of BDA on KMA and ETI; (2) To examine the impact of KMA and ETI on EP; (3) To assess the moderating role of RC on the relationships between BDA, KMA, and ETI.

The significance of this study lies in its contribution to both academic research and practical management. It offers empirical evidence on the integrative roles of data analytics, organized knowledge dissemination, and eco-innovation capabilities for enhancing firms' environmental performance. For policymakers and industry leaders, the insights provide guidance on implementing resource-driven green practices that foster sustainable competitiveness.

Materials & Methods / Methodology

A quantitative research design was adopted with a structured questionnaire instrument developed based on five constructs i.e. BDA, KMA, ETI, EP, and RC. Each construct was operationalized with five measurement items derived from validated prior studies to ensure content validity.

Data were collected from large manufacturing firms in India holding ISO 14001 certification, identified through the Indian Ministry of Corporate Affairs database. A total of 700 firms were approached using a combination of judgmental and snowball sampling techniques, with data collection occurring between May 2019 and February 2021. The data collection methods were mixed, involving in-person interviews, mailed questionnaires, telephone interviews, and online surveys, yielding 283 usable responses (~40.4% response rate) from various sectors including automotive, electronics, energy, petrochemical, plastics, rubber processing, and food and beverages. Reliability and validity of the instrument were tested using Exploratory Factor Analysis (EFA) with Principal Component Analysis and Varimax rotation, Cronbach's alpha, Kaiser-Meyer-Olkin (KMO) measure, Confirmatory Factor Analysis (CFA), and model fit indices per Bagozzi & Yi (1988) and Browne & Cudeck (1992) standards. Structural Equation Modeling (SEM) was employed to test hypothesized relationships, and moderation effects were examined to establish the role of Resource Commitment.

Results and Discussion

The study findings supported all hypothesized relationships, confirming the pivotal role of BDA as a precursor to knowledge synchronization and innovation in green technologies. Specifically:

- BDA positively influenced KMA and ETI, confirming that data-driven insights enhance organized green knowledge and stimulate innovation capabilities.
- KMA significantly boosted ETI and directly improved EP, illustrating that effective knowledge management fosters innovation and environmental outcomes.
- ETI exhibited a strong positive effect on EP, corroborating the vital role of eco-friendly innovations in advancing sustainable corporate performance.
- The moderating effect of RC was significant in strengthening the BDA to KMA and BDA to ETI paths, highlighting the necessity of resource dedication for maximizing green analytic capabilities and innovations.

These results align with and extend prior literature by integrating BDA, KMA, ETI, and resource allocation into a unified model, confirming theories based on RBV, NRBV, and KBV. This study empirically demonstrates that big data analytics capabilities are not solely technological but require organizational knowledge structuring and resource facilitation to realize their full potential in sustainability.

Practical Implications

The study's outcomes present several practical implications:

● Firms should develop proactive Environmental Management Systems powered by BDA, enabling real-time and predictive environmental decision-making.

● Continuous refinement of environmental assessment metrics is essential to accurately track and improve sustainability efforts.

● Investments in cutting-edge IT infrastructure and synchronizing organizational resources across departments will enhance the effectiveness of KMA and foster ETI.

● Enhancing social and HR innovations to promote collective ethos and collaborative projects among stakeholders can further drive green initiatives.

● Organizations must strategically plan and allocate adequate resources, monitoring progress to sustain environmental performance improvements.

For policymakers and plant managers, the study suggests embracing big data-driven frameworks even beyond ISO 14001 certified firms to enhance green information management capabilities, thereby accelerating innovation in eco-friendly products and processes.

## UNDERSTANDING ORGANIZATIONAL TECHNOLOGY ADOPTION: A QUALITATIVE STUDY OF SELF-BOOKING TOOL IMPLEMENTATION

*Adhip Nath Palchaudhuri (IIM Nagpur), Dr. Aakash Kamble (Flame University), Mrigashikha Mitra Banerjee (IIM Indore) and Dr Rohan Mukherjee (IMI Kolkata)*

**Abstract.** Purpose: This study investigates the factors that facilitate and hinder the adoption of a self-booking tool (SBT) within Balmer Lawrie & Company Limited (BLCL) and associated organizations. It seeks to understand organizational technology adoption as a socio-cognitive process by applying the Behavioral Reasoning Theory (BRT) framework.

Methodology: Employing interpretive qualitative methodology, 26 semi-structured interviews were conducted of SBT users. The study relied on constructivist grounded theory approach to record diverse experiences. Inductive analysis of data provided for open, axial and selective coding, resulting in themes emerging from participant narratives.

Findings: Adoption of SBT reflects a dynamic interaction between individual reasoning, organizational climate, and leadership support. Three pathways for adoption were identified consisting of early enthusiasts, gradual adopters, and reluctant adopters. Operational efficiency, cost visibility, autonomy, and strong leadership endorsement promoted adoption, while usability challenges, insufficient training, and process misalignment were identified as key barriers. The internal champions and organizational support reinforce the adoption trajectory as it evolved from compliance to value-driven engagement.

Originality: This study extends BRT into organizational context showing the interplay of structures and climate to shape reasoning processes in technology adoption. Furthermore, it highlights the integration of individual, social and organizational dimensions for implementing digital tools in organizational settings.

***Keywords:*** *Organizational technology implementation, behavioral reasoning theory, self-booking tools*

## TECH FOR NET ZERO- DIGITAL SOLUTIONS FOR A SUSTAINABLE PLANET

*Shashank Tiwari (Pune Institute of Business Management) and Surojit Saha (Pune Institute of Business Management)*

**Abstract.** With the advent of climatic conditions having changed a lot, an urgent need is felt, which necessitates technological transformation and, accordingly, behavioural adoption. It is true that the needs of sustainability of this planet and keeping climatic conditions under control, adopting digital tools like smart grid, IoT, or even blockchain can help a long way , but its dependence on human acceptance and widespread human adoption is very important. In today's time, convincing customers based on just factual statements or simple economic arguments is less effective; instead, few facilities or statements that add to a more deeply involved cognitive process are proven to be more effective. This paper tries to address the issue of achieving net zero ,but , not just with the digital technological adoptions of tools ,but it also integrates it with change in propositions of the behavioural segment of humans through streams like neuromarketing and neuroeconomics.

By strategically utilising neuro commands that directly tap of Nobel Lauret ideas like loss aversion, hyperbolic discounting, and social proof , these choices are difficult to be missed as they give a sense of achievement immediately and are more socially compelling. Bringing real-world examples from building energy efficiency and national power generation planning , this research paper can substantially increase user interest and therefore their involvement in the said way of activity. This ultimately supports user engagement and transition to net -zero future.

***Keywords:*** *Neuroeconomics, Behaviour Change, Green Tech, IoT, AI, Nudging, Energy Efficiency*

## WI-FI-BASED HUMAN ACTIVITY RECOGNITION USING CSI AND MACHINE LEARNING TECHNIQUES

*Sangeeta Rai (NIT Jalandhar) and Dr. Naveen Kumar Gupta (NIT Jalandhar)*

**Abstract.** Human Activity Recognition (HAR) plays a vital role in applications ranging from healthcare monitoring to smart home environments. While WiFi signal-based sensing has recently gained attention as a non-intrusive solution for HAR, the lack of large-scale WiFi datasets remains a major limitation. To address this, we utilize the benchmark UCI-HAR

dataset, originally created from wearable sensor data, as a proxy for evaluating multiple machine learning and deep learning approaches. Several baseline models were first implemented to assess recognition performance, followed by a proposed modified Bidirectional Long Short-Term Memory (BiLSTM) architecture that integrates convolutional feature extraction, temporal attention, and data augmentation strategies. Experimental results demonstrate that the proposed model outperforms the baseline methods, achieving high accuracy and strong generalization. These findings establish a solid benchmark for sensor-based HAR and indicate the potential for adapting such temporal deep learning models to future Wi-Fi-based sensing systems.

***Keywords:*** *Human Activity Recognition, Wi-Fi Sensing, Channel State Information, Machine Learning, Deep Learning, Bi-LSTM*

## OPTIMIZED ORDER ALLOCATION TO TIER 2 SUPPLIERS IN INDIAN AUTOMOTIVE INDUSTRY: A DECISION FRAMEWORK

*Sayan Chakraborty (ICFAI Business School Hyderabad) and Ajith James (Indian Institute of Management Bodh Gaya)*

**Abstract.** Purpose: Supplier selection and order allocation are critical challenges for Tier-1 suppliers in the automotive industry, particularly in emerging markets where operational efficiency and cost management are vital. This work presents a quantitative decision-making framework using a Mixed-Integer Linear Programming (MILP) model to allocate OEM orders to Tier-2 suppliers based on multiple performance-driven criteria. The model aims to support Tier-1 suppliers in achieving optimal order distribution under practical constraints, thereby improving supply chain responsiveness and efficiency.

Methodology/Approach: A deterministic MILP-based optimization model is developed to allocate OEM orders to a pool of Tier-2 suppliers. The model incorporates real-world criteria such as supplier cost structures, delivery capabilities, and order specifications. The framework is presented using a numerical case study that validates its ability to minimize total procurement cost while satisfying allocation constraints.

Findings: The MILP model effectively addresses the complexity of Tier-2 supplier selection by offering optimal allocation strategies that align with operational goals. The case study confirms that structured mathematical modelling can lead to more cost-effective and efficient sourcing decisions in multi-tier automotive supply chains.

Research limitations: The study assumes a deterministic environment, not accounting for uncertainties such as supply chain disruptions, lead time variability, or capacity fluctuations. Future research could enhance this model through stochastic optimization or real-time decision-making mechanisms.

Practical implications: Tier-1 suppliers often face difficulties in selecting appropriate Tier-2 partners under limited resources and dynamic demand. The proposed MILP model offers a practical and adaptable decision-support tool to streamline allocation processes and improve supplier network alignment.

Originality/Value: This research contributes to the supply chain management literature by focusing on the often-overlooked problem of Tier-2 supplier allocation through a rigorous MILP approach. Its application in the automotive sector, particularly in resource-constrained environments, highlights its relevance and novelty.

***Keywords:*** *Supplier selection, MILP, Automotive supply chain, Order allocation optimization*

## DETECTION OF AFRICAN ANIMALS VIA DEEP LEARNING

*Saakshi Kapoor (UIET, Panjab University, Chandigarh) and Maanya Kharbanda (UIET, Panjab University, Chandigarh)*

**Abstract.** In recent decades, deep learning has advanced significantly. Personalized marketing, smart agriculture, facial identification, object detection, healthcare, and many more fields have made substantial use of deep learning in recent years. It has found an extensive usage in the field of detection and classification of animal species, which in turn has proved to be of great help for the preservation and protection of various species. In this work, we propose a YOLOv8 approach for the detection of wildlife species. Experiments have been performed on African Wildlife Dataset. This dataset consists of 1504 images of four animal types —buffalo, elephant, rhino, and zebra—which are primarily found in South Africa's nature reserves. At least 376 photos for every animal type are included in this data collection, which was gathered using Google's picture search feature and labelled for object detection. The proposed model achieved a Mean Average Precision of 0.992 on the dataset across all classes, outperforming previous progressive works and algorithms carried out on this dataset. This work can prove to be very helpful in real-life scenarios for the detection of animals.

***Keywords:*** *Animal detection, Deep learning, Machine learning, Wildlife*

## A NOVEL HEURISTIC ALGORITHM TO REDUCE SHIFTING OPERATIONS IN STOWAGE PLANNING

*Samir Biswas (Indian Institute of Management Udaipur)*

**Abstract.** The efficiency in maritime transportation has increased manifold through containerization. An optimal stowage planning, i.e., loading-unloading of the containers into the ship, is essentially required to harness the benefits of transporting cargo through containers. However, the complexity of the Container Ship Stowage Planning problem makes it difficult to generate an optimal solution within a finite time period for practical scenarios. This paper attempts to reduce unnecessary shifting of the containers by proposing a heuristic-based algorithm. It immaculately introduces non-essential or voluntary shifting of the containers in order to reduce overall shifting operations and hence, minimizes operating cost for the shipping industry. We simulate the algorithm under different conditions and obtain encouraging results within a finite time.

***Keywords:*** *Stowage Planning, Container Ship, Linear Programming, Heuristic*

## AUTOMATED FORECASTING FOR SUSTAINABLE FOOD MANUFACTURING: A COMPARATIVE STUDY OF WPI MODELS IN INDIA USING STATISTICAL, AI-DRIVEN, AND HYBRID METHODS

*Dipankar Das (Institute of Engineering & Management, University of Engineering and Management Kolkata, India) and Shameek Mukhopadhyay (School of Business, UPES, Dehradun, Uttarakhand, India)*

**Abstract.** Accurate forecasting of the Wholesale Price Index is critical for ensuring price stability, informed policy-making and sustainable development in the food manufacturing sector. This study presents a comprehensive comparative analysis of automated forecasting techniques spanning statistical, AI-driven, and hybrid models. It is applied to the Wholesale Price Index data of India's "Manufacture of Food Products" category and its 16 sub-categories. Using monthly data spanning 135 months (April 2012 to June 2023), the research evaluates the predictive performance of 16 models including ARIMA, ETS, THETA, STL, TBATS, ANN, and various hybrid combinations. Forecast accuracy is measured using Root Mean Square Error (RMSE) and Mean Absolute Percentage Error (MAPE), with further validation through the Diebold-Mariano statistical test. The results indicate that while no single model consistently outperforms across all categories, hybrid approaches such as STL-ARIMA (AS) and standalone models like TBATS and THETA offer robust performance in most cases. The framework developed demonstrates the potential of integrating statistical and AI techniques for operational forecasting, contributing to enhanced economic resilience, digital transformation, and policy relevance in the agri-food sector. This study offers valuable insights for researchers, industry practitioners and policymakers aiming to strengthen forecasting systems for sustainable food supply chain management in emerging economies like India.

***Keywords:*** *Wholesale Price Index, Forecasting Models, Food Manufacturing Sector, Hybrid Time Series Methods, Sustainable Agri-Food Systems*

## IMPACT OF INSTITUTIONALIZATION ON INFORMATION SYSTEMS ADOPTION, IMPLEMENTATION AND USE

*Abhishek Tripathi (IIM Trichy)*

**Abstract.** Institutional theory has been widely used by information systems (IS) researchers to study the various phenomena of IS. This paper intends to give a comprehensive literature review regarding how institutional theory has been used in IS domain. This review is done on the studies published in senior basket journals of association for information systems (AIS) from 2009 to 2024. The findings are first presented in terms of number of studies using which research method and number of studies published in terms of year, country, subject area and then findings are given in six major themes like institutional pressures and IS design, legitimacy and IS implementation, institutional theory in IS adoption, institutional logics and IS use,

Institutional change and digital transformation and decoupling in IS systems. This review finds that digital transformation is bringing change in institutional logics but at the same time institutional logics also play a very important role in designing, adoption, implementation and use of information systems by organizations. for instance, Emerging technologies like AI, blockchain and augmented & virtual reality are disrupting traditional norms and practices in organizations but at the same time different cultural & institutional norms of sectors like health, finance etc. lead to different design and implementation of technology. Different institutional pressures like coercive in the form of (govt. regulation, influence of parent organization, powerful suppliers or customers etc.), mimetic pressure in the form of (peers, successful competitors, best practices etc.) and normative pressure in the form of (professional networks, training etc.) impact IS design, adoption, implementation and outsourcing. This study also highlights that how IT artifacts gets institutionalized and changes various practices and business models of organizations. In order to have credibility with other stakeholders and align with institutional norms, legitimacy also plays a crucial role in IS implementation and use besides efficiency & profit. Firms implement systems like enterprise resource planning (ERP) but fail to use them effectively which leads to the concept of decoupling in IS use and implementation. Various Future research directions are provided in the further use of institutional theory to explain more deeply about digital transformation changing institutional logics, IT institutionalization and how external or internal environmental factors like culture, power and politics is impacting the design, adoption, implementation and use of emerging technologies. This review will help managers, researchers & policy makers to understand about the present scenario of application of institutional theory and how we can use this theory to understand more nuanced aspects of digital technology and systems use in business organizations.

***Keywords:*** *Institutional theory , Institutionalization , Information Systems , Institutional pressures , Digital Transformation , Institutional logics , Legitimacy , IS adoption*

## INVISIBLE GATEKEEPERS: A REVIEW OF ALGORITHMIC BIAS IN RESUME SCREENING AND TALENT MATCHING SYSTEMS

J*ahnavi Patky (Bharati Vidyapeeth Institute of Management and Research)*

**Abstract.** As artificial intelligence (AI) becomes integral to modern recruitment, particularly in resume screening and talent matching systems, concerns about algorithmic bias have grown significantly. This systematic literature review analyzes 68 peer-reviewed articles published in peer-reviewed journals between 2015 and 2025 to examine the sources, manifestations, consequences, and mitigation strategies of algorithmic bias in hiring. Using the PRISMA methodology and thematic coding, we identify key drivers of bias, including historical training data, proxy variables, feedback loops, and design flaws. The review reveals widespread bias against gender, race, age, and intersectional identities, with far-reaching implications for candidates, organizations, and society. Mitigation strategies discussed include data debiasing, human-in-the-loop models, explainable AI, and algorithm audits. This review underscores the pressing need for transparent, accountable, and inclusive AI in recruitment, offering actionable

insights for researchers, HR practitioners, and policymakers seeking to foster fair and ethical hiring practices.

***Keywords:*** *Algorithmic bias, artificial intelligence, recruitment, talent matching systems*

## APPREHENSION OR AVOIDANCE? : THE DYNAMICS OF USER DISTRUST IN AI MENTAL HEALTH CHATBOTS.

*Aniket Sachan (Indian Institute of Management Tiruchirappalli (IIM Trichy)) and Ashish Viswanath Prakash (Indian Institute of Management Tiruchirappalli (IIM Trichy))*

**Abstract.** Purpose: As AI-driven mental health chatbots received popularity, understanding user experience has become more critical due to the subject of mental health. Thus, the purpose of this study is to systematically investigate the determinants, antecedents of user distrust toward AI-based mental health chatbots, identifying key areas for design improvement and developer interventions.

Design/methodology/approach: This study employed a rigorous qualitative thematic analysis of user data. Data collection involved filtering over 1,400 people's data down to a focused subset. The lived experience dataset, subsequently coded and analyzed through thematic analysis. The study also integrates inductive insights with deductive theoretical frameworks from the distrust and technology acceptance literature.

Findings: Six prominent themes emerged as major sources of distrust: perceived technical inadequacy, lack of personalization and relational value, empathy deficit and anthropomorphism, limited therapeutic efficacy, privacy and safety concerns, and interactional rigidity and user disempowerment. Users consistently reported frustrations stemming from repetitive responses, algorithmic inflexibility, generic and insensitive interactions, inadequate crisis management, and unclear data privacy policies, significantly undermining their trust in mental health chatbots.

Research limitations/implications: The study primarily relies on accessible available user data, which potentially excludes perspectives from users who do not leave reviews or have complex experiences not captured in short feedback. The potential research should integrate qualitative interviews or observational studies to capture actionable insights into real-time user experiences.

Practical implications: This research gives importance to critical areas needing improvement in AI chatbot design, emphasizing emotional resonance, adaptive personalization, and robust data privacy practices. Developers, mental health practitioners, and regulators can utilize these findings to enhance chatbot credibility, safety, and effectiveness, ultimately fostering user trust and engagement.

Social implications: Since distrust is not equal to just the absence of trust, addressing user distrust in AI-based mental health chatbots holds significant social value by enhancing efficacy and acceptance of digital mental health interventions. Improved chatbot interactions can potentially reduce feelings of isolation, better support for critical areas like mental health needs, and create broader acceptance of digital mental healthcare solutions.

Originality/value: This study uniquely examines distrust as a standalone construct that is distinct from trust. The study provided empirical evidence from real user experiences. By identifying specific antecedents and behavioral manifestations of distrust. The research contributed theoretical understanding and calls for actionable insights for designing empathetic, adaptive, and trustworthy AI-based mental health interventions.

***Keywords:*** *Distrust , AI chatbots , Mental health , Thematic analysis , Technology resistance , Privacy concerns*

## MAPPING EMPLOYEE WELL-BEING THROUGH AYU TYPOLOGY: A CONTEXTUAL NLP STUDY OF THE INDIAN BFSI SECTOR

*Dr. Dipa Banerjee (Assistant Professor, Department of Business Administration, Vidyasagar University, West Bengal, India), Dr. Debasish Biswas (Associate Professor, Department of Business Administration, Vidyasagar University, West Bengal, India), Soumya Chakraborty (QA Lead, V Group INC, Bhopal, Madhya Pradesh, India) and Sourav Chakraborty (Independent Researcher, Durgapur, West Bengal, India)*

**Abstract.** This is a research which tries to integrate traditional Ayurvedic philosophy with modern Natural Language Processing (NLP) techniques for analysing employee sentiment in India's Banking, Financial Services, and Insurance (BFSI) sector. It takes from Charak Samhita to classify four Ayu categories —Hitayu (wholesome), Sukhayu (pleasant), Ahitayu (harmful), and Dukhayu (painful).This study evaluates 810 employee reviews collected from AmbitionBox. Reviews from nine companies across three sectors (Banking, NBFC, and Insurance) and three hierarchical designations were manually collected and analysed using a rule-based, context-sensitive classification model.This model focuses on keyword presence, semantic context, section type Like/Dislike, and negations to assign percentage-based Ayu scores to each review.

The percentage scores were statistically by data normality test, Kruskal-Wallis tests and post hoc Mann-Whitney U tests with Bonferroni correction. The statistical analysis discloses that Sukhayu distribution significantly varies across sectors. It also indicates that Hitayu, Ahitayu,and Dukhayu distribution significantly varies across designations. Higher designations are more likely to report higher Ahitayu experience compared to frontline executives. This unique study emphasized the value of integrating Indigenous Knowledge Systems with Natural Language Processing to make a holistic approach for realising employee well-being and cultural alignment.

***Keywords:*** *Indian Knowledge System, Hitayu, Sukhayu, Ahitayu, Dukhayu, NLP, Employee review*

# EMPLOYEE ATTRITION PREDICTION USING MACHINE LEARNING APPROACHES

*Debasmita Paul (Techno International New Town), Prerona Pattrea (Techno International New Town), Sobhan Sarkar (Indian Institute of Management Ranchi) and Milan Basu (Techno International New Town)*

**Abstract.** Recent industry reports, including EY's Future of Pay 2024, reveal that the average attrition rate for employees across various industries in India reached around 18.3 % in 2023. This ongoing challenge adversely affects profit management, workforce stability, and operational efficiency. In the past, understanding why employees leave largely depended on lengthy HR processes like surveys and interviews. Machine learning enables organizations to move beyond these traditional approaches, offering quicker, data-informed, and more reliable forecasts of attrition. This study addresses these gaps by conducting a comprehensive, comparative analysis of nine machine learning classifiers which are Logistic Regression, Decision Tree, Random Forest, Gradient Boosting, AdaBoost, Na¨ıve Bayes, K-Nearest Neighbors (KNN), XGBoost, and CatBoost in a dataset of 1,470 employees with 35 diverse attributes. The aim is to identify all the factors that contribute to attrition and to evaluate it using performance metrics. The results of the research imply that CatBoost achieved the highest accuracy (92.71%), while XGBoost showed the best class separation (ROC-AUC 0.968). This approach aims to enhance decision-making in HR analytics by assisting HR teams to predict employee turnover effectively, minimize attrition costs, and help to design work-life balance strategies, competitive pay structures, and customized career development programs.

***Keywords:*** *Employee Attrition, HR Analytics, Human Resources, Profit Management, Workforce Stability*

# DO ORGANIZATIONS' RISK PERCEPTION AND GOVERNANCE IMPACT DIGITAL TRANSFORMATION? A VIGNETTE EXPERIMENTAL APPROACH IN THE UK MANUFACTURING SECTOR

*Wenjuan Zeng (Leeds University Business School) and Debabrata Ghosh (Essex Business School)*

**Abstract.** Digital transformation (DT) has become a central concern for contemporary organizations, yet its integration into operational-level managerial decision-making remains underexplored. This study investigates the antecedents of DT risk perception—specifically competitive pressure, regulatory pressure, and governance mechanisms—and examines how these perceptions influence managers' DT adoption decisions. A 2×2 scenario-based vignette experiment was conducted, collecting data on DT risk perception and decision-making from 600 quality managers in UK manufacturing firms. Using structural equation modeling (SEM) the findings reveal that competitive pressure heightens DT risk perception, reducing managers' willingness to adopt DT, whereas robust governance mechanisms mitigate perceived risk and enhance adoption intent. By conceptualizing DT risk perception as a multi-dimensional

construct and uncovering relationships in decision-making, this study advances the understanding of DT adoption. Integrating decision-making theory, it demonstrates how institutional, industry, and organizational factors collectively shape managerial risk perceptions and, ultimately, influence operational-level DT adoption decisions.

*Keywords: Digital transformation, risk perception, decision making theory, governance mechanism, vignette experience*

## MISINFORMATION, DISINFORMATION, AND BUSINESS RISK A MACHINE LEARNING APPROACH

*Vishruth Khare (Indian Institute of Management Calcutta), Rahul Singh (Indian Institute of Management Calcutta) and Rahul Kumar (Indian Institute of Management Calcutta)*

**Abstract.** Modern financial markets and retail channels are highly interconnected, making them vulnerable to the rapid spread of false information. This paper examines how misinformation and disinformation propagated through news and social media can induce extreme stock price volatility and large demand forecast errors (DFE) in retail sales. We develop machine learning models to detect misleading news content and align these detections with real-world market and consumer behaviour indicators. Using a comprehensive, human-curated dataset of 45,000 news articles labelled for veracity and time-series data from finance and commerce, we compare a Logistic Regression classifier, a Gradient Boosting ensemble, and a Bidirectional LSTM neural network for misinformation detection. The Gradient Boosting model achieves the highest accuracy (99.44%), closely followed by Logistic Regression (98.85%), while the more complex BiLSTM reaches 77.4% validation accuracy. We further correlate detected misinformation events with anomalous fluctuations in stock prices (e.g. a single false tweet erased $136.5 billion from the SP 500 within minutes [1]) and with retail demand surges (e.g. panic buying during COVID-19 drove grocery sales 53% higher than the previous record [2]). All datasets used in this study are real-world and human-sourced – no synthetic or AI-generated inputs were included – which ensures the validity and authenticity of our findings. The results underscore the significant business impact of misinformation and demonstrate that robust detection models, combined with anomaly analysis, can help mitigate financial and operational risks. These insights inform corporate risk management strategies and forecasting practices in an era of rampant online falsehoods.

***Keywords:*** *Misinformation, Disinformation, Machine Learning, Business Impact*

## SMART WASTE MANAGEMENT THROUGH AI-POWERED REAL-TIME SEGREGATION: DIGITAL PATHWAYS TO NET ZERO

*Mayura Nagar (K.J. Somaiya Institute of Management , Somaiya University, Mumbai)*

**Abstract.** Managing waste generation is increasingly becoming a major constraint to achieving global sustainability and Net Zero goals. While existing waste segregation methods often lack efficiency, scalability, and real-time responsiveness, which leads to increased landfill buildup,

high carbon emissions and inefficient resource utilization. Accordingly, this paper presents an AI-based smart waste segregation system based on state of the art machine learning models for real-time classification and optimization of waste streams. By adding digital intelligence to waste-management processes, the system increases the accuracy of segregation, reduces the need for manual input and promotes implementation of the circular economy. The proposed model combines image-recognition technologies with data from the sensors to classification of waste in real time to biowaste, recyclable and hazardous classes. The resulting optimization algorithms are further improved by subsequent optimization algorithms, which guarantee maximal material recovery at the lowest possible environmental footprints. In addition to reducing greenhouse-gas emissions, the framework also enables cities, industries and smart-city managers to apply climate-proof waste-management strategies. This digital revolution highlights the transformative potential of AI-enabled waste segregation in redefining waste as a resource, contributing to the Net Zero agenda and the establishment of sustainable urban ecosystems.

***Keywords:*** *Smart Waste Management, waste Segregation, Environmental Sustainability*

## OPERATIONALIZING SOCIAL SUSTAINABILITY IN NEXT-GENERATION INTELLIGENT MANUFACTURING: EVIDENCE-BASED BENCHMARKS FROM INDIAN MANUFACTURING

*Purvi Charde (S P Jain School of Global Management), A Seetharaman (SP Jain School of Global management) and K Maddulety Maddulety (SP School of Global Business)*

**Abstract.** Purpose: Smart Manufacturing is among the sectors highly impacted by technological revolution. Building on Industry 4.0 and the Industry 5.0 paradigms of human–machine synergy, this empirical study determines how technology can be leveraged to achieve socially sustainable next-generation intelligent manufacturing performance.

Design/methodology/approach: This study synthesizes the literature to identify the elements central to the social sustainability of digital transformations of manufacturing industry, which are then empirically validated. The design integrates expert knowledge, clearly articulated research questions, and hypotheses testing using cross-sectional data. The study is situated within a positivist paradigm and employs Structural Equation Modelling techniques for data analysis.

Findings: The results demonstrate significant impact of three core indicators on socially sustainable Next-generation Intelligent Manufacturing. Implementing technology ethically through human–machine collaboration improves overall work performance without displacing human workers. The outcomes also emphasize the necessity of embedding sustainability within digital transformation strategies, highlighting importance of corporate digital responsibility along with CSR. Several avenues for future research are outlined.

Practical Implications: The study offers benchmarks to guide the socially sustainable digital transformations aligned with the triple bottom line in Indian manufacturing. It proposes an extension of Corporate Social Responsibility to Corporate Social & Digital Responsibility through evidence-based approach.

Originality/value: Studies on Socially Sustainable Digital Transformation remains limited. Addressing current gaps, this study brings forth the role of social sustainability for manufacturing enterprises and elaborates the novel next-generation intelligent manufacturing concept.

***Keywords:*** *Digital Transformation, Sustainability, Social Sustainability, Intelligent Manufacturing*

## GENERATIVE AI AND MACHINE LEARNING - IMPACT ON CLIMATE CHANGE AND ENVIRONMENTAL MANAGEMENT: A REVIEW & RESEARCH AGENDA

*Dr Dibyendu Nandy (UPES School of Business)*

**Abstract.** Generative artificial intelligence (GenAI) and machine learning (ML) are transformative forces in research, industry, and public services, with climate action, environmental protection, and public health implications. The paper reviews (a) machine learning innovations in climate modelling and decision-making; (b) AI in enhancing health results, especially in low- and middle-income countries; and (c) environmental and social aspects of the AI life cycle, particularly explosive generative AI. The paper assesses data-dependent weather forecasting, neural atmospheric physics parameterization, conservation-oriented GeoAI, AI-based farming, healthcare systems, AI hardware life-cycle assessments (LCA), rebound eUects in generative AI studies, and AI deployment models. The paper also presents a model linking AI supply chains, dynamics, uses, results, consequences, and feedback, focusing on equity and governance. The findings of a central scoping synthesis are: (1) ML enhances forecasting and optimization in climate and health; (2) results will be data-quality- and explainability-dependent; (3) AI is a significant environmental impact contributor, whereby operational electricity use is a key carbon source, and production processes are toxic generators. The research agenda is physics-informed-ML, open data production, multi-criteria optimization, reliable Geo-spatial Artificial Intelligence (GeoAI), and low-resource investigations.

***Keywords:*** *GenAI, ML, Climate change, Environment, Public health, Sustainability, Equity.*

## THE HIDDEN CARBON FOOTPRINT OF DATA BREACHES: ANALYZING THE IMPACT OF CYBERSECURITY FAILURES ON IT SUSTAINABILITY AND NET-ZERO STRATEGIES

*Nupur Maity (IIFT) and Dipankar Sinha (IIFT)*

**Abstract.** The rapid digitalization of modern enterprises has elevated cybersecurity and sustainability as twin pillars of responsible IT governance. Yet the environmental costs of cybercrime have been largely overlooked. This paper examines the carbon footprint of data breaches themselves, with an emphasis on the additional work generated during processing,

storage and recovery of lost/compromised information – all of which can hinder progress towards net-zero objectives.
In order to bridge this gap, the work here combines breach incident information from worldwide databases with ICT carbon reporting models (GHG Protocol, ICT Sector Guidance and Cloud Carbon Footprint methodology). The paper investigates post breach energy intensities related to forensic investigation, data restoration, redundancy work and infrastructure hardening operations.
Results reveal that major breach events can generate additional emissions across affected IT systems during the incident and recovery phases, depending on data volume, cloud architecture, and response duration. Moreover, the findings highlight a systemic oversight in corporate sustainability reporting, where such indirect digital emissions remain unrecorded.
To address this gap, the study proposes a Cyber-Carbon Resilience (CCR) Framework — a methodological model for integrating cybersecurity metrics into carbon accounting and IT sustainability assessments. The research contributes to both green computing and cyber risk management by demonstrating that enhanced cyber resilience can simultaneously drive emissions reduction, system efficiency, and long-term digital sustainability.

***Keywords:*** *Data breach, IT sustainability, net-zero IT, carbon accounting, cybersecurity, green cloud*

## E+HEALTH A UNIQUE FRAMEWORK FOR APPLICATION OF AI IN HEALTH CARE

*Jagdish Gandhi (Theory Y Consulting Bangalore)*

**Abstract.** The paper "E+Health a framework for application of AI in Health care is a proposed solution to introduce a set of common language and protocols for exchange of information and recommendations from different sources dealing with single patient data as well as aggregate data related to patient groups spread across distant geographical zones towards improving and enhancing the quality and speed of health care delivery as well as applying advance preventive actions for health related emergencies as witnessed in the recent outbreak of the COVID pandemic. More importantly, the WHO Guidance Report on Ethics and Governance of Artificial Intelligence for Health 2021 has been discussed as a overall architectural framework for designing and implementing AI applications in Healthcare.

***Keywords:*** *EHealth, COVID, Pandemic, HL7, AI, HIPAA, EDI, UHID, WHO*

# FROM ADOPTION TO ADVANTAGE: A SYSTEMATIC LITERATURE REVIEW ON DIGITAL INNOVATION ADOPTION, TRANSFORMATION, AND PERFORMANCE IN SMES

*Koustav Dakshit (IMI Kolkata), Sachin Modgil (IMI Kolkata), Rohan Mukherjee (IMI Kolkata) and Tirthankar Nag (IMI Kolkata)*

**Abstract.** This systematic review summarizes the existing articles on the impact of digital innovation adoption and digital transformation on the performance improvement and creation of long-term competitive advantage among small and medium-sized enterprises (SMEs). This paper is based on the review of 65 articles published between 2015 and 2025 and meets enhanced PRISMA requirements. The review discusses two business perspectives and three major research questions. Strategic perspectives characterize strategic processes where adopting digital innovations can provide SMEs with a competitive advantage. It shows that technology alone does not make it, but it is rather the organizational and human change it brings along, together with good leadership and entrepreneurial spirit. Operation Perspective is focused on the actual and direct impact of organizational performance on digital innovation adoption. This analysis shows that the outcome of such operational efficiencies by digital technologies, such as Industry 4.0, cloud computing, and blockchain, has increased productivity and efficiency. With the help of key findings and research gaps, a proposition given in the article is that when both strategic and operational orientation are integrated, the firm gains a long-term competitive advantage. It assumes that operational efficiency ought to be used strategically to invest in innovation and to create new business models that competitors cannot easily imitate. According to the research, the correlation between digital adoption and performance is not always linear and direct, and the performance can first decrease and then significantly improve. The conclusion offers the conceptual framework and recommendations on further research directions and reports that further longitudinal and comparative research is required to understand how different environments and certain technologies influence the process of digital innovation adoption and transformation of SMEs.

***Keywords:*** *Digital Innovation, Digital Transformation, Competitive Advantage, Firm performance, Organization efficiency, Strategic perspective, Operational perspective, Small and medium-sized enterprises*

# UTILIZING LLMS (LARGE LANGUAGE MODELS) FOR MORE ADVANCED SENTIMENT ANALYSIS AND TO ENHANCE ONLINE SALES

*Sourav Choudhury (IIM Nagpur) and Yatish Joshi (IIM nagpur)*

**Abstract.** This study looks at the potential of Large Language Models (LLMs) to enhance sentiment analysis of social media and e-commerce feedbacks to support businesses to improve online sales.Traditional sentiment analysis algorithms typically have challenge with wording that is subtle, context, and the feelings that are not always clear in customer feedbacks and

reviews.LLMs, with their advanced natural language processing capabilities, provide a more innovative approach to interpreting and analysing customer sentiment.
By leveraging LLMs, this research aims to take out complex feedback patterns, offering deeper insights into customer satisfaction and preferences.The data from major social media and e-commerce platforms, are employed to in this research to determine how LLMs outperform traditional models in understanding situation-specific sentiments and handling diverse feedback forms. The findings highlight the radical impact of LLMs in improving decision-making, customer experience, and overall business strategies in social media and e-commerce. This research aids to the advancement of work on LLM applications in business analytics, emphasizing their role in driving more accurate and actionable insights from customer data.This study will give a thorough evaluation of the competencies of LLMs in sentiment analysis, an essential component of marketing research for comprehending client emotions, attitudes, and views.This research will study and analyse various Large Language Models (LLMs), such as Chat GPT 5, Perplexity, Copilot, and Gemini, and assess the efficacy of sentiment analysis in improving conversion metrics.

***Keywords:*** *sentiment analysis, large language models, conversion metrics, generative AI, machine learning*

## EXPLORING BARRIERS IN ADOPTING ARTIFICIAL INTELLIGENCE IN PROJECT MANAGEMENT

*Prem Prakash Dayal (ICFAI University , Jharkhand) and Aditya Kumar Sahu (Indian Institute of Management , Nagpur)*

**Abstract.** The adoption of artificial intelligence (AI) in project management has the potential to significantly transform project delivery, decision-making, and efficiency in the IT sector. Despite rapid advancements in AI technologies including the proliferation of large language models, generative AI, and autonomous agents, organizations continue to experience persistent barriers that impede successful integration within project management practices. This study systematically investigates the core obstacles encountered by IT project managers in the process of adopting AI-powered tools and systems.
Drawing upon a qualitative research design, in-depth semi-structured interviews were conducted with twenty IT project managers possessing relevant awareness of AI and its contemporary applications. Thematic analysis of the interview data reveals a constellation of salient barriers adversely impacting AI adoption. Foremost among these are data quality and availability challenges, wherein fragmented, inconsistent, or incomplete project data compromise the reliability and utility of AI recommendations. Furthermore, a pronounced deficit in AI-specific skills and targeted training limits the capacity of project managers and their teams to interpret AI outputs or effectively integrate these tools into existing workflows. Compounding these issues, entrenched organizational cultures often manifest as resistance to change, with skepticism regarding the perceived displacement of human decision-makers and a lack of trust in algorithmic processes forming major hindrances.

The empirical insights elucidated by this study contribute to a nuanced understanding of the mechanisms through which technical, human, and cultural factors converge to constitute formidable barriers to AI adoption in IT project management. While enthusiasm for AI's potential is evident, tangible progress is constrained by these intersecting impediments. The findings underscore the imperative for organizations to invest in robust data governance, continuous AI upskilling, and adaptive change management strategies that foster a culture of innovation and trust. By foregrounding these barriers, this research informs both practitioners and scholars seeking to advance the seamless and effective integration of AI technologies within the project management discipline

***Keywords:*** *Behavioral Operations Management, Artificial Intelligence, Project Management, Adoption*

## ONLINE PRIVACY PROTECTION DILEMMAS: A QUALITATIVE STUDY OF BEHAVIORAL DETERMINANTS IN ADOPTING CONSENT MANAGEMENT TOOLS

*Mitesh Bharwada (KJ Somaiya Institute of Management, Somaiya Vidyavihar University, Mumbai) and Anjali Chopra (KJ Somaiya Institute of Management, Soamiya Vidyavihar University, Mumbai)*

**Abstract.** Indian consumers routinely engage in internet usage for social media, e-commerce, over-the-top (OTT) entertainment, and browsing. This convenience comes with apprehensions regarding the misuse of personal data. Users frequently encounter unsolicited marketing, targeted advertisements, or sharing of personal data with third parties. This study investigates user views of online privacy, protective technologies, and identifies factors that influence the utilization of privacy and consent management systems. Comprehensive qualitative interviews were conducted across various age demographics and genders to develop a theoretical model utilizing Grounded Theory and comparative analysis. The model identifies major factors facilitating and hindering the use of consent management solutions, and uncovers perceptual disparities based on demographics.

Practical implications – Businesses can leverage this information to synchronize strategy with the privacy expectations of their target demographic. Companies should streamline permission processes for people who are privacy-conscious yet find them challenging. Designs that respect privacy can augment trust and loyalty among customers. Marketing methods such as tele-calling and email outreach ought to transition to permission-based methodologies. Policymakers might utilize this information to implement precisely targeted communication initiatives and awareness campaigns on online privacy protection.

Originality/value: Most prior research concentrated on social media privacy strategies among younger users, frequently neglecting wider demographics and the Indian context. This study addresses the gap by examining the uptake of permission technologies, essential for privacy management. It was determined that elements such as social influence, trust, and price value had minimal impact, however performance expectancy, facilitating conditions, privacy attitudes, and fatigue were important contributors.

***Keywords:*** *Online Privacy, Consent Management, Personal Data Protection, Unsolicited Marketing, Privacy Law*

## STUDY OF CYBER BEHAVIOURS IMPACTING INDIVIDUALS' CREDITWORTHINESS IN INDIAN METROPOLITAN CITIES TO FACILITATE A MORE INCLUSIVE LENDING

*Jayesh Gulani (SP Jain School of Global Management), A Seetharaman (SP Jain School of Global Management) and K Maddulety (SP Jain School of Global Management)*

**Abstract.** Financial institutions in India have been relying solely on credit history to determine risk associated with loan repayment. This has resulted in more cautious lending to individuals with limited or no credit record, thus having a bearing on financial inclusiveness. On the other hand, with the advent of the internet and the growing digital footprint being witnessed until the first quarter of the century, it is apparent that participation in the cyber space has become fairly democratized in India. This research intends to focus on utilizing the key behaviours demonstrated by different cohorts participating in the cyber world to augment the assessment of credit risk and thereby make lending accessible. The study proposes to use qualitative research techniques to identify the key traits demonstrated in the virtual world that would have a bearing on creditworthiness. Further, the research would quantitatively analyze the supplementary relationship of these key characteristics with the parameters currently considered for credit rating calculations.

***Keywords:*** *Cyber, Cyber behaviours, Creditworthiness, Indian metropolitan cities, Inclusive lending*

## FROM LOOP TO PARTNERSHIP: A FRAMEWORK FOR UNDERSTANDING THE EVOLVING PARADIGMS OF HUMAN-AI COLLABORATION

*Sagar Patil (SP Jain School of Global Management)*

**Abstract.** The term ‘Human-in-the-Loop’ (HIL), once a clarifying concept for AI systems reliant on human input, now obscures more than it reveals. Its monolithic application to a vast and expanding range of human-AI interactions has led to a conceptual fragmentation that impedes scientific progress and responsible systems' development. This research confronts this ambiguity by proposing a new, tripartite framework that offers a more granular and robust typology for understanding human-AI collaboration. This framework is the result of a systematic literature review designed to synthesize a fragmented, interdisciplinary body of research.

We first establish a foundational dichotomy based on the locus of control and introduce a tripartite framework consisting of:

HIL (AI-led), where AI is autonomous, and humans provide input for improvement (e.g., data labeling for self-driving cars);AI2L (Human-led), where humans are in control, and AI augments their capabilities (e.g., AI-powered diagnostic tools for doctors);And Hybrid

Intelligence (HI), a more advanced paradigm focused on symbiotic, co-creative partnerships between humans and AI, often enabled by generative AI (e.g., generative design, collaborative software engineering).
It demonstrates that the choice of the human-AI collaboration paradigm is strongly influenced by the domain's primary objectives: efficiency for HIL, accountability for AI2L, and creativity/innovation for HI. It also establishes that ethical considerations must move beyond simple human oversight ("human in the loop") to a more robust and systemic approach called "participatory governance," which involves diverse stakeholders throughout the AI's lifecycle to ensure fairness and accountability. This resolves a central paradox in human-AI studies, re-conceptualizes the landscape of collaboration, and establishes a new foundation for the design and governance of socio-technical systems.

***Keywords:*** *Human in the loop, Artificial intelligence, Hybrid intelligence, Human intelligence*

## BUILDING ORGANIZATIONAL RESILIENCE WITH DIGITAL TRANSFORMATION: A HYBRID REVIEW

*Rohit Kumar Mukherjee (IMI, Kolkata)*

**Abstract.** The accelerating pace of technological disruption has redefined the strategic priorities of modern organizations, compelling them to pursue digital transformation (DT) as a critical pathway to long-term competitiveness. At the same time, organizational resilience (OR) has emerged as a vital capability for surviving and thriving in volatile, uncertain, complex, and ambiguous (VUCA) environments. While DT equips firms with advanced tools such as artificial intelligence, cloud computing, and predictive analytics, OR ensures adaptiven capacity, agility, and sustained performance amid continuous disruption. This paper presents a hybrid review that integrates systematic and narrative approaches to examine the evolving intersection of DT and OR. Drawing on a dataset of 130 highly cited articles sourced from Scopus (2010–2025), the study employs thematic coding and bibliometric mapping to uncover key drivers, theoretical frameworks, and emerging research trajectories. Findings highlight how DT initiatives foster resilience through enhanced agility, innovation, and risk anticipation, while also exposing firms to new vulnerabilities such as cybersecurity threats and technological dependencies. The analysis further reveals two dominant theoretical streams: technology adoption theories, which explain micro- foundations of digital uptake, and resource-based perspectives, which illuminate dynamic capabilities for resilience. By synthesizing these insights, this review advances the discourse on how organizations can design robust digital strategies that balance innovation with adaptability, thereby contributing to both scholarly debates and managerial practice in the digital era.

***Keywords:*** *Digital Transformation, Organisational Resilience, Hybrid Review*

# GENERATIVE AI FOR SUSTAINABLE IT PROJECT MANAGEMENT: ENHANCING EFFICIENCY, REDUCING WASTE AND DRIVING NET-ZERO GOALS

*Syam Mohan (SP Jain School of Global Management)*

**Abstract.** Digital transformation projects face growing pressure to delivery efficiency while aligning with the sustainability agendas. The efficiency in project management is a topic that has been discussed and reviewed over a long period of time. Project initiation, planning, execution, monitoring and controlling are the most critical phases in project management, not only to complete the project on-time but also to meet the objectives that are envisaged. There are processes and tools that exist in the entire project management lifecycle but often lack intelligence and proactiveness especially in integrating sustainability targets. Generative AI (GenAI) is reshaping the knowledge-based professions including IT Project Management. The paper aims to propose a how to integrate GenAI capabilities such as predictive scheduling, adaptive risk management, document management and real-time knowledge synthesis.

A mixed-method study is proposed: a systematic literature review, followed by empirical validation using semi-structured interviews and survey data from IT project managers in the UAE and India. Structural Equation Modelling (SEM) will test the relationship between GenAI adoption, project efficiency, and sustainability outcomes.

The anticipated contribution is twofold: (1) a conceptual and empirical framework for GenAI-driven sustainable project management, and (2) actionable insights for organizations aligning digital transformation projects with ESG and net-zero goals.

Introduction & Literature Gap: Organizations increasingly face pressure to integrate sustainability into their operations, including IT project delivery. Studies highlight inefficiencies in project management as a contributor to cost overruns, delays, and environmental impact (Flyvbjerg, 2023; PMI, 2021). While predictive analytics and AI applications have been explored (Marnewick & Marnewick, 2022), little research addresses the specific role of Generative AI in project management.

Gap Identified: Existing literature focuses on predictive analytics or automation but rarely explores GenAI's potential for adaptive decision-making and sustainability outcomes in project management.

Conceptual Framework

The study proposes that GenAI adoption in IT project management enhances:

• Operational Efficiency (time, cost, quality improvements)

• Sustainability Outcomes (reduced waste, optimized resources, ESG alignment)

***Keywords:*** *Efficiency, Net-Zero, Project Management, GenAI, Mixed-methods*

# DIGITAL ASSESSMENT OF NURSING KNOWLEDGE, ATTITUDE, AND PRACTICES IN CONTROLLING HOSPITAL ACQUIRED INFECTIONS

*Bhakti Patil (MGMSBS), Dr.Bahubali Nagaonkar (MGMSBS) and Sangeeta Choudhary (MGMSBS)*

**Abstract.** Background: One of the most significant issues facing healthcare systems around the world is hospital-acquired infections (HAIs), which lead to longer hospital stays, higher rates of patient morbidity and mortality, more expensive treatment, and overuse of medical resources. In addition to the clinical and financial costs, HAIs have an adverse effect on the environment because they produce a significant amount of biomedical waste and result in inefficient use of resources. Addressing HAIs is important for both patient safety and environmental responsibility in the age of sustainable healthcare. The purpose of this study is to evaluate nursing staff members' knowledge, attitudes, and practices (KAP) about HAI prevention and control in a particular tertiary care hospital in Maharashtra's Raigad district. As frontline healthcare providers, nurses are essential in putting infection control procedures, standard precautions, hand hygiene, and proper biomedical waste management into practice. Patient safety results and the general efficacy of infection control programs are directly impacted by their awareness and actions.

Objectives: To evaluate the knowledge, attitude, and practices of nursing staff towards the prevention and control of hospital-acquired infections using a digital assessment.

Methods: A descriptive cross-sectional study was conducted among nursing staff via digital forms, enabling streamlined data collection and real-time analysis. Structured online questionnaires assessed knowledge and practice of HAI prevention. The study also involved the evaluation of digital infection control tools, including electronic hand hygiene reminders and IoT-enabled monitoring devices, integrated into infection control policies. Data were analyzed statistically to correlate digital tool usage with improved infection prevention compliance.

Results: The total of 15 nurses were included in the study as participants with 73.3% females and 26.7% males. The majority are young to middle-aged, with 46.7% aged 21–29 years and 40% aged 30–39 years, while only 6.7% fall below 20 years and another 6.7% are above 50 years. In terms of marital status, 66.7% are married and 33.3% unmarried. All respondents (100%) are employed full-time, representing an active healthcare workforce with varied experience from less than a year to over five years, and qualifications ranging from graduate to postgraduate.

Analysis of infection prevention practices shows high compliance. Nearly all participants strongly agreed that handwashing is the most important preventive measure, with over 80–90% scoring at the top levels. Waste management, disinfection, and biosafety protocols also received similarly high ratings. Practical adherence to hygiene before and after patient contact or equipment use was nearly universal. Minor variability appeared in responses regarding immunization as a universal precaution and sterile techniques, suggesting limited gaps.

Conclusion: The study highlights that nursing staff demonstrated strong knowledge, positive attitudes, and high compliance with infection prevention and control practices, particularly in

areas such as hand hygiene, waste management, disinfection, and biosafety protocols. Minor gaps were observed in awareness regarding immunization and sterile techniques, suggesting the need for continuous training. The digital assessment approach proved effective in evaluating competencies, offering a sustainable method to monitor and enhance infection control practices. Strengthening such tech-driven assessments can contribute to reducing hospital-acquired infections and building safer, more sustainable healthcare environments.

***Keywords:*** *Hospital-acquired infections (HAIs), Nursing staff, Knowledge attitude and practices (KAP), Digital assessment, Infection prevention, Hand hygiene, Sustainable healthcare*

## ADVANCING ECO-TRAVEL INTENTION THROUGH AI-ENABLED DIGITAL NARRATIVES: A FRAMEWORK BASED ON NARRATIVE TRANSPORTATION THEORY

*Shubhra Mishra (Babu Banarasi Das University, Lucknow), Sachin Kumar Srivastava (Babu Banarasi Das University, Lucknow) and Alok Tewari (Babu Banarasi Das University, Lucknow)*

**Abstract.** Digital storytelling has become a powerful tool to promote offbeat ecotourism, allowing tourists to access real-life stories about sustainable destinations. In this digital ecosystem, artificial intelligence (AI) is becoming more and more the foundation of content creation and curation, and this spreads the coverage and richness of ecotourism stories. Based on the Narrative Transportation Theory (NTT), this research paper explores the impact of narrative structure and perceived authenticity on consumer psychological involvement and subsequent behavioural consequences during travelling. Five constructs were considered in a conceptual model: narrative structure, perceived authenticity, narrative transportation, sense of presence, and eco-travel intention, which were empirically tested on several participants exposed to digital eco-stories. The results confirm that the impact of narrative structure and authenticity substantially increases narrative transportation, which in turn enhances the sense of presence. Positive effects on eco-travel intentions were also found to be influenced by these psychological processes; all the hypotheses were proven right. The findings contribute to the theoretical understanding of NTT in the context of sustainable tourism and emphasize the crucial importance of digital (including AI-assisted) storytelling in the facilitation of responsible travel. In a practical sense, the research offers practical recommendations to destination marketers and policymakers, in support of designing authentic, well-formatted online narratives in order to promote pro-environmental travel behaviour as well as be supportive of the Sustainable Development Goals (SDGs).

***Keywords:*** *Digital storytelling, AI in tourism, Eco-tourism, Narrative transportation, Sense of presence, Sustainable travel intention*

## SYSTEMIC RISK MODELING: A MULTI-LINE INSURANCE PORTFOLIO ANALYSIS

*Mehul Zawar (Independent Researcher)*

**Abstract.** This paper explores systemic risk within the insurance industry, focusing on a multiline insurance portfolio. It introduces a multi-dimensional L´evy process-based renewal risk model to analyze heterogeneous insurance claims across different business lines. The study employs systemic expected shortfall (SES) and marginal expected shortfall (MES) to measure systemic risks, deriving asymptotic formulas for tail probabilities and conducting a Monte Carlo numerical study to validate the model's accuracy.

***Keywords:*** *Renewal Risk Models, Heterogeneous Claims, Levy Discounting, Heavy-Tailed Distributions, Systemic Risk, Value-at-Risk (VaR), Marginal Expected Shortfall (MES), Systemic Expected Shortfall (SES), Solvency Regulation, Insurance Risk Management*

## ANALYTICAL MODEL TO OPTIMIZE CAPACITY PLANNING IN FREIGHT FORWARDING UNDER CLIMATE RISK

*Mansi (Indian Institute of Management Amritsar) and Harpreet Kaur (Indian Institute of Management Amritsar)*

Abstract. Freight forwarding plays a crucial role in global supply chains as they effectively arrange the movement of goods between origin and destination to meet diverse requirements of the shipper companies. Many companies require their freight forwarders to ship in a sustainable manner to minimize overall emissions. However, freight forwarders operate in dynamic environments where climate disasters pose significant operational challenges. These disruptions can elevate freight rates, compromise delivery schedules, and strain customer relationships. The capacity planned by the freight forwarder may need immediate revision, and many times the immediate alternatives are not very cost effective. This may adversely impact the profitability, customer satisfaction and the sustainability targets. To address this concern, in this paper we propose a stochastic model to optimize the planned capacity by the freight forwarder considering stochastic prices, lead times and demand. The proposed model considers various disruption scenarios caused by natural disaster and evaluates the impact of various risk mitigation strategies such as strategic partnerships, buffer capacity and multi modal alternatives used by the freight forwarder on its performance. The proposed model is illustrated using a case example. The findings highlight that strategic investments in climate risk mitigation improve the profitability and sustainability of a freight forwarder in short term and long term.

***Keywords:*** *Freight forwarding, Climate Risk, Stochastic model, Resilience, Sustainability*

# FROM DIGITAL TWINS TO DECISION TWINS: MAKING SMART DECISIONS IN INDUSTRY 5.0

*Sourav Dey (Graduate school of Frontier Sciences, University of Tokyo) and Hiroki Hill Kobayashi (Center for Spatial Information Science, University of Tokyo)*

Abstract. Digital Twins (DTs) have emerged as powerful tools for modeling and monitoring complex systems, but their deployment has remained predominantly asset-focused, emphasizing physical fidelity over operational foresight. This paper advances the concept of the Decision Twin - a decision-centric extension of the DT paradigm that encodes logic, constraints, temporal dependencies, and causal relationships to evaluate alternative courses of action under uncertainty. By shifting emphasis from replication to decision relevance, Decision Twins enable organizations to anticipate knock-on effects, explore trade-offs across multiple criteria, and reduce the hidden carbon cost of inefficient interventions. Designed with human-in-the-loop integration, they complement rather than replace expertise, offering interpretable and auditable support for managers operating in complex, disruption-prone service networks. More broadly, the framework illustrates how digital infrastructures can evolve into decision environments, aligning with the principles of Industry 5.0 to foster resilience, sustainability, and human-centric innovation.

***Keywords***: *Digital Twin, Decision Twin, Railway Operations, Decision Support, Sustainability*

# A CROSS-COUNTRY STUDY ON THE INFLUENCE OF READINESS AND USAGE BARRIERS ON BEHAVIORAL INTENTION TO USE INFORMATION AND COMMUNICATION TECHNOLOGY: THE MODERATING ROLE OF UNCERTAINTY AVOIDANCE

*Anusuiya Subramaniam (School of Business and Economics, Universiti Putra Malaysia), Tirthankar Nag (IMI Kolkata), Subhajyoti Ray (Jaipuria Institute of Management Noida), Rohan Mukherjee (IMI Kolkata) and Boudhayan Ganguly (IIM Bodh Gaya)*

**Abstract.** Around the world, Information and Communication Technology (ICT) is fundamentally changing the way we live. ICT is inescapable in our work, study and individual lives. However, there is a lack of research that examines the impact of readiness and usage barriers on intention to use, while considering the role of uncertainty avoidance. This study aims to address this gap by investigating the extent to which readiness and usage barriers can promote behavioural intention to use and whether uncertainty avoidance moderates this relationship. A questionnaire-based critical survey was conducted across multiple countries and organizational types. Participation was voluntary, and respondents were assured of anonymity and confidentiality. To enable wide accessibility, the survey was administered electronically. Prior to distribution, the instrument was reviewed to ensure clarity and cultural appropriateness. International participation was facilitated through academic, professional, and institutional networks, allowing for diverse representation across regions and sectors, generating 227 responses. Data were analyzed using SPSS 27.0 and SEM with AMOS 24.0.

Contrary to expectation, the findings of this research indicate that ICT readiness is not related to behavioural intention to use ICT. Usage barrier is negatively and significantly related to behavioural intention to use ICT. The findings provide support on ICT adoption by emphasizing on the essentialness of cultural dimensions and barriers over readiness. The study bestows insights for policymakers, corporate leaders and technology strategists seeking to encourage ICT adoption across diverse contexts.

***Keywords:*** *ICT Readiness, ICT Usage Barriers, Uncertainty Avoidance, Behavioural Intention, Information and Communication Technology (ICT)*

## FACTORS AFFECTING GRATIFICATION OF MEDICINE APP USERS: A HYBRID APPROACH OF TEXT MINING AND MACHINE LEARNING

*Rima Dutta (IMI Kolkata) and Aniket Ghosh (Instagrid GmbH)*

**Abstract.** Now a days mobile medicine apps are very popular. In the healthcare industry, these mobile apps are making rapid growth. These apps play a significant part in optimizing the medical resources allocation, improving efficiency and providing customer the ease of getting a variety of medicines at their doorstep. Analysing and understanding the factors from online user generated content (reviews) can help in improving service quality and enhance user satisfaction. This study focuses on identifying the key topics that users are talking about and whether they are positive or negative reviews on leading Indian Online medicine platforms, including Tata 1mg, PharmEasy and Netmends. A large amount of online user reviews of over 500000 are collected and analysed in this study. Our research methodology involves a multi-step process: First we review the existing literature in this particular domain. After that, we collect relevant data from google play store, performed an extensive manual data exploration to understand the characteristics in the data. Next, we designed and performed a comprehensive text preprocessing method to handle specific concerns, like short comments, reviews written in hinglish or Devnagari script, domain specific stop words etc. We employed Latent Dirichlet Allocation (LDA) model to identify key topics from the reviews. In our analysis, we identified nine distinct topics. Additionally, to predict user satisfaction, we performed Regression analysis. Three Regression models, namely, OLS Regression, XGBoost, Hybrid Stacked Regression were trained and XGBoost emerged as the best performing Model. The Model successfully explained approx. 62.6% of the variation in the user ratings (R2 =0.626). We then employed SHAP (Shapley Additive explanations) to understand the rating predictive power of each topic. This in-depth analysis reveals the most important topics that determine user satisfaction. The “App Convenience & Speed” came out as most important determinant followed by the topic “Positive Online Pharmacy Experience”.

This research study reveals that although pricing, discounts, offers, order and delivery are important, but the primary driver of satisfaction is a seamless, fast and convenient user experience. The finding provides actionable insights for companies to optimizing core services such as app performance, availability of medicine to enhance user satisfaction .

***Keywords:*** *user Gratification, Text Mining, Machine Learning, online medicine app, LDA topic model*

## TECHNOLOGY CONVERGENCE, PEOPLE EXPERTISE AND SERVICE-DOMINANT LOGIC: A VALUE CO-CREATION FRAMEWORK

*Amit Anand Tiwari (IIM Sirmaur)*

**Abstract.** Building on service-dominant logic (SDL), which proposes that value is co-created by integrating resources, in this paper, we propose and test a model of value co-creation in the context of technology convergence. The model considers two resources of value co-creation: firm resources represented by convergence quality and people resources represented by people's expertise. Following a post-positivist approach, this study builds a literature-derived model with cause-and-effect thinking. A web-based questionnaire is used for data collection. Data is analysed through structural equation modelling. Our results show that both firm resources and people resources are positively linked to value co-creation. Further, our results show that co-creation of experiential value has a strong positive impact on brand love. This is one of the earliest studies investigating value co-creation in the context of technology convergence. Further, we extend the SDL framework to brand consequences, which is an under-researched area. The findings establish the fundamental premise of SDL, which adds to the people-technology relationship and co-creation strategies literature. The findings will propel marketers to invest in people resources augmentation and improvement in the convergence quality of their offerings. Results also indicate that marketers should make multi-sensory interventions to develop love for their brands.

***Keywords:*** *Service-Dominant Logic, Value Co-creation, Technology convergence, Coolness*

## REAL OR GENERATED? CONSUMER RESPONSES TO AICREATED VERSUS HUMANCREATED CONTENT IN THE AUTOMOTIVE INDUSTRY

*Sudeep Pawar(IIM Nagpur) and Yatish Joshi(IIM Nagpur)*

**Abstract.** Generative AI is rapidly transforming automotive content and marketing, enabling brands to create hyper-personalized advertisements, virtual showrooms, and promotional content on an unprecedented scale. However, the blurring of boundaries between authentic and AI-generated content raises critical concerns about consumer trust, perceived authenticity, and brand attitudes—particularly in the automotive sector, where high-involvement purchase decisions depend heavily on usage, brand WOM credibility, and transparency. Recent incidents, such as brands inadvertently depicting AI-generated vehicle features that did not exist in actual products, have highlighted the potential for miscommunication and consumer distrust.

This proposal outlines a multi-study experimental investigation to examine how AI authorship and disclosure affect trust, authenticity perceptions, and brand attitudes among automotive consumers.

Introduction and Problem Statement

Generative AI tools are now widely used by automotive OEMs, dealers, and agencies to produce extensive content at scale, from personalized video advertisements and landing pages to localized vehicle brochures and virtual showrooms. Industry analysts anticipate productivity gains in marketing budgets owing to AI integration. However, the automotive purchase journey is deeply personal, emotionally charged, and layered with considerations of value, cost, safety, and long-term commitment. Trust and perceived authenticity are paramount in influencing consumer decisions for high-involvement durable goods like automobiles.

Recent cases illustrate the risks: brands have inadvertently used AI to depict vehicle features or specifications that did not exist in the actual product, leading to consumer confusion, complaints, and a loss of trust. AI-generated car photos have been used to misrepresent vehicle conditions or surroundings, raising concerns about deceptive advertising and violations of consumer-protection laws. The Volvo AI-generated ad campaign drew criticism for its "uncanny valley" visuals and lack of authenticity.

Research Objectives

Consumer responses to AI-generated- and human-generated automotive marketing content were compared under controlled conditions.

This study examined how AI disclosure shapes trust, perceived authenticity, and brand attitudes toward automotive brands.

Expected Contributions

This study provides causal evidence of how AI authorship and disclosure influence consumer responses in a high-involvement automotive context. Clarifies conditions under which transparency (AI disclosure) supports vs. undermines trust and engagement, contributing to the emerging "transparency without trust" debate.

This study informs practitioners about the consumer impact of AI labeling in content, supporting evidence-based guidelines for transparent AI use. Highlights implications of AI use in automotive advertising, including risks of misrepresentation and consumer protection law violations.

***Keywords:*** *Generative AI, Automotive industry, Automotive marketing, AI generated advertisements, AI-generated content, Human-generated content, Authentic vs AI-generated content, Consumer trust*

# TOURISM

## ENGAGE THROUGH CONVERSATIONAL AGENTS: A FRESH PERSPECTIVE IN TOURISM EXPERIENCE

*Navin Kumar (Jaipuria Institute of Management, Jaipur Campus) and Kishalay Adhikari (IMI Kolkata)*

**Abstract.** The evolution of conversational agents (CAs), such as virtual assistants, voice assistants, or chatbots, has been revolutionary, especially in the service-dominant sector that relies heavily on customer experience. CAs are considered systems that interact with human users via natural conversational language. The tourism sector has attracted many eyeballs for its significant interest in using such technologies to facilitate general queries, reservations, feedback, and related services – simply enhancing the customer experience. Despite wide acknowledgment from practitioners and scholars, the literature provides limited information about driving engagement and experience through CAs in tourism settings. To fill this gap, the present research draws inputs from regulatory engagement theory and the elaboration likelihood model for devising the hypothesized framework. This research aims to offer a holistic understanding of engagement using CAs, its potent drivers, satisfaction, and brand advocacy from the tourism perspective. Specifically, the hypothesized model was tested through covariance-based structural equation modeling (CB-SEM) using data from 437 tourists with prior experience using CAs. The findings exhibit positive effects of technology readiness and information authenticity on improving engagement levels and tourist satisfaction, shaping them into advocates. These findings extend the domain knowledge by clarifying the driving factors of engagement with CAs and their potent outcomes of tourism-based experiences. Further, travel managers and marketers can draw actionable insights from the research findings to devise customized packages that resonate with travelers, leading to enduring business relationships.

***Keywords:*** *Conversational agents, Readiness, Engagement, Tourism, Advocacy*

## THE ROLE OF DIGITAL TRANSFORMATION IN TOURISM: A SYSTEMATIC REVIEW OF TECHNOLOGY INNOVATION AND ADOPTION

*Binita Chakraborty (IMI Kolkata), Sachin Modgil (IMI Kolkata), Rohan Mukherjee (IMI Kolkata) and Tirthankar Nag (IMI Kolkata)*

**Abstract.** The tourism sector, as an industry, has experienced immense growth in recent years, primarily due to the rise of digital technologies and the continuous advancement of innovation. This systematic review studies, the developing role of digital transformation in the tourism sector, with a specific focus on technological innovation and adoption. With the evolution of global travel trends, consumer behavior, and business practices increasingly leaning towards digital platforms, grasping the significance of digital transformation in shaping global tourism patterns has become vital.

Hence, understanding how digital tools, service delivery methods, and operational strategies are integrated into tourism systems has become fundamental for both academic studies and industry applications.

This paper presents a systematic literature review mainly focused on the relationship between technological innovation and its adoption in the tourism industry to promote sustainable economic growth. The main aim is to synthesize existing knowledge and build a new foundation for forthcoming research and its practical application. This study integrates a broad selection of literature to trace the course of digital transformation in tourism, highlighting significant innovations such as artificial intelligence, big data analytics, the Internet of Things, augmented and virtual reality, and blockchain technologies. It examines how these technologies are adopted and integrated into different segments of the tourism value chain—spanning from travel planning and reservation to personalized experiences and post-visit engagement.Digital transformation in the tourism sector involves not only just the incorporation of innovative technologies but also a fundamental reevaluation of how value is generated, delivered, and experienced. From online reservation systems and smartphone applications to artificial intelligence, virtual reality, and blockchain, tourism enterprises are utilizing a diverse range of digital resources to improve tourism experiences, enhance operational efficiency, and develop new business models. These innovations have introduced significant changes throughout the tourism sector— impacting travel arrangements, transportation methods, lodging, attractions, and post-trip interactions. Additionally, the analysis explores the theoretical models that support technology adoption in tourism, such as the Technology Acceptance Model, the Unified Theory of Acceptance and Use of Technology, and theories of innovation diffusion. The role that digital transformation plays in promoting business sustainability and resilience is another significant aspect of this review. The tourism industry faced significant challenges during the COVID-19 pandemic, and research continuously demonstrates that digitally advanced businesses were better equipped to handle the situation. These companies showed a stronger capacity for optimizing resources, service delivery models, and customer involvement. Furthermore, there are not many integrative frameworks that connect technology adoption with broader strategic goals in the growth of tourism, despite the fact that much research focuses on specific technologies or isolated use cases. Despite the available opportunities, the review also highlights considerable challenges and gaps in research. Numerous tourism enterprises, especially small and medium-sized enterprises, encounter obstacles associated with digital literacy, financial limitations, and reluctance to adapt. Additionally, ethical issues concerning data privacy, digital inclusion, and the environmental effects of technological infrastructures demand further examination.

Furthermore, there are not many integrative frameworks that connect technology adoption with more boarder strategic goals in the growth of tourism, despite the fact that many research focus on specific technologies or isolated use cases. Adoption decisions for tourism businesses are heavily influenced by organizational readiness, leadership support, technology capabilities, and external forces.

In conclusion, digital transformation represents more than just a technological trend; it is a strategic necessity that is fundamentally transforming the tourism sector.

Through a comprehensive analysis of existing literature on technological innovation and adoption, this paper offers important insights for researchers, policymakers, and industry practitioners aiming to effectively navigate the digital evolution of tourism.

***Keywords:*** *Digital Transformation, Tourism, Artificial Intelligence*

## DIGITAL PILGRIMAGE: SENTIMENT ANALYSIS OF YOUTUBE COMMENTS TO UNDERSTAND PUBLIC PERCEPTIONS OF ANCIENT TEMPLE VISITATION—PHIMAI TEMPLE CASE STUDY

*Burra Rishika (SR University , Warangal, India), Bandi Satwika (SR University , Warangal, India), Giragani Nandhini (SR University , Warangal, India), Emmadi Priyanka (SR University , Warangal, India), Anapuram Ravali (SR University , Warangal, India) and Rajan Kumar Ganagadhari (SR University, Warangal, India)*

**Abstract.** This research is mainly about how people are interested in "digital pilgrimage" by studying their feelings expressed in comments on YouTube in the Praveen Mohan Channel, a YouTuber who spoke on the Phimai Temple, the largest ancient Khmer-Hindu temple in Thailand. Nowadaysdigital media is changing the way people experience and perceive sacred places. This study examines the public sentiments, motivations, and cultural interpretations as expressed in YouTube comments on the featured videos of Phimai Temple, particularly by a content creator like Praveen Mohan. In this research the computational sentiment analysis techniques are combined with qualitative thematic analysis to decode the emotional and cultural responses of virtual visitors to this ancient sacred site.

This study addresses the growing intersection between digital technology and spiritual tourism, where online content serves as both a catalyst for physical visitation and a substitute for the direct religious experience. Through digital mediation people are showing interest in ancient architectural mysteries, spiritual significance, and cultural heritage by expressing their feelings through comments.Understanding pilgrimage behavior and the cultural heritage democratization through digital platforms, like social media, plays an important role in shaping perceptions of sacred places. Analyzing the comments on Phimai Temple, people are interested and curious to know about the architectural and spiritual significance, and those things make them feel proud of their cultural heritage. Considering their positive reception, with specific themes emerging around mystery, wonder, spiritual connection, and educational value, the sentimental analysis is done. This research provides insights for heritage site management, strategies on digital tourism, and maintenance of understanding of how ancient sacred spaces maintain relevance in the digital age.

***Keywords:*** *Sentiment Analysis, Educational Influence, social media data, Ancient knowledge, Hindu temples*

## MARKETING & BRANDING OF SUSTAINABLE TOURISM AMONG WOMEN TOURISTS

*Punit Moris Ekka (Indian Institute of Management Sambalpur, India) and Dr. Poonam Kumar (Indian Institute of Management Sambalpur, India)*

**Abstract.** This study examines how marketing and branding of cultural heritage, infrastructure, and natural and architectural beauty affect female tourist satisfaction, to optimize economic benefits for sustainable tourism development in an emerging market. It analyzed marketing of tourist destinations for female tourists' satisfaction with sustainable tourism development through PLS-SEM. Female tourists' contentment in tourism domain is unaffected by the destination's culture irrespective of the destination's branding efforts. Marketing on destination infrastructure's impact on sustainable tourism development depends heavily on women tourists' satisfaction. Female tourists' contentment greatly affects a destination's natural and architectural appeal and sustainable female tourism development.

***Keywords:*** *Satisfaction, female tourists, sustainable development, marketing & branding, PLS-SEM*

## NAVIGATING VALUE: EXPLORING DETERMINANTS AND MEDIATING ROLE OF PERCEIVED VALUE IN SOUTH ASIAN CRUISE TRAVEL BEHAVIOR

*Triranga Deka (University of Engineering and Management, Kolkata ,Assam Don Bosco University) and Dr. Udit Chawla (University of Engineering and Management, Kolkata,)*

**Abstract.** Cruise tourism has emerged as one of the most vibrant segments of the worldwide travel industry, providing a distinctive blend of transportation, lodging, entertainment, and recreation all within one comprehensive package. Global statistics reveal that cruise tourism plays a crucial role in both regional and global economies, fostering job creation, generating foreign exchange earnings, and promoting infrastructural advancements in port cities. For our study, we gathered data from the tourist who availed cruise travels from India, Sri Lanka, and Maldives. The participants were selected using purposive sampling at location points and our study had a final sample size of 315 respondents. The results of path analysisestablished that six factors PDA, perceived destination appeal PAC, perceived accessibility; PAF, perceived affordability; PCN, perceived connectivity; PST, perceived status; PGP, perceived government policy were associated with PVA, perceived value. The study's findinghighlighted the importance of PVA, perceived value, as a mediator between the factors and CTB, cruise travel behavior.

***Keywords:*** *cruise, travel, affordability*

## RURAL HOMESTAYS AND SUSTAINABLE TOURISM: EXAMINING MEDIATING ROLE OF SAFETY IN SHAPING TOURIST INTENTIONS ACROSS SOUTH ASIA

*Pijush Kanti Goswami (University of Engineering and Management, Kolkata) and Dr Udit Chawla (Institute of Engineering & Management, School of University of Engineering and Management, Kolkata, India)*

**Abstract.** The resurgence of global tourism industry provides new opportunities and challenges for the accommodation sector, particularly for homestays in any tourist destination. Homestay accommodation is offering motivations of local communities in participating cultural preservation, livelihood generation and development of local ecosystem. Rural homestays are emphasizing its role in promoting sustainable and community-based ecosystem of tourism models. Synthesizing recent literature, impact of rural homestays can be assessed in the context of changing preferences of tourists while choosing destination accommodation. For our study, we gathered data from the tourist who availed homestay accommodation from the rural locations in India, Sri Lanka, Bangladesh and Nepal. The participants were selected using purposive sampling at location points and our study had a final sample size of 550 respondents. The results of path analysis established that five factors PCA, perceived cultural appeal; PAF, perceived affordability; PLA, perceived location accessibility; PQS, perceived quality of service; PGS, perceived government support were associated with PSS, perceived safety and security. The study's finding highlighted the importance of PSS, perceived safety and security, as a mediator between the factors and TIH, tourist intention for homestay.

***Keywords:*** *Keywords, sustainability, homestays, accommodation, affordability, tourist intention*

## UNPACKING MOTIVATIONS AND WELL-BEING IN ADVENTURE TOURISM: INSIGHTS FROM SOUTH ASIAN GEN Z

*Ujjwal Basu (University of Engineering and Management) and Udit Chawla (Institute of Engineering and Management school of University of Engineering and Management)*

**Abstract.** Adventure tourism, which can be broadly characterized as travel that incorporates physical activity, elements of uncertainty, and engagement with the natural environment, has attracted growing interest from both academic circles and the industry over the last ten years. Conventional incentives for adventure tourism like the pursuit of excitement, the desire for escape, personal challenges, and the quest for novelty continue to be pivotal in numerous research studies. Nevertheless, changing lifestyle trends, technological influences, and sustainability issues indicate that novel motivational frameworks are developing, especially within younger demographics.

For our study, we gathered data from the tourist who did adventure travels from India, Nepal, and Bhutan. The participants were selected using purposive sampling at location points and our study had a final sample size of 350 respondents.
The results of path analysis established that five factors PSR, perceived stress relief; PMN, perceived mindfulness; PCV, perceived convenience; PAN, perceived authencity; PID, perceived identity; were associated with PWB, perceived well-being. The study's finding highlighted the importance of PWB, perceived well-being, as a mediator between the factors and ITP, intention to participate.

***Keywords:*** *adventure, travel, convenience, wellbeing, intention*

# ENTREPRENEURSHIP

## RESILIENCE IN SMALL BUSINESSES – A STUDY IN INDIAN CONTEXT

*Kajari Mukherjee (Indian Institute of Management Indore)*

**Abstract.** We study resilience in small businesses. Such businesses in India are beset with scarcity of resources of all types and narrow window to value creation and value capture. Thus, their ability to cope with crisis is linked to its resilience capabilities. We conceptualize such organisations as an entity engaged in co-production of values by many stakeholders interacting with each other, rather than a simple value chain. These holistic and dynamic value constellations lead to a highly resilient system. We identify atypical behaviors of the founder-managers of such organisations that lead to conscious creation of value constellations.

***Keywords:*** *Resilience, Bricolage, Value constellations, Small business*

## LOCAL INDIGENOUS FOOD ESTABLISHMENTS AND ENTREPRENEURSHIP IN MEGHALAYA, INDIA: CHALLENGES AND PROSPECTIVE OPPORTUNITIES IN THE EMERGING TOURISM LANDSCAPES

*Dr. Indranil Bose (Adamas University, School of Business, Kolkata, West Bengal, India) and Dr. Madhurima Dasgupta (Abo-Akademi University, Turku, Finland)*

**Abstract.** The north-eastern region of India is increasingly attracting both domestic and international tourists, thanks to its breathtaking natural scenery and rich traditional indigenous cuisine. The local dishes are derived from the surrounding environment and embody the social and cultural traditions of the indigenous populations. In recent years, culinary experiences have become a key draw for travelers exploring various tourist destinations. Modern tourists tend to be adventurous and curious, eager to discover and indulge in local foods while enjoying regional specialties. Among the prominent states in this area, Meghalaya is particularly noted for its picturesque landscapes, pleasant climate, and unique culinary traditions, earning it the Sanskrit designation 'Abode of Clouds.' Meghalaya is inhabited by three main tribes: the Khasis, the Pnar (also known as Jaintias), and the Achik (also known as Garos). According to the Ministry of Tourism, in 2024, Meghalaya welcomed approximately 1.6 million tourists, achieving the highest visitor numbers in the state's tourism history, despite facing several challenges. However, it has been observed that only a small fraction of these tourists had the opportunity to taste the local indigenous dishes. This paper aims to highlight the indigenous food establishments of the Khasi, Jaintia, and Garo tribes, facilitating access for tourists to these venues and allowing them to savor authentic native cuisines. Furthermore, it intends to identify the essential indigenous dishes of the Khasis, Jaintias, and Garos, intending to integrate these offerings into the menus of local eateries. Lastly, the research will investigate the feasibility of establishing these indigenous food outlets in areas frequented by tourists, thereby increasing their attractiveness to visitors.

***Keywords:*** *Indigenous cuisine, cultural communities, linguistic obstacles, favored dishes, tourism-focused*

## CHALLENGES AND SUGGESTED SOLUTIONS FOR FAMILY-OWNED MANUFACTURING BUSINESSES IN SMALL AND MEDIUM ENTERPRISES IN INDIA: CRITICAL REVIEW OF LITERATURE

*Sarif Hossain (SP Jain School of Global Management & Saïd Business School Oxford)*

**Abstract.** This is an exploratory scope study taking account of the research done in the domain of family-owned manufacturing businesses in India, particularly the small and medium enterprises (SMEs) which constitute more than 80% of business entities in the country. The researcher takes a pragmatic approach to draw upon literature and analyse them in terms of methodology, topics, publications and limitations towards the development of an analysed snapshot of where the domain stands in present research. It is the objective of the study to derive the gaps in the research repository due to identified and unidentified limitations.
There will be no primary data gathering as the researcher intends to analyse what has been done until today. It is anticipated that with a rigorous analysis of focussed collection of literature the outcome of the study will be what the agenda for future research should be and why. As exploratory study this paper will be a snapshot for scholars to direct their studies to areas that are of importance to the domain and have been neglected to leave not one but several gaps. The intended beneficiaries of such a paper would academics and aspiring academics as well as professionals whose job entails research and/or use of research.

***Keywords:*** *Qualitative research, Literature review, Manufacturing family businesses, Small and medium enterprises, India*

## MICROFINANCE AND ENTREPRENEURSHIP: A PATHWAY TO ECONOMIC STABILITY THROUGH SMALL BUSINESS DEVELOPMENT IN INDIA

*Sadaf Fatima (Assistant Professor, HILSR, School of Law, Jamia Hamdard New Delhi 110062.)*

**Abstract.** This study analysis the contribution of entrepreneurship and microfinance, in augmenting the socio-economic welfare of the underprivileged population. By forming robust financial institutions for enabling admittance to sustainable livelihoods through enabling lucrative employment prospects, for both self-employment and wage employment. Objective is to strengthen the rural population by various development ingenuities. Microfinance Institutions have been known for its noteworthy influence on poverty eradication and livelihood promotion worldwide.
The small businesses and financial services help in enlightening economic stability. It helps in estimating how these two sectors relate to creating a more healthy and strong economy. This includes how access to vigorous financial system enables small businesses to grow, create jobs, and leads to economic development, while also to examine its impact on the stability and growth of these businesses in the economy. In reality small businesses are major drivers of economic growth. They have better elasticity and adaptableness to changing market conditions. Small businesses have diversifying quality; they can be operated in various sectors. They

contribute to the economic strength of local communities, creating a sense of community. Economic services, like loans, investments, and insurance, are important to grow. Financial inclusion provides the required capital to invest in technology, equipment, and workforce development, aiding them to nurture becoming a more competitive business and more resilient to economic shocks. Services like insurance help mitigate risks associated in business. Financial Inclusion can empower marginalized groups, particularly women. It also helps individuals and families move out of poverty by starting businesses and providing financial support to create a more unbiassed and affluent society.

***Keywords:*** *Entrepreneurship, Microfinance, Economic stability, Marginalized group, Employment, Poverty, Women empowerment*

## UNICORN VALUATION IN INDIA: THE ROLE OF VENTURE CAPITAL NETWORKS AND STARTUP CHARACTERISTICS

*Samant Saurabh (Indian Institute of Management Bodh Gaya), Rohan Mukherjee (IMI Kolkota) and Vinit Ghosh (T.A.Pai Management Institute)*

**Abstract.** India has recently become one of the leading hubs of unicorns, ranking third in the world after the United States and China. The growth of the Indian ecosystem is the outcome of rapid digitalization, the presence of active investors, and enabling government policies such as Startup India. While unicorns are now an important part of India's economy, there is still limited research on what drives their valuations. This paper tries to fill that gap by bringing together firm-level characteristics and network-level features of venture capital investors. The study uses data from CB Insights (2023) covering 64 Indian unicorns. A unicorn–unicorn network is constructed where two unicorns are linked if they share the same investor. Social network measures such as authority, degree, betweenness, load, and clustering coefficient are calculated. Alongside these, firm-level attributes like age, city, and industry are included in regression models to explain valuation. The results show that authority centrality and age are strong predictors of valuation, while city (with Mumbai emerging as significant) and industry (enterprise technology) also play a role. On the other hand, clustering within the network does not appear to impact valuation, suggesting that wider investor connections matter more than localized clusters. The findings provide useful lessons. For investors, network centrality can be a simple yet effective indicator for identifying promising ventures. For founders, actively building investor connections can help improve visibility and value. For policymakers, the results highlight the need to strengthen ecosystems beyond Mumbai to ensure balanced regional development. To the best of our knowledge, this is among the first studies to examine Indian unicorn valuations using social network analysis. It shows how networks, age, and ecosystem context together shape the story of India's billion-dollar startups.

***Keywords:*** *unicorn, venture capital, social network, valuation of unicorn, ecosystem*

# THE FACTORS INFLUENCING WOMEN'S ENTREPRENEURSHIP IN TRIBAL AREAS OF HIMACHAL PRADESH

*Kulbhushan Sharma (Thapar Institute of Engineering & Technology, Patiala, Punjab), Dr Anupam Sharma (Thapar Institute of Engineering & Technology, Patiala, Punjab) and Dr Harpreet Singh (Thapar Institute of Engineering & Technology, Patiala, Punjab)*

**Abstract.** Women's entrepreneurship is a critical driver of economic development and social empowerment, yet women in tribal regions face unique and significant barriers to their entrepreneurial aspirations. This study investigates the multifaceted factors influencing the success of women entrepreneurs in the tribal areas of Himachal Pradesh, India. The research addresses the existing gap in literature by focusing on the unique socio-cultural, economic, and environmental characteristics of this region.

The primary objectives of this research are to (1) identify the key socio-economic, cultural, and institutional factors influencing women's entrepreneurship; (2) assess the barriers and challenges faced by women entrepreneurs; (3) evaluate the effectiveness of government policies and programmes; and (4) propose a model to promote women's entrepreneurship in these tribal areas.

A mixed-methods approach, combining both qualitative and quantitative research designs, will be employed. Data will be collected through structured questionnaires and in-depth interviews with women entrepreneurs in the region. Purposive sampling will be used to ensure a representative sample of diverse entrepreneurial backgrounds. The collected data will be analyzed using descriptive statistics, factor analysis, regression analysis, and structural equation modeling (SEM) to explore the relationships between independent, mediating, and dependent variables.

This study is expected to provide valuable insights for policymakers, community-based organizations, and other stakeholders. The findings will contribute to the development of more effective and targeted initiatives aimed at fostering a supportive ecosystem for women entrepreneurs in tribal communities, ultimately promoting sustainable development and gender equality.

***Keywords:*** *Entrepreneurship, Sustainable Development, Tribal Area*

# PROFESSION TO PASSION EXPLORING ENTREPRENEURSHIP FROM THE PERSPECTIVES OF DOCTORS, ENGINEERS, LAWYERS AND CHARTERED ACCOUNTANTS

*Naziya Iqbal Patvegar (Rani Channamma University, Belagavi)*

**Abstract.** Entrepreneurship serves as a dynamic force that drives innovation and economic growth, assuming unique dimensions when observed through the diverse professional perspectives of doctors, lawyers, engineers, and chartered accountants. Customarily associated to sectors characterized by specialized expertise, these professions are now experiencing a prominent surge of entrepreneurial spirit. Against the background of evolving societal and economic settings, professionals in medicine, law, engineering, and finance are exploring into

entrepreneurial pursuits that leverage their expert skills to address evolving needs and capitalize on pristine opportunities.

This study aims to explore the unique entrepreneurial journeys embarked upon by individuals within these well-regarded fields. It seeks to understand how doctors, lawyers, engineers, and chartered accountants navigate the connection of their professional expertise with the ever-changing world of business. Whether establishing healthcare startups, engineering-focused innovation hubs, legal tech firms, or financial consultancy enterprises, these professionals are extending beyond traditional career paths, actively shaping their fates within the entrepreneurial realm.

By exploring the experiences of doctors, lawyers, engineers, and chartered accountants turned entrepreneurs, our goal is to uncover valuable insights revealing the evolving setting of entrepreneurship within traditionally structured professions. Through an analysis of problems encountered, and strategies employed, we aim to contribute to a comprehension of how entrepreneurship is enduring transformation and gaining acceptance across varied professional spheres. This study not only promises to uncover individual tales of entrepreneurial success but also aims to determine broader trends that hold the potential to redefine the future of entrepreneurship within these specialized fields.

The present study aims to identify the problems encountered by professionals in the entrepreneurial endeavor and how their business practices help them to overcome those problems. To carry out this research, a sample of 124 professionals operating in Belagavi district were selected. A simple random sampling technique was opted, and a well-structured questionnaire was used to collect the responses. Frequency, Mean, Standard deviation, Correlation and Regression were used to analyze the data. It was found that there existed a positive correlation between their problems and practices suggesting that as entrepreneurs adopt practices to address business related problems, there is a moderate and positive association with improvements in these problems. Furthermore, practices were regressed with problems and it was revealed that business practices have a significant impact on overcoming the problems.

***Keywords:*** *Entrepreneurship, Professionals, Problems and, Practices*

## DIGITAL INNOVATION FOR SUSTAINABLE STUDENT ENTREPRENEURSHIP: A REVIEW OF TECHNOLOGY-ENABLED INCUBATION PRACTICES

*Aishik Chatterjee (Brainware University), Dr. Indrajit Ghosal (Brainware University) and Dr. Suparna Biswas Goswami (Brainware University)*

**Abstract.** This review examines how sustainable student entrepreneurship within university business incubators which have been drastically transformed by digital innovation. As higher education institute adopts “Sustainable Entrepreneurial University” (SEU) model the integration of digital technologies with-sustainability focused incubation becomes crucial. This study synthesizes 2015-2025 literature exploring how emerging technologies have completely reshaped the entrepreneurial education and venture development.

Key digital innovation that has been identified in the review includes AI enabling personalized learning, intelligent mentoring, sustainable business opportunity identification, MOOCs providing scalable entrepreneurship education focused on sustainability principles, virtual incubation platforms democratizing global access to entrepreneurial support and data analytics optimizing program effectiveness through venture tracking. This research advances theoretical understanding of technology-enabled sustainable incubation as well as it's practical implications for university administrators, educators and policymakers.

***Keywords:*** *Student Entrepreneurship, Technology-Enabled Incubation, Artificial Intelligence, MOOCs, Sustainable Entrepreneurship, Virtual Incubation*

## BUISNESS IDEA OF INNOSPROUT PRIVATE LTD

*Soma Das , Innosprout Private Limited Start Up (Adamas University) and Dr Soma Das (Adamas University)*

**Abstract.** Today Science and innovation together comprises the strategic importance of sustainability initiatives. The healthcare sector faces several challenges, such as rising costs, rising demand, and the need for sustainability. Healthcare products in the digital era are limited not to mere medicines, syringes, or diagnostic kits, they significantly combine task utilising technology, data, and connectivity to improve health outcomes and serve public health even in the underdeveloped countries. Sustainable innovations in healthcare have recently drawn more attention as the need for more effective and economical healthcare systems has become apparent. Healthcare innovations may save costs while increasing the efficacy and efficiency of healthcare delivery. Moreover natural products-functional herbal tea, hazard free disinfectant mop solution, oroproducts for mouth ulcer,bigel for skin rejunevation ,medicated chewing gum for bad breath etc provide commercial reward for harnessing and utilizing traditional knowledge and long term improvement in environmental and social welfare

***Keywords****: Sustainable, Natural products, Healthcare system*

## WOMEN-OWNED ENTERPRISES- PATHWAY TO ENERGY SUSTAINABILITY: A QUALITATIVE APPROACH

*Jogeswar Mahato (IIM Sambalpur)*

**Abstract.** Introduction: The capability of off-grid solar photovoltaic (PV) technologies to address the energy needs of energy-deprived, bottom of the pyramid (BoP) rural populations is well acknowledged. However, its implementation and continued use pose a problem. Several existing literatures on off-grid solar PV initiatives in the Global South examines their technical, economic, institutional, socio-cultural, policy, and environmental impediments, while recommending strategies to surmount these challenges. The necessity for the involvement of local communities in planning and execution has been increasingly underscored. Research consistently advocates for the engagement of local stakeholders in the deployment of off-grid solar photovoltaic technologies, particularly emphasising the critical role of local technicians

in delivering after-sales support. This paper aims to promote clean and affordable energy at the bottom of the pyramid and achieve energy sustainability (SDG 7) through an action-oriented intervention.

Literature Review: Solar photovoltaic (PV) technologies provide a sustainable option for energy-deprived populations. The adoption and continued use of solar photovoltaic systems necessitates the involvement of local people in both design and execution. The research about off-grid solar PV initiatives that exclude community involvement highlights the challenges faced in accessing bottom of the pyramid (BoP) communities, as well as issues related to supply chain and after-sales support.

Empirical research in Sri Lanka about the implementation of Solar Home Systems (SHSs) through market-based micro-financing revealed that, despite a three-year microloan facility, the product remained expensive for impoverished households due to its elevated cost (Laufer & Schäfer, 2011). The reliance on distant solar companies was apparent due to the local community's lack of expertise. These issues necessitated sufficient maintenance services, advanced technology, and the requirement for technological expertise at the local level. Consumers' primary grievance was the delays in repairs due to a shortage of local professionals. However, these attempts failed to engage the BoP communities due to their diminished market credibility stemming from a lack of assets. Moreover, deficiencies are observed in research concerning the operations and interactions between users and installers in situ, local job creation by solar companies and retailers, long-term social ramifications for communities (such as the heightened inequalities between those who can afford solar systems and those who cannot), and the solar home systems value chain (Lemaire, 2018).

Methodology: We employed a qualitative approach to gather and analyse quantitative data from recipient families, while data were obtained from SHG women members, who are enegaged in entrepreneurship.

Results: Our findings illustrate the efficacy of localised intervention and the importance and difficulties of involving local populations. Consumers utilised these solar lamps for various purposes and favour solar energy over grid power for fundamental illumination needs. The instability of voltage or substandard quality of power supply affects the choice for solar energy over traditional grid systems. Local services facilitated the ongoing operation of lighting, hence enhancing customer confidence. The intervention enhanced the capabilities of local women and established sustained livelihood options, leading to their economic and social advancement. Proper capacity building and support for SHG federations may facilitate renewable energy initiatives with the necessary speed, quality, and reach.

Policy implications: Various stakeholders, including governmental bodies, non-governmental organisations (NGOs), and private firms, are advancing diverse solar energy models to ensure dependable power access for bottom-of-the-pyramid (BoP) communities in rural regions. The 'Solar Sisters', a social enterprise in Uganda, Nigeria, and Tanzania, has achieved comparable success. It has established an entrepreneurial network by including local women at several levels, including the decision-making process, in the extensive distribution of solar PV systems (Heuër, 2017).

The funding of renewable energy projects by the community is crucial for the economic viability of these initiatives. A persistent focus should be on establishing a local participatory

solar ecosystem to ensure extensive access to dependable and clean energy for the local Base of Pyramid community.

***Keywords:*** *Enterprises, energy, sustainability, women, SDG*

## UNSCRAMBLING THE MODULAR DISPARITIES WITHIN WOMEN'S ENTREPRENEURIAL VENTURES AND THE PROSPECT OF DIGITAL TECHNOLOGIES

*Nilanta Mukherjee (Indian Institute of Management, Visakhapatnam) and Mohd. Amir Hussain (Indian Institute of Management, Visakhapatnam)*

**Abstract.** Despite the democratizing potential of digitalization, female entrepreneurs continue to face barriers rooted in gendered access, digital literacy gaps, and socio-cultural constraints. Drawing on the Technology Affordance and Constraints Theory (TACT), the research explores how digital affordances enable resource access, market participation, and innovation, while constraints such as patriarchal norms, financial exclusion, and limited digital skills impede progress. Using an interpretivist qualitative approach through semi-structured interviews and participant observation across diverse sectors, the study seeks to uncover how women negotiate technology in their entrepreneurial practices. The findings aim to identify patterns of empowerment and exclusion within digital entrepreneurship and propose policy recommendations to foster equitable access and participation. Ultimately, the study contributes to gender-inclusive digital transformation and entrepreneurship discourse in developing economies.

***Keywords:*** *Women Entrepreneurship, Digital Technologies, Technology Affordance and Constraints Theory (TACT), Gender Inequality, Digital Inclusion*

# CORPORATE GOVERNANCE

# THE INVESTMENT EFFICIENCY-SUSTAINABLE CORPORATE GROWTH NEXUS: FIRM-LEVEL EVIDENCE FROM A DEVELOPING COUNTRY

*Ranjit Tiwari (Chandragupt Institute of Management Patna)*

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**Abstract.** Investment choices constitute a central determinant of a firm's long-term success and competitiveness, as they shape its potential for value creation and sustainable growth. Against this backdrop, the present study seeks to examine the relationship between investment efficiency and sustainable corporate growth using data from 3156 manufacturing firms spread across eight sectors for the period 2012 to 2023. We examine the impact of investment efficiency and sustainable corporate growth using a reverse approach, by testing the impact of investment inefficiency on sustainable corporate growth, where sustainable corporate growth is proxied by the firm's internal growth rate (Ross et al., 2022). Investment inefficiency is estimated using two approaches—Biddle et al. (2009) and Chen et al. (2011). The study employs method of moments quantile regression technique proposed by Machado and Silva (2019). The MM-QR estimator, owing to its flexibility and efficiency, is particularly advantageous in financial applications as it facilitates the estimation of conditional quantiles, thereby capturing the heterogeneous impact of investment inefficiency on distinct components of CG. The findings indicate that investment inefficiency has significant positive impact on sustainable corporate growth, and the magnitude of this positive impact decreases as we move from lower quantile to higher quantile. Further if we look at the major sources of investment inefficiency, it is noticed that overinvestment has a significant positive impact on sustainable corporate growth, and the magnitude of this positive impact decreases as we move from lower quantile to higher quantile, while underinvestment has a significant negative impact on sustainable corporate growth, and the magnitude of this negative impact also decreases as we move from lower quantile to higher quantile. These results are consistent across all sectors with sector specific variations across quantiles.

***Keywords:*** *Investment inefficiency, sustainable corporate growth, manufacturing, panel quantile regression*

# BRIDGING THE DIVIDE IN PLATFORM ECONOMY RESEARCH: A CONCEPTUAL FRAMEWORK FOR GOVERNANCE AND WORKER WELFARE

*Vikrant Yadav (Entrepreneurship Development Institute of India)*

**Abstract.** The platform economy, a dominant feature of modern labor markets, is defined by digitally mediated, on-demand work. Despite extensive research, scholarship remains siloed into disparate streams focusing on regulatory gaps, platform architecture, and worker welfare. This fragmentation has precluded the development of a cohesive, cross-cutting theory. This paper addresses this critical research gap by proposing the Platform Governance and Worker Welfare (PG-W) framework, an integrated conceptual model designed to synthesize these isolated fields of inquiry. The PG-W framework explains the co-evolution of platform

governance (regulation, taxation), platform architecture (algorithmic management, design), and worker welfare (income, autonomy, well-being) across heterogeneous jurisdictions and worker cohorts. It uniquely integrates the critical sociopolitical dimensions of migrant labor, domestic work, and gender dynamics, which are often overlooked in mainstream analyses. The framework articulates the reciprocal relationships between four core constructs: (1) Platform Architecture and Leadership, (2) Governance Regime, (3) Worker Welfare Outcomes, and (4) Sociopolitical and Labor-Supply Context. By positing a dynamic system of feedback loops where worker responses influence policy and platform design, the PG-W framework provides a robust theoretical lens for both explaining current phenomena and offering normative guidance for designing equitable, sustainable, and adaptive platform ecosystems. This paper details the framework's constructs, outlines its theoretical and practical contributions, and proposes a new research agenda for the global platform economy.

***Keywords:*** *Platform Economy, Gig Economy, Worker Welfare, Governance, Regulation, Migrant Labor, Gender Inequality*

## EVALUATING CORPORATE GOVERNANCE PRACTICES AND THEIR IMPACT ON INDIAN PUBLIC SECTOR BANK PERFORMANCE

*Dr. Jubayeer Ahmed Talukdar (Independent Researcher Assam) and Dr. Jaynal Ud-Din Ahmed (North-Eastern Hill University).*

**Abstract.** Corporate governance encompasses the framework of rules, controls, policies, and decisions that guide corporate conduct. Specifically, it involves balancing the interests of key stakeholders, including shareholders, senior management, customers, suppliers, financial institutions, regulators, and the wider community. In the context of the banking sector, corporate governance refers to the processes for selecting, motivating, and holding managers accountable. Sound governance practices are essential for promoting transparency, managing risk effectively, strengthening public confidence, and ensuring the stability and security of banks. Against this backdrop, the present study aims to evaluate the corporate governance practices and their implications within India's Public Sector Banks (PSBs). The analysis reveals that PSBs demonstrate an overall compliance rate of 82.94% with governance standards. The findings highlight that strong board supervision, effective auditing mechanisms, and the protection of shareholder rights play a critical role in enhancing financial performance. The study also suggests that future research should examine corporate governance in private sector banks and its influence on their operational and financial outcomes.

***Keywords:*** *Corporate Governance, Public Sector Banks, Bank Performance*

# OPERATIONS

# APPLYING THE ANALYTIC HIERARCHY PROCESS (AHP) TO EVALUATE BETWEEN RESHORING, HYBRID AND OFFSHORING PRODUCTION DECISION

*Sourom Sagar Bhagat (Ramakrishna Mission Residential College, Narendrapur)*

**Abstract.** This study applies the Analytic Hierarchy Process (AHP) to evaluate off-shoring, Reshoring, and Hybrid production strategies across financial, operational, and sustainability criteria. The analysis highlights Product Quality, ESG compliance, and Carbon Footprint as the most influential factors, while cost and labour considerations remain significant drivers. Results show off-shoring achieves the highest overall score, primarily due to its cost advantages and resilience under geopolitical volatility, whereas Reshoring performs strongly in sustainability dimensions. The findings suggest that while cost-efficiency dominates current decision frameworks, long-term competitiveness requires balancing financial gains with ESG improvements and risk mitigation.

***Keywords:*** *Analytic Hierarchy Process, Production Management, Decision-Making, Sustainability*

# STRATEGIC PROCUREMENT PORTFOLIO MANAGEMENT USING THE ANALYTIC HIERARCHY PROCESS

*Grishika Agrawal (Sant Gadge Baba Amravati University)*

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**Abstract.** Purpose: To establish a systematic framework for prioritizing procurement items based on a multi-criteria evaluation, moving beyond cost-based decisions to include quality, supply risk, and strategic impact.

Methodology: The Analytic Hierarchy Process (AHP) was applied to evaluate three procurement items (A, B, and C) against four key criteria: Cost, Quality, Supply Risk, and Strategic Impact. Pairwise comparison matrices were constructed to determine the relative weights of the criteria and to score the performance of each alternative, leading to a composite priority ranking.

Findings: Strategic Impact emerged as the most heavily weighted criterion (55.8%), followed by Supply Risk (26.3%). The analysis ranked Item B as the highest priority for procurement management, with a composite score indicating its critical balance across all strategic factors. Item A was ranked second, and Item C third.

Implications: The study demonstrates that procurement decisions should be strategically rather than tactically driven. Organizations can use this AHP model to objectively allocate management resources and focus supplier relationship efforts on items that pose the highest strategic risk and impact, thereby enhancing supply chain resilience and value.

***Keywords:*** *Analytic Hierarchy Process, Procurement Portfolio Analysis, Strategic Sourcing, Supply Management, Decision Analysis*

## OPTIMIZING CERAMIC TILE DESIGN THROUGH QFD: A CUSTOMER-CENTRIC APPROACH

*Sourom Sagar Bhagat (Ramakrishna Mission Residential College, Narendrapur)*

**Abstract.** This study applies Quality Function Deployment (QFD) to align ceramic tile product design with the most critical customer requirements. Using a 1–5 scale for importance and relationship strengths, the House of Quality integrates customer and technical competitive assessments to identify high-impact improvement areas. Durability, slip resistance, and aesthetic appeal emerged as top priorities, driven primarily by feldspar quality, kiln firing precision, and surface glaze hardness. Competitive benchmarking revealed strong performance in scratch resistance and dimensional accuracy, with targeted enhancement needed in slip resistance. The resulting prioritization framework enables manufacturers to focus resources on technical parameters that deliver maximum customer satisfaction and competitive advantage.

***Keywords:*** *QFD, Technology Innovation and Sustainability, Circular Economy, Sustainable Development Goals*

## OPTIMIZING GLASS TUMBLER DESIGN USING QUALITY FUNCTION DEPLOYMENT (QFD): A CUSTOMER-CENTRIC APPROACH

*Sahilswayamsri Sahoo (Utkal university)*

**Abstract.** This study applies Quality Function Deployment (QFD) to link customer needs. durability, safety, and aesthetics—with technical descriptors such as tempered glass, annealing, and cutting and polishing. Findings show that durability and safety dominate customer priorities, with cutting and polishing emerging as the most critical factor. Competitive benchmarking highlights the proposed design's balance between affordability and premium quality. The QFD roadmap guides manufacturers to align technical upgrades with customer expectations, ensuring market competitiveness.

*Keywords: QFD Glass Tumbler, Durability, Safety, Aesthetics, Technical Descriptors*

## ENHANCING RAINCOAT DESIGN THROUGH QFD: A CUSTOMER-DRIVEN DEVELOPMENT APPROACH

*Grishika Agrawal (Sant Gadge Baba Amravati University)*

**Abstract.** Purpose: To systematically translate key customer requirements such as waterproofing, durability, comfort, cost-effectiveness, and aesthetics—into actionable technical descriptors for the design of an adult raincoat. The study aims to prioritize design and manufacturing choices that maximize customer satisfaction while balancing technical feasibility.

Methodology: The Quality Function Deployment (QFD) framework, specifically the House of Quality, was employed to correlate customer needs with critical technical descriptors. These included material selection (e.g., Gore-Tex, polyurethane, EVA) and manufacturing processes (e.g., fabric coating, seam sealing, ultrasonic welding).Relationship strengths were quantified, and competitive benchmarking was conducted to identify improvement opportunities.
Findings: The analysis revealed that Gore-Tex material, seam sealing, and ultrasonic welding processes have the strongest influence on fulfilling high-priority customer needs such as waterproofing and durability. Target values were set to exceed competitor performance, particularly in areas where current product ratings lag behind. The absolute weight calculations highlighted the need to focus on advanced materials and precision manufacturing to achieve competitive advantage.
Implications: Raincoat manufacturers should prioritize investments in high-performance materials and advanced sealing technologies to meet customer expectations. The QFD outcomes provide a clear roadmap for R&D and production planning, ensuring that technical efforts are aligned with market demands. This structured approach not only enhances product quality but also supports strategic decision-making in resource allocation.

***Keywords:*** *Quality Function Deployment, Raincoat Design Material Selection, Manufacturing Process, Customer Requirements, Technical Descriptors, Competitive Benchmarking*

## ENHANCING JUICER DESIGN THROUGH QFD: A CUSTOMER-CENTRIC APPROACH

*Raj Parikh (Vishwakarma Government Engineering College)*

**Abstract.** Purpose: The aim is to utilize the design of Juicer based on the requirements of consumer, performance, easy to clean and safety features, and make technical specifications match the needs of customers.
Methodology: Quality Function Deployment (QFD) was used to align consumer requirements (e.g. high juice extraction, efficiency, noise level, safety features, affordability, aesthetics, design, service, warranty) with technical specifications (material selection, manufacturing process, blade and housing material.
Findings: Juice extraction efficiency, Safety features, easy to clean and compact design had the highest effect on customer satisfaction.
Implications: Juicer makers must invest in the key areas of R&D and resource deployment into the areas of improving blade technology, easy clean design and consistent safety features because these elements directly affect basic needs of and satisfaction motivators of customers.

***Keywords:*** *Quality Deployment Function, Juicer, safety, extraction*

# IMPROVING DESIGN OF DIGITAL CAMERA WITH DIGITAL QFD: CUSTOMER FOCUSED DESIGN

*Rahul Kolase (Sanjivani Collage of Engineering Kopargaon)*

**Abstract.** Purpose: To synchronize the design of the digital camera product with the main customer needs, i.e., high image quality, easy use product, durability, connectivity and affordable products.
Technique: Quality Function Deployment (House of Quality) was used to overlay the requirements of customers in the form of primary and secondary needs to the relevant technical characters (type of sensor, types of lens system, type of body material, type of processor, ergonomics, type of connectivity module, and type of manufacturability).
Results: Application in high-resolution image sensors, quick and dependable autofocus, and solid body had the most significant associations with customer contentment, and ergonomic control, long-lasting batteries, and wireless connections were recorded as supporting advantages.
Serial Implications: To be able to attain high customer values and product competitive differentiation, and item long-lasting reliability the task that manufacturers should focus on is advanced sensor technology innovation, efficient image processing systems, and usability increments.

***Keywords:*** *Quality Function Deployment (QFD), Digital camera, Sensor technology, Product design, Ergonomics, Autofocus, Durability, Connectivity, Customer satisfaction, Image processing systems*

# BELTS (LEATHER) CUSTOMER PRIORITIZATION MATRIX

*Atikant Jain (IPS ACADEMY INDORE)*

**Abstract.** Purpose: This analysis uses a Quality Function Deployment (QFD) matrix to translate customer desires into tangible engineering specifications. The goal is to align product development with market needs, ensuring that a company's resources are focused on what matters most to customers.
Methodology: The QFD matrix systematically connects customer requirements (the "WHATs") with the technical features (the "HOWs") needed to achieve them. It identifies the strength of these relationships and incorporates a competitive analysis and technical difficulty assessment to prioritize actions.
Findings: The most critical customer needs are Safety and Eco-Friendly attributes. The analysis reveals that the Fully Automatic Manufacturing Process and the use of Full Grain Leather are the most impactful technical drivers for meeting these needs. The findings also provide a clear benchmark against competitors

Implications: To gain a competitive edge, the company should strategically invest in automation and high-quality materials. This will not only improve product quality and safety but also address the growing consumer demand for sustainable and durable products, leading to enhanced market positioning and customer loyalty.

***Keywords:*** *Quality Function Deployment, Operations Management, House of Quality, Customer Requirements*

## IDENTIFYING CRITICAL INTERDEPENDENT RISKS IN GLOBAL SUPPLY CHAINS USING AHP–DEMATEL HYBRID APPROACH

*Rima Dutta (IMI Kolkata)*

**Abstract.** Purpose: This paper aims to identify and analyse the critical interdependent risks that affect global supply chains by applying a hybrid Analytic Hierarchy Process–Decision-Making Trial and Evaluation Laboratory (AHP–DEMATEL) approach. The study explores how various operational, geopolitical, and environmental risks are interlinked, and how their causal interrelationships influence overall supply chain stability and resilience.
Methodology: A structured multi-criteria decision-making framework was employed to capture expert judgments from 28 professionals representing manufacturing, logistics, and trading sectors with global operations. The AHP method was utilized to evaluate the relative importance of major risk categories, while DEMATEL was applied to map the cause–effect relationships among these interdependent risks. This integration provided a comprehensive understanding of both the hierarchical significance and mutual influence of risks within complex global networks.
Findings: The results indicate that supplier dependency risk, geopolitical instability, and logistics disruption risk are the most influential causal risks, exerting strong effects on financial, demand, and compliance risks. The study highlights that risk interdependencies amplify vulnerability across global supply chains, suggesting that proactive collaboration, multi-sourcing, and digital visibility systems are critical to mitigating cascading disruptions.
This research advances the literature on global supply chain risk management by integrating AHP and DEMATEL to simultaneously evaluate risk prioritization and interdependence. It contributes theoretically by presenting a structured model for assessing complex risk networks, and practically by offering insights for managers to develop resilient, data-driven, and adaptive risk mitigation strategies in globalized supply chain environments.

***Keywords:*** *Global supply chain, Risk management, AHP–DEMATEL, Interdependent risks, Supply chain resilience*

## ENHANCING SOAP DESIGN THROUGH QFD: A CUSTOMER-CENTRIC APPROACH

*Preet Paigude (Savitribai Phule Pune University)*

**Abstract.** Purpose: To align soap product design with key customer needs such as gentleness on skin, long-lasting lather, and affordability.
Methodology: I used Quality Function Deployment (House of Quality) to map customer requirements against technical specifications (base ingredients, moisturizing agents, Total Fatty Matter %).
Findings: High Total Fatty Matter (TFM) % and the choice of base ingredients (e.g., sulfate-free) had the highest impact on customer satisfaction.
Implications: Manufacturers should prioritize investments in ingredient formulation and saponification process control.

*Keywords: Quality Function Deployment, Base Ingredients, Soap*

## PRIORITIZING TRADE COMPLIANCE PRIORITIZATION USING THE ANALYTIC HIERARCHY PROCESS (AHP) APPROACH

*Atikant Jain (IPS ACADEMY)*

**Abstract.** Project Report: Trade Compliance Prioritization
Purpose: To prioritize Trade Compliance Initiatives (Valuation Audit, Screening System, Training Program) using the Analytic Hierarchy Process (AHP) to guide resource allocation and focus efforts on critical areas of risk mitigation.
Methodology: The AHP approach was used, involving the pairwise comparison of four criteria: Risk (R), Cost (C), Strategic (S), and Maturity (M). These criteria weights were synthesized with the alternatives' local priorities to calculate a final Total Priority Score for ranking.
Findings- Criteria analysis reveals a dominant focus on Risk () and Strategic Alignment (). The initiatives ranked as follows:

- Comprehensive Customs Valuation Audit ( Total Score)
- Automated ECCN/HTS Screening System ()
- Enterprise-Wide Training Program ()

Implications: The results mandate prioritizing immediate operational improvements and systemic controls (Audit and Screening System) that address high-exposure risk (customs valuation) before focusing on foundational elements like broad training, confirming a strong risk-first operational strategy.

***Keywords:*** *Analytic Hierarchy Process(AHP), Trade Compliance Risk Management Prioritization Operations Management, Criteria analysis*

## AHP FOR WASTE MANAGEMENT SYSTEM SELECTION

*Preet Paigude (Savitribai Phule Pune University)*

**Abstract.** The growing emphasis on sustainability and circular economy practices has intensified the need for environmentally responsible packaging materials. This study applies the Analytical Hierarchy Process (AHP) to evaluate and prioritize five sustainable packaging alternatives — Recycled Paper/Cardboard, Molded Pulp, Mono-Polymer Recyclable Plastic, Biodegradable Plastic, and Aluminum Packaging — based on five key criteria: Environmental Impact, Cost Efficiency, Material Availability, Durability & Protection, and Consumer Acceptance.

Pairwise comparison matrices were constructed to determine the relative weights of each criterion, followed by normalization and priority vector computation for each alternative. The final ranking indicates that Recycled Paper/Cardboard emerged as the most sustainable option with the highest composite score, followed by Molded Pulp and Biodegradable Plastic, highlighting their superior environmental and consumer acceptance performance.

This analysis provides a structured decision-making framework for industries seeking to transition toward greener packaging choices, ensuring a balance between sustainability, functionality, and cost-effectiveness.

***Keywords:*** *Sustainable Packaging, Analytical Hierarchy Process, Decision-Making, Environmental Impact, Biodegradable Materials, Circular Economy, Eco-friendly Packaging, Material Selection, Waste Reduction*

## PRIORITIZING B2B MARKETPLACE EVALUATION USING THE ANALYTIC HIERARCHY PROCESS (AHP) APPROACH

*Rahul Kolase (Sanjivani Collage of Engineering Kopargaon)*

**Abstract.** Purpose: The purpose of this research is to define and set priorities to the main selection criteria that are needed in the assessment and choice of the most appropriate Business-to-Business (B2B) marketplace platform. It is aimed at assisting the decision-makers in the procurement or the sales division of an organization to critically rank the platforms that are more efficient in terms of their operations and reach and viability in the market.

Methodology: The method used to decide on the multi-criteria was the Analytic Hierarchy Process (AHP). An awareness hierarchy has been created with the primary purpose, five central criteria, such as Financial and Cost Structure (FC), Features and Functionality (FF), and Ecosystem and Network Effects (EE) and a variety of alternative market places. The fundamental scale of the AHP was used to compare the pair of possible options and the consistency ratio was calculated and verified to be in accordance to the reliable and coherent judgments.

Findings: The results of the AHP calculations have shown that Financial and Cost Structure has the biggest weight of the priority and this means that the total cost of ownership including commissions and fees have been shown to be the most important in the selection of the B2B platform. Features & Functionality were used as the next criterion, based upon the significance

of integration of the systems and advanced B2B based tools. The analysis was able to rank the alternatives which was the best market place with consideration of the weighted scores that were calculated.
Implications: The research offers a well-grounded, quantitative conceptualization to companies with complicated B2B securities in digital transformation choices. Through this AHP-based solution, managers will be able to shun the qualitative analysis to make certain that the selection solution in the marketplace is rational, objective and directly in line with the financial and strategic objectives of the company and eventually improve operation of the supply chain and market presence.

***Keywords:*** *AHP, Marketplace Evaluation, MultiCriteria Decision Making, Strategic Prioritization*

## PRIORITIZING ORGANIC SUPPLIER SELECTION USING THE ANALYTIC HIERARCHY PROCESS (AHP) APPROACH

*Raj Parikh (Vishwakarma Government Engineering College)*

**Abstract.** Purpose: The primary objective of this study is to identify, evaluate, and prioritize the most significant criteria for selecting organic suppliers in a structured and transparent manner. As the demand for ethically sourced and sustainable products grows, organizations must ensure that their procurement strategies emphasize not only cost efficiency but also quality assurance and environmental responsibility. This study focuses on developing a systematic approach to supplier selection using AHP, enabling decision-makers to balance multiple factors effectively.
Methodology: The Analytic Hierarchy Process (AHP) framework was applied to assess three critical criteria Quality & Certification, Cost & Reliability, and Sustainability & Local Sourcing. Pairwise comparisons were conducted among these factors using Saaty's 1–9 importance scale to establish their relative significance. The resulting comparison matrix was normalized to derive the priority weights of each criterion, providing a quantitative basis for ranking their importance. Consistency checks were also performed to validate the logical coherence of the judgments.
Findings: The analysis revealed that Quality & Certification holds the highest priority weight, signifying its dominant influence in the organic supplier selection process. Sustainability & Local Sourcing ranked second, reflecting the growing emphasis on eco-friendly and community-based procurement. Cost & Reliability, though important, was found to have comparatively lower weight, indicating a shift from price-based to value-based sourcing decisions. The findings highlight how modern organizations are aligning purchasing strategies with broader sustainability and quality goals.
Implications: The results underline the need for procurement managers to integrate structured decision-making tools like AHP in supplier evaluation processes. Emphasizing certified quality standards, ethical sourcing, and long-term reliability can enhance brand reputation and ensure compliance with ESG (Environmental, Social, and Governance) benchmarks. Moreover,

adopting AHP fosters objective, transparent, and data-driven supplier selection, enabling organizations to achieve strategic alignment between operational performance and sustainability objectives.
Keywords: Analytic Hierarchy Process, Supplier Selection, Sustainability, Quality Certification, Procurement, Decision-Making

***Keywords:*** *AHP, Supplier-Selection, Sustainability, Quality-Certification, Procurement, Decision-Making*

## ENHANCING HEAVY-DUTY TRUCK DESIGN IN INDIA THROUGH QFD: A FLEET-CENTRIC APPROACH

*Aditya Sahu (Shri Ram Group of Colleges)*

**Abstract.** This study applies Quality Function Deployment (House of Quality) to align heavy-duty truck engineering priorities with fleet customer needs in India (logistics and construction). Customer requirements were weighted and mapped to nine technical descriptors using relationship scores (9/3/1/0); three OEMs (Tata, Ashok Leyland, Eicher) were assessed on a 1–5 scale. Results show TCO drivers-fuel efficiency, payload efficiency and uptime - dominate, while serviceability and telematics emerge as high-impact technical levers. The QFD delivers prioritized, data-backed targets for design trade-offs and next steps toward numeric KPI benchmarking."

***Keywords:*** *Quality Function Deployment, House of Quality, heavy-duty trucks, Total Cost of Ownership, telematics, payload-to-weight.*

## APPLYING THE AHP TO EVALUATE SIX SIGMA PROJECT SELECTION

*Sahilswayamsri Sahoo (Utkal University)*

**Abstract.** Purpose: To apply a structured, multi-criteria decision-making framework for prioritizing and selecting Six Sigma projects, ensuring alignment with overarching business objectives such as financial performance, customer satisfaction, and project feasibility.
Methodology: The Analytic Hierarchy Process (AHP) is used to systematically evaluate three potential Six Sigma projects (Project A, Project B, Project C). The evaluation is based on three key criteria: Financial Benefits (FB), Customer Satisfaction (CS), and Feasibility (F).1 Pairwise comparisons were conducted to establish the strategic weights of the criteria and to score each project's performance against them. A final ranking was synthesized through matrix multiplication to derive a conclusive priority score for each alternative.1
Findings: The analysis identifies Project A as the highest-priority initiative, achieving a final score of 0.442. It ranked ahead of Project C (0.359) and Project B (0.199).1 This outcome is a direct result of the strategic weighting, which heavily prioritized Financial Benefits (53.9%)

over Feasibility (29.7%) and Customer Satisfaction (16.4%).1 Project A's top ranking was driven by its dominant performance on the most heavily weighted criterion, Financial Benefits, where it achieved a local priority score of 0.634.1.
Implications: For organizations that place the highest strategic importance on financial returns from their continuous improvement efforts, this AHP model provides a clear and defensible rationale for project selection. The framework demonstrates that a project with overwhelming financial benefits (Project A) should be prioritized, even if other projects might offer better customer satisfaction (Project B) or higher feasibility (Project C). This model enables a data-driven approach to building a Six Sigma portfolio that is directly aligned with the organization's primary financial objectives.

***Keywords:*** *Six Sigma, Project Selection, Analytic Hierarchy Process (AHP), Multi-Criteria Decision-Making (MCDM), Financial Benefits, DMAIC, Continuous Improvement*

## A COMBINED APPROACH USING AHP AND DEMATEL FOR GREEN SUPPLY CHAIN MANAGEMENT SUCCESS FACTORS EVALUATION

*Shubham Pathak (IMI Kolkata), Sachin Modgil (IMI Kolkata) and Rohit Kumar Singh (IMI Kolkata)*

**Abstract.** This research presents an integrated decision-making model combining DEMATEL (Decision-Making Trial and Evaluation Laboratory) and AHP (Analytic Hierarchy Process) for strategic sourcing, specifically supplier selection in a Green Supply Chain Management (GSCM) context. DEMATEL is used to analyze and visualize the causal relationships among multiple evaluation criteria, revealing their hierarchical structure and identifying cause and effect groupings. This insight guides the prioritization of criteria. Subsequently, AHP uses pairwise comparison to evaluate suppliers against these prioritized criteria, facilitating an effective multi-criteria decision-making process. Applied to a case study in the Metropolitan Transport Corporation (MTC), the model prioritized quality, price, environmental, and delivery criteria, leading to a robust ranking of suppliers that balances environmental and economic performance. The integrated DEMATEL-AHP approach enhances decision makers' understanding of complex interdependencies among criteria and improves the accuracy of supplier selection decisions.

***Keywords****: DEMATEL, AHP, Integrated decision-making model*

# SUPPLIER EVALUATION USING THE ANALYTIC HIERARCHY PROCESS (AHP): A DECISION-MAKING FRAMEWORK

*Aditya Sahu (Shri Ram Group of Colleges)*

**Abstract.** Purpose: To identify the most suitable supplier by evaluating them across key performance criteria such as Cost, Quality, and Delivery.
Methodology: The Analytic Hierarchy Process (AHP) was employed to construct pairwise comparison matrices for criteria and suppliers. Criteria weights were derived using the principal eigenvector approach, followed by the computation of normalized priority values for each supplier.
Findings: Among the three suppliers assessed, Supplier 1 achieved the highest overall priority value of 0.6253, indicating superior performance across the weighted criteria. The derived criterion weights were: Cost – 0.6333, Quality – 0.2605, and Delivery – 0.1062, signifying that Cost had the greatest influence in the decision hierarchy.
Supplier-wise performance under each criterion was as follows:

- Cost: Supplier 1 (0.6013), Supplier 2 (0.2244), Supplier 3 (0.1743)
- Quality: Supplier 1 (0.7134), Supplier 2 (0.1866), Supplier 3 (0.1000)
- Delivery: Supplier 1 (0.5529), Supplier 2 (0.2084), Supplier 3 (0.2388)

These results indicate that Supplier 1 consistently outperformed others across all parameters, demonstrating both cost-efficiency and dependable service.
Implications: Organizations should prioritize cost-effective and quality-driven suppliers in procurement decisions. AHP provides a transparent and quantitative framework to justify supplier selection, enhancing objectivity in strategic sourcing.

***Keywords:*** *Analytic Hierarchy Process, Supplier Evaluation, Cost, Quality, Delivery*

# EDUCATION

## BALANCING TEACHER SUPPORT AND STUDENT EMOTIONAL LABOR: A CONCEPTUAL FRAMEWORK FOR HOLISTIC EMOTIONAL WELL BEING IN EARLY EDUCATION ALIGNED WITH NEP 2020

*Him Jyoti (Thapar Institute of Engineering and Technology) and Anupam Sharma (Thapar Institute of Engineering and Technology)*

**Abstract.** Emotional well being in early childhood is the building block for lifelong learning and mental health. While NEP (2020) emphasizes the holistic development, there are only few theoretical models that provide actionable guidance for integrating emotional support into early education. This paper proposes a framework that models emotional well being as the net result of teacher emotional input (Q) and student emotional labor (W) expressed as U=Q-W. Drawing from Bronfenbrenner's ecological system theory, Lewin's field theory and CASEL framework for SEL, this model offers a dynamic view to understand how teacher-student interactions influence emotional regulation and resilience in young children. The model aligns with the NEP 2020's vision of nurturing emotionally secure children through inclusive pedagogy and responsive classrooms.

***Keywords:*** *Emotional well being, teacher emotional input, teacher student interaction, lewin field theory*

## BALANCING GROWTH AND SUSTAINABILITY IN EDTECH: THE ROLE OF BUSINESS MODEL DESIGN THROUGH CRITICAL LITERATURE REVIEW

*Natasha Banth (SP Jain Global)*

**Abstract.** This paper is a critique of frameworks of business models, primarily Business Model Canvas and its sustainability-oriented extensions, and evaluates their usefulness in facilitating and maintaining sustainability in the context of education technology (EdTech) companies. A review of ten empirical and theoretical articles, which were performed in both developed and developing economies, suggests that business model design is a critical component determining the integration of social, economic and environmental goals into the EdTech industry.

EdTech companies have to balance two groups of social and financial pressures in particular. Among other things, they should be able to develop institutional trust, encourage access, and improve learner engagement, as well as make it viable financially. Currently, the empirical evidence has shown that the key process in which an organisation is able to successfully execute the corporate social responsibility agenda is by adopting business models that are strictly designed. Growth of the business and finance resources necessary to execute the growth is also a part and parcel of this strategy.

The case of Bangladesh is an educative example. Identified positive improvements in infrastructure and the increase in the quality of education were due to the community-based approach that included the involvement of stakeholders as well as the creation of public–private

partnerships. Moreover, it can be argued that tools like the Responsible Business Model Canvas allow companies to effectively define sustainability goals, as well as to actualise them within the scope of market scalability.

The study points out that although the topic of sustainability has been discussed more and more, there is still a dearth of studies that offer quantifiable information from a real-world standpoint, particularly when it comes to balancing the trade-offs between immediate and long-term financial and value-saving initiatives. It argues that rather than being on the outskirts of the business model, the sustainability issue ought to be central. These businesses will be able to transcend the constraints of the traditional profit-driven paradigms that still exist if they can achieve social impact, be environmentally friendly and contribute to inclusive economic growth through the use of appropriate indicators.

The article concludes by making the case that the future of EdTech cannot be viewed as a choice between sustainability and profit. Instead, it promotes adaptable business models that can thrive in the educational ecosystems they support while also being just and socially conscious.

***Keywords:*** *Sustainability, -Business Model Canvas (BMC), -Education Technology (EdTech)*

## A STUDY ON DIMENSIONS OF PEDAGOGICAL CONTENT KNOWLEDGE IN ENGLISH LANGUAGE TEACHERS IN INDIA

*Zeenat Bandukwala (K J Somaiya Institute of management, Somaiya University, Vidhyavihar, Mumbai) and Dr. Anjali Chopra (K J Somaiya Institute of management, Somaiya University, Vidhyavihar, Mumbai)*

**Abstract.** English proficiency in India is closely linked to social mobility and employability, and many higher-education institutions use English as the medium of instruction (Hohenthal, 2003; Gargesh & Sailaja, 2017). Yet student language outcomes remain modest: in PISA 2009, India ranked 72nd of 74 systems (ASER, 2015), and the NAS 2021 CBSE report shows an average language score of 311/500, indicating room for improvement.

Teacher knowledge and practice are among the strongest in-school predictors of achievement (Azam & Kingdon, 2014; Cohen & Goldhaber, 2016). Strengthening outcomes therefore requires attention to teacher competencies. Beyond subject expertise, Shulman (1986) introduced Pedagogical Content Knowledge (PCK) as "the ways of representing and formulating the subject that make it comprehensible to others" (p. 6). Subsequent work broadened PCK to include curricular knowledge, strategies for instruction, and knowledge of students' understanding (Grossman, 1990), later adding orientations toward teaching and assessment knowledge (Magnusson et al., 1999). In essence, PCK integrates content, pedagogy, assessment, and learner conceptions into a coherent base for effective instruction (e.g., Sarkar et al., 2024).

Demand for spoken English has risen as schools report that, despite English being taught as a subject, many students struggle to communicate fluently in one-to-one and group settings.

Principals cite a mismatch between curriculum emphasis (often reading- and grammar-heavy) and communicative needs, alongside gaps in teachers' capacity to teach speaking and listening. Empirical work on PCK in India—particularly for English language and communicative competence remains limited. This study examines the presence, structure, and relative importance of PCK components among English language teachers and identifies factors associated with PCK development. Findings aim to inform teacher education and help both schools strengthen communicative outcomes.

***Keywords:*** *Education, Teacher Development, English Language, English as a First Language*

## SHORT-TERM VS. LONGER-TERM SUSTAINABILITY EDUCATION: IMPACT ON STUDENTS' PRO-ENVIRONMENTAL DISPOSITIONS

*Sourabh Bhattacharya (Institute of Management Technology, Hyderabad), Aindrila Chatterjee (Institute of Management Technology, Hyderabad), Romina Mathew (Institute of Management Technology, Hyderabad) and Mahesh Ramalingam (Institute of Management Technology, Hyderabad)*

**Abstract.** Amid rising concerns about environmental sustainability, there is an urgent need to nurture the next generation of business leaders who can evaluate not only the economic but also the ethical implications of their decisions on various stakeholders. Business schools worldwide have responded to this need by integrating environmental sustainability into their curricula. However, limited research has examined how such exposures influence students' pro-environmental intentions and behaviors. This study draws on the Theory of Planned Behavior (TPB) and Stakeholder Theory to examine the differential effects of short-term sustainability exposure (STSE) and long-term sustainability exposure (LTSE) on management students, viewed here as primary stakeholders in the educational ecosystem. While TPB emphasizes individual-level determinants of intention, namely attitudes, subjective norms, and perceived behavioral control, our research embeds this framework within a broader institutional context. We examine how interactions with other stakeholders, faculty, administrators, business leaders, and peers influence students' behavioral predispositions toward environmental issues. This integration highlights the mutual interdependence among stakeholders and the role of social influence in shaping pro-environmental conduct.

Our findings support TPB's core assertions: attitudes, subjective norms, and perceived behavioral control significantly influences pro-environmental intentions. STSE enhances the effect of subjective norms on intention, but this influence weakens when followed by LTSE. In contrast, LTSE strengthens the influence of attitudes, while neither exposure moderates the role of perceived behavioral control. These results suggest that combining STSEs and LTSEs can more effectively foster sustainability-oriented mindsets. We offer practical recommendations for business schools and corporate learning centers on how to structure sustainability interventions to cultivate environmentally responsible, ethical future leaders.

***Keywords:*** *Environmental Sustainability, Business Education, Theory of Planned Behavior, Stakeholder Theory, Sustainability Exposure, Attitude, Subjective Norm.*

# AN EMPIRICAL STUDY OF FACTORS INFLUENCING JOB SATISFACTION AMONG TEACHING FRATERNITY OF ENGINEERING COLLEGES IN KARNATAKA: USING PLS SEM AND IMPORTANCE PERFORMANCE APPROACH

*Shilpa Kulkarni (Visvesvaraya Technological University (VTU) ,Belagavi) and Dr.M.M Munshi (Visvesvaraya Technological University (VTU) ,Belagavi)*

**Abstract.** This extensive research explores the complex relationship between work Digitalization and differing factors of Job Satisfaction among women faculty members at engineering colleges in Karnataka, India. The study uses advanced analytical methods, such as Par-tial Least Squares Structural Equation Modeling (PLS-SEM) and Importance-Performance Map Analysis (IPMA), to analyze the effects of digitalization on income satisfaction, job stress, quality of life, work-life balance, and job satisfaction among 202 academic staff from five institutions of engineering with varying hierarchical levels and departments.

The study brings forth invaluable understanding of the challenges faced by women teachers of engineering in higher education today. By employing rigorous statistical test-ing using proven measures of reliability such as Cronbach's alpha, Composite Reliabil-ity, and Average Variance Extracted, the research proves that support from the institution and salary satisfaction are the most significant factors that lead to job satisfaction, whereas work-related stress and quality of work life have moderate effects. Contrary to expectations, work-life balance proves to have minimal effects on overall levels of satis-faction.

The study adds useful insights to the understanding of digital transformation's impact on academic professionals, especially the significance of institutional support structures and compensation systems. The results indicate that although digitalization poses challenges, priority attention to income-related matters and holistic change management can greatly improve job satisfaction. The study's implications go beyond the individual institution, providing models for enhancing the quality of educational services and more sustainable academic settings that minimize workplace stress and faculty turnover rates.

***Keywords:*** *Job Satisfaction, Teaching Fraternity, PLS-SEM, Importance–Performance Analysis, Engineering Colleges, Karnataka*

# BRIDGING THE AWARENESS GAP: UNVEILLING THE TRANSFORMATIVE ROLE OF INSURANCE EDUCATION IN DRIVING SUSTAINABLE INSURRANCE IN DEVELOPING ECONOMIES- EVIDENCE FROM NEPAL

*Indra Raj Subedi (Institute of Business Management & Commerce, Mangalayatan University, Beswan, Aligarh) and Dr. Sujit Kumar Mohapatra (Assistant Professor, Institute of Business Management & Commerce, Mangalayatan University, Beswan, Aligarh)*

**Abstract.** This study explores the transformative role of insurance education in supporting the sustainability of the insurance industry in developing economies, with a particular focus on Nepal. While insurance is widely recognized as an essential tool for financial inclusion, risk management, and social protection, low public awareness and limited insurance literacy continue to hinder sustainable growth. This research seeks to bridge that gap by examining how targeted insurance education shapes consumer behavior, builds trust, and strengthens the long-term resilience of the insurance sector. In Nepal, a lack of insurance knowledge has contributed to low policy adoption rates, higher chances of mis-selling, and increased policy lapses or surrenders—challenges that threaten the industry's sustainability. Additionally, the absence of formal university-level insurance programs at undergraduate and postgraduate levels points to gaps in comprehensive management education.

The study is grounded in human capital theory and the principles of sustainable development. It uses a mixed-method approach, collecting quantitative data through structured questionnaires from 400 policyholders and 50 insurance professionals across major provinces of Nepal. To complement the quantitative findings, qualitative insights were gathered through in-depth interviews and focus group discussions with industry experts, regulators, and trainers. By examining both life and non-life insurance sectors, the research provides a holistic view of how educational initiatives impact different segments of the market. Statistical tools such as regression analysis, correlation assessment, and qualitative triangulation were used to explore the relationships between insurance education, consumer awareness, trust, and key indicators of industry sustainability.

The study finds that insurance education significantly improves policyholders' and professionals' understanding of risk management, strengthens consumer trust, and enhances both policy adoption and retention. Institutions that implement structured educational programs demonstrate measurable improvements in business performance, policy persistence, and corporate reputation. The originality of this research lies in its context-specific focus on Nepal, a developing economy with low insurance penetration but significant potential for sustainable growth. The study contributes to the literature by providing empirical evidence of the link between insurance education and industry sustainability. It highlights the role of education as a catalyst for market development, financial literacy, and social protection. Finally, the research offers practical recommendations for integrating insurance education into national financial literacy initiatives, regulatory frameworks, and sustainable development strategies, offering a roadmap for other developing economies seeking to strengthen their insurance sectors.

***Keywords:*** *Insurance Education, Awareness Gap, Sustainability, Financial Literacy, Developing Economies*

## EDUCATIONAL INSTITUTIONS AND STUDENT LEADERSHIP: EVIDENCE FROM AN EMPIRICAL ANALYSIS OF STUDENT PERCEPTIONS

*Bhanu Sireesha P (ICFAI Business School, IFHE, Hyderabad) and Madhavi Garikaparthi (ICFAI Business School, IFHE, Hyderabad)*

**Abstract.** Leadership skills are essential for students to succeed in dynamic professional, social, and civic environments. Educational institutions play a pivotal role in fostering these competencies through academic, co-curricular, and cultural experiences. This empirical study examines the multifaceted contribution of educational institutions to leadership skill development among students. A structured questionnaire was administered to final-year undergraduate and postgraduate students across diverse disciplines to capture perceptions on various institutional inputs, including curriculum design, faculty mentoring, extracurricular engagement, peer learning, institutional culture, emotional intelligence training, and experiential learning opportunities.

The study employs exploratory factor analysis and structural equation modelling to validate a conceptual framework linking institutional support mechanisms with student leadership outcomes, while also considering mediating factors such as self-directed learning and perceived institutional role. Additionally, the study explores how students foresee utilizing these skills in different post-graduation / career pathways.

Findings provide evidence of strong associations between institutional practices and leadership development, with certain dimensions such as mentorship and emotional intelligence showing significant impact. The study offers actionable insights for educators and academic policymakers to integrate leadership-focused strategies into higher education curricula. The research also contributes to the growing discourse on student development and leadership readiness in the context of contemporary educational frameworks.

***Keywords:*** *Leadership skills, Educational institutions, Student development, Emotional intelligence, Peer Learning, Institutional support, Experiential learning, Skill acquisition, HEIs*

## A MULTI-TIERED APPROACH TO QUALITY ASSURANCE AND SDG4 ACHIEVEMENT IN INDIA FOR INCLUSIVE AND SPECIAL SCHOOLS

*Abhishek Dikshit (A.E.S' Anekant Institute of Management Studies (AIMS), Baramati; Savitribai Phule Pune University, Pune)*

**Abstract.** Background: To reach Sustainable Development Goal 4 (SDG4), which calls for "inclusive and equitable quality education for all," special education needs strong quality assurance. In India, the absence of standardized accreditation for special schools hinders both

the quality of education and the rights and future prospects of children with disabilities. The Rehabilitation Council of India (RCI,2023) says that accreditation is an important way to make sure that there is a minimum level of quality, accountability, and trust, to improve the way resources are used, and to promote professional standards among special educators.
Objective: This study formulates and experimentally substantiates a framework delineating critical aspects that affect special school preparedness for accreditation, emphasizing resource limitations, policy awareness, and stakeholder endorsement. It also suggests a Multi-Tiered Accreditation Model (MTAM) that is specifically designed to help special schools in India deal with their own problems. This model supports both SDG4 and the Rights of Persons with Disabilities (RPwD) Act, 2016.
Methods: A cross-sectional study was undertaken with 412 special schools across six Indian states, utilizing stratified random sampling. Structured questionnaires were used to gather data from school principals, special educators, and administrators. Confirmatory Factor Analysis (CFA), Structural Equation Modelling (SEM), and mediation/moderation analysis were among the advanced analytic methods utilized to confirm theoretical links.
Results: Strong psychometric qualities were seen in all constructs. The main reason for not being ready for certification was a lack of resources ($\beta = -0.41$, $p < .001$). On the other hand, policy knowledge ($\beta = 0.31$, $p < .001$) and stakeholder support ($\beta = 0.26$, $p < .001$) were both important factors that helped. Stakeholder support both partially mediated and influenced the connection between policy awareness and readiness.
Conclusions: The results show that targeted accreditation promotion, which includes raising awareness of policies and getting stakeholders involved, can help overcome resource shortages and speed up progress towards SDG4. Flexible, tiered certification models can help special schools at different phases of growth, making it easier for students with disabilities to be accountable, follow the same rules, and get better grades. The report offers practical recommendations for politicians, practitioners, and advocates aiming to reform special education in India.

***Keywords:*** *Special Schools, Accreditation, India, Disabilities, SDG4, RPwD Act, Quality Assurance, Structural Equation Modelling, Stakeholder Engagement, Policy Awareness*

## DISSECTING STUDENT PERCEPTIONS: A FACTOR ANALYTIC APPROACH TO HIGHER EDUCATION EFFECTIVENESS IN WEST BENGAL

*Prasenjit Chakravarty (The Neotia University), Debobani Biswas (The Neotia University) and Santanu Ray Chaudhuri (Brainware University)*

**Abstract.** Educational effectiveness is a multidimensional construct critical to national development, yet its determinants remain underexplored in specific regional contexts of developing nations. This study investigates the key factors influencing educational effectiveness in higher education institutions in West Bengal, India, from the student's perspective. A cross-sectional survey was administered to 282 students from various institutions, selected using stratified random sampling. Data was analyzed using Exploratory

Factor Analysis (EFA) and Mann-Whitney U tests. The EFA unearthed a robust three-factor structure: (1) Institutional Quality and Resources (e.g., curriculum, industry integration, funding); (2) Student Background and Institutional Characteristics (e.g., academic position, geographical location), and (3) Infrastructure and Technology (e.g., smartboards, institutional infrastructure). These collectively explain 64.9% of the total variance. Hypothesis testing found no statistically significant differences in student perceptions based on gender, institution type (public, private), or field of study (management, non-management), with all effect sizes (r) being negligible (<0.06). The findings suggest that students perceive educational effectiveness through a consistent, multi-faceted lens, underscoring the need for holistic, system-wide improvements rather than subgroup-specific interventions. This study provides a validated framework and empirical evidence to guide policymakers and institutional leaders in enhancing the quality and equity of higher education in regional India

***Keywords:*** *.Educational Effectiveness, Higher Education, Exploratory Factor Analysis, Student Perceptions*

## GREEN PEDAGOGY AND AI FOR VOCATIONAL EDUCATORS IN AGARTALA

*Priyam Podder (Techno India University Tripura)*

**Abstract.** Introduction: The urgency of climate change, environmental degradation, and rapid technological disruption demands pedagogical innovation that equips learners with ecological literacy and digital adaptability. This thematic analysis examines the intersection of Green Pedagogy and Artificial Intelligence (AI) in vocational education, focusing on educators in Agartala, Tripura. The study is motivated by the dual need to integrate sustainability-driven practices into teaching while preparing educators to navigate AI-enabled learning ecosystems, which is the timely need in the programed learning systems.

Literature review: Green Pedagogy emphasizes systemic thinking, problem-based learning, and multiperspectivity, enabling learners to critically engage with sustainability challenges while cultivating responsible citizenship (Tahlo, 2025; Laraib & Shahzad, 2025). It transforms education from a knowledge-transmission model to one fostering ecological awareness, critical literacy, and action-oriented learning (Hossain, 2018). Empirical studies demonstrate its application across diverse contexts, from EFL classrooms in Bangladesh to environmental curricula in Pakistan and Europe, highlighting its potential in embedding eco-consciousness at multiple levels of education (Hossain, 2018; Laraib & Shahzad, 2025). Teachers' perceptions of eco-pedagogies further underscore their role in fostering eco-literacy through innovative practices such as project-based learning and outdoor exploration, though resource limitations and exam-oriented cultures often impede implementation (Fodouop, 2025). Parallelly, AI offers transformative opportunities for vocational educators by enabling adaptive learning, data-driven personalization, and efficiency in curriculum delivery. When aligned with Green Pedagogy, AI can be employed to design sustainability simulations, eco-skill assessments, and interactive problem-solving tasks, thus blending ecological and digital literacy. This integration is particularly relevant for vocational educators in Agartala, who must prepare learners for the

demands of both a green economy and AI-driven workplaces. And, Agartala, north-east India is still evolving in academic pursuits.

Methodology: The methodology of this study follows a thematic analysis of existing scholarship, institutional practices, and teacher perceptions across global and South Asian contexts. The analysis identifies four themes: sustainability integration, teacher agency, AI-driven innovation, and eco-literacy, all of which are mapped to vocational education needs in Agartala. Expected outcomes include strategies to embed sustainability into vocational curricula using AI-enabled tools, ultimately enhancing employability while fostering ecological responsibility.

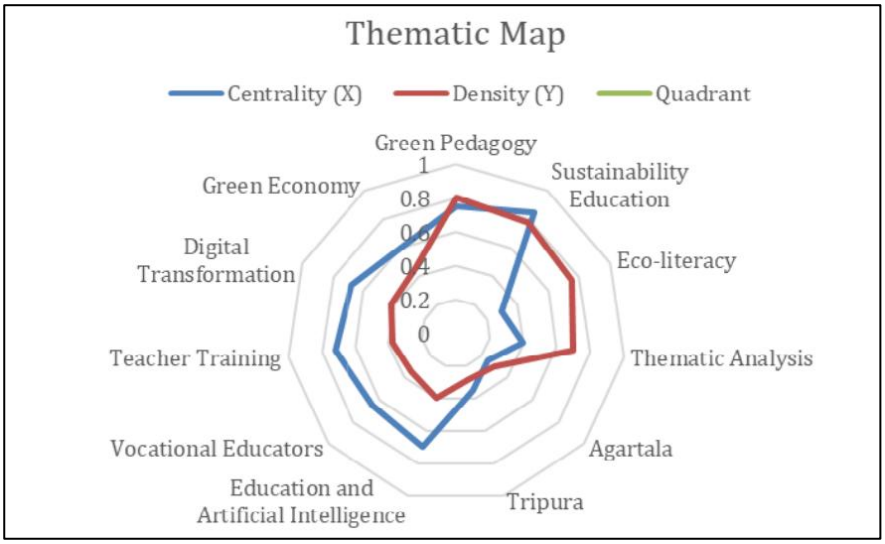


Figure: Thematic map made in excel

Implication: The implications extend to teacher training, curriculum reform, and policy design, supporting India's broader agendas of digital transformation and sustainable development. Future research should empirically test AI-supported eco-pedagogical interventions in vocational institutes, assessing their impact on student competencies and institutional sustainability practices. Green pedagogy is in focus of research around the globe.

Motivation: The motivation for this inquiry lies in the recognition that environmental and technological challenges are deeply intertwined. Without sustainability education, AI risks reinforcing unsustainable practices, while without AI, Green Pedagogy may lack scalability and innovation. This thematic analysis thus envisions vocational educators in Agartala as agents of ecological stewardship and digital transformation, shaping learners for a sustainable and technologically resilient future.

***Keywords:*** *Human Resource, Green Education, AI*

## RECONFIGURING THE HIGHER EDUCATION VALUE CHAIN: A SUSTAINABILITY-ORIENTED FRAMEWORK

*Tishya Tripathi Shukla (Babu Banarasi Das University) and Anchal Rastogi (Babu Banarasi Das University)*

**Abstract.** Higher Education Institutions (HEIs) are facing continuous and immense pressure to deliver quality services while concurrently addressing challenges aligned with the Sustainable Development Goals (SDGs). Long-established frameworks, such as Porter's Value Chain, offer a useful foundation but lack accounting for the service-oriented and sustainability driven nature of educational services. This paper introduces a Sustainable Educational Value Chain (SEVC) model that reconfigures existing value chain approaches by incorporating dimensions of service quality, value-creating activities, and stakeholder collaboration. The framework integrates primary activities such as service design, operations, marketing, and student services along with support activities, including people, processes, physical environment, and institutional culture, with student engagement acting as the mediating factor. By associating these activities to sustainability outcomes across institutional, educational, and societal domains, the SEVC model presents a comprehensive pathway for HEIs to foster adaptability, increase employability, and contribute to societal well-being. This study enriches the literature on service marketing and educational management by filling the gaps in the discourses of quality, engagement, and sustainability, providing actionable insights for administrators and policymakers aiming to develop robust, future-ready educational ecosystems.

***Keywords:*** *HEI (Higher Educational Institutions), SDG(Sustainable Development Goals), Service quality, Student Engagement, Educational Sustainability*

## MAPPING THE SUSTAINABILITY COMMUNICATION GAP: A QUALITATIVE STUDY OF INSTITUTIONAL COMMUNICATION AND IMPLICATIONS FOR PR EDUCATION

*Dr Mona Gupta (Vivekananda Institute of Professional Studies- Technical Campus, Delhi) and Dr Chetna Bhatia (Vivekananda Institute of Professional Studies- Technical Campus, Delhi)*

**Abstract.** Background and Rationale: Higher-education institutions are important actors in sustainable development: they implement operational measures (energy, waste, water), embed sustainability in curricula, and influence stakeholder behaviour through communication. Institutional sustainability reporting and campus "green" initiatives are proliferating, but questions remain about how effectively universities promote sustainability through public-facing channels—especially social media—and how these practices support the development of student competencies in sustainability communication. For public relations (PR) education, institutional sustainability activities present a valuable context for applied learning, internship placements, and the cultivation of industry-relevant skills such as ESG communication, stakeholder engagement, behavioural messaging This study uses a systematic secondary-data

qualitative design to generate timely insights that can inform curriculum design and placement strategies.

Aim: To analyse institutional sustainable practices and social-media communication by universities (Indian and select international benchmarks), and to map gaps between institutional offerings and employer expectations for sustainability-related PR skills. The study uses the Input–Transformation–Output (ITO) model to organise evidence and an adapted Borich-style triangulation to prioritise curricular gaps, culminating in an Expectations-to-Reality (E2R) skill-gap mapping for PR education.

Methods: The research adopted a qualitative content-analysis approach, drawing on institutional documents (sustainability reports, course catalogues, centre pages), policy materials (UGC/AICTE/NAAC guidance), industry/NGO reports (PRCAI, Cision, USC), and social-media posts from official institutional handles. A purposive sample of 10 institutions (Indian public, private, and select international exemplars) was examined. The dataset covered materials produced between March 2023 and September 2025.

A codebook anchored in sustainability domains—operational practices, curricular integration, student engagement, partnerships, and communication—guides iterative thematic coding. Social-media posts are classified by purpose (awareness, behaviour change, reporting, calls to action), format (image, video, thread), and engagement metrics. For gap analysis, employer-facing reports provide "importance" proxies, while curricular documents and placement narratives serve as "competence" proxies; the adapted Borich approach generates a ranked list of priority gaps. Findings are synthesised into an E2R matrix mapping expectations (industry/student statements) against realities (institutional practices).

Findings: Analysis revealed several recurring patterns. First, many institutions demonstrated operational commitments (waste segregation, solar projects, water conservation) but varied markedly in transparency and integration with pedagogy. Second, curricular integration of sustainability was uneven: some institutions offered dedicated courses and multidisciplinary projects, while others embedded sustainability tokenistically in isolated modules. Third, social-media communication was widely used for reporting activities and celebrating campus events but was less frequently leveraged for behaviour-change campaigns or stakeholder dialogue; most posts were informational rather than dialogic. Fourth, links between institutional sustainability communication and formal opportunities for student skill-building (credit-bearing internships, assessed projects, industry placements in sustainability communication) remained inconsistent. Finally, employer- and industry-oriented reports emphasised demand for applied skills—ESG messaging, measurement of communication outcomes, and stakeholder engagement—that were not uniformly evident in institutional outputs, highlighting curriculum and placement gaps.

Implications for PR Education: The E2R mapping identified skill domains where expectation–reality gaps were greatest, including measurement of sustainability campaigns, strategic stakeholder mapping, and crisis preparedness for environmental issues. These findings inform targeted curriculum recommendations: modular courses in sustainability communication, structured internship pathways with NGOs and companies, integrated social-media practicums emphasising behaviour-change metrics, and faculty–industry collaborations to design assessed projects. Institutional social-media channels can also be leveraged as living laboratories for PR students.

Contributions and Limitations: This secondary-data, qualitative study provides timely, policy-relevant insights linking institutional sustainability practices to PR education and employability. Its reproducible methodology is supported by a documented codebook and dataset list. Limitations include reliance on public-facing materials, which may under-report internal pedagogical activity, and the absence of primary interviews. Findings should therefore be interpreted as design-oriented and open to further empirical validation.
Conclusion: A focused document- and media-based analysis surfaced priority gaps and pragmatic curriculum responses that can align PR education with sustainability communication demands. The E2R mapping offers actionable guidance for educators, institutional leaders, and industry partners seeking to strengthen student readiness for sustainability-focused PR roles.

*Keywords: Sustainability Communication, Institutional Communication, Higher Education, PR Education, Green Campus, Social Media, E2R Skill Gap*

## AI-DRIVEN DIGITAL EDUCATION AND ASSESSMENT: IMPROVING LABORATORY SAFETY COMPETENCE AMONG HEALTHCARE PRACTITIONERS IN TERTIARY CARE HOSPITAL

*Kartiki Mandavkar (MGM SBS NM), Dr.Deepashri Naik (MGM SBS NM) and Dr. Anamika Chalwadi (MGM SBS NM)*

**Abstract.** Background: The clinical laboratory is crucial to society, and its healthcare practitioners are key members of the healthcare team. As part of their routine responsibilities, these practitioners are involved in the collection, transportation, storage, handling, and disposal of various clinical specimens. Laboratory safety is a critical component in the training of allied health practitioners as lapses in safety practices can result in serious health risks to students, patients, and professionals.
Despite formal education, gaps in knowledge and attitude towards lab safety persist among healthcare practitioners, with the increasing integration of technology in education, digital learning and assessment tools offer a promising approach to enhance safety competencies.
This study aims to assess the current knowledge and attitude of healthcare practitioners toward laboratory safety precautions in a tertiary care hospital. The platform includes adaptive e-learning modules tailored to individual learning needs, interactive multimedia content to enhance engagement, real-time assessments to track learning outcomes, and AI-powered analytics to provide detailed insights into each student's progress and performance.
Objective: To evaluate the knowledge and attitudes towards laboratory safety precautions among healthcare practitioners through pre-test and post-test via AI-Driven Digital Education and Assessment.
Methodology: A structured digital questionnaire will be used to assess practitioners baseline knowledge and attitude through pre-test toward laboratory safety. It is a cross-sectional, descriptive study .Participants have to undergo a targeted digital learning module consisting of interactive multimedia content to enhance engagement, including videos, case scenarios, and guidelines. A post-test will follow to measure improvements.

Result: The baseline knowledge and attitude of healthcare practitioners towards laboratory safety, assessed digitally through a pre-test, showed an average score of 74.2%. Over the course of 1 week, participants engaged with AI-driven digital learning modules that included adaptive e-learning content, interactive multimedia, and real-time assessments designed to enhance laboratory safety competencies. Following this targeted digital education intervention, the average post-test score increased significantly to 95.6%. This 21.4% improvement demonstrates substantial gains in knowledge retention and attitudinal shifts favoring safe laboratory practices. The personalized nature of the 1-week AI-powered modules and continuous progress tracking played a vital role in engaging learners and improving outcomes. Conclusion: This study affirms that a 1-week AI-driven digital education program markedly elevates laboratory safety knowledge and attitudes among healthcare practitioners in a tertiary care hospital setting. The significant increase in test scores post-intervention (from 74.2% to 95.6%) highlights the effectiveness of adaptive learning modules, multimedia engagement, and AI-powered assessment analytics. Delivering safety education through a tailored digital platform allows for flexible, personalized learning experiences that address individual gaps and foster a proactive culture of laboratory safety. Integrating such AI-driven educational approaches into healthcare training programs is crucial for improving safety standards while supporting scalable and sustainable professional development.
Key words:
• AI-driven digital education
• Laboratory safety
• Healthcare practitioners
• Adaptive e-learning
• Digital assessment

***Keywords**:, • AI-driven digital education, • Laboratory safety, • Healthcare practitioners, • Adaptive e-learning, • Digital assessment*

## GENAI USAGE IN HIGHER EDUCATION BOON OR BANE

*Pravat Surya Kar (Goa Institute of Management)*

**Abstract.** Easy access to Generative Artificial Intelligence (GenAI) has disrupted higher education. Specifically, it challenges the role of educators as experts, traditional pedagogic processes, and assessment methods, in turn calling for the adaptation of pedagogy. Grounded in Kolb's experiential learning theory and the concepts of behavioral nudges, this paper explores structured interventions that can help educators embed AI tools into their pedagogy. Using surveys, the study examined how faculty members and students in higher education perceive and integrate GenAI tools in teaching and learning. It found a range of attitudes-from concerns about misuse to enthusiasm for enhancing creativity, efficiency, and engagement. The findings highlighted a need to rethink traditional assessment methods and academic integrity policies, as easy access to AI challenges the reliability of conventional grading systems. Accordingly, the paper proposes adapting Bloom's Taxonomy by incorporating GenAI to enrich learning. It argues thoughtful pedagogical design—supported by institutional policies

and faculty nudges—can transform GenAI from a disruptive threat into a catalyst for innovation, critical thinking, and industry-relevant skill building.

**Keywords:** GenAI, Nudges, Experiential Learning, Bloom's Taxonomy, Higher Education

# GENERAL MANAGEMENT

# EXAMINING THE BUSINESS CASE FOR CHILDCARE SUPPORT IN EMERGING ECONOMIES: CHILDCARE SUPPORT, EXPORTING AND FIRM EMPLOYMENT

*Bibek Bhattacharya (Indian Institute of Management Ahmedabad)*

**Abstract.** The demand to integrate childcare support into business infrastructure has grown in strength in recent years, particularly in the wake of the Covid-19 pandemic. However, although the business case for employer-sponsored childcare has received sufficient attention in both academic and practitioner literatures, there is a lack of nuanced theorization on how competing resource requirements faced by firms influence this decision. Through this study, I partially address this important gap by investigating the differential impact of childcare support on a key marker of business performance i.e., firm employment, for exporting firms relative to non-exporting firms. Specifically, situating my theorization in the resource-constrained environments of emerging markets, I predict that while there is a positive association between childcare support and firm employment in such contexts, this linkage will be weaker for exporting firms as compared to non-exporting firms. This is because, in emerging markets, exports represent another alternate strategy to improve firm employment and require a significant commitment of resources. Analyzing data from a large sample of Indian firms, I find robust support for these predictions and offer important implications for managers and policymakers.

***Keywords:*** *Childcare Support, Firm Employment, Emerging Economies, Resource Constraints, Exporting*

# AN OVERVIEW OF FOOD SECURITY IN THE CONTEXT OF CLIMATE CHANGE ADAPTATION: A BIBLIOMETRICS ANALYSIS

*Somanath Kumar Mishra (School of Economics and Commerce, KIIT Deemed to be University, Bhubaneswar, Odisha) and Dr. Prasanta Patri (School of Economics and Commerce, KIIT Deemed to be University, Bhubaneswar, Odisha)*

**Abstract.** Introduction: Climate change continuously threatens the current era, posing a critical global challenge with rising temperatures, extreme weather events, erratic precipitation patterns, and shifting agricultural zones, which are increasingly affecting food production and exacerbating food insecurity. Climate change adaptation is a strategy that ensures food security by promoting resilient farming practices, sustainable resource management, and policy interventions.

Objective: The purpose of this study is to analyze trends and patterns of food security in the context of climate change adaptation (CCA) and propose a potential pathway for future research direction to integrate food security with climate change adaptation (CCA).

Methodology: This study has conducted a comprehensive bibliometric analysis to examine the research trends and patterns on food security and climate change adaptation from 2007 to 2024. This study has used mainly two datasets, namely Scopus and Web of Science, by using pre-defined keywords. After using all the restrictions, the final dataset of 1,193 papers was

extracted from the databases. This study has used the R programming language to merge the two datasets and eliminate duplicates. Although the VOSviewer 1.6.20 and Biblioshiny (R package) have been used for the analysis, which looked at publication trend analysis, keyword analysis, citation analysis, and country analysis.
Result analysis: The results show that after 2010, research publications in this area have increased significantly. Food security, impacts, agriculture, vulnerability, and adaptability are among the terms that highlight important thematic areas in the research. Pecl et al. (2017) have the highest number of citations with 2173, followed by Holzworth et al. (2014) and Lobell et al. (2008), that is 1902 and 1167, respectively. With 576 publications, the United States is the largest country in terms of publications related to food security and climate change adaptation, followed by Australia (331), the United Kingdom (322), and China (302).
Conclusion: This study highlighted that the research trends on food security regarding climate change adaptations have received significant attention by scholars since the 2010s, due to extreme climate change causing agricultural vulnerability. The United States, Australia, the United Kingdom, and China are most likely gained the highest citations in the world, which reflects the influence of foundational studies in this domain. The findings highlight the necessity of policies that include adaptation strategies to boost resilience and reduce climate vulnerability. This study also suggests promoting interdisciplinary collaboration, integrating climate science, agricultural innovation, and socio-economic perspectives. Specifically, developing countries provide more funding for developing the emerging technologies (e.g., AI, IoT, and precision agriculture) in enhancing adaptive capacity and food system resilience.

***Keywords:*** *Food security, climate change adaptation, bibliometric analysis, mitigation*

## STUDY OF EFFECTIVENESS OF PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY) IN WESTERN UTTAR PRADESH

*Prashant Sharma (O. P. Jindal Global University Sonipat), Raj Kumar Kovid (UPES Dehradun) and Dinesh Kumar Sharma (Gautam Buddha University, Greater Noida)*

**Abstract.** Agriculture is the mainstay of the rural economy in India and is largely carried out by small and marginal farmers who have poor access to credit, high dependence on rainfall, and the majority of whom practice subsistence farming. Climate conditions inevitably introduce risk and uncertainty into agriculture as an economic activity, exposing farmers to a wide range of risks from planting crops to marketing their produce. The rising number of farmers' suicides, caused by repeated crop failures due to weather fluctuations, has prompted policymakers in India to take crop insurance more seriously. Therefore, the Prime Minister of India launched the Pradhan Mantri Fasal Bima Yojana (PMFBY) in 2016. The present study tries to assess the effectiveness of Pradhan Mantri Fasal Bima Yojana in Western Uttar Pradesh. The study tries to assess the progress of PMFBY and issues and challenges experienced by the beneficiaries in the last few years. The data is collected from six different districts of Western Uttar Pradesh using a structured questionnaire survey method. The data is processed using a descriptive and structural equation modelling approach using IBM SPSS and SmartPLS. The results suggest that the PMFBY scheme is effective in achieving the objectives; however, the

adoption is still not on the higher end. The overall experience of farmers needs to be improved by ensuring a smooth enrollment and claim process for this scheme.

***Keywords:*** *PMFBY, Farmers Risk, Crop insurance, Structural equation modelling, SmartPLS*

## ALIGNING SDG & ESG: SHAPING COMMON GOOD HRM AND ORGANIZATIONAL CONSCIOUSNESS FOR SUSTAINABLE DEVELOPMENT IN THE INDIAN POWER GENERATION SECTOR

*Biswajit Chatterjee (PhD Scholar, VGSOM, IIT, Kharagpur) and Susmita Mukhopadhyay (Associate Professor, VGSOM, IIT, Kharagpur)*

**Abstract.** The Indian power generation sector, as a cornerstone of national growth, faces an extreme challenge to balance rapid growth and sustainability issues. This research explores the possibility of aligning Sustainable Development Goals (SDGs) and Environmental, Social, and Governance (ESG) frameworks to shape Common Good Human Resource Management (CGHRM) practices and fossOrganizational Consciousness to drive sustainable development. SDG priorities and ESG-driven accountability can prepare HRM dimensions of organizations to go beyond efficiency to ensure equity, ethical responsibility, and long-term resilience. The role of organizational consciousness with values, culture, and leadership orientation in designing sustainability into workforce policies, talent strategies, and decision-making has been highlighted in this study. Such alignment is extremely important for the power sector. Transition to renewable energy and reducing the use of fossil fuels are some of the important solutions to reach the net-zero target by 2070. This study adopts an explorative qualitative approach as research methodology. Research methods include an in-depth study of literature, journals, policy frameworks, and thematic insights from power sector experts to identify patterns linking SDG-ESG alignment with CGHRM and organizational consciousness. Findings suggest that SDG-ESG-driven CGHRM rooted in sustainability and consciousness can ensure social justice, environmental consciousness, in addition to corporate purpose.

***Keywords:*** *Indian power generation sector, SDG, ESG, Common Good HRM, Organizational Consciousness*

## REGULATORY REQUIREMENTS FOR MEDICAL DEVICES IN INDIA WITH THE BACKDROP OF GLOBAL REGULATIONS

*Zoheb Muhammad (Swiss School of Management) and Dr. Archana Mishra (Swiss School of Management)*

Abstract. This study explores how India regulates medical devices compared to other countries by examining their challenges and successes. Regulatory bodies face various obstacles when implementing these rules. Participants were surveyed through polls, interviews, and forums. Among the 24 participants, it was found that their job duties vary, and many have gaps in their understanding of specific information. SMEs face significant difficulties due to a lack of

funding and resources, but in developing countries, they encounter even greater challenges in enforcement and interpretation. Contingencies are threatened by a shortage of trained regulators, outdated institutions, and inactive computer systems. The absence of proper regulation leads to increased burdens on pharmacies from various laws and raises patient safety concerns. To improve the situation, stakeholders suggested that officials should receive better training, processes should be simplified, and dialogue should be increased. When potential risks to consumers emerge, the industry needs stronger restriction laws.

***Keywords:*** *Medical Device Regulations, Global Harmonization, Challenges of Medical Device Regulations*

## CAUSAL AND NECESSARY CONDITIONS FOR MEGAPROJECT SOCAIL RESPONSIBILITY: A SEQUENTIAL EXPLANATORY STUDY OF INDIAN MEGAPROJECTS

*Nikunj Kumar Jain (Indian Institute of Management Nagpur) and Soumya Prakash Rath (Indian Institute of Management Nagpur)*

**Abstract.** This study examines the ethical and multilevel determinants of megaproject social responsibility (MSR) performance. Drawing on institutional theory, organizational behavior, and individual ethics, it integrates external institutional pressures (coercive, mimetic, normative), internal dynamics (absorptive capacity, megaproject culture), and individual social responsibility cognition as key antecedents. Using a sequential explanatory mixed-methods design, the research combines structural equation modeling (SEM) and necessary condition analysis (NCA) on survey data from India's project sector, followed by qualitative interviews to contextualize the findings. Results show that coercive pressure, organizational culture, and individual cognition are robust drivers of MSR. While factors like mimetic and normative pressures, and absorptive capacity lacked statistical significance, qualitative insights revealed their symbolic or constrained roles. Divergences between SEM and NCA suggest that some non-significant factors may still serve as necessary conditions, acting as bottlenecks for MSR performance.

By aligning the findings with the Sustainable Development Goals (SDGs), the study offers an empirically grounded, ethically informed framework that enriches understanding of socially responsible governance in megaprojects.

***Keywords:*** *Megaprojects Social Responsibility, Institutional Pressures, Organizational Culture, SDGs, Mixed Methods*

# ENERGY CONSUMPTION AND DECOUPLING GROWTH: AN EMPIRICAL ANALYSIS OF THE INDIAN MANUFACTURING SECTOR FROM 2001 TO 2022

*Sritama Kar (Indian Institute of Technology Kharagpur), Prantik Bagchi (Indian Institute of Technology Kharagpur) and Anwesha Aditya (Indian Institute of Technology Kharagpur)*

**Abstract.** In the context of SDG 7, India has launched some new policies, besides, continuing with the existing ones, to attain the net-zero objective and its buffer target. Largely, these policies are driven by the price strategies and technological development. These two focus on minimal use of resources and energy transition. However, usually, developing nations develop at the cost of environmental damage, which is unavoidable with industrialization. One group suggests the Kuznets' Hypothesis as a solution, and the other group claims it is a utopia. The points of counter to the environmentalists are: i. many times, producers do not opt for green technologies unless they are compelled and are cost-efficient; ii. The peak of the Kuznets curve is unseen in the short run; iii. The technological, infrastructural, political, socioeconomic, and other constraints. Therefore, the conundrum exists whether energy intensity reduction is sufficient or rebound is a real threat, and what is the alternative scope for economic growth beyond the minimal point of energy intensity. The existing Indian studies are scant that address the debatable point on the optimal trade-off between the mitigation targets and economic growth. Our work addresses this research gap by using the theory of energy decoupling. This is empirical research that brings out plausible states of energy consumption with the prospective industrial growth. It helps identify a good versus a bad state,and ensures a mere energy intensity reduction is not enough. To explain the same, we address the following questions: i. how does the manufacturing sector perform in terms of decoupling growth, and the inter-sectoral performance; ii. What are the dominant factors for the overall and the inter-sectoral outcome of the decoupling; iii. What determines the decoupling growth?

We use the database of the Annual Survey of Industries (ASI), Ministry of Environment, Forest, and Climate Change, and World Development Indicators from 2001 to 2022. To convert the values into real terms, we use appropriate deflators from the Office of Economic Advisors and the Consumer Price Index. Applying the Tapio's Index, and Log Mean Divisia Index (LMDI) decomposition method, we analyse the performance of the manufacturing sector and 58 industries, besides finding out the contribution of scale, composition, and intensity effects. Since the determinants for values of decoupling fail to address the good versus bad state, we convert them into eight sub-categories from best to worst, i.e., industries that belong to the first category perform the best, and if they belong to the eighth category, it is the worst. Furthermore, using the ordered probit regression, we identify the factors that statistically affect the outcomes. The additional contribution to the existing literature lies in linking the study with the Perform, Achieve, and Trade (PAT) scheme, and allowing for the shock of COVID-19.

The findings of the study are manifold: (1) the Indian manufacturing sector demonstrates weak decoupling throughout the accounting period. The trend fluctuates significantly and lacks regularity, having a huge drop in the value of the index after the COVID pandemic. Besides, significant upward and downward fluctuations have been found at the time of economic crisis and after PAT implementation, respectively; (2) Tapio's estimates suggest that, in the initial

phase, most of the industries have witnessed weak decoupling with the average value of 0.0907. In the interim phases, they experience an expansive coupling state, and end with a strong decoupling state in recent times; (3) Decomposition estimates favour the output effect as the leading factor for increasing energy consumption, and the negative energy intensity effect compensates for the impact of this positive factor; (4) Inter-sectoral heterogeneity exists in the contribution of energy consumption. For the industries, such as electric motors, electronic components, communication, railway, and leather products, energy intensity and structural effect are the main driving factors; (5) The ordered probit results suggest that productivity gains are energy-enhancing rather than energy-saving. It supports the productivity dilemma hypothesis; (6) We find FDI, coupled with R&D helps polluting industries. However, only FDI without R&D ensures the Pollution Heaven hypothesis; (7) The scale effect has a negative influence on the outcome of decoupling state through an increase in net value added. However, shares of industries do not have a role in that; (8) The positive effect of energy intensity for the improvement of decoupling status implies that without being energy efficient, industries can reach a higher rank, suggesting merely reducing energy intensity is not enough, even if the PAT scheme works our estimates suggest that it is easier to achieve a better decoupling status for energy-efficient industries than energy-intensive industries with supporting policy. Therefore, as a policy suggestion, we propose to look beyond the scalability and intensity targets, and a specific policy should be launched to evaluate and assess the decoupling performance in line with the existing policies to mitigate the energy threat.

***Keywords:*** *Decoupling growth, Decomposition method, Energy consumption, Manufacturing sector*

## FEDERATED LEARNING IN LOW RESOURCES HEALTHCARE SYSTEMS

*Benu Gopal Kanjilal (The Neotia University) and Saswata Pal (The Neotia University)*

**Abstract.** Federated Transfer Learning (FTL) can break down institutional data silos and enable collaborative medical AI by keeping patient data on-site while sharing learned model updates; however, low-resource hospitals face distinct barriers—negative transfer from domain mismatch, gradient-level privacy leakage, severe data heterogeneity and imbalance, communication bottlenecks over unstable/low-bandwidth links, and a lack of real-world deployment evidence. Motivated by these gaps [1], we propose a context-aware, adaptive FTL framework for low-resource healthcare that (i) employs hospital-specific adapters and domain-adaptive fine-tuning to detect and reduce negative transfer, (ii) integrates calibrated differential privacy with secure aggregation to bound information leakage while maintaining clinical utility, (iii) uses fairness-aware aggregation to uplift small/low- volume sites and mitigate bias, (iv) leverages parameter-efficient fine-tuning (LoRA/adapters), sparse/quantized updates and asynchronous communication to minimize bandwidth and compute costs, and (v) validates robustness and usability through realistic deployment simulations and pilot hospital studies. Empirical and theoretical evidence from recent FL reviews and medical imaging studies suggests this combined strategy can substantially improve per-site generalization, privacy–

utility trade-offs, fairness, and practical feasibility for clinical translation. We report preliminary results showing improved site-wise robustness and reduced communication overhead, and we outline remaining challenges for governance, validation, and large-scale clinical adoption. [1–8]

***Keywords:*** *Aggregation, Homomorphic Encryption, Low-resource Healthcare, Domain Adaptation, Model Efficiency, Fairness*

## DIGITAL ASSESSMENT TOOL FOR MEASURING QUALITY OF LIFE AMONG DRUG SENSITIVE TUBERCULOSIS PATIENTS AT DOTS CENTRE

*Shruti Khedekar (MGMSBS), Dr. Bahubali Nagaonkar (MGMSBS) and Dr.Harapriya Kar (MGMSBS).*

**Abstract.** Background: India has the most cases of tuberculosis (TB), which is still one of the main causes of morbidity and mortality worldwide. Major advances have been accomplished through the National Tuberculosis Elimination Programme (NTEP) in enhancing early diagnosis and offering free treatment. Beyond clinical results, patients' quality of life (QoL) has become widely acknowledged as an essential indicator for assessing the overall efficacy of treatment.

Despite being widely used, standard paper-based QoL evaluation techniques frequently come with drawbacks, including extended administration times, manual scoring errors, and decreased patient compliance. Digital assessment tools, on the other hand, provide an innovative approach by evaluating patient-reported outcomes in a uniform, effective, and real-time manner. In addition to improving efficiency and accuracy, these tools support India's growing emphasis on digital health through programs like the National Digital Health Mission (NDHM).

By integrating digital QoL assessments into DOTS centres, healthcare professionals can more effectively monitor patient well-being, spot treatment-related or psychosocial issues early, and eventually enhance treatment adherence and outcomes of the program.

Objective: To evaluate whether integrating digital tools for Quality-Of-Life assessment into DOTS centre is feasible and effective.

Methods: The use of validated digital QoL assessment tools, such as the WHOQOL-BREF SF-36 domains (physical, psychological, social, and environmental), delivered via mobile or tablet-based platforms will be examined in this conceptual study. These tools are designed to track trends in quality of life throughout treatment, record patient-reported outcomes, and facilitate immediate scoring.

Results: A total of 25 patients were included in the study as participants. With age(range: 18–69 years) There were 36% men and 64% women in the sample. The distribution of marital status showed that 48% of people were married, 48% were single, and 4% were widowed. In terms of their level of education, 32% of people had graduated, 28% had finished high school, 16% had completed middle school, 12% had only completed primary school, and 8% were illiterate. 56% were unemployed, 24% worked in elementary occupations, 8% were

professionals, 8% were secretaries, and 4% were technicians, according to occupational status. 44% of respondents said they had "a good bit of energy," and 36% responded that they felt energetic "most of the time," according to an assessment of health-related quality of life. 68% of respondents said they were tired "a little of the time," and 32% said they were tired "most of the time." According to data on emotional well-being, 36% of respondents reported feeling happy "some of the time," while 40% reported feeling happy "most of the time." 40% of respondents said interference interfered "some of the time," 28% "a good bit of the time," and 24% "a little of the time," indicating that social activities were impacted to differing degrees.
Conclusion: The digital assessment tool effectively captured variations in the quality of life among drug-sensitive tuberculosis patients at the DOTS centre. Findings indicated that while a majority of participants reported moderate energy levels and emotional well-being, a significant proportion experienced fatigue and occasional limitations in social activities. These results highlight the tool's utility in identifying physical, emotional, and social factors affecting patients' quality of life, supporting its use for ongoing monitoring and tailored interventions in TB care.

***Keywords:*** *Tuberculosis (TB), Quality of Life, DOTS Centre, WHOQL-BREF, Digital QOL assessment, patient centred care*

## LOCATION ALLOCATION MODEL TO OPTIMIZE THE SITE SELECTION OF MICRO FULFILLMENT CENTERS

*Harpreet Kaur (Indian Institute of Management Amritsar)*

**Abstract.** Quick commerce is a quick delivery service to satisfy the immediate demands of online customers in close proximity. Quick commerce offers ultra-fast delivery of wide range of products using a network of hyperlocal distribution centers also called micro fulfillment centers (MFC). The model is based on evolving customer need of speed and convenience. As companies compete for the speed and customer demand, right location of MFC can be a competitive benefit. The optimal location of micro fulfillment center is extremely important for the quick commerce companies to realize operational efficiencies in terms of speed, cost, and customer service level. In view of this, our paper proposes a multi-objective location allocation model to identify the most suitable site locations to optimize the overall cost along with sustainability and customer service concerns. The proposed model is illustrated using a case example. The findings suggest that optimal location of micro fulfillment centers contributes positively towards gaining operational efficiencies and achieving firm's strategic objectives of sustainability and quality.

***Keywords:*** *micro fulfillment centers, location selection, demand allocation, Q-commerce, MILP, multi-objective*

# DATA-DRIVEN DEMAND FORECASTING FOR BLOOD COMPONENTS FOR ACHIEVING NET ZERO

*Kriti Karmakar (Calcutta Business School)*

**Abstract.** Introduction: Achieving net zero in healthcare requires minimizing waste, optimizing energy use, and improving resource efficiency. Blood banks, as an integral part of the healthcare system, contribute to carbon emissions through energy-intensive storage, transportation, and disposal of expired blood units. Accurate demand forecasting plays a vital role in reducing both over-collection and wastage, thereby contributing to the net zero goal. This study applies data-driven forecasting methods to analyze and predict the demand for Packed Red Blood Cells (PRBC) across all eight major blood types in a stand-alone blood bank in Kolkata, India.

Methodology: Historical PRBC demand data were analyzed individually for each blood group to identify underlying trends, seasonality, and variability. Various forecasting models such as Exponential Smoothing, Winter's method, STL+ARIMA and SARIMA were applied to determine the most efficient and sustainable model. The study evaluated model performance based on forecasting accuracy and its potential to reduce overcollection and inventory-related wastage, which indirectly lowers the energy and carbon footprint of storage and disposal processes.

Results: The Exponential Smoothing model demonstrated superior forecasting performance for most blood groups due to its adaptive error correction and high smoothing coefficient, effectively capturing recent demand variations. Exceptions were observed for AB+, B-, and AB- blood types, where alternative models performed better. Accurate forecasts achieved through this approach can reduce PRBC wastage by aligning collection with true demand, leading to a measurable reduction in refrigeration energy use and disposal-related emissions.

Conclusion: Data driven demand forecasting provides a technological pathway toward net zero blood banking by minimizing waste and optimizing collection quantity, thereby reducing energy consumption. Integrating such predictive models into blood bank management systems supports sustainable operations, ensuring that environmental goals are met without compromising patient care.

***Keywords:*** *Blood Bank, Healthcare, Forecasting, Data Analysis*

# CHALLENGES OF DATA SECURITY AND CONSUMER TRUST IN E-BUSINESS: PILLARS FOR A SUSTAINABLE FUTURE

*Dr. Lipika Sarkar (Techno India University) and Bijay Banik (TCS)*

**Abstract.** Data security concerns considerably influence consumers' trust and their inclination to engage in E-business transactions. The rapid growth of e-business has intensified risks related to customers' privacy and data protection, which stand as noticeable issues to the wider adoption of e-business purchasing. Several research indicates that trust in e-business depends on assurances regarding the data security and financial information. Customers tend to exhibit unwillingness in sharing sensitive data online without any security measures, leading to a

reduction of purchase. In addition, data security issue not only create financial harm but also damage customer trust emotionally and mentally, influencing brand reputation and long-term loyalty. Effective and transparent data protection practices are important in moderating perceived risks and creating pillars of sustainability. Sustainability and data security are interconnected as it protects the environment by safeguarding sensitive data. The establishment of trust through security increase online transaction willingness that is required for the sustained growth of e-business models. Hence, this paper aims to identify the different security issues in e-business and also highlighting the need for e-businesses to prioritize security frameworks related to data to ensure sustainable future.

***Keywords:*** *Consumer trust, Data security, E-business, Challenges/Issues, Sustainable future*

## ASSESSMENT OF FRONTLINE DEMONSTRATION AND CAPACITY BUILDING OF FARMERS IN INDIA

*Rajinder Kumar (Punjabi University Patiala) and Dr. Harpreet Singh (Punjabi University, Patiala)*

**Abstract.** Frontline demonstration is an action of activities which are conducted at farmers' field for teaching them new practices of cultivation. Frontline demonstration is educational activity and important technique of transfer of latest technology to farmers in their field. For capacity building of farmers, Krishi Vigyan Kendra runs number of short term and vocational training programmes. The performance of farmers can be increased by training because it is the process of capacity building. In this paper, an attempt has been made to analyze the role of Krishi Vigyan Kendra in frontline demonstration and capacity building of farmers in India. Furthermore, this study will be based on secondary data for the period of seven years from 2016-2023. The data will be collected from various secondary sources like Annual Reports of Indian Council of Agriculture Research, journals, research papers and Krishi Vigyan Kendras etc. The study revealed that positive compound annual growth was found in number of frontline demonstration and number of capacity building training programmes of farmers which indicated that Krishi Vigyan Kendra plays an important role in increasing the knowledge as well as income of farmers. The highest growth rate was found in the year 2019-20 in number of trainings programmes held at India level, trainings for farmers and rural youth.

***Keywords:*** *CAGR, fertile and Foodgrains, Instability, Income, ICAR*

## CLIMATE CHANGE IS NOT REAL!- INVESTIGATING THE ROLE OF SOCIAL MEDIA MESSAGE FORMATS IN CLIMATE CHANGE MISINFORMATION

*Elvira Ismagilova (Swansea University), Rohitkumar Trivedi (University of Bradford) and Chitivwa Zimba (Global Banking School)*

**Abstract.** A large amount of misinformation travels through social media, and affects everyday life as well as knowledge and perception of important issues such as climate change.

Misinformation about climate change can have significant consequences on citizens' behaviour. Several studies have examined various approaches to alleviate the influence of misinformation. However, limited attention has been paid to the message format and to the social media user characteristics (such as the level of social media literacy and their impact on social media usage behaviour when devising strategies to correct misinformation). This study investigates how different message formats such as text, picture, and video affect users' perceptions of credibility and their behavioural intentions. Drawing on multimedia learning theory and the misinformation literature, a mixed-methods, cross-cultural design was employed. Data were collected from over 600 participants via Prolific across multiple studies: online experiments in the UK and Mexico, and qualitative surveys in the UK.
Results reveal that the format of misinformation message significantly affect perception and consumer behaviour. For example, it was found that text misinformation is considered less credible in comparison with picture and video formats. Additionally, it was found that sharing intention for misinformation presented in picture and video formats was higher in comparison with text format. The moderating role of social media literacy was also examined.
The findings contribute to theory by extending multimedia learning theory to misinformation contexts and clarifying the moderating role of social media literacy in shaping credibility assessments. Practically, the study informs policymakers, educators, and platform designers about the importance of media literacy interventions and the urgent need for content-specific misinformation mitigation strategies particularly for persuasive picture/video formats. The cross-cultural comparison highlights that regional differences in media literacy and cultural attitudes must be considered when designing communication and policy interventions to counter climate misinformation effectively.

***Keywords:*** *misinformation, climate change, social media literacy, credibility*

## A META-ANALYSIS OF AGRI-COMMODITY PRICE MANAGEMENT APPROACHES: TRENDS AND FUTURE PROSPECTS TOWARDS DIGITAL AGRI-MARKETING

*Kripamay Baishnab (Indian Institute of Technology Kharagpur), Piyush Kumar Singh (Indian Institute of Technology Kharagpur) and Alok Kumar Singh (Indian Institute of Management Nagpur)*

**Abstract.** The study offers a comprehensive meta-review of price management models on agri-derivatives, which includes commonly studied attributes such as Price Discovery (PD), Price Volatility (PV), and Price Forecasting (PF). We investigated the best-fit model for each parameter mentioned above. The meta-analysis shows that 45% of the literature focused on PV and PD for commodities like chana, maize, and wheat. Whereas studies mostly on PF were performed on soybeans. We found that the Vector Error Correction Model and Bi-Variate Exponential General Autoregressive Conditional Heteroskedastic best fit the econometric model to determine PD and PV, respectively. Nevertheless, 43% of the studies followed other econometric models for price management modelling. The present investigation finds minimal intervention in PF. The present study addresses the research gap by providing a systematic

review and suggesting trajectories for efficient agri-commodity derivatives price management using advanced econometric models and advocating active digital marketing participation by stakeholders.

***Keywords:*** *Price management, Meta-analysis, PRISMA, Bibliographic analysis, Agri-derivatives*

## BEYOND CAPITAL AND LABOR: IDENTIFYING KEY DETERMINANTS OF TOTAL FACTOR PRODUCTIVITY FOR RENEWABLE ENERGY FIRMS IN INDIA

*Harwinder Goyal (Research Scholar , School of Humanities and Social Sciences, Thapar Institute of Engineering and Technology, Patiala) and Dr. Shilpi Tyagi (Assistant Professor, School of Humanities and Social Sciences, Thapar Institute of Engineering and Technology, Patiala)*

**Abstract.** The main idea of this work to estimate the productivity find out the factor affecting the productivity of Indian renewable energy firms, which is essential for future energy demands. First, we measured the productivity with Woolridge approach and then we applied the system GMM in order to find out the main stream determinants. Here two different models created with and without time dummies to get the long term and short-term impact. The study utilized that panel data for 102 firms that is inflation adjusted and in case of productivity, it is double inflation adjusted. We found that risk level, entity type, insurance, land, operating expenses, plant and machinery, repair and maintenance, training expenses, outsourcing adversely impacts the total factor productivity. Whereas, renewable energy source type, firm age, firm size, profitability and market share positively impact the productivity. Here, we included the other operating expenses as proxy variable to estimate the productivity and also included novel variables specific to renewable energy like land, renewable energy source, and entity type as in Companies Act, 2013 to explain the productivity. Time dummies are included to obtain long run and short run findings, appropriate to policy making and reached on significant results.

***Keywords:*** *Renewable Energy, time dummies, total factor productivity, Renewable energy source type, land intensity*

## A LONGITUDINAL ANALYSIS OF INFLUENCE AND OVERLOAD IN CORPORATE NETWORKS

*Manish Sarkhel (IIM Sirmaur) and Sonakshi Gupta (IIM Sirmaur)*

**Abstract.** We explore the relationship between Social Capital and Relationship Overload from a network theory perspective. We provide a large-scale, longitudinal analysis of this by modelling networks formed during email exchanges.

Using over 1.2 million emails, we construct social networks that vary over the years. We attempt to answer three critical questions about the evolution of social networks: Does an

increase in network size always have a positive impact on an individual's influence within the network? Does an optimal network size exist, and at what level? How does the network evolve? Using a custom parser, we extract the sender and receiver details to construct a network from email exchanges. The nodes in our network represent employees, while the links depict email exchanges. Using quadratic models, we demonstrate how relational overload becomes increasingly complex for individuals as they attempt to exert influence, particularly as the network size increases. Consequently, this results in an optimal network where influence maximizes for a specific number of connections. We study the evolution of this network over a four-year period using non-linear regression models. We observe that the optimal network size changes over time. More specifically, we consider the influence of network size on influence.

We observe that the optimal size decreases after an initial increase in network size over time. Beyond its empirical contributions, our work provides a method for analyzing dynamic social networks. It provides empirical evidence that the optimal network structure is not static but adapts dramatically in response to external factors.

***Keywords:*** *Social Network Analysis (SNA), Computational Social Science, Longitudinal Analysis, Organizational Behavior, Network Optimization*

## DETERMINANTS OF FARM-GATE PRICES: AN EMPIRICAL STUDY FROM AMRAVATI DISTRICT, MAHARASHTRA

*Anurag Kinge (Promoter, Vegropure LLP, Amravati, Maharashtra) and Surendra Kansara (CSE, School of Management and Labor Studies, Tata Institute of Social Sciences, Mumbai, Maharashtra)*

**Abstract.** Purpose: This study investigates the key determinants influencing farm-level prices of agricultural produce for smallholder farmers in Amravati district. The research addresses the critical issue of price volatility that affects income stability and long-term sustainability of farm livelihoods.

Design/Methodology/Approach: A descriptive research design was employed. We used structured surveys to collect data from a diverse sample of farmers in the Amravati district of Maharashtra. The study analyzes multiple independent variables, including land holding size, secondary income sources, government-assured Minimum Support Price (MSP), subsidy program participation, PM-Kisan enrollment, pesticide usage ratings, and weather conditions. These variables were identified based on the literature review. Ordinary Least Squares (OLS) regression analysis is used to quantify the influence of each factor on selling prices. The Variance Inflation Factor reported testing the multicollinearity among predictor variables.

Findings – The research provides empirical evidence on how institutional and environmental factors affect farmer income at the farm level, offering relationships between various determinants and agricultural produce selling prices as received by small holder farmers in the considered geography.

Originality/Value: This study contributes to the agricultural marketing literature by providing localized insights into price discovery mechanisms in the Amravati district of Maharashtra

state. It offers evidence-based findings for rural development practitioners working towards strengthening market integration of small landholder farmers and informing agricultural marketing reforms with ground-level realities.

***Keywords:*** *Agricultural prices, Farm prices, Small landholder farmers, Price determinants, Sustainable Agricultural marketing, Amravati, Vidarbha region*

## REDDGENCY HOME HEALTHCARE PRIVATE LIMITED - REDEFINING HOME HEALTHCARE AFFORDABLE LUXURY, SUSTAINABLE AND "SEVA-MINDED

*Tanjeet Singh Wadhwa (Reddgency Home Healthcare Private Limited)*

**Abstract.** Market size and opportunity for Reddgency: India's Healthcare market size was $370 billion in 2023 and is expected to reach $610 billion by 2026 (Total Addressable Market). Home Healthcare market size in India was $10.3 billion in 2023, which is expected to grow at a CAGR of 19.29% and reach $36.1 billion by 2030 (Serviceable Available Market). Reddgency is committed to gain at least 0.5% market share to reach $18 million by 2030 (Serviceable Obtainable Market). Out of the total Home Healthcare market, elder care contributes 60% - 80% of total segment. Tier-1 cities are highest contributor, followed by Tier-2 cities. Home Healthcare has the potential to replace 65% of avoidable hospital visits and reduce hospital costs by 20%. Medical Tourism is projected to reach $18.2 billion in 2025 and grow at a CAGR of 12.3% to reach $58.2 billion by 2035. International patients contribute 55% of the total market whereas domestic patients account for 45%. India's Senior Living market was estimated to be $1.8 billion in 2024 and expected to grow at $7.7 billion by 2030. 69% believes Old Age Homes in India has inadequate facilities, most of them either function through charity or donations. Then there is a demand for upscale senior living for retired seniors who could afford to buy one- or two-bedroom apartments in those facilities. There is a gap in-between low end Old Age Homes and High-end Senior Living, that Reddgency would like to cater to and offer flexible stay facilities and customized solutions.

Introduction: The Problem: Elderly population shall double in India by 2050, (from 153 million in 2024 that is 10.8% contribution to total population currently, to 347 million by 2050 that shall contribute over 20.60% of total population. Families are shrinking, children live away for work, and seniors are left struggling for safe,reliable, committed, and compassionate (seva-minded) healthcare access. Hospitals are overburdened, so are most of the clinics. The unorganized home healthcare sector - approximately 80%, is dominated by unreliable services – which further exposes elders to neglect, loneliness, lack of quality care and safety. In West Bengal, 38% of seniors face restrictions in daily living activities, while in Telangana, 30% elders call helplines just for information. This is not just a healthcare gap – it is human crises of safety, dignity, trust and genuine compassion.

Our solution – Reddgency's business model: Reddgency was born with a vision of most trusted and reliable one stop home healthcare solution by providing world class quality through JCI Accreditation, which is considered as gold standard for quality and patient safety in healthcare, worldwide. While we continue to focus on technological innovations for convenience of

patients and their families, we aim to be ecologically sustainable and provide complete healthcare ecosystem that combines:

- Home ICU and Palliative care,
- Physiotherapists, Nurses and Attendant services,
- Ambulance services,
- Doctor visit at home / Tele-consultations,
- Preventive health-checkups and awareness camps,
- Buddy care services for Seniors,
- Mobile dental and hearing clinics,
- Medical tourism,

Future-Plans for premium and ecological polyclinic, senior living and boutique hospital.

Reddgency revenue model: Our revenue model consists of several key components. Commissions from third-party service providers and caregivers. B2B collaboration with hospitals and nursing homes as step-down care for patients at home. Our services shall also be subscription based, we shall generate revenues as franchise fees and commissions, corporate partnerships for various health services for their employees and families and wellness programs. In future, we shall also generate revenues from our premium Polyclinic and AI based diagnostic centers, Senior living rentals, medical tourism and through global expansion.

Reddgency differentiation strategy:Most of the Home Healthcare companies, apart from hospitals that have home healthcare vertical, are focused completely on home healthcare facilities without international accreditations. Whereas Reddgency shall be present as JCI accredited Home Healthcare service provider, that just handful of home healthcare service providers have in India.

Reddgency shall have premium Polyclinic which will act as a tangible, visible brand space for credibility, a patient acquisition hub, that shall be able to attract top doctors, nurses and physiotherapists. It will act as a trust multiplier that fuels our high-margin, scalable home healthcare business. Our Polyclinic shall offer affordable luxury healthcare with boutique interiors, minimal wait time, pick-up and drop facilities especially for senior citizens and differently abled patients, giving personalized attention to every patient, and attract affluent families / NRIs looking for dignified care for patients in Kolkata. Reddgency Polyclinic shall be an entry funnel for diagnostics and consultations and convert into long-term home care users. A physical clinic shall give a tangible face of Reddgency.

Reddgency alignment with Sustainable Development Goals (SDGs): Our mission directly contributes to multiple United Nations SDGs as explained below:

- SDG3: Good Health and Well-Being – Accessible, safe, preventive healthcare at home,training and development of healthcare caregivers.
- SDG8: Decent Work and Economic Growth – Creating trained jobs for Nurses,Attendants, allied staff and jobs for differently-abled, collaborate with insurance companies to expand access to home healthcare policies and reimbursements.
- SDG10: Reduce Inequalities – Ensuring seniors, differently-abled and remote patients receive equal access to premium healthcare.
- SDG11: Sustainable Cities and Communities: Reducing hospital loads, building healthier and more resilient communities.

Impact so far Successfully organized free health checkup camps in Kolkata, connecting with the right target audience and follow-up based on database. Collaborated with highly credible and reputed local and national-level diagnostic providers, like (Lupin Diagnostics), medical equipment suppliers, and caregivers. Building trust through compassionate care, transparency, commitment, and community engagements.
Vision for the future: Reddgency is more than a service – it is a movement towards seva-minded, compassionate, premium yet affordable and sustainable healthcare.

- Year 1-2: Strengthen by building trust and credibility in Kolkata and Howrah, expand to Bhubaneshwar, Guwahati, Siliguri.
- Year 3-4: Scale to 50 cities (mix of direct and franchise), launch premium Polyclinic with AI based diagnostics, senior living facilities and medical tourism vertical.
- Year 5: Expand globally to Middle Eastern and Southeast Asian countries and boutique hospital in India with focus on environmentally sustainability.

Financial overview: We shall be EBIDTA positive from first year itself. By Year 3 we shall surpass $5million Topline with $700k EBIDTA. By Year 4, with addition of our premium Polyclinic with Diagnostic center, medical tourism vertical, and senior living facilities, we shall be able to double our topline to $10 million. By Year 5 with Global expansion and premium boutique hospital we shall be able to surpass our vision of $18 million topline.

***Keywords:*** *Home Healthcare, Affordable Luxury Healthcare, Senior Living Solutions, Elderly Care, Sustainable Development Goals, SDG 3, SDG 8, SDG 10, SDG 11, Healthcare Innovation, Social Entrepreneurship, Healthcare Jobs Creation, Kolkata, Seva in Healthcare, JCI Accreditation, Global Expansion, Reddgency*

## GLOBAL AVIATION $CO_2$ EMISSIONS: A COUNTRY-WISE COMPARATIVE ANALYSIS USING PER CAPITA, GDP, AND EQUIVALENCY METRICS

*Chaithanya S (Nitte Meenakshi Institute of Technology (NMIT), Nitte (Deemed to be University)), Somashekar V (Nitte Meenakshi Institute of Technology (NMIT), Nitte (Deemed to be University)) and Vinod L (Nitte Meenakshi Institute of Technology (NMIT), Nitte Deemed to be University))*

**Abstract.** The objective of this study is to conduct a comprehensive assessment of aviation-related carbon dioxide ($CO_2$) emissions across countries, highlighting disparities in total emissions, per capita contributions, and economic intensity. Aviation $CO_2$ data was extracted from the ICAO CORSIA Central Registry, while population and GDP statistics were obtained from Worldometer. The methodology involved processing the datasets to calculate emissions per capita, emissions per GDP, and equivalent greenhouse gas measures using the Greenhouse Gas Equivalencies Calculator. Visualization was achieved through bar charts categorizing the top 20 and bottom 20 countries by each metric. Results reveal a highly skewed distribution of emissions: the United States and China dominate absolute emissions, whereas small but globally connected nations such as Luxembourg and Singapore emerge as outliers in per capita terms due to their roles as transit and tourism hubs. Per GDP analysis highlights countries like

Turkmenistan, France, and Belgium, where aviation emissions represent significant economic intensity, underscoring structural dependencies on air transport. Equivalency measures, including passenger vehicles, fuel consumption, wind turbines, and tree seedlings, provide relatable perspectives on the magnitude of aviation's climate impact, emphasizing that major economies require disproportionately large mitigation efforts. The conclusions stress that meaningful reductions in aviation-related climate impacts must primarily target top-emitting nations, while equity considerations should inform policies for low-emitting countries. This study demonstrates that combining per capita, GDP, and equivalency approaches provides a multidimensional understanding of aviation emissions, offering critical insights for designing effective and equitable climate strategies.

***Keywords:*** *Aviation Emissions, Carbon Dioxide Footprint, Greenhouse Gas Equivalencies*

## USE OF MACHINE DATA FOR QUANTIFYING AND VISUALIZING HUMAN PRESSURE ON CORAL REEFS

*Papiya Das (2022PHDG013) and Anjum Shaheen (4299)*

**Abstract.** Coral is one of the important marine invertebrates that lives in a hard stony substance belonging to a large group of colourful creatures. It is a diverse and variable ecosystem on Earth. There are approximately 325 islands in the Andaman Islands and 247 islands in the Nicobar Islands.

This study develops a spatial decision-support method that quantifies and visualizes human pressure on coral reefs using ArcGIS. The framework fuses indicators of tourism and boating intensity, access points, navigation lanes, and reef proximity to produce pressure surfaces and corridor maps. These layers are overlaid with ecological sensitivity and climate-risk contexts to identify co-stress hotspots where management can deliver outsized benefits. The outputs inform micro-zoning recommendations such as no-anchor corridors, rotation of high-use sites, time-of-day restrictions during heat alerts, and low-impact entry redesign. Emphasis is placed on reproducible geoprocessing, transparent parameterization, and practical map products that align with enforcement realities. By linking spatial pressure diagnostics to actionable zoning alternatives, the method offers a scalable pathway for authorities to reduce cumulative impacts while maintaining sustainable nature-based tourism.

This case study contributes to understanding coral reef dynamics in the Indian Ocean region.

***Keywords:*** *Coral, GIS, environment*

# TRIED THEM ALL, NOTHING SEEMS TO WORK": NAVIGATING NOISE, AFFORDANCES, AND LIMITS FOR ATTENTIONAL INNOVATORS

*Sayantan Mitra (Indian Institute of Management Tiruchirappalli) and Ashish Viswanath Prakash (Indian Institute of Management Tiruchirappalli)*

**Abstract.** Purpose: This study explores how individuals with Attention Deficit Hyperactivity Disorder (ADHD) engage with everyday digital technologies, focusing on how they interpret and adapt technological affordances and constraints. The aim is to inform more inclusive, reflexive technology design practices.
Methodology: Using a qualitative netnographic approach, data were collected from ADHD-focused Reddit communities, YouTube videos, and a text-based interview. Thematic analysis was conducted to identify patterns across four dimensions: user context, technological characteristics, affordance perception, and adaptive practices.
Findings: The analysis highlights how ADHD traits shape technology use in complex ways. Some features, like visual tools and fast system feedback, were found to align well with user needs. In contrast, apps with rigid reminder structures or overstimulating interfaces often led to disengagement. Participants described a range of personal workarounds such as shifting to pen and paper, reorganising digital spaces, or forming small behavioural routines, to better manage their interactions with technology. Online communities offer low-pressure spaces for validation and shared coping practices.
Practical implications: Designers should prioritise flexibility and user-led adaptation in digital tools. Participatory and reflexive design approaches can better address the needs of neurodivergent users by acknowledging diverse modes of interaction and control.
Originality/value: This study reframes ADHD not as a deficit to be corrected, but as a distinct cognitive mode that reshapes technology use. It contributes to the literature by foregrounding user agency and the sociomaterial context in which affordances are perceived and enacted.

***Keywords:*** *ADHD, Technology Affordances, Adaptive Practices, Neurodivergence, Netnography*

# BEYOND ENVIRONMENTAL ALTRUISM: A BEHAVIOURAL ANALYSIS OF SOLAR HOME LIGHTING SYSTEM ADOPTION IN URBAN PUNJAB

*Navdeep Kaur (Guru Nanak Dev University, Amritsar) and Anupam Sharma (Thapar Institute of Engineering and Technology, Patiala)*

**Abstract.** Purpose: The accelerating demand for sustainable energy solutions in emerging economies underscores the urgent need for an efficient and timely energy transition to mitigate the adverse consequences of climate change and ensure equitable growth. The conventional model of energy generation and consumption has proven both environmentally unsustainable and socially inequitable. Within this context, solar energy represents a pivotal component of the renewable energy mix, capable of catering to both residential and industrial requirements.

This study examines the determinants influencing the adoption of Solar Home Lighting Systems (SHS) among urban households in Punjab, India—one of the nation's wealthiest states endowed with significant solar potential. The research seeks to elucidate the motivational, cognitive, and social factors shaping behavioural intentions toward SHS adoption, thereby contributing to the broader discourse on household-level energy transitions in developing regions.

Design/methodology: Grounded in the Theory of Planned Behaviour (Ajzen,1991), the study conceptualizes a model incorporating three principal constructs—Financial Motivation (FM), Environmental Concern (ENVM), and Knowledge and Awareness (KA)—as antecedents of Behavioural Intention (BI) to adopt SHS. Furthermore, the construct of Social Influence (SI) is integrated as a moderating variable, examining its effect on the relationship between Financial Motivation and Behavioural Intention. Primary data were obtained through a structured questionnaire administered to 400 respondents (200 adopters and 200 non-adopters) across ten districts of Punjab. The proposed model was empirically validated using Structural Equation Modeling (SEM) in SmartPLS 4 (Hair et al., 2022), which enabled the evaluation of both direct and moderating effects among latent constructs.

Findings: Empirical analysis revealed that all three constructs—Financial Motivation ($\beta = 0.513$, $p < 0.01$), Knowledge and Awareness ($\beta = 0.182$, $p < 0.01$), and Environmental Concern ($\beta = 0.111$, $p < 0.05$)—significantly influenced the behavioural intention to adopt SHS, collectively explaining 45% of the variance ($R^2 = 0.450$). The results highlight that for fiscally conservative users, economic considerations, particularly the reduction of monthly electricity expenditures, serve as the most salient driver of adoption. This finding challenges the prevailing assumption that prosumers are primarily motivated by environmental altruism, revealing that ecological concern alone does not sufficiently account for SHS adoption behaviour. Among the predictors, environmental concern emerged as the least influential determinant, even after accounting for knowledge and awareness. Furthermore, Social Influence ($\beta = 0.152$, $p < 0.01$) exhibited a significant moderating effect, amplifying the impact of financial motivation on behavioural intention.

Practical implications: The study's findings provide actionable insights for policy designers, renewable energy practitioners, and social marketers. By recognizing the dominance of financial and social factors over environmental motivations, policymakers can tailor incentive schemes, awareness campaigns, and peer-influence strategies to enhance SHS adoption. The evidence suggests that integrating community-based interventions and social proof mechanisms may accelerate the transition from conventional consumers to energy prosumers, thereby contributing to the realization of Sustainable Development Goal 7 (SDG 7)—ensuring access to affordable, reliable, sustainable, and modern energy for all by 2030.

Originality/value: This research contributes to the limited empirical literature on SHS adoption in urban Indian households, a context often overshadowed by rural electrification studies. The inclusion of Social Influence as a moderating variable offers novel insights into how socio-behavioural dynamics interact with economic incentives to shape renewable energy adoption. By providing a nuanced understanding of household-level decision-making, the study offers a theoretical and practical framework to support an inclusive, equitable, and coherent domestic energy transition in emerging economies.

***Keywords:*** *Solar home lighting system adoption, urban households, Social Influence, Behavioral Intention, Structural equation modelling*

## A STUDY OF IMPACT OF PROJECT MANAGEMENT METHODOLOGY ON PROJECT RISK MANAGEMENT

*Alok Kumar Singh (Indian Institute of Management Nagpur) and Dr Shailendra Nigam (Indian Institute of Management Nagpur)*

**Abstract.** In today's complex and dynamic project environment, effective risk management has emerged as a fundamental component of successful project management. Projects are often subjected to a myriad of uncertainties that can jeopardize their objectives, timelines, and budgets (Khan, R., Jan 2025). A better project risk management Prevents Costly Mistakes and Overruns, Optimizes Resource Allocation, Reduces Delays, Avoids Legal and Compliance Issues and also helps in better decision making.

In last few years, agile project management has emerged as a methodology for managing projects where the scope of the project may change. Conventional waterfall models are better where there is less flexibility in deviations and can help in better control specially in form of cost.

The study explored the impact of the project management methodology on risk management of the project in the context of Enhanced Risk identification, better Predictive Analytics for risk assessment, Improved Efficiency and Automation for contingency plan implementation, Faster and More Accurate Reporting, Better Scenario Analysis for reassessing the risk plans through a qualitative research methodology. Though most of the experts were of the opinion that Agile is a great enabler for better project risk management but they also stressed on a balanced approach and a newer approach of hybrid methodology.

***Keywords:*** *Project Management, Project Risk Management, Agile, Waterfall*

## THE DIFFERENTIAL IMPACT OF TOP MANAGEMENT'S ENVIRONMENTAL RESPONSIVENESS ON THEIR NEW PRODUCT DEVELOPMENT PROCESS

*Abhijit Roy (Howard University)*

**Abstract.** Companies are increasingly giving attention not only to the environmental characteristics of their products, but also to the developmental process, paying particular attention to the supply chain activities. At the outset, using case studies and experiential interviews, we explore the salient factors that contribute to "greening the supply chain" in a myriad of industries. A survey is then conducted with key informants across many industries to investigate how well these environmental issues in the supply chain are in synch with the top management's commitment towards environmental responsiveness. Interestingly, higher environmental impact industries had a slightly stronger commitment towards environmental responsiveness than those with moderate impact. Furthermore, multiple discriminant analysis was used to show that the top management support and commitment can indeed be explained

and predicted by the supply chain factors identified, i.e., environmental policy, early product developmental activities, design for environment and lifecycle assessment, cross functional environmental coordination, supplier involvement and environmental benchmarking. The caveats of our research and directions for future research are also provided.

***Keywords:*** *Greening the supply chain, new product development, environmental responsiveness, top management attitude*

## BRIDGING THE DIGITAL DIVIDE: AN AUTOMATION-FIRST FRAMEWORK FOR IMPLEMENTING CLIMATE-SMART HEALTHCARE ACCREDITATION

*Shoeb Ahmed Ilyas (Swiss School of Management) and Ayesha Ahmed Ilyas (SR University)*

**Abstract.** Healthcare accreditation bodies (e.g., NABH, JCI, QAI, AACI) are designing their standards with increasing consideration for environmental sustainability. Despite these high-level intentions, there remains a substantial implementation gap in terms of hospitals' ability to translate them into practice. This narrative review identify the systemic barriers perpetuating the gap and to propose a new digitally-enabled framework - the Digitally-Facilitated Accreditation Maturity Model (DFAMM). We identify five systems-level barriers to implementing accreditation standards regarding environmental sustainability: (1) no harmonized, auditable sustainability indicators, especially for Scope 3 emissions; (2) reliance on capital and time-intensive manual data collection from disconnected systems; (3) inequitable "one-size-fits-all" benchmarking; (4) limited assurance science and inter-rater reliability for sustainability scoring; and (5) unclear clinical and financial return on investment (ROI). The DFAMM framework is a standards-independent, practical, and automation-first approach to several accreditation standards. The core components of the DFAMM leverage a Harmonized (Automatic) Indicator Taxonomy (HAIT), to define a minimum viable sustainability core; a phased maturity model with tiered benchmarks to provide equity; a surveyor competency framework for increased credibility in assessment; and a strong focus on cost-benefit analysis with a curated best practices compendium. The DFAMM aims to transform the process of hospital accreditation from a paper-based process to a dynamic digital, interoperable process that will support hospitals to minimize their environmental impact, build climate resilience, and safeguard planetary and patient health in direct response to Sustainable Development Goal 3 (SDG-3) in innovative new ways.

***Keywords:*** *Digital Sustainability, Data Automation, Scope 3 Emissions, Maturity Model, SDG-3, Net-Zero*

## REVOLUTION IN ENERGY UTILITY IN THE PHASE OF INDUSTRY 5.0

*Sourav Majumder (Rani Durgawati University), Subhrodipto Basu Choudhury (ISMS Sankalp Business School), Dr. Niloy Kumar Pal (MIT- WPU), Soma Garani (WBUAFS) and Arunima Hazra (Research scholar, Adamas University)*

**Abstract.** In terms of industry 5.0, a change of human focus, stability and flexibility through the widespread assimilation of advanced technologies (ie Artificial Intelligence (AI), Internet of Things (IoT), Robotics and Human-Machin Cooperation) examines a change to the transforming energy utility industry. The primary production of this study is to present traditional, decentralized, intelligent and adaptive systems and procedures to present the trajectory of the development of energy utilities for adaptive systems and processes that follow the industry 5.0 principles.

This study shows that the major changes are detected by increasing advance maintenance and green energy innovation by using smart grid adoption, prosecutor partnership, AI. Inspiration for this study arises from an insistence around the world that transitions in permanent energy systems that are efficient and flexible for social-environmental disruptions. The industry brought digital automation of processes for 4.0 energy systems, while the industry emphasizes 5.0 human intelligence and values in the development of technology.

This development energy presents opportunities and challenges to the utility field, which contributes to the need to check the roles. The contribution of this study is a consolidated analysis of the role of industry 5.0 in energy utility strategies that drives efficiency, stability and consumer satisfaction, while governments also benefit from utilities and technology organizations that want to renew the industry 5.0 to facilitate cleaner energy futures and energy utility systems.

***Keywords:*** *Industry 5.0, Energy Utility Transformation, Human-Centric Innovation, Smart Grid Technology*

## THE GLOBAL CARBON EMISSION INDEX (GCEI): A VALID, RELIABLE, AND ROBUST MEASURE FOR TRACKING AND ANALYZING COUNTRY EMISSION PERFORMANCE

*Aniruddha Ghosh (ICFAI Business School Gurugram Haryana), Vipin Khurana (Dean ICFAI Business School Gurugram Haryana), Santanu Roy (Professor IILM University New Delhi), Ruchi Singh (Assistant Professor SRM University Ghaziabad UP Campus) and Satish Kumar (Professor Department of Management Studies GL Bajaj Institute of Technology & Management Greater Noida UP)*

**Abstract.** Global decarbonization needs a compact, trusted, and auditable macro signal that transparently aggregates entity and sector emissions into a single, interpretable dashboard: the Global Carbon Emission Index (GCEI). This review argues that a credible GCEI must be accounting-native (built on GHG Protocol definitions), aligned with emerging regulatory disclosure standards (IFRS S2, ESRS E1), and able to integrate finance-sector attributions

(PCAF) and consumption-based adjustments (MRIO). The paper recommends rigorous composite-index based on the guidelines given by Organisation for Economic Cooperation and Development (OECD) that work with more than 100 countries across the world. The data has been collected from World Bank database and panel data from 220 countries have been compiled with various indicators of emissions. Initially, the Authors conducted Little Test of Missing Completely at Random (MCAR), Logit Test from Missing at Random (MAR) and different plots; suggesting that the missing values are not a random subset of the data, that is, MAR. Hence, the missing value imputation was done using the Multiple Imputation through Chained Equations (MICE) technique. Various methods were adopted to compute the composite indices, for instance, Geometric Equal Weight Method (GEWM); Arithmetic Equal Weight Method (AEWM); Principal Component Analysis (PCA) and Entropy Methods (EM). After conducting computation of the indexes and ranking of each country in each year under each methodology, Spearman's Correlation coefficient was computed. The results from Spearman Correlation revealed that the values of all coefficients of correlation under each method are higher than the figure of 0.94. Again, to check the trend, the authors applied Mann-Kendall trend shown significantly increasing. And lastly, the external validity was ascertained by measuring Karl Pearson's coefficient of correlation between Climate Change Performance Index (CCPI) and Gross Domestic Product (GDP). The correlation measure further confirms that the emissions are a major driver of climate performance. The second relationship between GECI and GDP validates the index's theoretical validity and aligns with the environmental Kuznets's curve. Therefore, the results indicate that GCEI is a valid, reliable, and robust measure that can be used with confidence to track and analyse a countries historical emission performance. The significant increase in trend as observed in the Sen's slope estimates, highlights a critical area for policy intervention. It was observed that China ranked the lowest in carbon emissions index whereas, India ranks 217th and the 1st rank in carbon emissions was Bhutan, having zero carbon emissions. The index can be used by policymakers to take major policy decisions and impose heavy carbon tax on the economies whose emissions are not under control or no major efforts are taken up to control them. Future research direction involves inclusion of more qualitative measures, macro-economic factors, etc. The methodological gap involves inclusion of other techniques like Analytical Hierarchy Process (AHP), Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) for further validation.

***Keywords:*** *Global Carbon Emissions Index (GECI), Missing at Random (MAR), Multiple Imputation through Chained Equations (MICE), Country Emission Performance.*

## TRAJECTORIES OF LOW-CARBON TECHNOLOGY TRANSFER IN DEVELOPING ECONOMIES: INVESTIGATING THE HETEROGENEOUS EFFECTS USING PANEL QUANTILE REGRESSION

*Varsha Sharma (IIT (ISM) Dhanbad) and Mohd Irfan (IIT (ISM) Dhanbad)*

**Abstract.** Wide access to low-carbon technology (LCT) is pivotal for achieving the Paris Agreement's targets of limiting the global temperature rise to 1.5°C above pre-industrial levels.

While high-income nations control 80% of LCT exports and have greater means to attain net-zero targets earlier, developing countries will be increasingly dependent on LCT imports to meet their targets. This study investigates the factors influencing LCT transfers to developing countries, while recognizing that LCT trade trajectories vary across nations. Using balanced panel data from developing countries for the period 2000-2020, we analyze the effects of economic growth, foreign direct investment, trade openness, and carbon emissions on LCT imports and exports. Employing Panel Quantile Regression (PQR), which accounts for non-normality in the data and non-linear dynamics in the dependent variable, our results indicate that higher economic growth significantly boosts LCT imports in developing economies, although this effect diminishes with rising income levels. Countries with higher FDI inflows tend to rely less on imported LCT for emission reduction, suggesting that foreign investment often facilitates domestic technology development. Trade openness drives LCT exports, underscoring the role of global market access in technology diffusion. However, higher carbon emissions tend to suppress LCT trade; beyond a certain threshold of LCT imports, increasing emissions appear to reduce reliance on imported LCT for carbon emission mitigation. These findings provide policymakers with the means to enhance LCT accessibility in developing economies, encourage domestic innovation capacity, and integrate trade and environmental policies to accelerate the global low-carbon transition.

***Keywords:*** *Export, Import, Low-carbon technology, Panel Quantile Regression*

## RESTORATIVE ENVIRONMENTAL JUSTICE AND WATER EQUITY IN CLIMATE-VULNERABLE REGIONS: AN EVIDENCE-BASED ASSESSMENT OF THE JAL JEEVAN MISSION IN THE INDIAN SUNDARBANS

*Chandan Roy (Department of Economics, Christ University, Bangalore), Neelathpal Chanda (Department of Media Studies, Christ University, Bangalore), Indrila Guha (Basanti Devi College, Kolkata) and Rakesh Kumar Saroj (School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi)*

**Abstract.** Access to safe and reliable water remains one of this century's most pressing global challenges. Climate change has intensified water stress through rising sea levels, erratic rainfall, and declining groundwater quality. In India, coastal and deltaic regions face some of the harshest effects of these changes. The Sundarbans, located at the southern edge of West Bengal, is among the most climate-exposed regions of the world. Its people live with repeated cyclones, saline water intrusion, and poor infrastructure that together make everyday access to clean water uncertain.

The Jal Jeevan Mission, a national program that aims to provide household tap water to every rural home, represents an important step toward water equity. Its effectiveness in fragile landscapes like the Sundarbans depends not only on the construction of pipelines but also on the consistency, quality and governance of service delivery. This study evaluates how the Mission contributes to restorative environmental justice by improving access and addressing long-term infrastructural and institutional gaps.

The study is based on field data from 550 households across eight Gram Panchayats and 21 villages in Sagar and Patharpratima Blocks. Quantitative surveys were supported by interviews with Panchayat members, health workers, and local residents. The analysis focused on water accessibility, quality, and the lived experience of households in managing water stress.

The findings show uneven progress. Many villages now have tap connections, but water often does not flow, or when it does, it is not suitable for drinking. In several coastal villages, people use piped water for washing or agriculture rather than drinking because of its taste and salinity. Repairs take a long time, especially after the monsoon, when pipelines are damaged by flooding. Women spend hours waiting near community taps, often uncertain when water will come. Some households reported that they no longer trust the supply system and continue using traditional sources even when piped water is available.

These patterns reveal deeper questions of environmental justice. Households in remote and coastal areas face longer waiting times for maintenance, lower quality water and weaker institutional response. Those who are already economically vulnerable carry the heaviest burden. Health problems linked to poor water quality are common, yet many families rely on informal healers instead of government health centres. Loss of working days due to illness and time spent fetching water affects income and overall well-being.

The study concludes that infrastructure alone cannot ensure justice. Restorative environmental justice requires reliable and safe water, stronger local accountability and inclusive decision-making. However, integrating climate-resilient water systems and promoting community awareness can strengthen water security and social equity. In this sense, water is not only a basic service but also a measure of justice in a changing climate.

***Keywords:*** *Environmental Justice, Water Accessibility, Climate Vulnerability, Jal Jeevan Mission, Rural Governance, Public Health*

## ENERGY TRANSITION AND ECONOMIC GROWTH: EVIDENCE FROM SOUTH ASIA, SUB-SAHARAN AFRICA, AND OECD ECONOMIES

*Dr. Atul Anand Jha (Xavier Institute of Social Service) and Vishal Kumar (Ranchi University).*

**Abstract.** Introduction: The global economy is undergoing a fundamental transformation as nations confront the twin imperatives of sustaining economic growth and mitigating environmental degradation. Central to this transformation is the energy transition — the progressive shift from fossil-fuel-based systems to renewable and efficient energy sources. This transition represents not only a technological innovation but also a structural and institutional reorientation toward sustainability. As the world strives to achieve the United Nations Sustainable Development Goals (SDGs), particularly SDG 7 on affordable and clean energy and SDG 13 on climate action, understanding the linkages between energy transition and economic growth has assumed renewed urgency (United Nations, 2015). Historically, economic growth has been tightly coupled with fossil fuel consumption. Since the Industrial Revolution, coal, oil, and gas have powered industrialization, trade, and urbanization.

However, this fossil-dependent model has led to rising greenhouse gas emissions, environmental degradation, and heightened vulnerability to climate change. With growing international commitments under frameworks such as the Paris Agreement and the UN Sustainable Development Goals (SDGs) — particularly SDG 7 and SDG 13.

Despite broad consensus on its desirability, the economic implications of the energy transition remain contested. Proponents of renewable energy argue that the shift can stimulate technological innovation, improve energy efficiency, and create new employment opportunities (Apergis & Payne, 2010; Bhattacharya et al., 2016). Conversely, critics suggest that renewables may impose short-term costs, especially in developing economies, due to high capital requirements, intermittency, and infrastructural limitations (Ozturk, 2017; Dogan et al., 2021). Moreover, the effects of energy transition are unlikely to be homogeneous across countries with varying levels of development, institutional capacity, and resource endowments.

This study aims to address these complexities by examining how energy transition influences economic growth in three distinct regional blocs: South Asia, Sub-Saharan Africa (SSA), and the Organisation for Economic Co-operation and Development (OECD) economies.

1.1 Background and Rationale

Energy serves as both a fundamental input in production and a driver of technological progress. Traditional neoclassical growth theories, such as the Solow–Swan model (Solow, 1956; Swan, 1956), treated energy as an exogenous factor, focusing instead on capital accumulation and labour productivity. However, more recent frameworks — particularly endogenous growth theory (Romer, 1990; Aghion & Howitt, 1992) — have incorporated technological innovation and human capital as engines of long-term growth. Within this perspective, investments in renewable energy, energy efficiency, and clean technologies act as forms of "green innovation" that enhance productivity, create knowledge spillovers, and generate new industrial opportunities.

The Environmental Kuznets Curve (EKC) hypothesis adds another layer to this discourse by positing a nonlinear relationship between income growth and environmental quality (Grossman & Krueger, 1995). In the early stages of industrialization, economic expansion typically leads to increased emissions and resource depletion. However, beyond a certain income threshold, societies invest in cleaner technologies and adopt stricter environmental regulations, resulting in declining emissions. This theoretical insight implies that the economic consequences of energy transition are context-dependent: high-income economies may experience growth-enhancing effects, whereas low-income economies could face transitional constraints.

Empirical studies support this heterogeneity. In OECD countries, renewable energy consumption has been associated with sustained productivity gains and reduced carbon intensity (Marques & Fuinhas, 2012; Pablo-Romero & Sánchez-Braza, 2017). These economies benefit from advanced technological infrastructure, strong institutions, and policy mechanisms — such as carbon pricing and subsidies — that facilitate the transition. In contrast, developing regions often encounter barriers such as inadequate financing, weak regulatory frameworks, and insufficient human capital (Odhiambo, 2014; Al-Mulali et al., 2016). For instance, in South Asia, rapid urbanization and industrialization have increased energy demand, yet the supply remains heavily dependent on fossil fuels. Similarly, Sub-Saharan Africa faces persistent energy poverty, with nearly 600 million people lacking access to electricity, despite vast renewable potential (IEA, 2023).

Research Problem: The central research problem guiding this study is the need to understand how energy transition affects economic growth across different levels of development. While the theoretical underpinnings of green growth suggest that renewable energy and efficiency improvements can promote sustainable economic expansion, the empirical evidence is far from conclusive. For developing economies, the transition could entail opportunity costs by diverting limited resources away from industrialization. Conversely, for advanced economies, clean energy investments can serve as a new frontier for innovation-led growth (Sadorsky, 2009; Payne, 2010).

Most existing studies, however, focus either on single-country analyses or on homogeneous groups of economies, limiting the generalizability of findings. Comparative research that encompasses diverse development contexts remains scarce. Furthermore, many prior works treat "energy transition" as synonymous with renewable energy share, neglecting complementary dimensions such as energy intensity, fossil fuel dependence, and energy access. A comprehensive understanding of the transition requires integrating these dimensions within a unified analytical framework that also accounts for governance and human capital effects. This study fills that gap by employing a multi-dimensional, cross-regional approach to the energy–growth nexus.

Significance of the Study: This research contributes to both academic literature and policy debates in several ways. First, it provides a comparative analysis across South Asia, Sub-Saharan Africa, and the OECD — three regions representing different stages of economic development and energy evolution. Such a cross-sectional comparison allows for assessing whether the growth effects of renewable adoption are development-stage dependent.

Second, the study conceptualizes energy transition as a multi-dimensional process, incorporating renewable energy consumption, energy efficiency (energy intensity), fossil fuel consumption, and access to electricity. This approach moves beyond the conventional one-variable framework and captures the structural and institutional nature of the transition.

Third, by including indicators of institutional quality (government effectiveness, rule of law, regulatory quality, and control of corruption) and human capital (education expenditure, life expectancy), the study acknowledges that the success of energy transition is mediated by governance and social capacity. This inclusion aligns with the institutional economics literature, which emphasizes that sustainable development depends on the interaction between policy quality and economic incentives (North, 1990; Acemoglu & Robinson, 2012).

Finally, the study contributes methodologically by employing panel econometric techniques, including fixed-effects and dynamic models, to control for country-specific heterogeneity and endogeneity. Robustness checks — such as standardization, outlier trimming, and cluster-robust standard errors — ensure the reliability of results.

Research Objectives: The objectives of this paper are fivefold:

- To investigate the impact of renewable energy adoption and energy efficiency on economic growth across South Asia, Sub-Saharan Africa, and OECD countries.
- To examine the effect of fossil fuel dependence and carbon emissions on growth performance.
- To assess the moderating roles of institutional quality and human capital in the energy–growth relationship.

- To explore regional heterogeneity in the effects of energy transition, reflecting differences in economic maturity and policy capacity.
- To provide policy recommendations for integrating environmental sustainability with economic growth strategies.

Research Gap: The chronological evolution of literature reveals several consistent themes and emerging gaps. First, the direction of causality between energy transition and growth remains debated, varying across income levels and methodological choices. Second, while the positive role of renewable energy is increasingly acknowledged, empirical findings are heterogeneous, suggesting that contextual factors such as governance, technology, and human capital critically shape outcomes. Third, most prior research has either focused on a single region or treated global samples as homogenous, overlooking cross-regional contrasts that can reveal developmental asymmetries. Fourth, despite growing interest in renewables, few studies simultaneously incorporate multiple dimensions of energy transition — renewable adoption, efficiency improvements, fossil fuel reduction, and access to electricity — within one analytical framework. Finally, although some recent works recognize the role of institutional quality, its interaction with energy transition variables has not been systematically tested across development stages.

In this light, the present study contributes to the literature by adopting a comprehensive, cross-regional panel approach encompassing South Asia, Sub-Saharan Africa, and OECD economies over the period 2000–2022. By integrating renewable energy consumption, energy efficiency, fossil fuel dependence, and institutional factors within a unified empirical framework, the study aims to bridge the gap between the environmental economics and development literature, providing fresh evidence on whether the global energy transition can simultaneously foster growth and sustainability across diverse economic contexts.

Methodology: This section describes the methodological framework employed to examine the relationship between energy transition and economic growth across three regional blocs — South Asia, Sub-Saharan Africa (SSA), and the Organisation for Economic Co-operation and Development (OECD) — over the period 2000–2022. The methodology is designed to empirically test the hypotheses derived from the theoretical and conceptual framework, capturing both direct and moderated effects of renewable energy, energy efficiency, and institutional quality on economic performance.

Data Source and Sample Selection: The IMF provided the macroeconomic time series, including GDP growth, investment, and external sector indicators, ensuring consistency in national accounting standards. The World Development Indicators (WDI) supplied most energy-related and socio-economic variables such as renewable energy consumption, energy intensity, fossil fuel use, and access to electricity. The WGI dataset contributed governance indicators (rule of law, government effectiveness, regulatory quality, and control of corruption), standardized between −2.5 (weak governance) and +2.5 (strong governance).

The sample includes 57 countries grouped into three regional blocs:

- South Asia (6 countries): India, Bangladesh, Pakistan, Sri Lanka, Nepal, and Bhutan.
- Sub-Saharan Africa (24 countries): A representative subset including Nigeria, Kenya, Ghana, South Africa, Ethiopia, and others with available time-series data.

- OECD (27 countries): Developed economies such as the United States, Japan, Germany, the United Kingdom, and France.
- The final balanced dataset covers annual observations from 2000–2022, after excluding countries or years with incomplete data. The dataset was merged, cleaned, and transformed into panel long format using Python and Stata to ensure comparability across indicators and years.

Variable Definitions and Measurements: The study's variables are classified into dependent, independent, moderating, and control variables, consistent with the conceptual framework.

- Dependent Variable: Economic Growth (GDPG): Measured as annual percentage growth rate of GDP (constant 2015 US$). These variable captures overall macroeconomic performance and serves as the dependent variable in all regression models.
- Independent (Energy Transition) Variables:
  - Renewable Energy Consumption (RENEW): The share of renewable energy in total final energy consumption (%). Higher values indicate greater reliance on clean energy sources such as hydro, wind, solar, and biomass..
  - Energy Intensity (EINT): Energy use per unit of GDP (measured in MJ per $2017 PPP GDP). This indicator captures energy efficiency — a lower value implies higher efficiency.
  - Fossil Fuel Consumption (FOSSIL): Share of fossil fuels in total energy consumption (%). It represents carbon intensity in national energy systems.
  - Access to Electricity (ELEC): Percentage of the total population with access to electricity. This measures inclusiveness and modernization of the energy sector.

Hypothesized Relationships: Based on the theoretical insights and empirical literature, the following hypotheses are formulated:

- H1: Renewable energy consumption has a positive and significant effect on economic growth across all regions.
- H2: Improvements in energy efficiency (lower energy intensity) positively influence economic growth.
- H3: Fossil fuel dependence negatively affects economic growth.
- H4: Institutional quality moderates the relationship between energy transition and growth.
- H5: Human capital amplifies the positive effect of renewable energy on growth.
- H6: The magnitude and direction of these relationships differ across regions (South Asia, Sub-Saharan Africa, OECD) due to varying stages of development, technological readiness, and institutional capacity.

Model Specification: The empirical model follows a panel regression structure, designed to capture the impact of energy transition on economic growth while accounting for regional and institutional heterogeneity. The general functional form is expressed as:

$$GDPG_{it} = \alpha_i + \lambda_t + \beta_1 RENEW_{it} + \beta_2 EINT_{it} + \beta_3 FOSSIL_{it} + \beta_4 ELEC_{it} + \beta_5 INST_{it} + \beta_6 HC_{it} + \gamma X_{it} + \varepsilon_{it}$$

where:

i = country

t = year

$\alpha_i$ = country-specific effects (unobserved heterogeneity)

$\lambda_t$ = time-specific effects (global shocks, e.g., oil prices)
$X_{it}$ = vector of control variables ($CO_2$ emissions, Internet use, population density)
$\varepsilon_{it}$ = idiosyncratic error term

4. Baseline Regression Results

The baseline model examined the direct impact of energy transition indicators on economic growth using a Fixed Effects (FE) estimator with time dummies and robust standard errors.

Table 2 (baseline model) reports an overall $R^2 = 0.223$, indicating that approximately 22% of within-country variations in GDP growth are explained by energy transition and control variables.

The key findings are as follows:

Variable Coefficient (β) Sign Interpretation

Renewable Energy Share (RENEW) +0.0136 Positive A 1% increase in renewable share is associated with a 0.0136 percentage point rise in GDP growth.

Energy Intensity (EINT) −0.0214 Negative Higher energy inefficiency reduces growth, consistent with the energy-efficiency hypothesis.

Fossil Fuel Consumption (FOSSIL) −0.0092 Negative Fossil dependence dampens growth, suggesting diminishing productivity from carbon-intensive sectors.

Access to Electricity (ELEC) +0.0171 Positive Electrification supports economic expansion, especially in SSA and South Asia.

$CO_2$ Emissions (CO2) −0.0156 Negative Reflects environmental costs of growth, consistent with the EKC hypothesis.

Institutional Quality (INST) +0.0248 Positive Effective governance enhances policy implementation and investment efficiency.

Education Expenditure (EDU) +0.0075 Positive Human capital accumulation modestly supports long-term productivity gains.

All coefficients were statistically significant at the 5% level or better, except for education expenditure ($p \approx 0.11$), which remained positive but marginally insignificant.

The positive and significant coefficient on renewable energy supports H1, while the negative effects of energy intensity and fossil fuel use support H2 and H3, respectively.

Summary of Findings: Hypothesis Statement Expected Sign Empirical Outcome Interpretation

H1 Renewable energy consumption positively influences economic growth. Positive ( + ) Supported. Coefficient = +0.0136 ($p < 0.05$) in full model; positive and significant in South Asia ($\beta = 0.388$, $p < 0.05$) and OECD ($\beta = 0.019$, $p < 0.05$); insignificant in SSA. Renewable energy promotes GDP growth through innovation and energy diversification. Its impact is strongest in industrializing economies (South Asia) and innovation-driven OECD economies.

H2 Improved energy efficiency (lower energy intensity) enhances economic growth. Negative ( − ) Supported. Coefficient on energy intensity = −0.0214 ($p < 0.05$) in all models. High energy intensity (inefficiency) hampers growth; efficiency gains are crucial for sustainable productivity.

H3 Fossil fuel dependence negatively affects economic growth. Negative ( − ) Supported (weak). Coefficient = −0.0092 ($p < 0.10$); remains negative in dynamic and standardized models. Fossil reliance limits diversification and exposes economies to price volatility and environmental externalities.

H4 Institutional quality positively moderates the renewable–growth relationship. Positive ( + ) Partially Supported. Interaction term (RENEW × INST) = −0.0173 ($p \approx 0.07$); base INST effect positive (+0.0248, $p < 0.05$). Institutional strength enhances growth overall but may initially shift focus toward compliance and governance costs, delaying short-run benefits of renewables.
H5 Human capital (education, life expectancy) amplifies the renewable–growth relationship. Positive ( + ) Partially Supported. Interaction term (RENEW × EDU) = −0.0048 ($p > 0.10$); EDU main effect = +0.0075 ($p \approx 0.11$). Human capital contributes positively to growth but its moderating impact on the renewable–growth link is limited, possibly due to time-lagged effects of education.
H6 The energy–growth relationship differs across regions (South Asia, SSA, OECD). Differential Strongly Supported. Renewable effect: South Asia (+0.388, $p < 0.05$), SSA (−0.002, n.s.), OECD (+0.019, $p < 0.05$). Significant cross-regional heterogeneity; transition effects depend on stage of development, institutional quality, and infrastructural readiness.

***Keywords:*** *Energy Transition, Economic Growth, Renewable Energy Consumption, Regional Development Disparities, Sustainable Development Goals (SDGs), Institutional Quality, Energy Efficiency*

## EARLY EFFECTS OF GOVERNMENT INTERVENTION ON HEALTH CARE UTILIZATION PATTERNS

*Tannista Banerjee (Auburn University)*

**Abstract.** This paper examines the initial impacts of the No Surprises Act (NSA) on healthcare market dynamics. Using data from the Medical Expenditure Panel Survey (MEPS), we analyze changes in provider network acceptability, insurance premiums, and emergency care utilization patterns before and after the implementation of the NSA in January 2022. We employ a difference-in-differences approach comparing states with and without prior surprise billing protections. Our findings suggest that the NSA has led to an increase in in-network emergency department visits and a modest 3.5% reduction in average out-of-pocket costs for emergency services. While insurance premiums showed no significant immediate changes, provider network scale increased in previously unprotected states. These results indicate that the NSA has begun to achieve its intended effects by expanding consumer protections and reducing financial barriers to emergency care access.

***Keywords:*** *Government Policy, Health, Emergency care*

## CENTRAL BANK AUTONOMY AND CLIMATE CHANGE: A GLOBAL PERSPECTIVE

*Poulomi Bhattacharya (IIT KANPUR) and Himadri Shekhar Chakrabarty (IIM LUCKNOW)*

**Abstract.** This study examines how political interference in Central Bank's decision making coupled with government effectiveness influences environment sustainability across countries between 2010 to 2018. In addition to carbon emissions, it further explores how energy

investment patterns and the adoption of renewable energy technologies could have been affected. The findings reveal that political interference in central banks, when considered independently, is associated with higher carbon emissions and reduced renewable energy adoption, indicating that interference distorts policy signals and hampers green investment. Besides, Government effectiveness shows weak or inconsistent effects on sustainability indicators. However, the interaction between political interference in Central Banks and government effectiveness consistently mitigates emissions and fosters renewable energy deployment, suggesting that effective governance can neutralize the negative impacts of political interference by ensuring credible implementation and policy continuity. By linking Central Bank autonomy, governance, and renewable energy investment, this study contributes to the political economy of environment sustainability literature. The results underscore that governance quality enforcement, accountability, and administrative capacity is critical in offsetting interference and enabling long-term renewable technology adoption and emissions reduction.

***Keywords:*** *Climate change, Climate finance, Central bank independence*

## AN ANALYSIS OF INDIAN IMPORTS OF MEDICAL EQUIPMENT: DOES REGIONALISM MATTER?

*Sudhanshu Sharma (Indian Institute of Management Jammu) and Dr Sarbjit Singh (Indian Institute of Management Jammu)*

**Abstract.** The expanding market size of the Indian healthcare sector is increasing the demand for medical equipment, particularly imports. This study focuses on evaluating the linkages between regionalism and the intensity of India's medical equipment imports. For the analysis purpose, five medical equipment types, defined by their HS Codes at the 4-digit level, were considered. Further, the partner countries of India with more than 1% share in India's total imports were included in the list corresponding to the data points from 1995 to 2023. The methodology includes the calculation of the Import Intensity Index to understand the intensity patterns of Indian imports of medical equipment, followed by the estimation of the panel data gravity model to identify the determinants of these. The analysis highlights India's import dependence on foreign countries, which are spread all over the world, to fulfil its medical device demand. The research also highlights the role of trade agreements in shaping such patterns. However, the study also points to a very vital challenge, which is India's domestic production of medical equipment, which falls short of meeting the domestic demand and leads to continued heavy dependency on imports across all categories of medical equipment considered. Further, the results of the gravity model highlight that the economic masses of the trading nations contribute significantly to the Indian imports in almost all the selected product categories. The presence of a common border between India and its selected partners is yielding mixed results, as most of our imports are from non-neighbouring nations. Further, the representation of the Asian Region, with the usage of the dummy, contributes positively and significantly to the medical equipment imports of India. The other controls have also been included in the model to account for the trade agreements, of which India is a part. By analysing

these findings, the study provides a valuable insight to our policymakers who can consider these results to devise strategies that will help in reducing the import dependency, boosting the domestic manufacturing, and strengthening the trade relationships, ensuring that the long-term stability of demand for India's medical devices is achieved.

***Keywords:*** *Medical Equipment, Regionalism, Import Intensity, Trade Gravity Model*

## TARGETED ELECTRICITY SUBSIDIES AND RURAL DEVELOPMENT: EVIDENCE FROM INDIA'S RGGVY PROGRAM

*Rohan Yadav (Indira Gandhi Institute of Development Research, Mumbai)*

**Abstract.** This study examines the socioeconomic impacts of India's Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), a rural electrification program that aimed to provide free grid connections to below poverty line (BPL) households. Leveraging the staggered rollout of the scheme and using panel data from the India Human Development Survey (2004-05 and 2011-12), this study examines outcomes related to electricity access, income, employment, and education. Findings suggest that each additional year of exposure to electrification leads to significant gains in income, a shift toward non-agricultural employment, and improvements in educational attainment—effects that are observed among BPL households, but not for non-BPL households. These results highlight the importance of targeted policy design for inclusive rural development.

***Keywords:*** *Rural electrification, Electricity access, Energy policy, RGGVY, India, Difference-in-differences, Socioeconomic impact*

## MODELLING ENERGY SECURITY IN ENERGY TRANSITION: AN EMPIRICAL ANALYSIS OF GEOPOLITICAL RISKS AND DOMESTIC RESILIENCE IN INDIA'S CLEAN ENERGY SHIFT

*R U Megha (Rama Devi Women's University) and Kalpana Sahoo (Rama Devi Women's University)*

**Abstract.** India's dramatic clean energy transition is intended to increase energy security through the mitigation of fossil fuel import reliance. This transition, however, brings new geopolitical risks through dependencies on clean technology supply chains and key minerals. Current literature generally explores these dependencies in siloed contexts without an integrated evaluation. This study fills this absence by creating a "Dual Dependency" framework through which to empirically test India's changing energy import vulnerability from 2000-2023. The aim is to measure and compare the clean energy vs. fossil fuel import basket concentration and geopolitical risk profiles using secondary data and indices. The expected results will theoretically demonstrate a structural change whereby benefits from lower fossil fuel dependence are perhaps counterbalanced by new, concentrated clean energy dependence. We conclude that the energy transition produces a window of overlapping vulnerabilities,

providing a critical insight for informing strategic policy and securing long-term energy security.

***Keywords:*** *Energy Security, India, Clean Energy Transition, Geopolitics, Diversification Index*

## UNPACKING THE ELECTRIC VEHICLE DILEMMA IN AN EMERGING ECONOMY: SYNERGIZING SUBSTITUTION EFFECT THEORY AND THE EVAPORATING CLOUD

*Sujoy Jana (N/A) and Mahesh Gupta (University of Louisville)*

**Abstract.** Purpose: Electric vehicle (EV) adoption in emerging economies presents a paradox. Despite rising fuel costs, favorable government incentives, and improving technology, internal combustion engine (ICE) vehicle sales remain strong. According to the Substitution Effect Theory, consumers will shift from one product to another when its relative price-utility tradeoff becomes more favorable. In China, the simultaneous increase in EV sales and decrease in ICE sales is a good example of this substitution effect and provides a useful comparative context. In the EV context, this means adoption should accelerate as running costs fall, fuel prices rise, and battery technology improves. This study examines India, the world's third-largest automobile market, to analyze substitution patterns and uncover the deeper conflicts shaping EV adoption.

Method: We analyzed brand-level sales data from FY21-FY25 and total cost of ownership (TCO) comparisons for EVs versus petrol and diesel vehicles at different annual mileage levels. We also reviewed policy conditions (FAME-II, PLI, GST cuts) and market responses to interpret substitution outcomes. Building on these insights, we integrate Substitution Effect Theory with Goldratt's Evaporating Cloud (EC) method to conceptualize a nested hierarchy of conflicts at the brand, consumer, and policy levels.

Key Findings:

- Brand-Level Trends: Tata Nexon EV peaked at 27,814 units in FY23 but fell to 13,978 in FY25. MG ZS EV grew steadily from 1,115 units in FY21 to 7,042 units in FY25, while Mahindra XUV400 surged from 485 units in FY23 to 8,180 units in FY25. The market is expanding overall, but substitution is uneven across brands.
- TCO Evidence: In FY24, EVs remain costlier than petrol/diesel for low-mileage users (≤10,000 km/year). Parity is reached only at 18,000-20,000 km/year. By FY29, however, EVs become 10% cheaper than petrol and 12% cheaper than diesel at 12,000 km/year, confirming the substitution effect over time.
- Strategic Dilemmas: Tata risks losing leadership if it relies solely on affordability; MG balances premium positioning with limited scale; Mahindra's aggressive expansion captures share but raises sustainability concerns. These firm-level dilemmas highlight substitution in practice as strategic conflict.

Implications: While the Substitution Effect Theory explains what shifts occur in EV adoption, it does not fully reveal why conflicts persist among firms, consumers, and policymakers. By

integrating substitution analysis with the EC method, we surface hidden assumptions and competing needs that constrain adoption. We propose a nested hierarchy of conflicts:

- Brand-level: defending current positioning vs. adapting to competition.
- Consumer-level: responding to financial incentives vs. behavioral barriers (trust, infra, resale).
- Policy-level: maintaining fiscal prudence vs. investing in infrastructure and behavioral change.

This layered approach offers managers and policymakers actionable insight into the strategic and systemic tensions shaping EV diffusion in emerging economies.

Research Question: How does combining the Substitution Effect Theory with the Evaporating Cloud framework help reveal and resolve the nested conflicts constraining EV adoption in emerging economies?

Why This Situation is Ideal for Synergy

Substitution Effect Sets Up a Quantifiable Conflict

The substitution effect tells us that as the relative price of EVs falls (or the perceived value increases), rational consumers will shift from non-EVs to EVs. That’s a behavioral economic prediction grounded in observed data.

But post-2022, we observe:

- EV sales rise (as expected),
- Non-EV sales also rise (unexpected).

This departure from a clean substitution pattern signals that other forces are in play - and that's where logic-based tools like the EC shine.

Evaporating Cloud Brings Clarity to Non-Linear Behavior

EC helps surface non-obvious psychological, social, or systemic assumptions that economic models like substitution might gloss over.

Examples:

- “Consumers still buy non-EVs because they distrust battery lifespan.”
- “Consumers buy both due to different use-cases (e.g., urban EV, rural gas).”
- “People overvalue short-term savings and undervalue long-term gains.”

These assumptions can now be tested and reframed as injections - providing not just an explanation, but a roadmap for intervention (e.g., policy nudges, infrastructure investments, education campaigns).

Together, They Address the "What" and the "Why"

- The Substitution Effect gives you the what (observable shift or lack thereof in consumer behavior).
- The Evaporating Cloud gives you the why (underlying beliefs, constraints, or systemic traps).

***Keywords:*** *Electric Vehicles, Substitution Effect Theory, Evaporating Cloud Method, Sustainable Mobility, Emerging Economies*

# ELECTRIC VEHICLE ADOPTION IN INDIA: RESEARCH GAPS AND OPPORTUNITIES.

*Adithya Chakravarty Myla (Indian Institute of Management Visakhapatnam) and Vishal Singh Patyal (Indian Institute of Management Visakhapatnam).*

**Abstract.** Introduction: Electric Vehicle adoption is central to India's strategy to achieve sustainable and eco-friendly transportation. There have been significant investments in this area through government policies, financial incentives and development of infrastructure to support this transition. However, these initiatives are seeing limited success. Success of such initiatives depends ultimately on positively influencing consumer adoption behavior which is driven by a wide range of sociocultural, psychological and economic factors.

Research Objectives

The study aims to answer the following research questions

- What are the theories and constructs used in explaining general adoption and green purchase behavior?
- What are the behavioral theories and constructs from general adoption and green purchase behavior that are underutilized in the study of electric vehicle adoption in India?
- How do we integrate the under-utilized theories and constructs to improve the understanding of electric vehicle adoption behavior in India?
- Methodology: A structured review was conducted on existing literature in three areas - (1) general adoption behavior (64 papers), (2) green purchase behavior (42 papers), and (3) electric vehicle adoption behavior in the Indian context (30 papers).

Findings: The research reveals that studies on EV adoption in India have been focusing narrowly on common behavioral theories and models and on dimensions relating to utilitarian aspects of behavior such as range anxiety, cost and incentives, thereby, underutilizing behavioral factors such as psychological and sociocultural constructs. These complex and nuanced factors are more relevant to explaining eco-friendly choices made by consumers. Theories frequently used in literature on green purchase behavior such as Value–Attitude–Behavior Model, Value–Belief–Norm Theory, Construal Level Theory, Technology–Organization–Environment Framework, and Uses and Gratifications Theory have been rarely explored in EV adoption studies in India.

Conclusion: This study not only identifies gaps in existing research but also proposes a conceptual framework that combines underexplored theories and behavioral constructs frequently used in green purchase and general adoption literature. The framework provides a deeper comprehension of EV adoption behavior in India and useful insights to marketers and policymakers by integrating diverse theories and incorporating a wider range of behavioral dimensions.

***Keywords:*** *Electric Vehicle Adoption, India, Consumer Behavior, Green Purchase Behavior, Behavioral Theories, Sociocultural Factors, Psychological Constructs, Sustainable Transportation, Conceptual Framework, Value–Attitude–Behavior Model (VAB), Value–Belief–Norm Theory (VBN), Construal Level Theory (CLT), Technology–Organization–Environment Framework (TOE), Uses and Gratifications Theory (UGT)*

## STOCHASTIC FUZZY PORTFOLIO MODEL FOR INDIA'S POWER GENERATION MIX.

*Md Tanweer Ahmad (Indian Institute of Foreign Trade, New Delhi) and Mohd. Irfan (Department of Science and Technology, Ministry of Science and Technology, India).*

**Abstract.** This study aims to determine the optimal power generation mix (PGM) for India using a stochastic fuzzy portfolio optimization model that accounts for demand uncertainty, supply variability, and data imprecision. The model balances cost, risk, and sustainability, providing a risk-averse and efficient generation portfolio to support India's long-term energy planning. Renewable energy sources such as solar, wind, and biomass are increasingly recognized as viable options for sustainable power generation worldwide. However, Turkson et al. (2024) emphasize that achieving secure, affordable, and clean energy necessitates a careful evaluation of the costs and risks associated with different energy generation sources. In line with this trend, India has set a target of producing 175 GW of electricity from renewables by 2030. Despite this ambition, the developing country faces persistent energy security challenges arising from the diversification of its PGM. Since renewable generation is highly weather-dependent, identifying an optimal supply mix remains complex (Kiss et al., 2020). Moreover, the intermittent nature of renewables introduces dynamic variations that significantly impact cost and risk assessments, eliciting diverse responses from power producers (Thangavelu et al., 2015). Consequently, supply disruptions, including power cuts and parameter fluctuations, threaten the long-term financial and economic sustainability of generators (Awerbuch, 2006). Additionally, rapid technological advancements coupled with cost-related risks can impose further strain on the generation system (Gross, 2010).
Given these challenges, determining India's optimal power generation mix (PGM) is crucial for ensuring energy security, balancing reliable supply, affordability, and environmental sustainability, while accounting for the inherent uncertainty and variability of power sources. However, most prior research on optimal PGM has focused on developed economies, limiting its applicability to India. In the Indian context, this issue remains largely underexplored. This study aims to bridge this gap by employing a stochastic fuzzy extension of portfolio optimization theory to identify India's optimal PGM.

***Keywords:*** *Power generation mix, Stochastic Fuzzy approach, Portfolio optimization, Energy security*

## FROM BELIEFS TO FUNDING: A GAME-THEORETIC FRAMEWORK FOR DESIGNING EFFECTIVE CROWDFUNDING INTERFACES.

*Avijit Bose (MCKV Institute of Engineering), Dr. Pradyut Sarkar (Maulana Abul Kalam Azad Univeristy of Technology) and Dr. Premananda Jana (Netaji Subhash Open University, Kalyani, Nadia West Bengal).*

**Abstract.** Crowdfunding platforms have emerged as vital intermediaries linking startups with diverse investor communities, yet the effectiveness of these platforms depends heavily on their

interface design and underlying funding schemes. This study proposes a human-centric, game-theoretic framework to model interactions between funders and startups across three schemes: equity-based, reward-based, and donation-based. Using a multi-round simulation that integrates Bayesian belief updating, fuzzy evaluation of trust and utility, and payoff-driven decision rules, the framework captures investor learning, participation dynamics, and strategic convergence over time. Results highlight clear contrasts: equity schemes exhibit rational strategic behavior and gradual belief-driven convergence; reward schemes generate high participation due to lower perceived risk and immediate utility but with greater volatility; and donation schemes rely strongly on altruism, trust cues, and persuasive interface framing. The findings suggest that reward-based designs are most effective for attracting broad investor engagement, while equity modules sustain participation among rational actors, and donation schemes can be strengthened through social proof and storytelling mechanisms. By bridging behavioral economics, human–computer interaction, and computational modeling, this work provides actionable insights for designing digital crowdfunding platforms that enhance participation, support entrepreneurial sustainability, and optimize campaign success.

***Keywords:*** *Crowdfunding models, game-theory, platform design, human–computer interaction, sustainability, investor behavior*

## INTERPROFESSIONAL RELATIONS AMONG INDIAN HEALTHCARE PROFESSIONALS: A STUDY OF THE DOCTOR-NURSE RELATION IN THE CONTEXT OF EMERGING 'NURSE PRACTITIONERS

*Vimal Francis (Swiss School of Management) and Dr.Archana Mishra (MGM School of Biomedical Sciences Navi Mumbai, India)*

**Abstract.** This study explores interprofessional relationships amongst doctors and nurses in India around the emergent Nurse Practitioner (NP) role. A mixed-method design was employed to study the phenomenon involving a quantitative survey of 218 respondents with a qualitative interview of 20 stakeholder doctors, nurses, NPs, and healthcare administrators. The quantitative study showed that most respondents had a positive attitude toward collaboration, as most of the respondents believed that NPs would reduce doctors' workload (78.4%), provide care with minimal supervision (67.0%), and improve patient outcomes (79.8%). However, the level at which NPs would make independent decisions was questioned. Role clarity emerged as a contested issue, as 45.0% of the respondents agreed that their roles were clearly defined, while 30.3% disagreed.

Further analysis revealed that the more clarity there was in the role, the better the quality of collaboration ($\rho = .550$, $p < .001$). There was a strong relationship between awareness and favorable attitudes ($\rho = .614$, $p < .001$). Moreover, Mann–Whitney U tests showed differences in preparedness for NP integration between doctors and nurses ($p < .001$). Open communication, respect, and clear responsibilities facilitated collaboration, whereas hierarchy dominance, cultural barriers, and training gaps hindered cooperation and acceptance of NP, as revealed by the qualitative findings. Doctors maintained ultimate authority for decision-

making, whereas nurses saw the NP role as an opportunity for professional empowerment. Integrated insights indicate optimism regarding the benefits of integrating NPs for patient outcomes and workload reduction. However, unprepared organizations, absent policy support, and entrenched hierarchies will be constraints.

***Keywords:*** *Nurse Practitioners, Interprofessional Collaboration, Role Clarity, Indian Healthcare*

## YOGA, AI AND GANDHIAN ETHICS: PATHWAYS FOR TODAY WELL-BEING

*Dr Shreekala Prasad Bachhav (Savitribai Phule Pune University)*

**Abstract.** This study explores intersection of yogic concepts, Gandhian Ethics and Artificial intelligence (AI).This research looks into how these seemingly domains can be work together to create ethical, human centered and mindful. Main intersections are identified by this research through qualitative analysis of important texts, case studies of current AI applications, as well as quantitative analysis using SPSS. These intersections are embodied approaches to digital wellbeing, non-violent technological adoption, and mindfulness-informed AI design. Results indicate that the Gandhian ideals of ahimsa, satya, and swaraj, along with the yogic concepts of mindfulness and connection, can profoundly alter the creation and use of AI. The study offers a fresh ethical framework that prioritizes algorithmic truth-seeking, digital non-violence, and technological mindfulness. In addition to providing pathways to more balanced human-technology partnerships that promote holistic health rather than undermine it, this study has implications for AI developers, ethicists, well-being practitioners, and technology policymakers.

***Keywords:*** *Artificial Intelligence, Digital Wellbeing, Gandhian Ethics*

## EFFECTS OF INSPECTION ON RETAILER'S ORDERING POLICY FOR A DETERIORATING ITEM WITH WEIBULL DISTRIBUTION DETERIORATION, TIME-DEPENDENT DEMAND UNDER INFLATIONARY CONDITION

*Sunil Kumar (Department of Mathematics Bennett University Greater Noida, Uttar Pradesh, India), Mandeep Mittal (Department of Mathematics Bennett University Greater Noida, Uttar Pradesh, India) and Biswajit Sarkar (Department of Industrial Engineering Yonsei University Seoul, South Korea)*

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**Abstract.** For an unstable supply inventory model, the received lots may carry a random proportion of damaged products characterized by a known distribution. Accordingly, inspection of the lot is essential in nearly every case. The Weibull distribution
with two parameters specifically represents the time to deterioration. Defective units are presumed to be retrieved as a single batch following inspection. For many consumer goods, it is also noted that the price and demand increase linearly with time,

especially in inflationary circumstances. Since demand and price change over time, this study looks at how merchants' ordering procedures for deteriorating items are impacted by defective items under inflation. The proposed model aims to maximize the order quantity and the retailer's expected profit. An example is provided to illustrate the outcomes.

***Keywords:*** *Inventory, Inspection, Time-dependent demand, Inflation, Weibull distribution*

## FROM STAR TO THREAT: LESSONS FROM POLITICAL PARTY ORGANIZATIONS

*Arghya Banerjee (Indian Institute of Management Calcutta), Somdeep Chatterjee (Indian Institute of Management Calcutta) and Manhar Manchanda (Indian Institute of Management Calcutta)*

**Abstract.** This paper examines the role of candidate popularity in shaping political parties' candidate selection process. Using data on Indian state elections, we proxy elite voter support using a candidate's performance on absentee (postal) ballot performance and exploit a regression discontinuity design comparing candidates who narrowly win versus narrowly lose the postal vote, conditional on overall victory. We find that candidates who narrowly win both in-person and postal ballots are 18–24 percentage points less likely to be re-nominated to contest the subsequent election. This effect is not explained by voter preferences, as re-election rates remain unchanged, indicating a party-driven response. The effect is stronger in centralized parties and for candidates with higher education or a criminal record.

***Keywords:*** *Remote Voting, Political Parties, Regression Discontinuity, Assembly Elections*

## JUDICIAL CAPACITY BUILDING FOR ENVIRONMENTAL JUSTICE IN TRIPURA: STRENGTHENING THE LEGAL ROLE OF COURTS IN ADDRESSING ENVIRONMENTAL CHALLENGES1

*Shayam Chakraborty (Research Scholar Law), Dr. Proorvi Singh Chowdhury (Assistant Professor) and Dr Jayeeta Debnath Munshi (Associate Professor).*

**Abstract.** The need for informed, scientifically established and restorative approaches to environmental protection has been reinforced by the Hon'ble Supreme Court in certain 2025 decisions. Emphasizing "precautionary measures" in ecological decision-making and also about "prior environmental clearance", the Apex Court in its decisions Vanashakti v. Union of India (2025) and Tikender Singh Panwar v. State of Himachal Pradesh (2025) substantially addressed these issues. While advocating restoration over punishment, restitutionary ecological principles were upheld in Delhi Pollution Control Committee v. Lodhi Property Co. Ltd. (2025). In reaffirming judicial vigilance in protecting fragile ecosystems, M/S Pristine Hotels & Resorts v. State of Himachal Pradesh is noteworthy. Addressing the systematic gaps in climate governance, in Ridhima Pandey v. Union of India (2025) the need for structural reforms has been stressed.

The existing environmental legal framework has statutes and Constitutional provisions like Environment Protection Act, 1986 and Articles 21, 48A, and 51A(g). Tripura being ecologically sensitive region faces challenges related to shifting cultivation, rubber plantations and forest-based livelihoods and as such judicial efficiency is important to see whether courts are equipped in delivering timely, effective and local culture sensitive environmental adjudications. Integrating scientific and research-based knowledge, encompassing native community viewpoints, and through delivering expert and technical training in environmental jurisprudence to enhance judicial proficiency, are some of the measures to be effectively implemented. The article studies how conservation-1 Shayam Chakraborty, PhD Scholar, School of Law, Techno India University Tripura oriented adjudication in Tripura can be improved through upgraded adjudicatory systems. Exposure to specialized and applied knowledge, institutional resources and sustainability jurisprudence promoting environmental literacy, will improve the environmental justice delivery process. In this regard judicial capacity building ought to be crucial in fostering green justice. From the broader perspective enhancing Tripura's environmental adjudication links community-level concerns with India's countrywide climate commitments and jurisprudential developments.

***Keywords:*** *Tripura, Constitutional mandates, Environmental justice, Judicial capacity building, Indigenous perspectives, cientific knowledge integration*

## UNLOCKING SUSTAINABILITY THROUGH ACCESS TO FINANCE: AN EMPIRICAL ANALYSIS OF SMES IN DEVELOPING COUNTRIES

*Payal Adlakha (Manav Rachna International Institute of Research and Studies), Durairaj Kumarasamy (Manav Rachna International Institute of Research and Studies) and Prakash Singh (Goa Institute of Management)*

**Abstract.** Access to finance is a critical factor in shaping the sustainability trajectory of SMEs in developing countries, yet persistent financial constraints hinder numerous businesses from transitioning to a more sustainable business model. This paper analyses the impact of access to finance on firm-level sustainability outcomes of small and Medium-Sized Enterprises across developing countries, utilizing the World Bank Enterprise Survey for 139 countries from 2006 to 2025. The findings demonstrate a positive, significant effect of access to finance on SMEs' sustainability performance. The firms with improved access to credit are not only resilient to environmental and market shocks but also substantially more likely to adopt energy-efficient practices, embrace social and governance compliance. The evidence demonstrates conclusively that broadening SME access to finance is pivotal for sustainable development in developing countries. Nevertheless, the findings not only substantiate the theory not also urge systemic reforms to unlock SMEs' potential. Policy implications highlight the urgent need for tailored financial instruments, financial literacy, capacity building, and strengthening the financing framework. Additionally, expanding the lines of credit, boosting technical training, updating credit infrastructure, and promoting fintech can unlock the SMEs' potential for long-term growth.

***Keywords:*** *Global Value Chains, Innovation, Innovative activity, Sustainability, Developing Countries, Small and Medium Enterprise*

# UNRAVELLING THE ECONOMIC COST OF HEAT STRESS: A REGIONAL PERSPECTIVE

*Esha Agrawal (ICRIER) and Sunishtha Yadav (ICRIER)*

**Abstract.** Economies with low adaptive capacities are disproportionately experiencing profound economic losses as a result of climate change, underscoring the urgent need to address vulnerability in the face of global warming. India has recently witnessed a record mean land temperature increase of over 0.65 °C above the 1991–2020 average, a trend that is projected to translate into GDP losses of up to 24 percent by 2070 under a high-emission scenario (1). Heat, in particular, has emerged as a critical and profound economic threat, inflicting major economic losses across sectors, aggregating to impact the Gross Domestic Product (GDP) significantly. The paper aims to investigate the extent of heat induced economic losses in the states of Maharashtra and Tamil Nadu, states that make substantial contributions to India's national output (2). As the country grapples with severe climatic conditions, exploring the relationship between rising temperatures and loss of economic output becomes increasingly urgent. The study seeks to bridge the gap by assessing regional vulnerabilities and identifying transmission mechanisms through which climate shocks affect economic output across the primary, secondary, and tertiary sectors and in turn affecting the GDP of the regions. The analysis will employ panel regression models to estimate isolated macroeconomic effects of climate variability on sectoral productivity, and quantify the extent of damages till 2035. The insights from this research will serve as crucial inputs in determining the scale of climate change-induced losses by identifying key pathways through which they are incurred, and supporting the formulation of sector-specific adaptation resiliency building strategies. The analysis will significantly contribute to the broader discussion on risk associated with climate change-induced stresses, particularly by highlighting the uncertainties involved in their assessment and better allocation of financial resources.

Footnotes:

1. Available at: https://www.downtoearth.org.in/climate-change/finally-india-also-confirms-2024-as-its-hottest-year-ever-recorded. Accessed on 27th July, 2025.
2. Available at: https://www.adb.org/publications/asia-pacific-climate-report-2024. Accessed on 27th July, 2025.

***Keywords:*** *Heat Stress, Economic Impact, Regression Analysis, Gross Value Added (GVA)*

# A STUDY ON MITIGATION STRATEGIES FOR BARRIERS TO ADOPTION OF PERFORMANCE BASED CONTRACTING (PBC) WITHIN INFORMATION TECHNOLOGY ECOSYSTEM

*Rajesh Shastry (SP Jain School of Global Management)*

**Abstract.** Performance Based Contract (PBC), also known as Value Based Contract or Outcome Based Contract has been a subject of study across many organisations and Information Technology (IT) providers not only for its significance but also the lack of in-depth understanding and complexities involved. Over the years, adoption of PBC has been slow amidst various challenges. The purpose of this study is to understand the headwinds related to PBC and the factors that organisations and IT providers consider before entering these contracts. The paper will also try to identify mitigating strategies that will help improve adoption within the industry. This study will be conducted using mixed method covering quantitative and qualitative analysis. The goal is to collate, examine existing and newfound knowledge and provide a perspective on how organisations and IT providers can take informed decisions on PBC adoption.

Participants in this study include professionals from IT service delivery practice and procurement who have advised on the subject and/or have implemented PBC in their roles.

The literary review will discuss areas related to strategic alignment and Key Performance Indicators (KPI), constructive collaboration between stakeholders and implementation of financial framework within PBC. This study will attempt to further advance the existing body of knowledge on PBC and its alignment to business outcome.

***Keywords:*** *Performance Based Contract, Key Performance Indicators, barriers to adoption, Information Technology, mitigation*

# OFF-GRID ENERGY TRANSITIONS: INVESTIGATING MICROGRID ADOPTION IN INDIA

*Srikant Shaw (Indian Institute fo Technology Madras) and Santosh Kumar Sahu (Indian Institute fo Technology Madras)*

**Abstract.** Access to reliable and quality energy remains a critical challenge in rural and remote regions of India, where grid connectivity is often inconsistent and supply interruptions remain widespread. Microgrids, as decentralized energy solutions, have emerged as an important pathway to improve energy access, enhance reliability, and promote local-level sustainability. Despite their potential, adoption has been slow, with only 1.8% of households in the dataset reporting use of microgrids. This paper examines the determinants of adoption using the nationally representative Access to Clean Cooking Energy and Electricity (ACCESS) 2018 survey, which covers six energy poverty states in India. To account for the rarity of adoption, we employ a pooled binary choice model while exploring a comprehensive set of socioeconomic, demographic, infrastructural, and perception-based factors. The results suggest that income, asset ownership, household infrastructure quality, and dissatisfaction with grid electricity significantly increase the likelihood of adoption. Conversely, household

indebtedness and greater ownership of electrical appliances are associated with lower adoption probabilities. Social identity factors such as religion (Hindu/Muslim) and caste (OBC/General) positively influence adoption, reinforcing our hypothesis on community-level influences, while institutional identifiers like Antyodaya ration cards highlight affordability constraints, supporting our hypothesis on economic barriers. Gendered patterns emerge, with female-headed households showing stronger sensitivity to income effects and marked state-level differences in Bihar, Jharkhand, and Uttar Pradesh. These findings underscore the role of both social and economic determinants in shaping household energy choices. The study concludes that gender-inclusive approaches, targeted subsidies, and infrastructure support is critical to advancing decentralized energy solutions and strengthening microgrid adoption in India.

***Keywords:*** *Microgrids, Adoption factors, Energy Choices, Off-grid*

## RURAL ROADS AND FIRM OUTCOMES IN INDIA

*Bharti Nandwani (Indira Gandhi Institute of Development Research), Punarjit Roychowdhury (Shiv Nadar Institution of Eminence) and Binay Shankar (Shiv Nadar Institution of Eminence)*

**Abstract.** This paper examines the impact of a large-scale rural road construction program the Pradhan Mantri Gram Sadak Yojana (PMGSY) on the performance of rural manufacturing firms in India. While these firms provide vital non-farm employment in rural areas, their growth is often thought to be constrained by inadequate infrastructure. Leveraging administrative data and the quasi-random rollout of the program, we estimate effects using a two-way fixed effects framework. We find no evidence that improved road connectivity affects turnover, profits, or employment for formal enterprises. In contrast, informal firms experience significant gains in turnover, expenditure, profits, employment, and wage bills.
These effects appear to be driven by reductions in infrastructure-related constraints: treated firms report fewer operational problems and less competition from larger firms, particularly in marketing and distribution. Our findings highlight the heterogeneous effects of rural infrastructure expansion and the greater responsiveness of informal enterprises.

***Keywords:*** *Firms, Infrastructure, Rural*

## DOES THE COVID-19 HEALTH EMERGENCY IMPACT THE INTEGRATION OF PRECIOUS METALS AND THE INDIAN EQUITY INDEX? A TIME-VARYING APPROACH TO CONNECTEDNESS AND SPILLOVER

*Sujit Paul (National Institute of Technology Durgapur) and Prof. Avijan Dutta (National Institute of Technology Durgapur)*

**Abstract.** This study explores the inter-relationships among the key investible asset avenues such as Gold, Silver, Nifty 50 Index, while mainly focusing into the role of the US Dollar Index and Indian VIX Index in this relationship. To explore the relationship among the variables, we

employed the time varying the vector autoregression (TVP-VAR) framework through the connectedness approach followed by (Antonakakis et al., 2020; Diebold & Yilmaz, 2012; Diebold & Yılmaz, 2014) specifically, focusing on the covid-19 event. Our study is designed and divided into three periods where pre-covid, during-covid , and the post-covid period has been considered for the study. Our results enlighten on the dynamics of these assets as well as US dollar Index, and India VIX Index, highlights the covid-19 as study duration. The findings reveal significant shifts in net transmitters and receivers of shocks, highlighting heightened systemic risk during the pandemic and structural changes in financial relationships post-crisis. These insights contribute to the broader discourse on market interdependence and risk contagion during periods of financial turbulence.

***Keywords:*** *Precious Metal Connectedness, Covid-19, Network Connectedness, Spillover-effects, Indian Equity Index*

## EXPLORING THE UTILITY OF PREVENTIVE HEALTHCARE PACKAGES: AN IN-DEPTH ANALYSIS OF COMPREHENSIVE HEALTH PACKAGE SUBSCRIPTIONS AND THEIR CORRELATION WITH FASTING BLOOD SUGAR LEVELS

*Abhishek Charan (Army Institute of Management, Kolkata) and Abhishek Sarkar (Army Institute of Management, Kolkata)*

**Abstract.** Purpose: This comprehensive study investigates the intricate relationship between the subscription to comprehensive diagnostic packages, known as 'Super Packages,' and the fasting blood sugar (FBS) levels among patients of a leading diagnostic corporation in India. The research aims to construct a detailed health profile of consumers who proactively opt for bundled health screenings versus those who seek testing on an ad-hoc basis.

Methodology: A quantitative, cross-sectional, correlational research design was employed. Anonymized secondary data from a sample of 5,450 patient records were analyzed. The dataset was segmented into two primary cohorts: subscribers to a 'Super Package' (n=True) and nonsubscribers (n=False). The methodology involved extensive data cleaning, followed by descriptive and inferential statistical analysis using SPSS. An Independent Samples t-test and Analysis of Variance (ANOVA) were conducted to test for statistically significant differences in mean FBS levels between the groups and across various age demographics.

Findings: The analysis reveals a statistically significant and counterintuitive finding of patients who subscribed to 'Super Packages' exhibit a lower average fasting blood sugar level (102.25 mg/dL) compared to their non-subscribing counterparts (109.22 mg/dL). While both group averages fall within the clinically defined prediabetic range, the subscriber cohort demonstrates a markedly better metabolic health profile. This trend remains consistent and robust across all analyzed age groups (<25, 25-40, 41-55, and 56+ years).

Implications: The findings robustly suggest that comprehensive health packages successfully attract a more health-conscious, educated and proactive demographic. These individuals likely engage in regular health monitoring as a core component of a preventive lifestyle, resulting in better-managed health indicators. Conversely, the population seeking standalone FBS tests

appears to be higher risk, potentially driven by existing symptoms or immediate medical advice. This research provides critical strategic insights for the diagnostic industry in the areas of customer segmentation, product positioning, and targeted marketing. It validates the role of such packages in fostering a culture of proactive health management in India.

***Keywords:*** *Preventive Healthcare, Fasting Blood Sugar, Diabetes, Diagnostic Packages, Health-Seeking Behavior*

## IMPROVING CARE COORDINATION FOR ENHANCED PATIENT EXPERIENCE

*Sriparna Dutta (MGM New Bombay Hospital, Vashi) and Dr. Archana Mishra (MGM School of Biomedical Sciences Navi Mumbai, India)*

**Abstract.** Introduction: Care coordination plays a pivotal role in ensuring timely interventions, seamless communication, and improved patient outcomes. In quaternary care hospitals, where patients often require multidisciplinary management, inadequate coordination across day care units and wards can result in delays, miscommunication, and diminished patient satisfaction. Enhancing patient experience through effective care coordination is therefore essential.
Aim/Objectives: The study aimed to investigate communication and coordination gaps among caregivers, identify incomplete documentation, and develop a comprehensive plan to enhance patient satisfaction and reduce discharge delays in a quaternary care hospital in Navi Mumbai. Secondary objectives included examining incomplete handovers, improper consultant–patient communication, late insurance intimations, delayed meal services, and gaps in discharge planning and coordination.
Methodology: A six-month quality improvement initiative was implemented in a quaternary care hospital using digital platforms such as KareXpert and MedQPro. Existing workflows were mapped, and gaps were identified through patient feedback, staff discussions, and audits. Interventions included standardized communication protocols, a care coordination checklist, real-time digital updates, and staff sensitization modules. Evaluation was conducted using pre- and post-intervention audit data and patient feedback obtained from MedQPro and Google Reviews.
Results & Conclusion: Post-intervention findings demonstrated improved patient satisfaction scores, reduced turnaround times, and a significant decline in communication-related errors. Patients expressed greater confidence in the hospital's responsiveness and teamwork. The study concludes that structured care coordination strategies, supported by digital tools and continuous staff engagement, can substantially enhance patient experience in quaternary care settings.

***Keywords:*** *Quarternary hospital, Improved coordination, Enhanced Patient experience*

## AN EXPLORATORY STUDY TO REDUCE THE IMPACT OF FACTORS THAT CONTRIBUTE TO GOODS SHORTAGE WORLDWIDE

*Lucas Jaipaul (SP Jain School of Global Management)*

**Abstract.** A globalised supply chain and an improved worldwide connectivity have helped to fulfil the demand of consumers goods. Even countries Australia and others, which are more isolated geographically, the consumers were able to receive these goods. However, it is worth nothing that there has been periodic shortage of consumer and non-consumer goods worldwide. The greatest shortage that occurred in recent times was from 2020 to 2022.

The rapid advancement of scientific concepts, technology and improvement in infrastructure has not helped to reduce the incidence of the goods shortage. It is likely that these shortages will continue to impact consumers and companies worldwide. If these goods are intended to help consumers, their absence can have severe consequences.

This exploratory study will examine the main factors that contribute to the shortage of goods that occur worldwide. The study will explore micro and macro-economic factors as well as non-economic factors.The shortages that occurred worldwide has a result of the Pandemic will not be considered in this study as this can be best described as one in a century event. Hence the study will center on causes of shortages that occur during the non-pandemic period

***Keywords:*** *Goods; Shortage of goods; Supply Chain; Factors*

## INVISIBLE BORDERS, VISIBLE BEHAVIORS: HOW LOCAL TECH SHAPES GLOBAL RETAIL JOURNEYS

*Namita Jain (BIMTECH)*

**Abstract.** The increasing digitalization of retail has greatly diminished geographical boundaries, creating “invisible borders” that enable global participation and competition in commerce. However, consumer behaviors remain visibly shaped by local digital ecosystems, such as India’s UPI, China’s WeChat Pay, and Japan’s Line,redefining how, where, and why people buy. This study investigates how region-specific technological innovations drive both convergence and divergence in global consumer behavior, focusing on purchase journeys, platform engagement, and brand loyalty. Through a mixed-methods approach,including survey analysis across Gen Z consumers and retail case studies,this research aims to uncover the dynamic interplay between localized technology and global retail patterns, offering actionable insights for multinational brands and digital retailers looking to localize effectively while scaling globally. Findings are expected to highlight the importance of cultural and technological localization in shaping the modern global retail experience, challenging the assumption that digital integration leads to behavioral homogeneity across borders.

***Keywords:*** *Local Digitalisation, Global Technology, Retail, Global Business, Local Technology, Glocal Strategy*

## DATA-DRIVEN PRIORITIZATION OF SOLAR PHOTOVOLTAIC INVESTMENT IN G20 COUNTRIES: A MULTI-CRITERIA DECISION-MAKING AND MACHINE LEARNING APPROACH

Atanu Manna (Vidyasagar University) and Debarun Chakraborty (Indian Institute of Management Nagpur)

**Abstract.** As countries work to build cleaner energy systems, deciding where to place limited solar photovoltaic (PV) dollars becomes urgent, especially for developing nations that juggle environmental, technical, economic, and social aims. This paper introduces a fresh, data-led Multi-Criteria Decision-Making (MCDM) tool that ranks the G20 by PV investment appeal, replacing the usual expert-weighted methods long criticized for bias and poor repeatability. The approach blends objective weight setters, Entropy, CRITIC, and machine-learning feature scores with classic MCDM rules- TOPSIS, VIKOR, and SAW- to measure readiness across six domains: social, economic, environmental, technical, political, and energy quality. It then applies hierarchical clustering to reveal country clusters, while sensitivity tests and machine-learning checks probe how stable and trustworthy the rankings are. Because the framework draws solely on secondary data, it remains open, easy to expand, and can be adapted for other technologies or regions. Findings offer policymakers and investors solid, reproducible tools that tie solar PV choices to the broader sustainability goals each country pursues.

***Keywords:*** *Solar Photovoltaic (PV) Investment, Multi-Criteria Decision-Making (MCDM), Machine Learning Weighting, Renewable Energy Prioritization, Sensitivity Analysis*

## SMART WASTE SOLUTIONS: EVALUATING KNOWLEDGE AND PRACTICES OF BIOMEDICAL WASTE MANAGEMENT THROUGH DIGITAL TOOLS IN A TERTIARY CARE HOSPITAL

*Harshad Patil (MGM SBS), Dr.Sagar Sinha (MGM SBS) and Dr.Anamika Chalwadi (MGM SBS)*

**Abstract.** Background: An important component of environmental safety and hospital infection control is the management of biomedical waste (BMW). Housekeeping staff are essential to the separation, collection, transportation, and disposal of biomedical waste in tertiary care hospitals. But poor handling techniques or a lack of knowledge can lead to cross-contamination, workplace risks, and a higher chance of hospital-acquired infections.

As the use of technology in healthcare continues to grow, digital tools like interactive presentations, video-based training modules, and digital monitoring systems have become popular ways to raise awareness, improve learning, and guarantee waste management procedures are followed. These resources improve training's consistency, flexibility, and engagement while assisting staff in understanding color coding, segregation guidelines, and safe disposal techniques.

This study aims to assess the effectiveness of digital training interventions, specifically videos and presentations, in enhancing compliance and promoting sustainable waste management

practices in a tertiary care hospital, as well as the knowledge and practices of housekeeping staff regarding biomedical waste management.

Objective: To implement and evaluate digital tools ( e-training modules) for improving BMW practices.

Methods: A tertiary care hospital's housekeeping staff's knowledge and practices of Biomedical Waste Management were evaluated through a pre-test and post-test study. To assess baseline knowledge and current practices, a structured questionnaire created in compliance with the Biomedical Waste Management Rules (2016, amended 2018 & 2023) was employed. In order to raise awareness and reinforce appropriate waste handling practices, digital e-training modules were subsequently introduced. These modules included interactive videos and presentations. To determine how well the e-training modules improved participants' knowledge and compliance levels, pre- and post-test assessments were given.

Results: Pre-Test Findings:

- Majority of participants had limited awareness regarding proper segregation, PPE use, and hand hygiene.
- Only 9–10% of staff reported always washing hands after waste handling.
- Correct use of PPE (gloves, mask) was noted in only about 15–20% of participants.
- Proper covering of waste bins and tying of bags when ¾ full were inconsistently practiced (below 25% compliance).
- Segregation of waste according to color-coded bins was satisfactory but not universal (~60% adherence).

Post-Test Findings:

- After digital training using video-based e-modules and presentations, substantial improvement was observed across all key parameters.
- 100% of participants reported always washing hands after handling or disposing of waste.
- Use of PPEs improved to over 70% consistent use.
- Covering waste bins properly and tying bags when ¾ full reached over 80% adherence.
- Compliance in safe sharp disposal in puncture-proof containers rose to over 90%.
- Segregation according to color coding improved modestly, indicating prior partial familiarity.

Analysis and Interpretation:

- Quantitative comparison of pre- and post-intervention results showed significant improvement in biomedical waste management practices:

| Practice Indicator | Pre-Test (%) “Always” | Post-Test (%) “Always” | Improvement (%) |
|---|---|---|---|
| Hand washing after waste handling | 9.5 | 100.0 | +90.5 |
| Covering waste bins properly | 18.6 | 100.0 | +81.4 |
| Tying waste bags when ¾ full | 23.2 | 100.0 | +76.8 |
| Use of PPE (gloves, mask) | 17.5 | 70.0 | +52.5 |
| Discarding sharps in puncture-proof containers | 65.0 | 100.0 | +35.0 |
| Segregation in color-coded bins | 83.2 | 90.0 | +6.8 |

These findings indicate a clear enhancement of awareness, behavioral change, and compliance following the use of digital learning tools. Visual and interactive content proved particularly effective for housekeeping staff with diverse educational backgrounds.
Conclusion: According to the study, housekeeping employees' knowledge and practices regarding biomedical waste management can be greatly enhanced by using digital training resources. Better adherence to infection control procedures was ensured by the e-modules' assistance in converting theoretical knowledge into safe, useful behaviors. To maintain these gains and advance a safety culture in hospital waste management, regular visual reinforcement and digital refresher training are advised.

***Keywords:*** *Biomedical Waste Management, Housekeeping Staff, Digital Training, E-learning, Infection Control, Waste Segregation, PPE Compliance, Hospital Safety.*

## VALUE-IN-USE PRICING FRAMEWORK FOR PREVENTIVE MAINTENANCE OPTIMIZATION

*Subhadip Dutta (IIM Sirmaur)*

**Abstract.** In most facility maintenance contracts, pricing is still based on a cost-plus approach, clients pay for time and resources used, not for the results achieved. This often means that the real economic value created through improved operations, reduced downtime, and optimized maintenance goes unrecognized.
This project introduces a Value-in-Use Pricing Framework for a digital analytics tool designed to optimise preventive maintenance schedules using CMMS (Computerized Maintenance Management System) data.
By reducing unnecessary preventive work in over-maintained assets and improving schedules where reactive work is excessive, the tool enables clients to achieve measurable cost and manpower savings without compromising reliability.
The project integrates theory and application by combining value-based pricing principles, maintenance optimisation analytics, and business strategy. It develops a Value Calculator to quantify client savings and a hybrid pricing model, i.e. a baseline subscription fee complemented by a performance-linked component. Using historical data simulations, the study demonstrates potential financial benefits for both clients and the service provider.
The findings are expected to guide FM teams in moving from a traditional service-provider role toward becoming trusted partners who share responsibility for measurable outcomes. The framework also provides a practical base for developing a detailed case study on value-in-use pricing in data-driven maintenance. By reducing unnecessary preventive work and improving maintenance efficiency, the framework contributes to sustainable resource utilisation and reduced operational waste.

***Keywords:*** *Facility Maintenance, Value in Use Pricing, Data Driven Maintenance*

# INVESTMENT

# BUSINESS NAME: FELIZ HEALTH: BUILDING INDIA'S FIRST ON-DEMAND HYPERLOCAL HEALTHCARE ECOSYSTEM

*Founder: Suvranil Nath*
*Email: suvranil@enhealth.co.in*

**Abstract:** Problem Statement: India faces a critical emergency and primary healthcare crisis. Over 60% of patients fail to receive an ambulance on time, and most operators are unorganized, lacking trained paramedics or reliable dispatch systems. At the same time, millions of people struggle with fragmented access to doctors, diagnostic services, and medication support — leading to delayed care, confusion, and preventable health complications.

Solution: Feliz Health was founded to bridge this gap by building India's first on-demand hyperlocal healthcare ecosystem, beginning with 24/7 Smart Ambulance Services in Kolkata. Users can summon an ambulance instantly through a simple WhatsApp message ("HELP"), without the need to download any app. Every Feliz ambulance is equipped with certified paramedics, real-time GPS tracking, and digital billing, ensuring immediate and transparent response during emergencies. Beyond emergency care, Feliz Health is developing a complete, AI-enabled platform that integrates:

- Doctor on Call & Home Visit
- Medical Cab for Non-Emergency Transport
- Doctor Discovery & Health Packages
- Pill Reminder & Medication Tracker
- Home Care & Nursing Services
- Procedure Planner & Hospital Coordination
- Diagnostics & Path Lab Booking

At the core of this system lies Feliz MediSense AI, a proprietary innovation designed to simplify complex prescriptions and help patients understand their treatments clearly and confidently. It turns medical jargon into simple explanations, promoting clarity, empowerment, and care the three pillars of Feliz Health's ethos.

Market Opportunity: The Indian emergency medical transport and home healthcare market is valued at over ₹5,900 crore yet remains 60% unorganized. Feliz Health targets the urban organized BLS (Basic Life Support) segment worth ₹500 crore (SAM), with an initial reachable market (SOM) of ₹100 crore over the next two years.

As operations scale, the larger ecosystem — including teleconsultation, diagnostics, and homecare — expands Feliz's total addressable market to ₹15,000+ crore across India's top metros. The model is designed for rapid replication, leveraging technology and partnerships rather than asset-heavy expansion.

Business Model: Feliz Health operates on a hybrid model that balances quality control and scalability:

- Phase 1: Fleet-owned ambulances ensure medical reliability, paramedic training, and patient trust.
- Phase 2: Transition to an asset-light aggregator network of verified operators once the system achieves maturity and brand trust.

Revenue streams include:

- Direct Trip Charges (B2C) – from emergency and scheduled rides (70%)
- Hospital & Corporate Tie-Ups (B2B) – retainers and per-trip commissions (20%)
- Housing Society Subscriptions – monthly access plans (5%)
- Diagnostics & Ancillary Services – value-added healthcare offerings (5%)

***Keywords:*** *Emergency Healthcare, Smart Ambulance, On-demand Medical Service, Connected Healthcare, Digital Health, HealthTech Innovation, Social Impact Startup, Emergency Response, AI in Healthcare, Patient Empowerment*

## BUSINESS NAME: SHIPPIN

*Founder: Maloy Das*
*Email: maloy@shippin.in*

**Abstract:** Problem Statement:
Fragmented and inefficient last-mile operations are hindering the logistics ecosystem, resulting in significant inconvenience to customers due to untimely deliveries.
Solution: Shippin, a flagship brand of Cognikraft Services Pvt. Ltd., is a tech-enabled last-mile hyperlocal logistics platform that empowers SMEs, D2C brands, and enterprises to deliver faster, smarter, and more efficiently across Tier-1 and Tier-2 cities in India. Shippin provides an asset-light, scalable, and technology-driven logistics network that bridges the gap between digital demand and physical delivery infrastructure. Through their proprietary Delivery Management System (DMS) and AI-driven route optimization engine, Shippin ensures real-time visibility, cost efficiency, and seamless order fulfillment for B2B, B2C, and P2P deliveries.
Market Opportunity: The last-mile delivery market in India presents a substantial opportunity. According to a recent study by IMARC Group, the Indian last-mile delivery market reached US $6.50 billion in 2024. It is projected to grow at a CAGR of 8-9 %.
Business Model: Their revenue model is transaction-driven, supported by value-added services such as EV rentals, COD handling, warehousing, and API integration fees.

***Keywords:*** *Speed, trust and technology*

## BUSINESS NAME: ARPINA AQUA INDIA PVT. LTD

*Founder: Dr. Sukanya Ghosh*
*Email: arpinaaqua@gmail.com*

**Abstract:** Problem Statement:
Access to safe drinking water remains a major challenge in India, with arsenic, fluoride, and microbial contamination affecting millions of people across rural and urban areas. Conventional RO systems waste 50–60% of water and strip essential minerals, while packaged water contributes heavily to single-use plastic (SUP) pollution.
Solution:

Arpina Aqua addresses these critical environmental and health challenges with its patented Smart Water Purification Technology — a zero-waste filtration system that retains essential minerals (Ca, Mg), removes toxic contaminants, and integrates IoT-based hydration tracking. The solution eliminates the need for RO in areas where TDS < 500 mg/L, aligning with NGT and BIS directives and contributing directly to public health and environmental conservation.
Market Opportunity (TAM/SAM/SOM): The global smart hydration and domestic purifier market is valued at $2.1 billion (TAM), projected to grow at a CAGR of over 10%. The serviceable available market (SAM) in India for smart water solutions exceeds ₹2,500 crore, driven by increasing urbanization, health awareness, and plastic waste regulations. Arpina Aqua's serviceable obtainable market (SOM) is estimated at ₹150 crore across Tier I and Tier II cities, with early traction in corporate, CSR, and export channels.
Business Model: Arpina Aqua operates on a hybrid B2C and B2B model. B2C (Distributor & Online Sales): 70% of volume through multi-channel distribution and e-commerce platforms, ensuring scalability and nationwide reach. Arpina maintains a 30% profit margin post distributor commission. B2B / CSR / Export Sales: 30% of volume through direct sales to corporates, CSR partners, and international markets, generating a 45% margin due to the absence of intermediary costs.

***Keywords:*** *Smart Water Purifier, IoT Hydration, Zero Water Wastage, Sustainable Drinking Water, Mineral Retention, Environmental Innovation*

## BUSINESS NAME: FINANALYZ

*Founder: Jagannadha Rao*
*Email: jagan.rao@finanalyz.com*

**Abstract:** Problem statement:

- Disconnected LOS, LMS, and compliance systems causing manual handoffs and inefficiencies.
- Lack of real-time visibility into loan lifecycles.
- Fragmented lending stacks with heavy manual processes and multiple vendor dependencies increasing costs.
- Static underwriting rule engines, lacking adaptability or dynamic scoring for thin file/new-to-credit borrowers.
- Complex regulatory compliance with no built-in traceability or audit readiness.
- Data silos and lack of real-time analytics and risk dashboards are hindering decision-making

Solution: FinAnalyz is a modern fintech company powering India's financial institutions. Their unified lending platform combining Loan Origination and Loan Management System is tailored for banks and NBFCs to digitize their entire loan lifecycle while ensuring compliance and scalability. Their API-first, modular infrastructure is built with RBI, CKYC, DigiLocker compliance at the core, designed to support loans from ₹10,000 to ₹10 Crore and above.
Market Opportunity: Total Addressable Market (TAM): ₹40+ lakh crore across 78 major banks, 96K+ RRBs/cooperative banks, and 31 crore savings accounts.

- Serviceable Available Market (SAM): ₹24,000 crore focused on digital lending segments including retail, MSME, and embedded lending.
- Serviceable Obtainable Market (SOM): ₹240+ lakh crore with core offerings targeting 200 NBFCs, 500 cooperative banks, and 300 fintechs.

Business Model: Anticipate 1% market penetration of digital disbursals (~₹40,000 crore/year) with ~0.5% revenue share equalling ₹100 crore/year.

***Keywords:*** *Smart Loan Origination, Agile Loan Management, DigiLocker (KYC), Real time insights for borrowers and lenders, SLA Monitoring*

## BUSINESS NAME : KARTAVYA LIFE

*Founder : Nidhi Agarwal*
*Email id : nidhikartavyalife@gmail.com/admin@kartavya.life*

**Abstract:** Problem Statement:
Today's generation is living under silent pressure to achieve, to appear fine, to constantly perform. Behind smiling faces, many are struggling with burnout, confusion, and emotional fatigue. Educational institutions and workplaces often talk about skill-building but rarely about self-understanding. Conversations around therapy or emotional health still carry stigma, and there's a lack of safe, non-judgmental spaces where people can be real.
Solution: KartavyaLife was born from a simple yet powerful belief that people don't always need advice; they need to be heard. It's a mental wellness and human development initiative that brings honest conversations, therapy awareness, and emotional learning into real spaces in higher secondary schools, colleges, corporates, startups, and communities.
Market Opportunity: India's youth population stands at over 300 million, with a growing number of them seeking clarity, balance, and emotional stability. Yet very few structured programs address these needs in a way that feels real, relatable, and culturally rooted. The global mental wellness industry is projected to surpass $500 billion by 2030, and within India, conversations around mental health are just beginning to find their voice.
Business Model:
KartavyaLife operates through a hybrid model blending offline experiences and digital engagement. Our revenue streams include:

- Institutional Collaborations: Paid seminars and reflective programs in colleges and universities.
- Corporate Wellness Programs: Custom-designed sessions addressing burnout, empathy, and emotional leadership for teams, corporates and startups.
- Community Memberships: Subscription-based access to reflective circles, digital workshops, and personal mentoring.
- Brand Partnerships & CSR Collaborations: Co-created campaigns with organizations that value wellness, empathy, and social responsibility.
- Therapy Referrals: Connecting individuals to licensed professionals through an accessible, trust-based referral model.

***Keywords:*** *Mental Wellness, Therapy, Intervention, Cure, Life Skills*

## COMPANY NAME: LGK AGROTECH LLP

*Founder: Dr. Soumya Raj Banerjee*
*Email: gkagrotech2022@gmail.com*

**Abstract:** Problem statement:
Rural India struggles with agricultural waste management, underemployment, and lack of sustainable income sources for farmers.
Solution: LGK Agrotech converts waste into wealth through green innovation. LGK Paints is India's first cow dung-based, eco-friendly, natural paint made from agricultural waste. Currently operates through 300 dealers with an annual turnover of Rs. 2 crore.
Market opportunity: With the Indian paint industry projected to reach ₹1 lakh crore by 2028 and a growing shift toward sustainable and non-toxic products, LGK Paints has a strong niche advantage. The "green paint" category remains underdeveloped, offering vast potential for national expansion and institutional partnerships.
Business Model: LGK Agrotech follows a circular agro-economy model, turning agricultural and livestock waste into profitable, eco-friendly products. By integrating poultry, dairy, biogas, and paint manufacturing, the company maximizes every input's value while minimizing waste. Farmers supply the raw materials, creating consistent income, while LGK drives innovation and market distribution—forming a win-win ecosystem of sustainability and growth.

***Keywords:*** *Rural ecosystem, modular poultry expansion, circular economy, environmental sustainability*

## BUSINESS NAME: KRISHI VIKAS UDYOG (ABYBABY E-COM PRIVATE LIMITED)

*Founder : Prosenjit Nandy*
*Email: swarup.roy@krishivikas.com*

**Abstract:** Problem statement:
Buying new or used agri machinery is often a challenge for farmers. They have to leave their fields and spend time visiting dealerships, where options are limited and guidance is minimal.
Solution: Krishi Vikas Udyog, A brand under Abybaby E-Com Private Limited is India's fastest-growing Digital Krishi Bazaar, empowering farmers to buy, sell, and rent agricultural equipment and inputs—both new and pre-owned. Within just a year of our market entry, they have garnered lakhs of active farmers on our mobile app and website, offering them access to over 20,000+ listed products.
Market Opportunity:
Agriculture Outlook: India's agri sector contributes 20% to GDP with vast potential for mechanization and modernization.
Farm Mechanization: Huge demand for affordable, efficient implements and small-farm machinery.
Market Size: Farm equipment market exceeds USD 20B, growing at 7–8% annually
Business Model:

- B2B: Sales Advertisement
  Partnerships with major agri brands (e.g. Mahindra, IFFCO).
  Brands promote products & generate leads via our app and website. Custom B2B packages as per brand's needs.
- B2C: Digital Dukan
  We onboard dealers and exchangers of agricultural equipment under nine different packages. These dealers gain access to verified leads directly through the Krishi Vikas application.
  Individual Seller
- Boost & Banner options to promote single products.

***Keywords:*** *Farm Mechanisation, Digital Dukan, Agri Mechanisation*

## BUSINESS NAME: MUZ PACKAGING

*Founder Name: Arpita Singh*
*Email Address: arpitasingh43554@gmail.com*

**Abstract:** Problem Statement:
The global packaging industry faces an urgent sustainability crisis. Traditional packaging materials—plastic and paper pulp—pose major environmental challenges. Plastic waste contributes over 400 million tonnes annually, with less than 10% recycled, while paper packaging drives deforestation and water-intensive production. Small and mid-sized manufacturers in Tier-2 cities of India are particularly burdened: they pay higher prices for poor-quality paper rolls due to erratic supply chains and limited local production facilities.
Solution: MUZ addresses this critical gap by developing a sustainable, high-performance packaging alternative derived from agro-fiber waste, starting with banana fiber. Our goal is to reduce plastic dependency and minimize deforestation by introducing biodegradable, durable, and recyclable packaging materials. MUZ's innovation lies in processing agricultural residue into industrial-grade fiber sheets that can substitute conventional corrugated paper and molded pulp. This not only ensures circularity but also enhances rural income by creating value from agro-waste.
Market Opportunity (TAM/SAM/SOM):
The global sustainable packaging market is projected to reach USD 600+ billion by 2030, growing at 8–9% CAGR. In India alone, the market is valued at USD 35 billion (TAM) with a rapidly growing SAM of USD 7 billion driven by FMCG, e-commerce, and food packaging industries seeking eco-alternatives post-2025 plastic bans. MUZ aims to initially capture 0.5–1% of this SAM (~USD 35–70 million SOM) through direct industry partnerships and eco-certified packaging solutions.
Additionally, government mandates for Extended Producer Responsibility (EPR) and the global shift toward ESG compliance have created institutional demand for sustainable packaging. MUZ leverages this shift to position itself as a B2B sustainable raw material supplier and eventually a B2C brand for eco-conscious consumers.
Business Model: MUZ operates on a hybrid B2B circular model:

- B2B Supply Model: Supplying agro-fiber packaging rolls and molded products to local packaging industries, FMCG companies, and D2C brands.
- Collaborative Manufacturing: Partnering with existing paper and packaging mills for fiber sheet production—reducing capital intensity while utilizing idle capacities.
- R&D and Licensing: Developing proprietary fiber treatment processes and licensing them to regional producers, ensuring scalability and local employment.

Revenue will be generated through direct product sales, technology licensing, and collaborative manufacturing contracts.

***Keywords:*** *recycling initiative, circular economy, collaborative manufacturing, sustainable packaging*

## BUSINESS NAME : REDDGENCY HOME HEALTHCARE PRIVATE LIMITED - REDEFINING HOME HEALTHCARE AFFORDABLE LUXURY, SUSTAINABLE AND "SEVA-MINDED"

*Founder: Tanjeet Singh Wadhwa*
*Email: info@reddency.com*

**Abstract:** Problem statement:
Elderly population shall double in India by 2050, (from 153 million in 2024 that is 10.8% contribution to total population currently, to 347 million by 2050 that shall contribute over 20.60% of total population. Families are shrinking, children live away for work, and seniors are left struggling for safe, reliable, committed, and compassionate healthcare access. Hospitals and Clinics are overburdened. 80% unorganized home healthcare sector is dominated by unreliable services.
Solution: Reddgency was born with a vision of most trusted one-stop home healthcare solution by providing world-class quality through JCI Accreditation, which is considered as gold standard for quality and patient safety in healthcare, worldwide. The company aims to be ecologically sustainable and provide a complete healthcare ecosystem that combines all medical services at home, medical tourism, premium and ecological polyclinic, senior living, and boutique hospital.
Market Opportunity: India's Healthcare market size was $370 billion in 2023 and is expected to reach $610 billion by 2026 (TAM). Home Healthcare market size in India was $10.3 billion in 2023, which is expected to grow at a CAGR of 19.29% and reach $36.1 billion by 2030 (SAM). Reddgency is committed to gain at least 0.5% market share to reach $18 million by 2030 (SOM).
Business Model: Commissions, Franchise fees, corporate partnerships, Polyclinic and Diagnostic, Senior living rentals, medical tourism and through global expansion.

***Keywords:*** *Home Healthcare, Affordable Luxury Healthcare, Senior Living Solutions, Elderly Care, Sustainable Development Goals.*

# BUSINESS NAME: SICUAURA GLOBAL PRIVATE LIMITED

*Founder Name: Rishav Ghosh*
*Email Address: rishav.ghosh@sicu-aura.com*

**Abstract:** Problem Statement:
In India, safety is not a daily habit—it becomes a priority only after an incident occurs. Over 5.8 million safety-related incidents are reported annually, including student disbursal mismatches, assaults, abductions, and delayed emergency responses.
Current institutional safety systems rely on manual registers, RFID, or biometrics, which are either too expensive, slow in crowd situations, or dependent on internet connectivity and background data access. There is a critical lack of a scalable, tech-enabled, privacy-first safety ecosystem that can function even when the user doesn't carry a mobile phone or when connectivity is weak.
Solution: Sicuaura is India's first comprehensive personal and institutional safety ecosystem, integrating IoT-based wearables, AI-driven alert systems, verified volunteers and community-based response networks under one unified platform.
Our innovations include:

- Sicuaura School Safety Platform: An AI-powered entry–exit verification system that replaces manual registers with instant digital logging and alerts to guardians.
- Sicuaura Band (IoT Safety Device): A smartwatch-sized wearable that independently sends live location, timestamp, and distress signals to guardians and institutions at the press of a button.
- Sicuaura App: A personal safety and resilience platform enabling real-time SOS, emergency credit systems, and "Safety Credit Scores" for proactive safety readiness.

Market Opportunity:

- Total Addressable Market (TAM): $64 billion (₹5.3 lakh crore) – Global personal safety and institutional security industry.
- Serviceable Available Market (SAM): $3.2 billion (₹27,000 crore) – Indian education and community safety sector.
- Serviceable Obtainable Market (SOM): $64 million (₹540 crore) – Institutional safety digitization for schools, colleges, and residential campuses in Tier-1 and Tier-2 cities.

Business Model:

- Sicuaura operates on a B2B2C hybrid model combining software, IoT, and certification revenue streams:
- Schools & Institutions: Subscription of ₹149/student/month for the digital entry–exit and guardian verification platform.
- Individuals & Families: Freemium safety app with premium plans at ₹149/month offering 24×7 SOS, community rescue, and Safety Score tracking.
- Enterprise & Public Institutions: Annual "Sicuaura Verified" certification and IoT integration packages.
- Hardware Sales: Revenue from affordable IoT safety bands, Smart patches.

***Keywords:*** *Safety-Tech, IoT, AI, School Safety, Emergency Response, Personal Security, Smart Wearables, Safety Credit Score*

## BUSINESS NAME: SUVECHA INTERNATIONAL TRANSPORT PVT.LTD (SUVECHA CABS)

*Name of the co-founder : Suvanwita Thakur (CEO)*
*Name of the co-founder: Swastik Thakur (CTO)*
*Email: suvechainternationaltransport@gmail.com*

**Abstract:** Problem statement:
In district cities and rural areas, around 30% of people are able to book cabs using mobile applications, while the remaining 70% prefer phone-based bookings.
Solution: Suvecha Cabs aims to provide a seamless, technology-driven transportation solution by integrating various modes of city transport through multiple digital platforms, including a website, mobile application, WhatsApp and a toll-free call service.
Market Opportunity: Our service is designed for large cities, district cities, and rural areas, catering to a wide demographic that includes senior citizens, women, and individuals of all ages. Anyone can make live bookings easily through a single phone call, ensuring convenience and accessibility for everyone, regardless of location or technical ability.
Total addressable market: According to national reports, the overall taxi market in India is estimated to be around USD 22.25 billion in 2025, with projections reaching USD 32.53 billion by 2030. Based on proportional regional estimates, the West Bengal taxi market is valued at approximately USD 1.2-1.4 billion (10,000-13,000 crore) at 2025 levels.
Business model : Booking commission , Long-time vehicle rental.

***Keywords:*** *Technology transportation, car rental, time optimisation.*

## SATATGRAM LAST MILE MOBILITY: EMPOWERING RURAL INDIA, ONE FARMER AT A TIME THROUGH KRASHI AND BANKING SURRAJ

*Startup Name: Satatgram Services Private Ltd, Jaipur, India*
*Founders: Chintu Kinger, Devendra Solanki, Pankaj Mehta, and Shambu Sahu*
*Email: director@satatgram.com*

**Abstract:** Problem Statement:
A farmer's prosperity rests on five essentials quality seeds, fertilizers, farm equipment, water, and affordable credit. Yet, millions of small and marginal farmers across India continue to struggle with access to these critical enablers. Despite being the backbone of India's food security, only about 45% of farms are mechanized, and formal credit penetration remains below 25%.
Solution: Satatgram Services Private Ltd was established to bridge these structural gaps through its twin rural empowerment missions — Krashi Surraj (for agricultural enablement) and Banking Surraj (for financial inclusion). The objective of the enterprise is to create a self-

reliant, technology-enabled rural ecosystem that empowers farmers through access to modern mechanization, formal finance, and sustainable livelihood opportunities, delivered via a human-assisted, AI-enabled last-mile model.
Market Opportunity: The total tractor market across Madhya Pradesh, Rajasthan, and Chhattisgarh is approximately 1 million units annually, indicating substantial demand for farm mechanization and allied services.
Business Model:

- Space Monetization: Demonstrations and branding of rural transport vehicles and agri-solutions at kiosks.
- Loan Syndication Fees: Acting as a Corporate Business Correspondent (BC) and Digital Loan Aggregator for partner banks and NBFCs.
- Third-Party Commissions: Earnings from insurance, deposits, and other financial products.
- Rental Income: Revenue from the farm equipment rental and CHC management services.

***Keywords:*** *Rural Development, Farm Mechanization, Financial Inclusion, Women Empowerment, Agri-Tech, Sustainable Livelihoods*

## BUSINESS NAME: MYLEADING CAMPUS

*Founder: Sagar Rouniyar*
*Email: sagar@myleadingcapmus.com*

**Abstract:** Problem statement:Educational institutions today face significant challenges in managing their day-to-day operations efficiently. Schools handle vast amounts of data related to students, teachers, staff, academics, attendance, fees, examinations, and communication. Most of these processes are often managed manually or through disconnected systems, leading to data redundancy, delays, human errors, and lack of transparency.
Solution: MyLeading Campus® managed by Snowball Innovations is a Government-of-India-recognised, award-winning school & college ERP software platform built for the Indian education ecosystem. They have developed 30 modules with 125+ features covering the entire institutional operations.
USP:

- Fast, tech-first approach: biometric and CCTV-based attendance system, automatic substitution for absent teachers.
- Full communication stack: integrated WhatsApp, Email and SMS for parents, teachers and admin.
- Mobile Apps for Students, Teachers, Parents and Admin.
- Cloud-based, reliable AWS infrastructure scaled to large volumes.
- Customisable to each institution's workflows, yet very easy to use and deploy.

Market size:

- India has over 30 crore students enrolled across schools and higher-education institutions.
- The domestic school-management software market alone is expected to reach approx. USD 1.5 billion in India by 2025.

- The target customers are private schools, colleges and educational groups that need to upgrade from manual or semi-digital processes to a unified ERP. With over 8.5 lakh private schools and thousands of private colleges, and increasing digital adoption, the growth potential is huge.

Business Model:

B2B: Pricing begins from Rs. 180 per student per year, as the digitisation cost to institutions.

***Keywords:*** *Cost-effective digitisation, auto substitution, biometric attendance*

## BUSINESS NAME: SENDHA NAMAK: REDEFINING HEALTHY SNACKING IN INDIA

*Founders: Devesh Gautam, Richa Sharma, Sirish Kumar Tarumani*
*Email: dgautam054@gmail.com*

**Abstract:** Problem Statement: Urban India is witnessing a sharp rise in lifestyle diseases driven by unhealthy eating habits and a lack of truly healthy, accessible food options. Consumers often associate "healthy food" with bland taste, while "tasty food" usually means heavy, processed, and calorie-dense meals. The absence of a reliable brand offering healthy yet flavour-rich meals for daily consumption leaves a major gap in the market.

Solution: Sendha Namak bridges this gap by crafting food that is purely healthy and genuinely delicious. They replace unhealthy ingredients—like refined flour, refined sugar, and preservatives—with 100 % natural and nutritious alternatives, without compromising on flavour. Their cafés, cloud kitchens, and subscription models provide personalised meal plans aligned with individual fitness and wellness goals.

Market Opportunity (TAM / SAM / SOM)

India's health-conscious consumer segment is expanding rapidly, projected to cross USD 30 billion by 2026. Within this, healthy-eating cafés and ready-to-eat markets account for approximately USD 6–8 billion, with organized players still capturing less than 20%. Sendha Namak targets this high-growth segment, positioning itself as a modern, transparent, and trusted health-food brand.

- TAM (Total Addressable Market): Entire Indian health and wellness food market (USD 30 B).
- SAM (Serviceable Available Market): Urban cafés and subscription market (USD 8 B).
- SOM (Serviceable Obtainable Market): Targeting 0.5 % market share in first 3 years (~USD 40 M).

Business Model

Sendha Namak operates through a hybrid model combining brick-and-mortar cafés, cloud kitchens, and corporate catering. Revenue streams include:

- Café Sales: Dine-in and takeaway at urban health hubs.
- Subscriptions: Tailored monthly meal plans based on individual fitness goals.
- Corporate Catering: Wholesome, hygienic meal services for offices and events.
- Own stores and Franchise: Asset-light growth through owned stores and franchised outlets in Tier-1 cities.

***Keywords:*** *Cafe sales, corporate catering, health-conscious consumers, asset light growth*

## BUSINESS NAME: SANITY GAMING LLP

*Brand Name: Toornify*
*Founder name: Aniket Pandey*
*Email Address: Pandeyaniketofficial@gmail.com*

**Abstract:** Problem statement: For millions of talented gamers in India and other parts of the world, the stage still feels distant. Tournaments rise and fall because of lack of structure, rewards lack transparency, and genuine talent often goes unseen. The country has now over 500 million gamers an entire generation which is ready to play but the system that supports them is still catching up.
Solution: Toornify is designed to bring structure and trust into a world that has long thrived on chaos. Organizers get access to professional tools to manage and a platform to promote events, players can find new events, register seamlessly and measure their growth and achievements and also be rewarded for doing what they love to do, Sponsors can directly engage with authentic audiences.
Market Opportunity: The gaming industry is projected to exceed $300 billion by 2030. But these numbers only tell a part of the story. The real story lies in the passion of young people from small towns, internet cafés, and dorm rooms, competing not for money alone but for recognition and respect.
Business Model: Platform fees, Memberships (subscription) and advertising

***Keywords:*** *Esports, Skill-Based Gaming, Competitive Ecosystem, Sportstech, Startup, Gaming*

## BUSINESS NAME : KRISHIRAFTAAR – YOGITHA BIOFARMING (P) LTD.

*Founder: Deepak Kumar*
*Email: krishiraftaar@gmail.com*

**Abstract :** Problem Statement:: Agriculture in India continues to face long-standing structural challenges that limit productivity, profitability, and long-term sustainability for farmers. Small and marginal farmers—who represent more than 85% of all agricultural households—are disproportionately affected due to limited access to timely information, scientific agronomy guidance, modern technologies, quality inputs, affordable farm machinery, soil diagnostics, and reliable market linkages. Traditional service delivery models remain fragmented, costly, and geographically inaccessible, often failing to build trust within rural communities. As a result, farmers experience low yields, inefficient crop decisions, high cultivation costs, limited bargaining power, and post-harvest losses.
Proposed Solution
KrishiRaftaar presents an integrated, accessible, and scalable phygital solution combining digital tools with trusted local physical support. The platform delivers soil testing, agronomy

advisory, inputs, farm machinery on rent, and market linkage solutions through village-level centres and mobile technologies. The model simplifies decision-making, reduces cultivation cost, improves productivity, and connects farmers directly to buyers.

Market Opportunity (TAM / SAM / SOM)

- TAM: India's agriculture sector > $400B with 140M+ farmers.
- SAM: Digital agriculture & village-level agri-services estimated at $40–50B.
- SOM: Initial target regions can generate $5–10M through soil testing, advisory, mechanization, and market linkage services.

Business Model

Revenue streams:

- Soil Testing – paid packages
- Advisory – subscription/crop-stage support
- Machinery Rental – commission-based
- Input Sales – margins on seeds/fertilizers
- Market Linkages – commission on B2B sales
- Technology – premium analytics & partnerships

***Keywords:*** *Agriculture, Phygital Model, Soil Testing, Agri-Tech, Market Linkage, Farm Advisory, Mechanization, Digital Agriculture, Rural Innovation, Smallholder Farmers.*

## BUSINESS NAME: DRONOVA TECHNOLOGY INDIA PVT LTD(SELF-GOVERNED FIRE FIGHTING EVTOL)

*Founder Name: Amit Neogie*
*Email Address: dronovatechnology@gmail.com*

**Abstract:** Problem statement: India faces over 1.6 million fire incidents every year, leading to thousands of casualties and major economic losses. With the rapid rise of high-rise buildings and urban density, conventional firefighting methods are increasingly ineffective due to limited accessibility. Currently, there are no advanced or autonomous firefighting drone systems available in the Indian market.

Solution: Dronova Technology India Pvt Ltd is developing India's first self-governed, AI-powered firefighting eVTOL (Electric Vertical Take-Off and Landing) system designed to revolutionize urban and industrial fire emergency response. The system integrates AI-driven real-time fire detection, thermal imaging, and LiDAR-based fire mapping for accurate targeting and suppression. Each eVTOL drone is equipped with a laser-guided capsule launcher for precision fire control, supported by slave drones carrying foam tanks that operate in a coordinated swarm to suppress fires at multiple points simultaneously.

The innovation features autonomous navigation, vector propulsion, jammer-resistant control systems, and kinetic energy recovery to enhance flight endurance. The solution minimizes human risk, reduces water wastage, and supports integration with smart city and disaster management infrastructures.

Market Opportunity: The total addressable market (TAM) for automated firefighting and emergency response drones in India is estimated at over ₹3,000 crore. The serviceable available

market (SAM) in metro cities such as Mumbai, Delhi, Bengaluru, and Kolkata is around ₹600 crore, while the initial serviceable obtainable market (SOM) from key clients such as fire departments, real estate developers, and industrial safety agencies is approximately ₹120 crore.
Business Model: Dronova's business model includes direct drone sales to government and private organizations, annual maintenance contracts, software-as-a-service (SaaS) based AI control systems, and partnerships with defense and emergency service agencies under the Make in India framework. The company plans to scale through technology licensing, production partnerships, and nationwide emergency drone networks.
This initiative aims to redefine India's fire emergency response ecosystem with self-governed aerial systems that ensure rapid action, enhanced safety, and smart city readiness.

***Keywords:*** *eVTOL, Firefighting Drone, AI, Autonomous System, Smart City, Disaster Management, Swarm Intelligence, Make in India*

## BUSINESS NAME: AYUVEDA GLOW

*Founder Name: Hemlata Kushwaha, Aruma Kushwaha, Arvind Kushwaha*
*Email Address: namaste@ayuvedaglow.com*

**Abstract:** Problem Statement **:** Modern consumers seek effective, sustainable, and transparent beauty products but often face a trade-off between authentic Ayurvedic wisdom (often messy, unstable, or low-performing) and modern cosmetic science (often containing synthetics or lacking holistic benefit). The market lacks a brand that authentically fuses ancient Indian herbal science with high-performance, eco-conscious, and stable modern formulations.
Solution:
AyuVeda Glow is a modern Ayurvedic beauty brand that provides Ancient Care for the Modern You. We fuse time-tested Indian herbal wisdom with cutting-edge cosmetic science to create products that are 100% herbal, Eco-Conscious, shelf-stable, and high-performing. Our Farm-to-Face philosophy ensures purity and sustainability. Our innovative formulations include waterless Ayurvedic serums, non-sticky hair serum oils, multifunctional skincare balms, targeted treatment toppers, and daily creams, reviving Ayurveda's authenticity while ensuring global appeal, modern performance, and scalability.
Market Opportunity (TAM/SAM/SOM):The Total Addressable Market (TAM) is the global personal care and cosmetics market, estimated at over USD 500 billion and growing.
The Serviceable Available Market (SAM) is the Ayurvedic and Natural/Organic segment within the global beauty market, which is projected to grow significantly faster than the conventional market. Our focus market, Serviceable Obtainable Market (SOM), comprises the urban, digitally native, and eco-conscious consumer base in India and key international markets (e.g., USA, UK, UAE) seeking premium, science-backed, natural, and sustainable beauty solutions. This niche is highly lucrative and exhibits strong loyalty to brands with authentic heritage and modern efficacy.
Business Model: AyuVeda Glow operates a Direct-to-Consumer (D2C) first model, primarily through our e-commerce platform and select marketplaces, ensuring high-margin realization and direct customer feedback.

- Product/Revenue Model: Selling a proprietary range of high-performance, 100% herbal, and eco-conscious modern Ayurvedic products.
- Sourcing & Manufacturing: Adopting a "Farm-to-Face" integrated supply chain model, we prioritize sustainable, transparent sourcing of high-quality Indian herbs and utilize advanced, eco-friendly formulation techniques to ensure product stability and efficacy without compromising natural integrity.
- Customer Acquisition: Leveraging content marketing that educates consumers on the fusion of Ayurveda and modern cosmetic science, focusing on sustainability, purity, and visible results.
- Value Proposition: Offering the purity of ancient Ayurveda with the performance, convenience, and shelf-stability required by the modern, urban consumer.

***Keywords:*** *Modern Ayurveda, Herbal Beauty, Eco-Conscious Skincare, Farm-to-Face, Sustainable Cosmetics, D2C Beauty.*

## BUSINESS NAME: RAMCHANDAALKA PVT LTD (DAZZEL SLEEP)

*Founder Name: Abhishek Singh*
*Email: waytoabhisheksingh@gmail.com*

**Abstract:** Problem Statement:The conventional mattresses, pillows, and cushions in India are dominated by synthetic foams, plastics, and chemical-based materials. These trap heat, degrade quickly, and generate non-biodegradable waste. They also contribute to poor ergonomics, allergic reactions, and long-term discomfort for users. Farmers producing natural by-products such as buckwheat hulls lack steady demand, leading to waste or underutilization of this sustainable resource. Without eco-friendly and ergonomic alternatives, both consumer health and environmental balance continue to deteriorate.
Solution:Dazzel Sleep is developing modular, refillable, ergonomic pillows and mattresses made using buckwheat hulls (also known as kuttu ke chilke), combined with breathable natural fabrics like cotton, khadi, and jute. Multiple pockets each filled with buckwheat hulls, allowing zonewise support. Adjustable filling, so that users can add or remove hulls to suit their comfort. A zero-foam, zero-chemical architecture—all natural, biodegradable, breathable, and long lasting. This product reimagines what it means to “sleep naturally” by going beyond chemical-free marketing and genuinely offering custom comfort with no synthetic material at all. The objectives of the innovation is to promote Sustainable Sleep and Rest Solutions.
Market size:TAM: The global sleep products market exceeds USD 80 billion, with India contributing USD 2.5–3 billion. Within this, the eco-friendly and natural segment—our core focus—is a fastgrowing niche projected to double its share by 2030.
SAM: The Serviceable Available Market is ~USD 300 million in India today, within the ecofriendly sleep products space, growing to ~USD 750 million by 2030.
SOM: Dazzel Sleep aims to capture 1–2% of the USD 300 million Indian ecofriendly sleep products market within 5 years, translating into ~USD 3–6 million in annual revenues
Business Model:

- Direct to Consumer (online sales)

- Retail Partnerships

***Keywords:*** *Sustainable sleeping, comfort tech, ergonomic features*

## BUSINESS NAME: MOGLIE E-WORLD

*Founder's Name: Ms. Sharmita Shah*
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**Abstract:** Problem Statement:
Transportation across the border is mired in financial transaction uncertainty, fraud, delivery risks, adulteration, inaccurate weighing practices, lack of accessibility to international traders and price instability.
Solution: Moglie e-World is a cross-border Omni channel e-catalogue marketplace designed to facilitate international trade by connecting manufacturers, farmers, buyers and sellers globally. The solution provides easy access and direct reach to manufacturers, farmers, international traders and marketplace ensuring competitive manufacturing pricing and sourcing authentic products directly.
The video call purchase facility helps buyers to choose products and do price negotiation effectively with sellers, saves buyer's time, money, visa charges, travelling expenses, hotel bills etc.
Market size: India's total export market size, combining merchandise and services, was an estimated USD 824.9 billion for the financial year 2024-25, a 6% increase over the previous year.
Business Model:15-25% commission on each product sold

***Keywords:*** *e-commerce, mcommerce, export and import, e-marketplace, omni channel e-catalogue*

## BUSINESS NAME: PUJADUKAAN.COM

*Founder Name: Ashis Gupta*
*Email: ashisgupta@pujadukaan.com*

**Abstract:** Problem Statement: Across India and abroad, families struggle to find authentic puja and wedding items specific to their community traditions. While services like catering, venue booking, and makeup are widely available, sourcing culturally accurate puja samagri, wedding essentials, and community-specific items remains difficult—especially for people living outside their home state. Additionally, millions of kilograms of used puja flowers get discarded as waste daily, contributing to pollution and disrupting local ecosystems.
Solution:
PujaDukaan.com is a dedicated e-commerce platform offering all puja and wedding items for multiple communities, ensuring authenticity and cultural correctness. they deliver PAN-India and internationally, making it easy for customers to access items otherwise unavailable in local markets. Products are sold through their website as well as Amazon, ensuring reach and trust.

In addition, PujaDukaan operates a waste puja flower collection initiative, enabling responsible disposal and promoting circular sustainability. With 14 years of industry experience and a strong supply chain, the company provides a one-stop solution for everything from daily puja essentials to community-specific wedding kits.

Market Opportunity (TAM/SAM/SOM):

India's religious and ceremonial economy is massive, with millions of households performing daily pujas and over 1 crore weddings annually. TAM includes the full Indian religious products and rituals market (~USD 54B in the year 2022 which growing at 10.3% CAGR and will become ~USD 126B by the year 2033). SAM focuses on online puja & wedding product buyers in India and NRIs globally (~USD 22B) . SOM captures culturally specific product segments underserved by traditional retail, giving them a strong entry point into a fragmented but high-demand market.

Business Model:

- They operate a hybrid D2C model:
- Online sales through PujaDukaan.com.
- Marketplace sales through Amazon India.
- Community-specific curated kits for weddings and rituals.
- B2B supply to temples, event planners, and ritual service providers.
- Waste-flower collection & upcycling partnerships.

***Keywords:*** *D2C, e-commerce, weddings and rituals, event management, waste flower collection & upcycling*

## BUSINESS NAME: BHARAT FISHMATE PRIVATE LIMITED

*Founder name: SURAJIT KASHYAPI*

*Email Address: bharatfishmate@gmail.com*

**Abstract:** Problem: India is the world's 2nd largest fish producer, yet quality fish seed—the most critical input in aquaculture—is largely unregulated and non-traceable. Following are important points surrounding this problem.

- Poor-Quality & Non-Traceable Seed leads extra stocking of fish seed, wrong type of stocking of fish seed results poor production.
- High Mortality & Disease results nature pollution.
- Low fish yield affects Impacting nearly 2 crore farmers and 10 crore people who are dependent on fisheries.
- Less production results less availability of digestible, mostly affordable protein source which create comparatively less carbon emission.

Solution: Bharat Fishmate provides a climate-resilient, technology-enabled fish seed supply chain, ensuring quality, traceability, and farmer support.

- Marketplace for Verified Fish Seed
- AI-Based Fish Seed Quality Scan
- Standardized Hatchery Onboarding
- Automated Seed Supply Chain
- Farmer Support Ecosystem

Market opportunity:
TAM is ₹65,000-crore fish seed market where SAM is ₹15000 Crore and SOM is ₹1000 Crore.
Business model : Bharat Fishmate operates a tech-enabled marketplace that earns margins by supplying quality-verified fish seed and providing end-to-end support to farmers through a scalable, traceable supply chain.
Keywords: technology marketplace, end to end support, aquaculture

## BUSINESS NAME: ANJANEYA AGRO MACHINE AND TOOL PVT. LTD.

*Founder Name: Debiprasad Bindhani*
*Email Id: debiprasad.bindhani@gmail.com*

**Abstract:** Anjaneya Agro Machine and Tools are created to serve marginal farmers. Our motto is to improve rural livelihood and to increase sustainability of marginal farmers by providing innovative agriculture machine at a price which can be afforded by women, small and marginal farmers.

Problem Statement:

- In spite of the large-scale mechanisation of agriculture in some parts of the country, most of the agricultural operations in larger parts are carried on by human hand, using simple and conventional tools and implements like wooden plough, sickle, etc.
- Small sized land holders in India cannot afford to purchase automated or larger machines to perform various operations of agriculture.
- They depend on labourers and animals for all these activities that deprive them from improvising the efficiency, productivity and rapidity of their produce.

Solution:

- This project aims to reduce the drudgery of labourers and animals in operations like mulching, spraying pesticides, spraying fertilizers, weeding and sowing seeds by utilizing a completely simple mechanical multi-purpose agriculture machine.
- The machine built is intended to reduce the labour and animal cost, increase the yield of the produce, reduce wastage of seeds, pesticides and fertilizers and thereby enhance the overall productivity.

Market Size:

- The market size is huge as the machine can help all farmers who are sowing pulse seed (Groundnut, Black gram, Bengal gram, white gram, other Dal related crop) Maize, vegetable seeds.
- The market size includes Farmers in different districts of Govt Agricultural Department (Krishi Vighyan Kendra), Local Dealer and Distributors and Direct sales
- Channel of sales include B2B, B2C, B2G, B2B2C

# BUSINESS NAME: INNOSPROUT PRIVATE LIMITED

*Founder Name : Dr Soma Das, M.Pharm , Ph.D. , P.G.D.H.A., F.I.I.Ch.E, F.I.C*
*Associate Professor cum Founder Director*
*ADAMAS UNIVERSITY_KOLKATA*
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**Abstract:** Problem Statement: The healthcare industry encounters numerous difficulties, including increasing costs, heightened demand, and the necessity for sustainability. Even with the expanding range of healthcare products in the marketplace, numerous consumers continue to struggle with obtaining safe, affordable, and effective options. Therefore, there is a need to develop affordable, sustainable, and user-friendly healthcare products that ensure both safety and accessibility for all segments of the population. Further, due to the need for renewable, eco-friendly, and biocompatible substitutes for synthetic items, bioproducts are becoming more and more important in modern medicine. This could encourage the circular bioeconomy in the production of healthcare.

Solution:

- Sprout Herbal Tea: Natural, plant based drinks
- Sprout Oro Care: A significant cure for oral diseases
- Spray bandage for wound healing
- Medicated transdermal patch
- Anti-inflammatory Topical Oil for Rheumatoid Arthritis

Market size: Sprout Oro Care :

According to the WHO Global Oral Health Status Report 2022, approximately 3.5 billion people worldwide are affected by oral diseases, with dental caries being the most prevalent condition. The global oral care market is anticipated to experience substantial growth, increasing from USD 55,390.1 million in 2025 to USD 91,087.6 million by 2035.

Spray Bandage for Wound Healing: The worldwide market for wound sprays was valued at US$ 520.7 Million in 2025 and is projected to grow at a compound annual growth rate (CAGR) of 4.2%, reaching US$ 694.5 Million by the conclusion of 2032.

pH Indicating Medicated Transdermal Patch: Global Transdermal Medical Patch Market Size is valued at USD 8.2 Bn in 2024 and is predicted to reach USD 13.1 Bn by the year 2034 at a 4.9% CAGR during the forecast period for 2025-2034.

Anti-inflammatory Topical Oil for Rheumatoid Arthritis: The global pain relief oil market size accounted for USD 4.55 billion in 2024 and is predicted to increase from USD 4.83 billion in 2025 to approximately USD 8.19 billion by 2034.

- Business Model
- Direct-to-Consumer (DTC)
- Retail Partnerships
- White-Label Opportunities
- Experience Boxes

***Keywords :*** *Wellness, health innovation, medication*

# BUSINESS NAME: INDOLE AGRO & FOODS PVT. LTD.

*Founder Name : Gourab Chatterjee*

**Abstract:** Problem Statement: Modern consumers crave clean, effective, and convenient wellness solutions but face a market flooded with sugar-laden, synthetic, and unverified alternatives. Over 73% of Indians suffer from protein deficiency and oxidative stress–related ailments, underscoring an urgent need for authentic personalized nutrition.

Solution: The Indian functional foods and beverages sector, currently valued at over USD 2 billion, continues to grow at a CAGR of more than 10% , where, Indole Agro & Foods with brand name Teadaan holds immense potential by scientifically validated, plant-based superfood premixes and herbal teas. Teadaan is a DPIIT-registered startup holding FSSAI Central License, ISO 9001, ISO 22000, and HACCP certification.

Teadaan delivers superfood-rich formulations for daily well-being through pure, natural, and convenient solutions. Each of the blends targets specific wellness goals, like immunity, relaxation, and digestion, creating a meaningful tea/premix experience that goes beyond just taste. By providing eco-friendly packaging with no plastic packaging for Herbal Tea Segment, Teadaan aligns with the growing demand for sustainable and health-conscious products, resonating with consumers who value both personal well-being and environmental responsibility. Teadaan offers science-backed, ethically sourced, and sustainably packaged superfood formulations that bridge traditional herbal knowledge with modern functional science. Their innovation lies in combining traditional Ayurveda with modern lifestyle needs. The teas are crafted using natural Indian herbs rich in antioxidants and phytochemicals, targeting wellness goals like boosting immunity, reducing oxidative stress, and aiding digestion. They use advanced food process engineering technology, including powder technology like spray drying for the development of microencapsulated powder, Freeze drying, tray drying & sustainable packaging to enhance the shelf-life of ingredients.

Market Size: Teadaan's market consists of health-conscious individuals, primarily urban professionals in India, who seek natural, wellness-focused products to support their busy lifestyles. TAM-10.60 Lakh Crore, SAM-₹1.07 Lakh Crore, SOM-Approx. 100 Crore

Business Model:

Both B2B and B2C. In B2B, both white label and private-label. There are primarily 6 varieties of tea with different packaging and price ranges that customers order online.

- Zesty Premium Priced Black Tea
- Herbal Infusion with natural herbs
- Chamomile Tea for stress relief and better sleep
- Daily Herbal Routine Combo
- Belly welly herbal infusion for digestive health
- Green Tea Tulsi antioxidant

***Keywords:*** *Wellness, Phytochemicals, Premixes, Superfoods, Immunity, Herbal teas, Ayurveda*

# BUSINESS NAME: ANJANEYA AGRO MACHINE AND TOOL PVT. LTD.

*Founder Name: Debiprasad Bindhani*
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Problem Statement:

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- Small sized land holders in India cannot afford to purchase automated or larger machines to perform various operations of agriculture.
- They depend on labourers and animals for all these activities that deprive them from improvising the efficiency, productivity and rapidity of their produce.
- Solution:
- Ø This project aims to reduce the drudgery of labourers and animals in operations like mulching, spraying pesticides, spraying fertilizers, weeding and sowing seeds by utilizing a completely simple mechanical multi-purpose agriculture machine.
- Ø The machine built is intended to reduce the labour and animal cost, increase the yield of the produce, reduce wastage of seeds, pesticides and fertilizers and thereby enhance the overall productivity.

Market Size:

- The market size is around INR 10 billion as the machine can help all famers who are sowing pulse seed (Groundnut, Black gram, Bengal gram, white gram other Dal related crop) Maize, vegetable seeds.

Business Model:

- The company is liaising with Agriculture Department for sale of products, expanding through dealers and distributors and has also opened its outlet.
- Channel of sales include B2B, B2C, B2G, B2B2C

***Keywords:*** *Agritech, Agro Mechanisation, Women empowerment, Farmer upliftment*

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Thank you for attending the 19th ISDSI-Global Conference, IMI Kolkata. We look forward to welcoming you again at the **XXIX Society of Operations Management (SOM)** Conference scheduled for December 19-21, 2026.

Approval, Accreditations & Membership


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