QUALITY HERALD

THE VOICE OF EXCELLENCE

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ABOUT THE JOURNAL

The May 2025 edition of Quality Herald explores the "Evolution of Work and Workforce – Past, Present, and Future," tracing the journey from human hands to digital minds. The features capture key transitions through the agricultural, industrial, and digital revolutions, spotlighting trends like automation, AI, hybrid work models, gig economy, and sustainability.

This edition offers expert insights, real-world success stories, and examines skills for the future, emphasizing adaptability, emotional intelligence, and lifelong learning. It presents a dynamic view of how businesses, employees, and leaders must evolve together — building resilience, promoting inclusion, and shaping a workforce ready for the future.

Title	Quality Herald – The Voice of Excellence
ISSN	[To be assigned]
Language	English
Frequency of Publication	Monthly
Starting Year	2023
Format of Publication	Online
Publisher	Quality Growth Services Private Limited (QGS Group)
Publisher Address	H-13, Kirti Nagar, New Delhi – 110015, India
Contact Numbers	+91-11-25431737 / 25918332 / 41425273
Emails	qgs@qgspl.com / info@qgspl.com
Website	www.qgspl.co.in
Editor-in-Chief	Dr. Sumit Shandilya (sumit@qgspl.com)
Managing Editor	Sachin Grover (sachin@qgspl.com)
Associate Editor	Surajit Mukhopadhyay

Aims	The magazine intends to be leading platform for sharing practical insights, innovative ideas and thought leadership in the field of Quality, Sustainability, Operations and Business Excellence. It seeks to inspire professionals, academicians and organisations to adopt and implement the quality driven approaches that leas continuous improvement and societal value.
Scope	A. Management System B. Sustainability and ESG practices C. Operational and Business Excellence D. Women empowerment E. Youth, Education and Future of Quality Leadership F. Industry 4.0 and Artificial Intelligence
Submission Email	info@qgspl.com
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EDITORIAL TEAM

Editor-in-Chief
Dr Sumit Shandilya
sumit@qgspl.com

Managing Editor
Surajit Mukhopadhyay
surajit@qgspl.com

Managing editor
Sachin grover
sachin@qgspl.com

Editorial Assistant

Prathamesh Shukla

Editorial Assistant

Mitali Bhatia

Editorial Assistant

Shruti Gupta

Editorial Assistant

Chanchal Massand

From the Editor

Dear Readers.

Happy New Year! As we step into 2025, I extend my warmest wishes to you for a year filled with growth, success, and excellence. It's an honour to welcome you to the first issue of Quality Herald – The Voice of Excellence, Volume 2.

This milestone reflects your unwavering support and engagement, which fuels our commitment to delivering thought-provoking insights and timely updates from the world of quality, innovation, and sustainability.

The new year is a perfect moment to explore how cutting-edge technologies and evolving industrial paradigms are shaping our future. This issue dives deep into Generative AI in Supply Chain Transformation, where we explore how AI-driven innovation is redefining agility and resilience in global operations and Industry 5.0, which focuses on the harmonious integration of human creativity and advanced technologies, paving the way for sustainable and adaptive industries.

Our news section highlights real-world applications of these advancements, from NETZSCH Pumps & Systems' leadership in sustainable quality management to discussions on how Industry 5.0 and ESG standards are reshaping industries and supply chains worldwide.

As we embark on this journey into Volume 2, I invite you to immerse yourself in the knowledge and insights shared within these pages. Together, let's champion the voice of excellence and embrace the opportunities 2025 has to offer.

Thank you for your continued trust and readership. Here's to another year of shared learning and achievement!

Warm regards

Dr. Sumit Shandilya
Chief Editor
Quality Herald – The Voice of Excellence

Sumit Shandilya
Editor-In-Chief

QGS Group wishes you a very

Happy

New Year

May the New Year bring you happiness, peace, and prosperity. Cheers to 2025!

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CONTACT US

- Email: info@iipeindia.com
- Telephone : +91-129-3541092
- Whatsapp/Call: +91-7042333220

Head office:
Quality Growth Services
H-13, Kirti Nagar, New Delhi -110015

Corporate office: Institute for Industrial Performance & Engagement 1421, Second Floor, Sector-21D, Faridabad, Haryana - 121001

Mr. Surajit Mukhopadhyay

The Reality of Industry 5.0 in Today's Global Perspective

Driving Forces of Modern Economic Growth

As the world rapidly advances in digital transformation, the concept of Industry 5.0 is emerging as the next frontier in the evolution of manufacturing and production systems. While Industry 4.0 revolutionized industries through automation, data exchange, and smart manufacturing, Industry 5.0 is centred around the idea of a more human-centric approach, where technology and human creativity combine to drive innovation, sustainability, and personalized production.

In this article, we explore the current reality of Industry 5.0 from a global perspective, analysing how it is being embraced, the challenges it faces, and the potential it holds for reshaping industries worldwide.

Defining Industry 5.0: A Human-Centric Revolution

Industry 5.0 introduces a significant shift in the role of humans within manufacturing ecosystems. While Industry 4.0 aimed to automate processes using robots, AI, and the Internet of Things (IoT), Industry 5.0 stresses human involvement in a more collaborative capacity. This collaboration between humans and machines (specifically collaborative robots, or cobots) is designed to enhance creativity, improve decision-making, and provide customized solutions that were previously impossible with traditional mass production techniques.

At its core, Industry 5.0 envisions a future where personalization, sustainability, and ethics drive industrial advancements, all while integrating human intelligence and problem-solving with the capabilities of AI and advanced robotics.

Global Adoption and Trends

While Industry 5.0 is still in its early stages, its foundational principles are being adopted across various sectors around the world. The integration of cobots, the growing emphasis on sustainability, and the shift towards personalized production are some of the key trends driving this transformation.

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Collaborative Robots (Cobots)

In Europe, for instance, the use of cobots has gained traction, especially in countries like Germany, where Industry 4.0 has already made significant strides. Companies are increasingly using cobots alongside human workers to enhance productivity while maintaining a focus on creativity and problem-solving. This symbiotic relationship between humans and machines is especially evident in the automotive industry, where cobots work alongside workers to assemble parts, inspect quality, and even handle dangerous tasks in hazardous environments.

Sustainability and Ethical Manufacturing

Sustainability is at the heart of Industry 5.0, and it's becoming a critical consideration across industries worldwide. For example, circular economy models, which focus on reusing and recycling resources, are being integrated into production processes. In countries like Japan and South Korea, companies are using AI and big data to predict resource consumption patterns and reduce waste in production cycles.

Moreover, there's a growing emphasis on ethical manufacturing. This is particularly significant as consumers demand more transparency and responsibility from businesses regarding environmental and social impacts. Brands in Europe, especially in the fashion, electronics, and automotive sectors, are adopting technologies that minimize their carbon footprints, optimize energy consumption, and ensure ethical supply chains.

Mass Customization and Personalized Products

The shift from mass production to mass customization is another hallmark of Industry 5.0. In industries like consumer goods, healthcare, and fashion, there is a growing demand for personalized products. Technologies like 3D printing, IoT, and advanced robotics are making this possible, allowing manufacturers to create products that are tailored to individual consumer needs, preferences, and even body types.

Personalized healthcare is a prime example. Wearable devices, equipped with sensors and IoT connectivity, collect vast amounts of data that can be analysed to offer personalized medical solutions, treatments, and products, moving towards a more individualized approach to healthcare delivery.

As we venture further into the 21st century, the landscape of manufacturing, production, and industrial practices is undergoing a transformation. The Fourth Industrial Revolution (Industry 4.0), marked by automation, data analytics, and artificial intelligence (AI), has already reshaped the global economy. Now, a new paradigm is emerging: Industry 5.0. This next phase shifts focus from automation and efficiency to human-centric innovation, where machines and robots collaborate with humans to achieve creative, personalized, and sustainable outcomes. But what is the true reality of Industry 5.0 today? How are industries globally integrating this vision, and what challenges remain in realizing its full potential?

Understanding Industry 5.0: A New Vision for Manufacturing

Industry 5.0 doesn't merely build upon the technologies introduced by Industry 4.0; it places human beings at the centre of industrial processes once again. While Industry 4.0 focused on replacing human labour with smart machines and systems, Industry 5.0 focuses on enhancing the role of the worker through collaboration between humans and collaborative robots (cobots). The ultimate goal is to create customized, sustainable, and innovative solutions that can adapt to individual needs, rather than relying on mass production alone.

In a sense, Industry 5.0 represents the re-humanization of industry. It envisions humans as co-creators who drive creativity, complex problem-solving, and the final decision-making processes, with machines providing assistance in tasks that require precision, strength, or repetitive actions. This partnership allows industries to improve their efficiency without eliminating jobs or reducing the value of human input.
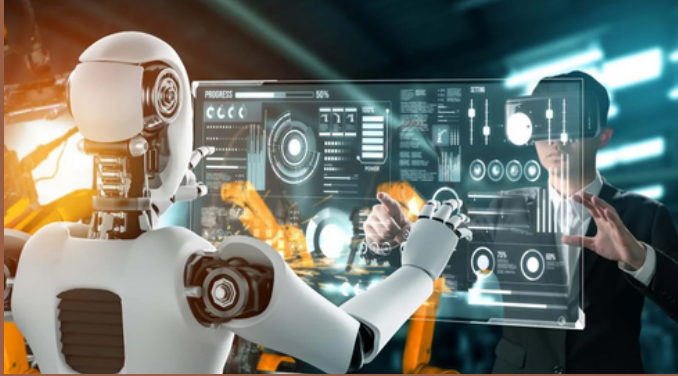
Europe: The Vanguard of Human-Machine Collaboration

Europe is at the forefront of adopting Industry 5.0 principles, particularly in countries like Germany, Sweden, and France. The European Union (EU) has set ambitious goals for sustainability and smart manufacturing, providing funding and research initiatives to help transition towards human-centred, sustainable production.

Germany's "Industry 5.0" initiatives, backed by companies like BMW and Siemens, are exploring how cobots can not only assist with traditional manufacturing processes but also enhance creativity and innovation in product design. Human workers now collaborate with AI systems to design products with greater personalization, meeting individual customer needs. Similarly, Sweden's Volvo Group is integrating AI and robotics to optimize workflows while keeping human workers central to decision-making processes.

Asia: Leading in Automation, but Slowly Shifting to Human-Centric Models

Countries like Japan and South Korea have long been leaders in robotics and automation. While these nations have excelled in the Industry 4.0 transition, they are gradually embracing Industry 5.0 as well. Japanese manufacturing giants like Toyota and Honda are developing cobots that work alongside human operators, enhancing worker safety and productivity without replacing the workforce.

Japan is also leveraging Industry 5.0 technologies to enhance personalized healthcare. Smart prosthetics and AI-powered diagnostics are designed with user-specific data, ensuring a high degree of personalization for each individual. This is a key example of how human-centric production can lead to better outcomes in sectors outside traditional manufacturing.

North America: Striving for Sustainability and Customization

In North America, Industry 5.0 is gaining ground, particularly in the automotive and consumer goods industries. Companies like Ford and General Motors are integrating AI and robotics to create more customized vehicles while maintaining flexible manufacturing processes. These companies are also taking steps toward more sustainable practices by focusing on green technologies and reducing their environmental footprint, aligning with the sustainability goals of Industry 5.0.

The U.S. has also seen a rise in personalized products driven by 3D printing and AI. For example, 3D-printed shoes and customized fashion are becoming more mainstream, with AI-powered platforms that tailor designs to individual consumer preferences, combining creativity with mass production capabilities.
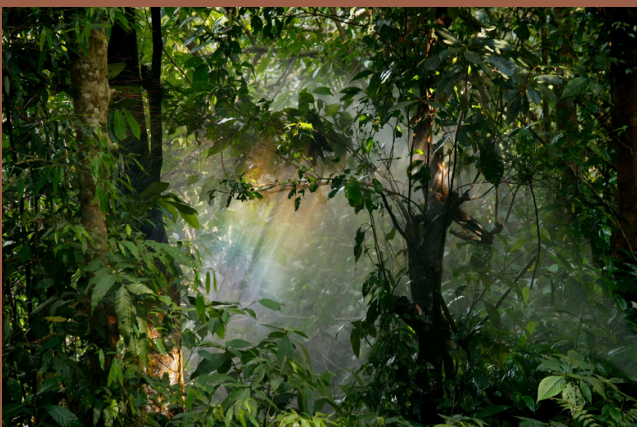
The Challenges of Implementing Industry 5.0

While Industry 5.0 holds great potential, there are still several hurdles to overcome before it can become the global norm. These challenges are not just technological, but also cultural, economic, and societal in nature.

High Costs and Technolo--gical Integration:

The integration of collaborative robots, AI systems, and IoT technologies requires substantial upfront investment. For many businesses, especially small and medium-sized enterprises (SMEs) in developing economies, the financial barrier to adopting these technologies remains high. Even for larger firms, integrating these systems into legacy infrastructure can be complex and costly.

Moreover, the rapid pace of technological change means companies must constantly update their systems and invest in research and development to stay ahead of competitors. This creates pressure to continually innovate and upgrade, which may be beyond the reach of many smaller businesses or those in developing countries.

Workforce Reskilling and Education

The shift towards Industry 5.0 requires a transformation in the workforce. Reskilling and upskilling are paramount as workers need to adapt to new technologies. Skills in robotics, data science, AI, and human-robot interaction are now in demand. However, many regions still face education gaps that limit the number of people who can take on these roles.

The reality is that Industry 5.0 may disrupt job markets. While new, high-skill jobs may emerge, low-skilled workers could face displacement unless they are given the tools to reskill. Governments and businesses will need to work together to invest in education programs, workforce development, and lifelong learning to ensure that people can transition into new roles created by technological advancements.

Cybersecurity and Data Privacy

As manufacturing becomes more interconnected, cybersecurity becomes an even more pressing issue. Industry 5.0 involves IoT systems that collect and share vast amounts of sensitive data in real-time. Securing these systems from cyber threats is crucial to protect intellectual property, consumer privacy, and operational stability.

Moreover, with the rise of personalized products and services, ensuring the privacy of consumer data becomes a critical concern. For example, the medical sector's adoption of AI and wearable devices to monitor health must be balanced with stringent measures to safeguard individuals' personal data from cyber threats.

Cultural and Societal Resistance

In many parts of the world, especially in developing countries, there may be cultural resistance to fully embracing advanced technologies. The fear of job loss due to automation and the potential for human obsolescence is a common concern. Industry 5.0's focus on collaboration rather than replacement offers a solution to this problem, but it requires a shift in mindset.

Governments and companies must focus on building public trust by emphasizing the benefits of human-technology collaboration and showcasing real-world examples where technology has improved lives and work environments.

The Road Ahead: Opportunities for the Global Economy

Despite these challenges, Industry 5.0 presents several exciting opportunities for the global economy:

a) Boosting Innovation and Creativity: By blending human ingenuity with the power of advanced technologies, businesses can unlock new levels of innovation. Customization, flexibility, and personalization will become increasingly possible, leading to the creation of entirely new industries, products, and services.

b) Enhanced Global Competitiveness: Countries and businesses that successfully implement Industry 5.0 will likely gain a competitive edge in the global market. The focus on personalized, sustainable, and ethically produced goods aligns well with evolving consumer expectations, giving these firms the opportunity to capture market share from competitors who are slower to adopt these technologies.

c) A More Sustainable Future: Industry 5.0 promotes the use of green technologies, renewable energy sources, and closed-loop production models, all of which are crucial to mitigating the effects of climate change. The shift towards sustainability can help global industries reduce their carbon footprints and contribute positively to global environmental goals.

The Future of Industry 5.0
A Global Opportunity

The true potential of Industry 5.0 lies in its ability to combine human creativity and machine efficiency to create highly personalized, sustainable, and innovative solutions across the globe. By fostering collaboration between humans and technology, industries can unlock new levels of productivity, reduce their environmental footprint, and create products that meet the unique needs of each individual.

As global leaders and companies continue to invest in reskilling, cybersecurity, and sustainability, Industry 5.0 has the potential to redefine manufacturing and industrial processes, making them more adaptive, human-friendly, and environmentally responsible.

Conclusion

The reality of Industry 5.0 is gradually taking shape, albeit at a varied pace across the globe. While it presents significant challenges, especially in terms of cost, workforce adaptation, and cultural acceptance, the opportunities it offers for innovation, sustainability, and global competitiveness are undeniable.

As businesses and governments begin to embrace the human-centric principles of Industry 5.0, we may witness a transformation in the way industries operate, not just from a technological standpoint, but from a social and ethical perspective as well. Ultimately, Industry 5.0 holds the potential to redefine the future of global manufacturing by fostering a harmonious relationship between humans and machines.

Ultimately, Industry 5.0 is not just a technological revolution; it is a societal shift toward more sustainable, equitable, and creative industrial practices. Embracing this new era will require collaboration among businesses, governments, and individuals— but the rewards will be worth the effort. The future of Industry 5.0 is bright, and its potential to improve the quality of life for people around the world makes it one of the most exciting developments in modern industry

Industry 5.0 Buzzwords Explained

Human-Centric Manufacturing

Focuses on integrating human creativity and problem-solving skills with advanced technologies like AI and robotics to create a balanced, efficient, and collaborative manufacturing environment.
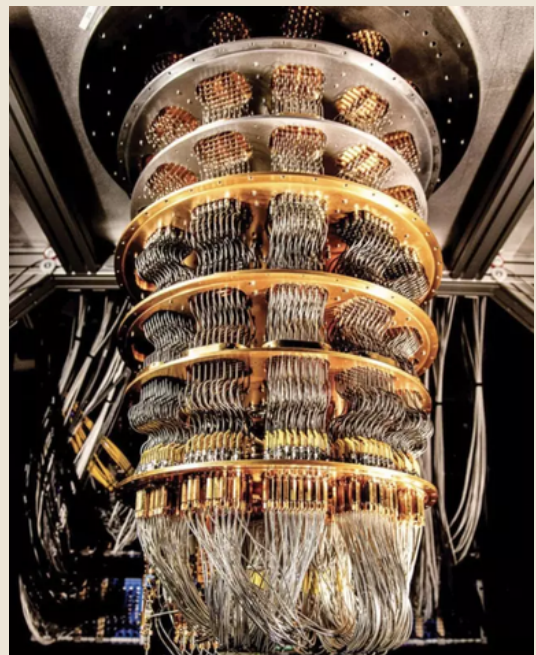

Cobots (Collaborative Robots)

Robots designed to work alongside humans safely and effectively, enhancing productivity and reducing physical strain on workers while ensuring seamless collaboration.

Quantum Computing

A future-facing technology that could revolutionize manufacturing and logistics by solving complex optimization problems at unprecedented speeds.

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HOW GENERATIVE AI CAN DRIVE SUPPLY CHAIN TRANSFORMATION?

Jai Rajwar
MBA operations
BML Munjal University

INTRODUCTION TO GENERATIVE AI

Gen AI is a sub division of Artificial Intelligence; this technology took the world in a frenzy with its capability to reproduce content independently. AI came into existence in 1950-1956, since then it evolved and matured, as technology advanced and humans' goal to implement more transistors on a processor die increased exponentially, this enabled us to increase the overall computation power, of our computers which created a strong foundation of strengthening our research in the field of AI. When AI was first introduced and applied in organizations, it was done to automate the mundane tasks that are common to all business organizations. However, at that time, we did not realize the full potential of AI in the business world.

In 2015, OpenAI was founded and established. Elon Musk and Sam Altman were serving as Board members, thisorganization opened doors to infinite possibilities. It was a private funded research Laboratory which served as a Non-Profit subsidiary and wanted to create solutions to contribute and benefit humanity as a whole in terms of economic growth and digital excellence. The main products of this organization are:

• **CHATGPT**: It's a generative Pre-trained Transformer, a text-based AI which generates output on a user prompt.

• **GPT-4:** Advanced version of ChatGPT, which provides safer and more accurate responses on a prompt.

• **DALL-E:** Creates hyper-realistic images and art after giving prompts.

HOW GEN-AI IS TRAINED?

Generative AI is trained from millions of datasets with the help of machine learning, once it's trained with enough data models it generates output after the user gives a prompt. It's developed by using neural networks known as Generative Adversarial Networks (GAN) and recurrent neural networks (RNN). There is a constant dissonance between Discriminator and Generator due to which the content gets more refined. A constant battle happens between generator's creativity and discriminator's judgment, in return the user gets a more refined form of content. It comprises of two aspects.

• GENERATOR: Primary function is to produce content.

• DISCRIMINATOR: Primary function is to provide constructive criticism to the content generated by the predecessor, i.e. Generator.

HOW GENERATIVE AI CAN BENEFIT US?

• It can serve as a powerful tool to augment human creativity with AI, to produce more influential and powerful content.

• In fields like fashion and product design, AI can help us to create content to cater to match our individual preferences.

• It can accelerate the development and research of material which will boost the material science engineering sector, and pharmaceutical sector.

IMPACT OF GENERATIVE AI IN GLOBAL SUPPLY-CHAIN

Supply chain has been continuously evolving and is aiming to achieve the most impactful benefits in cost reduction, high productivity levels and keeping the production levels in line with customer demand. However, it faces convolution due to increase in customer demands, unpredictable weather patterns, market fluctuations, economic conditions and global pandemic.

Nowadays, businesses depend on AI for optimizing their processes in Supply Chain Management. During the global pandemic, enterprises were desperate to put their AI supply chain pilots into use, but in the midst of the chaos, another development of AI known as Generative AI was being cradled by OpenAI, and this created an upheaval in global supply chain. By capitalizing the prowess of Generative AI, supply chain workforce can analyse massive volumes of data, generate insights and implement better decision-making processes in various aspects of production and supply chain. AI in supply chain management will help businesses become more resilient, agile and sustainable.

Supply chain techniques which are used in determining the quantity of raw material, workforce, production planning can benefit from the amalgamation with Generative AI. There are various techniques used in global supply chain.

- **DEMAND FORECASTING**: AI can analyse larger historical time series sales data, market trends, market entrants and exits, and other variables to create a real-time demand model that can accurately predict demand and keep market disruptions in check. It can also help maintain optimum inventory levels, production shifts, and distribution plans.

- **RISK MANAGEMENT**: Generative AI can create contingency plans by running various what-if scenarios. This way, the risk factors that shroud any business will not go unchecked. Various market conditions, weather patterns, and geopolitical events can be analyzed to identify potential supply chain risks. Generative AI can be instructed to provide risk assessments, simulations, and mitigation strategies

- **ASSESSMENT OF SUPPLIER RISK**: Generative AI can model data related to supplier performance, financial reports, and news articles related to suppliers, then it can identify patterns and trends related to supplier risk and formulate credit ratings for individual suppliers tied with a business organization, this will enable them to assess reliability, potential disruptions, and mitigate risks by diversifying their portfolio of suppliers so that one business does not get dependent on one sole supplier

- **EFFICIENT WAREHOUSE MANAGEMENT**: AI can optimize logistics networks, by considering factors such as warehouse locations, transport linkages, and demand patterns to generate the most efficient configuration, this will help us to reduce delivery times, lower costs, and improve service levels.

- **DYNAMIC ROUTE AND TRANSPORTATION OPTIMIZATION**: AI can generate efficient transportation plans, with minimized expenses and timely deliveries. AI can also assist in optimizing Vehicles and fleets by assessing vehicle wear and tear. It can continually update and optimize delivery or pickup routes, based on the factors like traffic conditions, weather patterns and prioritization of deliveries. This will lead to increased efficiency, reduced fuel consumption and improved delivery times.

- **ABNORMALITY DETECTION**: By analyzing the data sets across different supply chains. Generative AI can identify patterns and will detect any anomaly against any normal behavior in the dataset, this will enable businesses to quickly detect any potential bottlenecks, manufacturing defects, or erratic fluctuations in demand and provide strategies to counter them.

- **CONTRACTS ANALYSIS**: By extracting vital information from various legal contracts and generating summaries, generative AI can help in comparing contract terms with different suppliers, identify risks within the legalities of contracts and provide assistance to maximize compliance.

- **PREDICTIVE MAINTENANCE**: By collecting data from the sensors of the equipment and machines, Generative AI can create models and then these data models can be used to create maintenance plans to correspond to the time when the equipment is likely to fail. This allows manufacturers to adjust their maintenance schedules only when it is required, which in turn will reduce downtime and incurred costs.

ISSUES CONCERNING GENERATIVE AI

· **DEEPFAKES**: It has the ability to create highly convincing news articles, videos. This poses a serious concern and it can be leveraged by the terrorism groups which will pose a serious threat to national security.

· **JOB DISPLACEMENT:** The extensive use of AI can lead to disruptions in the Job space which are related to content creation, Data Entry and Administrative Jobs and other mundane menial jobs.

· **DEVELOPING BIASES:** When AI model estimates predictions, classifications on data sets that contain human biases, this creates discrimination and stereotypical behaviour in the content. To tackle this aspect Data augmentation should be there to diversify the training data to reduce bias.

· **DEVELOPING CYBER-ATTACKS AND MALWARE:** AI can be used to create new and more efficient ways to hack into sophisticated computer systems and networks, steal data and infect systems with Malware.

· **MANIPULATION OF PUBLIC OPINION:** AI can be used to create fake videos, but realistic which can be further used to spread propaganda.

REGULATORY MEASURES FOR ETHICAL AI DEVELOPMENT ACROSS COUNTRIES

Due to the rapid advancements in AI technology, strict regulations should be implemented to control the pace of development. Some of the countries have created a legal framework for ethical usage of OpenAI.

· **EUROPEAN COUNTRIES:** briefly banned OpenAI, until the company revamped its own data privacy capabilities and standards. The EU act would bifurcate AI apps into unacceptable risk, high risk and low-to-no risk categories.

· **WESTERN COUNTRIES:** Certain frameworks such as AI risk Management framework has been in the works.

·**UNITED KINGDOM:** The country has already created a policy paper called AI Regulation: A pro innovation approach that entails plans for AI regulation.

ENSURING ETHICAL COMPLIANCE IN GEN-AI FIELD: A NECESSARY STEP

Generative AI can attract a number of ethical issues surrounding data privacy, security policies and workforces, it can also produce a series of new business issues like misinformation, plagiarism and copyright infringements, so appropriate compliant regulations surrounding AI should be implemented so that there is no misuse of technology.

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Honoring the Spirit of Republic Day

As India marks its 76th Republic Day, we celebrate the adoption of our Constitution, a symbol of justice, liberty, equality, and fraternity. This day reminds us of our nation's resilience, diversity, and democratic ideals.

Republic Day is more than a historical milestone; it's a call to uphold these values in our daily lives. From the grandeur of the parade to the stories of progress, we see the strength of unity and innovation.

At QGS Group, we are inspired by this ethos of growth and inclusivity. We pledge to contribute meaningfully to our community and industry, aligning with the nation's spirit of progress.
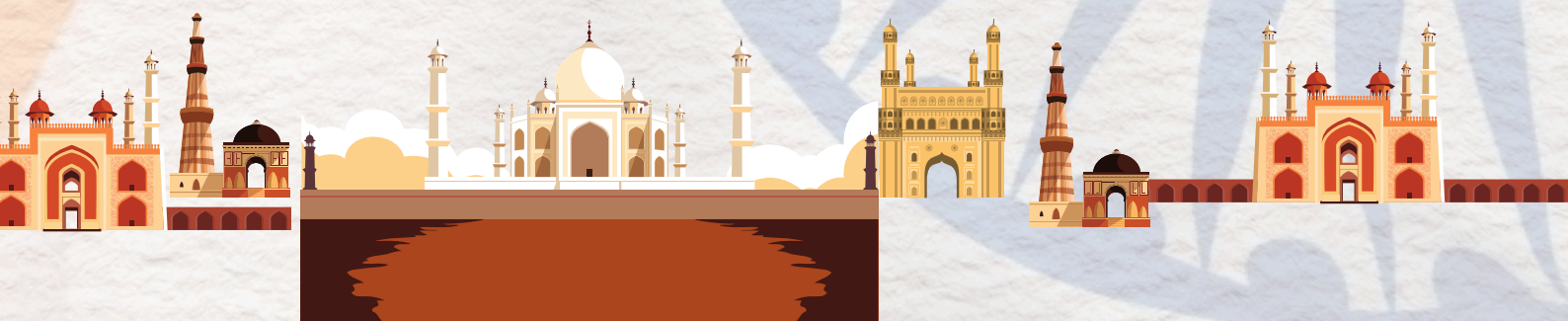
Let us honor the sacrifices of the past and work together for a brighter future.

Happy Republic Day.
Jai Hind!

26th **JANUARY**

H A P P Y
R E P U B L I C
— D A Y —

INDUSTRY 5.0

Industry 5.0 Community of Practice Discusses Future Directions

The Industry 5.0 Community of Practice recently convened a plenary session in Brussels, bringing together policymakers and industry stakeholders to chart the future of Industry 5.0. The session underscored the pivotal role of human-centric technological innovations in driving the sustainable competitiveness of European industries.

Key Highlights:

- **Human-Centric Approach:** Industry 5.0 focuses on harmonizing human creativity with advanced technologies to develop resilient and adaptable industrial processes. The approach is centered on enhancing worker satisfaction and maintaining a balance between automation and human contribution.
- **Sustainable Competitiveness:** The initiative is designed to bolster the sustainability of EU industries while maintaining a competitive edge in the global market. It aligns with stringent environmental and social governance standards, ensuring industries contribute to a greener and socially responsible future.
- **Policy Development**: Policymakers explored frameworks to accelerate the transition to Industry 5.0. These included funding research and innovation in emerging technologies and fostering public-private partnerships to facilitate

technology adoption.

- **Workforce Transformation:** Discussions also addressed the need for upskilling the workforce to meet the demands of Industry 5.0. By equipping employees with the necessary skills, industries can ensure a seamless integration of human and machine collaboration.

Future Outlook:

The discussions highlighted the significance of fostering collaboration between industry players and policymakers to actualize Industry 5.0 principles. By focusing on human-centric and sustainable approaches, the EU is poised to lead the next wave of industrial innovation, paving the way for a resilient and technologically advanced industrial ecosystem.

Dr Manmohan Singh
26/9/1937 - 26/12/2024

Dr. Manmohan Singh, the esteemed economist and former Prime Minister of India, stands as a towering figure in the nation's journey toward progress and prosperity. Renowned for his humility, intellect, and unwavering dedication to public service, Dr. Singh has left an indelible mark on India's economic and political landscape.

As the architect of India's economic liberalization in 1991, his visionary reforms opened the gates to globalization, transforming India into one of the fastest-growing economies in the world. His tenure as Prime Minister was characterized by inclusive policies, steadfast leadership, and a focus on strengthening India's position on the global stage.

Dr. Singh's legacy is not just one of economic brilliance but also of exemplary statesmanship, marked by his ability to lead with quiet determination and integrity. His work continues to inspire individuals and organizations alike, reminding us of the power of perseverance and principled leadership in shaping a better future.

We at QGS Group honor Dr. Manmohan Singh for his unparalleled contributions and for being a true torchbearer of India's growth and development.

Safety Management

NETZSCH Pumps & Systems Achieves Recertification in Quality, Environmental, and Occupational Health & Safety Management

NETZSCH Pumps & Systems, a global specialist in complex fluid management, has successfully extended its certifications for ISO 9001 (Quality Management), ISO 14001 (Environmental Management), and ISO 45001 (Occupational Health and Safety Management) for an additional three years.

Significance of Recertification:

This achievement underscores NETZSCH's ongoing commitment to excellence in product quality, environmental stewardship, and the health and safety of its employees. The recertification process involved rigorous external audits that evaluated the company's adherence to international standards and its continuous improvement initiatives.

Key Highlights:

- **Quality Management (ISO 9001):** NETZSCH's dedication to maintaining high-quality standards is evident in its precise manufacturing processes, regular employee training, and systematic feedback mechanisms aimed at exceeding customer expectations.
- **Environmental Management (ISO 14001):** The company has implemented strategies to reduce energy consumption, minimize emissions, and decrease waste, reflecting its commitment to environmental protection and sustainability.

Occupational Health and Safety (ISO 45001): NETZSCH prioritizes the well-being of its workforce through comprehensive safety protocols, continuous training, and occupational health assessments to ensure a safe and healthy workplace. The company's safety programs are designed to mitigate risks and foster a culture where employees feel empowered to voice concerns and contribute to improving workplace safety.

Continuous Improvement and Customer Focus:

- NETZSCH Pumps & Systems places a strong emphasis on continuous improvement, a principle central to all its management systems.
- Regular internal audits and feedback loops are integral to identifying areas for enhancement and ensuring that the company stays ahead of industry standards. The company also actively seeks customer feedback, using it to refine its products and services to better meet the evolving needs of its clientele.
- The integration of sustainability into their management systems aligns with the company's commitment to social responsibility. By focusing on sustainable practices, NETZSCH not only reduces its environmental impact but also contributes to a more sustainable future for all stakeholders.

Industry Recognition and Future Outlook:

- The successful recertification for ISO standards further solidifies NETZSCH's reputation as a leader in quality, environmental management, and occupational health and safety. As industries continue to face complex challenges, including evolving regulations and environmental concerns, NETZSCH is well-prepared to navigate these challenges through its robust management systems.
- Looking ahead, NETZSCH plans to continue investing in innovative technologies and sustainable practices to drive growth while maintaining the highest standards of quality and safety. The company is also committed to expanding its global reach and further enhancing its role as a trusted partner for fluid management solutions.
- In conclusion, the recertification of ISO 9001, ISO 14001, and ISO 45001 by NETZSCH Pumps & Systems highlights its unwavering dedication to excellence across quality, environmental management, and occupational health and safety. This achievement reaffirms the company's position as a leader in the industry, with a clear focus on sustainability and continuous improvement for a brighter future.

INDUSTRIAL REVOLUTION

WILL THE NEXT INDUSTRIAL REVOLUTION PUT HUMANS FIRST THIS TIME?
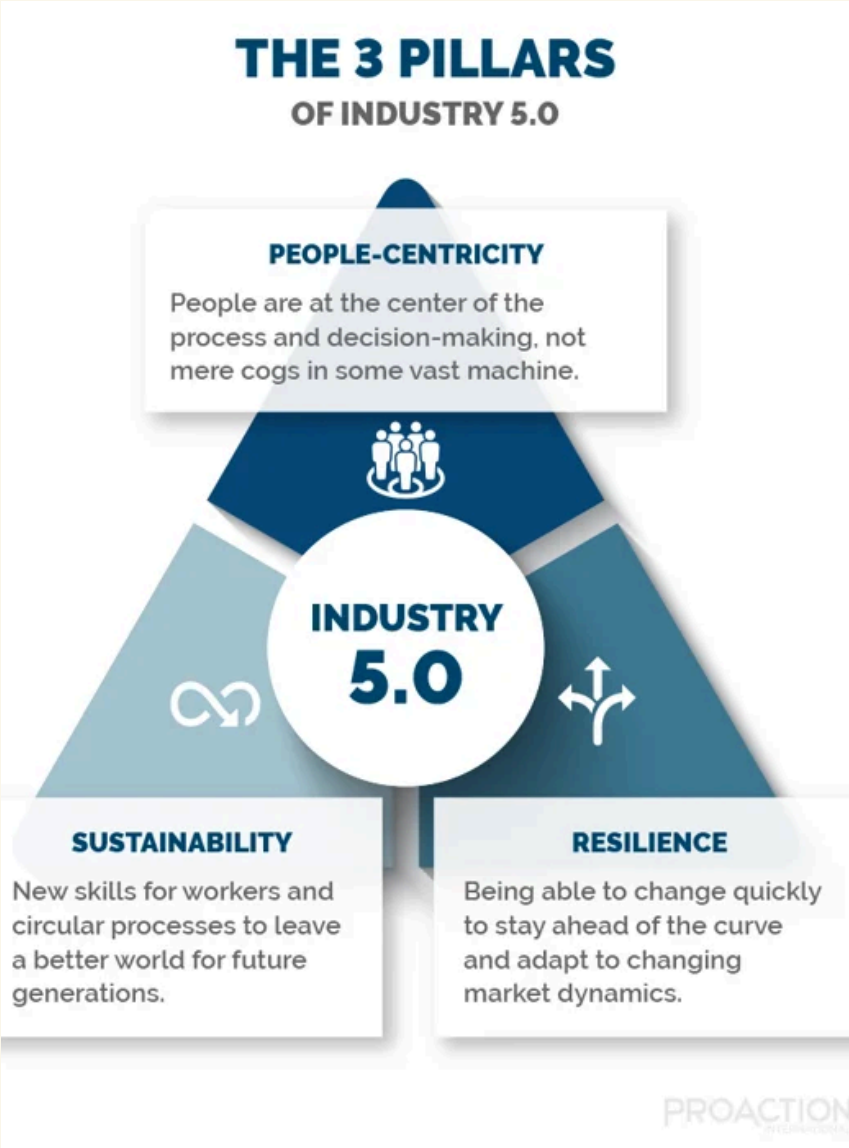
Industry 5.0 is set to transform workplaces and industrial operations by prioritizing human-centric technology innovations. The integration of advanced technologies, such as 6G's "sixth sense" capabilities, aims to enhance human-machine collaboration, leading to more efficient and adaptable industrial processes.

Key Insights:

- **Enhanced Human-Machine Collaboration:** Industry 5.0 envisions a future where humans and machines work together seamlessly, leveraging each other's strengths to improve productivity and innovation.

- **Technological Advancements:** The development of technologies like 6G is expected to provide enhanced connectivity and sensory capabilities, facilitating more intuitive interactions between humans and machines.

- **Focus on Human Well-being:** By placing humans at the center of industrial processes, Industry 5.0 aims to create work environments that are not only more efficient but also more satisfying and sustainable for workers.

Future Outlook:

The shift towards Industry 5.0 represents a significant change in industrial paradigms, emphasizing the importance of human roles in an increasingly automated world. This approach is anticipated to lead to more resilient and innovative industrial ecosystems.

SUSTAINABILITY IN
SUPPLY CHAIN MANAGEMENT

NAVIGATING ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) STANDARDS

As businesses increasingly recognize the importance of sustainability, integrating Environmental, Social, and Governance (ESG) criteria into supply chain management has become essential. Companies are striving to balance financial performance with ethical and sustainable practices, ensuring a resilient supply chain that can adapt to changing global challenges.

Key ESG Components in Supply Chain Management:

- **Environmental Responsibility**: Sustainable sourcing, reduction of carbon footprints, and responsible waste management are central to improving environmental outcomes.
- **Social Impact:** Fair labor practices, community engagement, and diversity and inclusion are key areas that businesses are addressing to ensure a positive social impact.
- **Governance Practices:** Transparent reporting, ethical business conduct, and robust risk management are critical for maintaining good governance within the supply chain.

REDUCE, REUSE, RECYCLE - THE MANTRA FOR A SUSTAINABLE SUPPLY CHAIN

Challenges and Opportunities:

Implementing ESG standards comes with challenges such as cost implications, regulatory compliance, and the need for stakeholder buy-in. However, businesses that integrate these standards can unlock opportunities such as improved brand reputation, access to sustainable financing, and long-term risk mitigation.

Technological Support for ESG Initiatives:

Technology plays a significant role in advancing ESG goals. Blockchain, data analytics, and IoT are being used to track and optimize ESG performance across supply chains. These technologies provide real-time visibility and accountability, helping companies meet stringent ESG criteria.

Case Study:

A leading global retailer recently adopted a comprehensive ESG strategy that enhanced its supply chain transparency and minimized environmental impact by 40%. The strategy integrated AI-driven analytics to monitor and report ESG performance, resulting in improved stakeholder engagement and regulatory compliance.

Future Outlook:

As ESG standards continue to evolve, organizations must remain agile in adopting best practices that address environmental, social, and governance challenges. Collaborative efforts between businesses, governments, and communities are essential to achieving sustainable and responsible supply chain management.

Important Dates in January
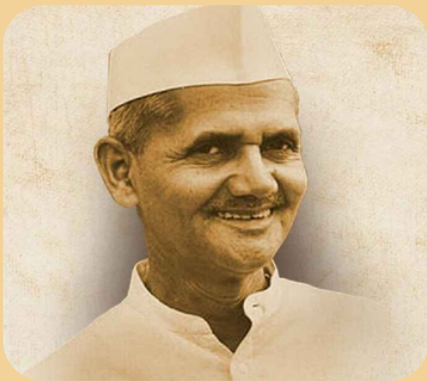
11 JANUARY – DEATH ANNIVERSARY OF LAL BAHADUR SHASTRI

He was the second Prime Minister of Independent India. He popularised the slogan 'Jai Jawan Jai Kisan' He actively participated in India's freedom struggle. Due to cardiac arrest, he died on 11 January 1966. And he was also known as the 'Man of Peace' globally.

11 JANUARY - NATIONAL HUMAN TRAFFICKING AWARENESS DAY

It is observed on 11 January to spread awareness about the persistent issue of human trafficking. This day aims is to raise awareness about the plight of human trafficking victims, as well as to promote and protect their rights.

### 15 JANUARY – INDIAN ARMY DAY

Every year 15 January is observed as Indian Army Day because on this day in 1949 field Marshal Kodandera M Cariappa took over as the first Commander-in-Chief of the Indian Army from General Sir Francis Butcher, the last British Commander-in-Chief.

24 JANUARY- NATIONAL GIRL CHILD DAY

On 24 January every year, National Girl Child Day is celebrated to highlight the inequalities faced by a majority of the girls in India, the importance of education, nutrition, legal rights, medical care and safety of girl children, etc.

Quality and Management Systems Crossword
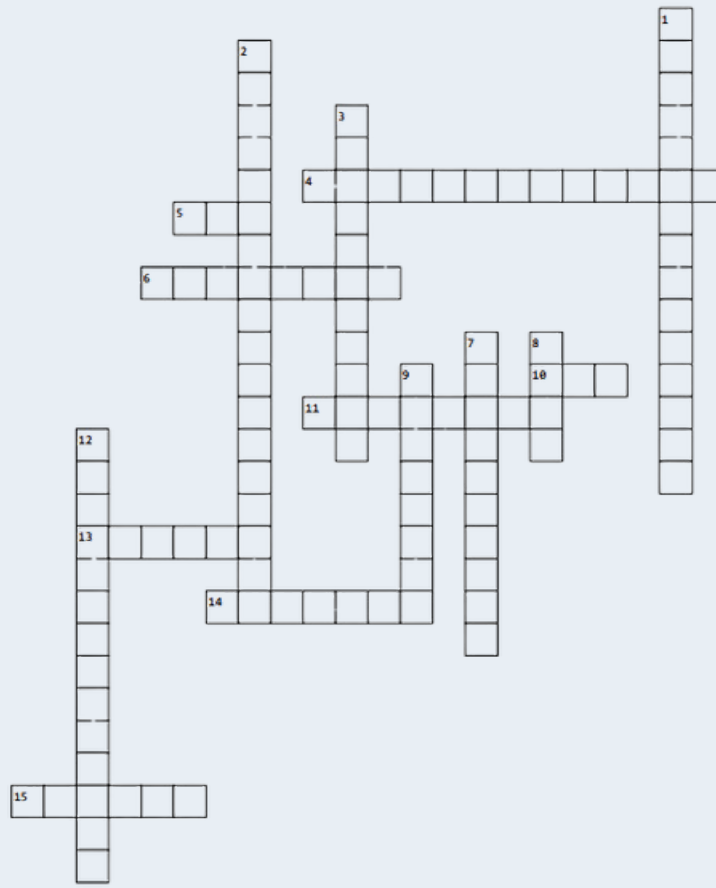
Across

4. The certification process ensuring a company complies with regulatory standards.

5. A key performance indicator (KPI) used to measure the efficiency of machine operations.

6. A methodology for identifying the root cause of a problem by asking "Why" five times.

10. A framework used to evaluate a company's corporate social responsibility (CSR).

11. A concept in Six Sigma that represents achieving near-perfect quality with minimal defects.

13. A key aspect of Industry 5.0 focusing on collaboration between humans and robots.

14. The ISO standard for quality management systems.

15. The continuous improvement philosophy originating from Japanese manufacturing.

Down

1. A popular quality control tool consisting of cause-and-effect diagrams.

2. A structured approach to identifying and eliminating bottlenecks in a system.

3. The approach used by companies to assess and improve the energy efficiency of operations.

7. The science of workplace design to improve human efficiency and comfort.

8. A green manufacturing strategy focused on reducing waste and resource usage.

9. The international standard for environmental management systems.

12. A systematic method to map out and analyze the steps in a business process.

CCC: A MANTRA FOR IMPROVEMENT- THE WAY I EXPERIENCED

I recall an early project in my career that left an indelible impression. The system we were tasked to manage had been in place for decades—comfortable, familiar, and deeply entrenched in the organization. But inefficiencies plagued its processes, affecting productivity and results. Everyone seemed hesitant to question it, resigned to the idea that "this is just how it works." It was at this point that I decided to adopt a new approach to tackle the issue: Challenge, Change, and Control (CCC).

Through CCC, I not only transformed that project but also discovered a powerful framework for continuous improvement. Whether for individuals or organizations, CCC serves as a dynamic cycle that fosters growth, innovation, and sustainable success.

Challenge: Question the Status Quo

Improvement begins by challenging the status quo. It requires the courage to question long-standing practices and confront what is familiar. Challenges push us to think differently and uncover hidden opportunities for growth.

1. For Individuals:
· Challenging the status quo means confronting personal habits, fears, or limitations. It's about asking, "Why do I do things this way?" and "What can I do better?"
· In that project, I decided to question why outdated processes were being used, even if they seemed sufficient to others. Taking that step felt risky, but it was necessary to ignite change.

2. For Organizations:
· Challenges within an organization often stem from market demands, technological disruptions, or inefficiencies. By encouraging employees to identify and address these issues, organizations can stay competitive.
· In my case, challenging the established system revealed inefficiencies that had gone unnoticed for years. It wasn't just about fixing a problem—it was about redefining how the team approached its work.
Challenging the status quo isn't easy, but it's the first step toward innovation and progress. Without it, growth remains a distant possibility.

Change: Embrace Transformation

Once the status quo is challenged, the next step is to embrace change. Change is the process of moving from the old to the new, often requiring adaptation, creativity, and persistence.

1. For Individuals:
· Change involves learning new skills, adapting to new roles, and leaving behind unproductive habits.
· For me, change meant redesigning workflows, integrating technology, and seeking feedback from the team to create a new, more efficient system.

2. For Organizations:
· Organizations must embrace change to evolve with the times. This includes implementing new processes, adopting innovative tools, and fostering a culture of adaptability.
· In that project, change involved training the team to adopt new processes and ensuring they understood the benefits. It was a challenge to shift mindsets, but the results were worth it.
Change is not always comfortable, but it is necessary. It bridges the gap between identifying problems and achieving solutions.

Control: Sustain the Progress

While challenges spark action and changes drive transformation, it is control that ensures improvements are sustainable. Control involves setting systems in place to monitor, evaluate, and maintain progress over time.

1.For Individuals:

·Control means self-discipline, goal-setting, and regularly reviewing progress.

·For me, this meant creating a system to track the new processes' effectiveness and holding myself accountable for maintaining the improvements.

2.For Organizations:

·Control mechanisms like performance metrics, governance structures, and regular evaluations ensure that changes are successfully integrated into operations.

·In the project, control involved establishing checkpoints to measure the new system's efficiency and making adjustments as needed.

Control is not about rigidity; it's about stability. It ensures that the momentum generated by challenge and change is not lost but sustained.

CCC as a Cycle: A Framework for Continuous Improvement

What makes CCC truly transformative is its cyclical nature. Each component—Challenge, Change, and Control—feeds into the next, creating a loop of continuous improvement:

1. Challenge Inspires Change:

· Questioning the status quo reveals opportunities for transformation.

· By challenging the outdated system, I unlocked the potential for innovation.

2. Change Requires Control:

· Implementing changes effectively requires monitoring, discipline, and consistency.

· The new workflows needed structured controls to ensure their success.

3. Control Prepares for New Challenges:

· Once control mechanisms are in place, the system is ready to face new challenges.

· With the success of the new process, I was better equipped to identify and tackle the next inefficiency.

This cycle doesn't end—it evolves. Each iteration builds on the last, fostering a culture of learning and adaptability.

Last but not the least: CCC as a Way of Life

That project taught me an invaluable lesson: improvement is not a one-time effort. It requires a continuous cycle of Challenge, Change, and Control. By questioning the norm, embracing transformation, and ensuring sustainability, we can create lasting progress.

For individuals, CCC provides a roadmap to overcome limitations, embrace growth, and sustain personal development. For organizations, it serves as a framework to foster innovation, resilience,

and excellence in an ever-changing world.

Today, I don't just see CCC as a mantra—it is a way of life. It reminds us that challenges are opportunities in disguise, change is the engine of growth, and control is the anchor of sustainability. When used as a cycle, CCC becomes a timeless tool for navigating the complexities of both personal and professional life, ensuring continuous improvement every step of the way.

Dr. Surendra P. Tiwari
Mr. Tiwari is a Director at QGS. His experience comes from different corporate houses at leadership roles in various organizations. Surendra leads Business Excellence Division of the company. He is an expert of international repute in the domain of Lean, Six Sigma (DMAIC and DFSS), TQM, TPM and QMS and, is considered among one of the highly respected faculties and consultants in the field. He has conducted over 12,000 hours of classroom trainings (through public and in-house courses in India, Europe, Africa and Middle East Asian countries) covering over 700 training programmes, 650 organizations in various sectors.

Experience
He has more than 40 years of experience with different organizations.

ISO-lated Humor

How do factories in Industry 5.0 do team-building exercises?

They hold "trust falls" between robots and humans... though the humans often regret trusting a robot with hydraulic arms!

Why did the robot join an art class in Industry 5.0?

It wanted to add a "human touch" to its designs, but all it painted were perfect circles. The teacher said, "You're too well-rounded for this class!"
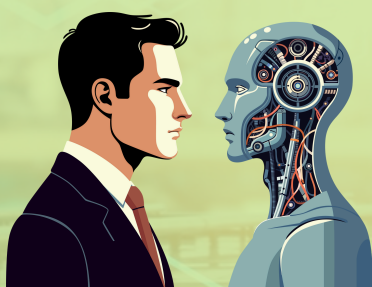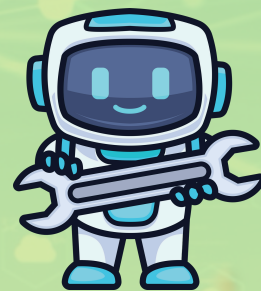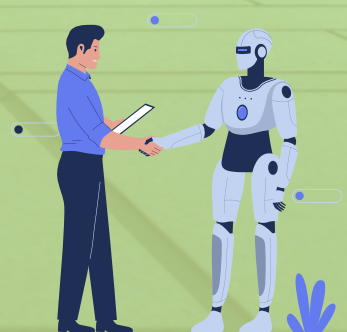
How do humans and robots settle disagreements in Industry 5.0?

With a dance-off! The robots dominate with flawless moves, but the humans win the crowd with their unpredictable "freestyle glitches."

What did the robot say to the human after their first collaborative project?

"You were amazing! But next time, let's leave the coffee spills out of the workflow."

GLIMPSES

Driving Excellence: HMCL Vadodara Plant proudly hosts the 8th batch of Certified PFMEA Practitioner Training Program. Based on AIAG-VDA 1st Edition, participants gain hands-on experience by applying concepts to real-world projects, fostering a culture of quality and innovation.

Strengthening Quality at HMCL Dharuhera: PFMEA Training conducted on 6-7 Dec'24 focused on enhancing risk management and fostering innovation through practical insights and collaborative learning.

Building a Sustainable Future: ESG Awareness Session conducted at Roop Auto emphasized environmental, social, and governance practices to drive responsible growth and lasting impact.

CONTACT US

☎ Our Phone
+91-11-25431737

🌐 Our Website
https://qgspl.co.in/

GLIMPSES

Empowering Excellence: IMS Internal Auditors Training at Hero MotoCorp, Dharuhera, from 11-13 Dec, focused on strengthening audit skills and enhancing integrated management systems for operational efficiency.

Advancing Quality Standards: Hero MotoCorp Limited, Tirupati, successfully hosted the 9th Batch of Project-Oriented Certified FMEA Practitioner Training, fostering practical expertise and proactive risk management.

Optimizing Project Excellence: A workshop on Managing Projects with Microsoft Project was conducted at Tenneco India, empowering teams of the US-based automotive supply chain MNC with advanced project management tools and strategies."

Upcoming Training Programmes

Jan 06-10, 2025
ISO 9001:2015 Lead Auditor

Jan. 13-17, 2025
ISO 14001 Lead Auditor

Starting from Jan. 18th
Six Sigma Black Belt

Jan. 20-21, 2025
ESG Awareness Session

Jan 27-31, 2025
Six Sigma Green Belt

Contact to Register or Inquire

🌐 **https://qgspl.co.in/**

📞 **+91-11-25431737**

AI and humans together are not just transforming industries— they're shaping a future where innovation meets humanity

QGS Group
Delivering excellence since 1993

www.qgspl.com | qgs@qgspl.com

Quality Herald: The Voice of Excellence
H-13, Kirti Nagar, New Delhi, India 110015

Phone : +91-11-25431737/25918332/41425273
Email: qgs@qgspl.com / info@qgspl.com