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Supply Chain 4.0

Challenges and Prospects

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ICLT 2017

The 9th International Conference on Logistics and Transport 2017

" Supply Chain 4.0: Challenges and Prospects "

INTRODUCTION

This is the 9th international conference organised by the Centre for Logistics Research at Thammasat Business School, Thammasat University and the Excellence Centre in Logistics and Supply Chain Management, Chiang Mai University. The conference has now become a major event for researchers in transport, logistics, supply and value chain management, especially in the Asia Pacific region. This year's event in Bangkok (Thailand), is a continuation of past successful conferences held in Chiang Mai (Thailand) 2009; Queenstown (New Zealand) 2010; Male (Maldives) 2011; Chiang Mai (Thailand) 2012; Kyoto (Japan) 2013; Kuala Lumpur (Malaysia) 2014; Lyon (France) 2015 and Singapore 2016. This year's event is held during November 1st to 4th, 2017.

Under the theme of "Supply Chain 4.0: Challenges and Prospects", the following topics were welcomed at the conference:

- Procurement & Supply Management
- Planning & Forecasting
- Relationship & Collaboration
- Production Planning & Operations
- Inventory Fulfilment
- International Logistics
- Humanitarian Logistics
- Maritime Logistics
- Logistics Services Providers
- Logistics Development Policies
- Supply Chain Design/Configuration
- Supply Chain Risk Management
- Sustainable Supply Chain
- Production & Inventory
- Supply Chain Performance
- Global Supply Chain
- Multimodal Transport
- Freight Logistics
- E-Logistics
- Logistics Facilitation

The conference best paper will be invited and considered for publication in the International Journal of Logistics Research and Applications.

WELCOME ADDRESS FROM THE CONFERENCE CHAIRS

On behalf of the organizing committee, we would like to welcome all participants to the 9th International Conference on Logistics and Transport (ICLT2017). It has been 9 years since the first conference was hosted in Chiang Mai (Thailand) and this year we are back in Thailand. This ICLT conference is expected to continue on an annual basis in order to facilitate the sharing of ideas, research findings, and teaching directions related to logistics and supply chain from an academic perspective. This year, we have 46 papers from 16 countries from Australia, Austria, Finland, France, India, Indonesia, Japan, Mexico, New Zealand, Singapore, South Africa, Taiwan, United Kingdom, United States of America, and Thailand.

The theme for this year's event is "Supply Chain 4.0: Challenges and Prospects". Industry 4.0, Thailand 4.0, logistics & supply chain 4.0 highlights the importance of information and communication technology in shifting management paradigms. These are exciting times for our research field as current best practices may become obsolete in the near future due to this new revolution.

The accelerated digitization of supply chain and many new technologies developed have now become issues for further investigation. Organization can benefit from the real-time availability of big data and automation of processes. Internet of Things, Smart Factory and Big Data are three key aspects of Industry 4.0 that impact the whole supply chain.

We would like to sincerely thank all presenters, reviewers, our scientific committees, and keynote speakers for their appreciated contribution. We cannot forget the important contribution of our main sponsor, SeaOil (Public) Co. Ltd, who has supported us through the years.

We also apologise in advance if there are any difficulties you may encounter while participating the conference. Finally, we hope that you will enjoy this conference and we hope that the deliberations will be fruitful and successful.

Ruth Banomyong
ICLT General Chair

Apichat Sopadang
ICLT General Chair

RESTRUCTURING A PRE-EXISTING SUPPLY NETWORK IN THE FMCG INDUSTRY AND ANALYSIS OF STAKEHOLDERS CONFLICTS

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ABSTRACT

Purpose: This paper seeks to provide an understanding of the key parameters to consider in the decision making process for restructuring effectively and efficiently a pre-existing supply network of a fast-moving consumer goods (FMCG) supply network in the Asia Pacific region. The perspectives of the various stakeholders are compared, and the differences highlighted.

Design/methodology/approach: We apply the combined fuzzy Analytic Hierarchy Process (fAHP) and fuzzy TOPSIS to select the critical parameters to consider in the decision making process, to determine weights of the criteria/sub-criteria, and finally identify the best actionable strategies to implement across the supply network.

Findings: The preliminary results suggest that the manufacturer and distributors have different motivations and hence have conflicting objectives for the optimization of their respective supply chains. While the manufacturer focuses on enhancing the availability of goods on the shelves of the final stores, the distributor would rather prioritize on cost savings and inventory minimization. This leads to myopic optimization and highlights an opportunity for better synchronization.

Research limitations/implications: The main limitation of this work is the sample size used in the analysis, leaving us with a guarded conclusion. MCDM would need to be extended to include the conflicting motivations and objectives for bi-level optimization

Practical implications: The practical results provided by this paper bring a real-life understanding of the stakeholders' conflicting views and motivations for the optimization of their supply chains.

Originality/value: It adds value to the supply chain management literature by providing an actual case study. This case is able to support bi-level decision making when designing cost effective and time responsive supply networks, taking note of the various stakeholders' objectives when framing a model for solution.

Keywords: Supply network restructuring, MCDM, Fuzzy-AHP, Fuzzy-TOPSIS

WHEN TIMELY INFORMATION SHARING IS UNDESIRABLE IN SUPPLY CHAIN: JUSTIFICATION AND FINANCIAL IMPACT

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ABSTRACT

Purpose: Supply chain literature clearly demonstrated the value of timely and relevant information sharing between supply chain partners. However, high demand volatility and potential loss of profit from design piracy force retailers to delay sharing product design information with trading partners. This forces the trading partners to deviate from the optimal production/distribution process and incur financial penalties. This research presents a DSS model to calculate the financial impact of delayed information sharing on retailer based on the financial penalty incurred by suppliers.

Design/methodology/approach: The DSS is based formulated as a non-linear programming model based on an earlier work by the authors published in IJPR in 2013. The model is implemented by a program written in R which interfaces with Excel for running some statistical routines and capturing the program output.

Findings: A naïve assumption is if the manufacturer a penalty of $1 per unit for information delay, the retailer must pay an additional $1/unit. Our analysis shows that higher demand volatility lowers the penalty for the retailer. We also find that per-unit premium increases asymptotically with a marginal increase in penalty.

Research limitations/implications: Current literature does not quantify the relationship between financial benefit and the extent of delay. So, the optimal time for product information release to manufacturer cannot be calculated.

Practical implications: The insight from DSS could significantly help supply chain partners in contract negotiation when they are forced not to share timely information.

Originality/value: The model presented is based on other models published by authors in journals such as *IJPR, PPC*. The contribution of this research is the ability to quantify financial impact in supply chain when the partners cannot share timely information for various reasons.

Keywords: DSS, Economic impact, Information delay

BUSINESS PERFORMANCE AND PROCESSED FRUIT EXPORT SUPPLY CHAIN IMPROVEMENT OF THAI SMES TO INDIA MARKET

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ABSTRACT

Purpose: This paper aims to explore business performance of Thai small to medium-sized enterprises (SMEs) manufacturing processed fruits to enhance processed fruit export supply chain from Thailand to India market.

Design/methodology/approach: The Organizational, Technological, and Environmental Framework (OTE Framework) by Tornatzky and Fleischer (1990) has been employed to develop a framework of this study. The business performance was measured based on three dimensions; organization, technology, and environment. After that, perception of exporting risk to India market will be asked. Then the relationship among factors were tested by Paired-Sample t-test approach. As for data collection, questionnaires were gathered totally from 111 processed-fruit SMEs in Thailand, according form Department of Business Development (2017), especially tamarind, longan, and coconut firms.

Findings: There are some significant key success factors applied by Thai SMEs. Medium-sized enterprises with long business experience accepted that CEO's experience, production technology, and production flexibility are key success factors, while small-sized enterprises regarded product quality and good relationship between owners and employees as their key success factors. The finding also reveals that almost of the sample group want to expand their market to India by both its brand and OEM, although Indian consumer behaviour and import process are concluded as an exporting risk.

Research limitations/implications (if applicable):

Practical implications (if applicable):

Originality/value: The research provides business potential information of Thai processed-fruit SMEs which government can promote them to get to a new interesting market like India market.

Keywords: Business performance, Export supply chain, Processed fruit, SMEs

• Maximum is 300-350 words in total.

IMPLEMENTING SUCCESSFUL LOGISTICS OUTSOURCING CONTRACTS: THE CASE OF 3PL PROVIDERS AND USERS IN SINGAPORE

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ABSTRACT

Purpose: This paper examines how a logistics outsourcing contract can be successfully implemented from the perspectives of both 3PL providers and users in the context of Singapore.

Design/methodology/approach: The case study design is adopted to empirically examine logistics outsourcing practices. D**ata** are collected through in-depth interviews with senior logistics and supply chain managers **from t**hree 3PL service providers (logistics outsourcing firms) and one 3PL user (logistics outsourcer). These companies are engaged comprehensively in logistics outsourcing activities, and encompass both international firms that have their operations in Singapore and those local firms whose operations expand internationally.

Findings: Results suggest that although there are some differences between the 3PL user and 3PL providers, and among the 3PL providers themselves, most of the eight critical aspects of successful logistics outsourcing contracts are common between them and are in line with the relevant literature. What seems unclear in the literature however, is how cultural differences can make or break a logistics outsourcing contract. This research also confirms that these differences **can** be countered by using the "think globa**lly**, act local**ly**" business strategy.

Research limitations/implications (if applicable): The major limitation of this research is the use of small number of cases. Future research needs to employ more cases from both 3PL provider's and user's perspectives.

Practical implications (if applicable): This research confirms the **significance** of **investigating the** key success factors **of** logistics outsourcing **contract implementation** from both 3PL provider'**s** and user's perspectives, as well as the need for "cultural intelligent" through cultural training.

Originality/value: This is one of the few research on logistics outsourcing that employs case study design from both 3PL provider's and user's perspectives.

Keywords: logistics outsourcing, 3PL, critical success factors, Singapore

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BIBLIOMETRIC MAPPING OF HUMANITARIAN LOGISTICS RESEARCH

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ABSTRACT

Purpose: The purpose of this paper is to present the first bibliometric mapping analysis of the field of humanitarian logistics. Bibliometric mapping is a powerful tool for studying the structure and the dynamics of scientific fields.

Design/methodology/approach: A data set of 309 peer-reviewed articles published in leading journals in the field of humanitarian logistics was constructed. With the help of various computer algorithms, key terms were identified in the titles and abstracts of the articles and co-occurrence frequencies of these key terms were calculated. Based on the co-occurrence frequencies, the term map was constructed.

Findings: The term map provides a visual representation of the humanitarian logistics field by showing the relations between 158 key terms in the field. The term map that was produced contains three clusters, namely a model cluster, an aid cluster, and an issue cluster.

Research limitations/implications (if applicable): This paper focused on term maps based on term co-occurrences. There are various types of bibliometric maps can be distinguished, which each visualize the structure of a scientific field from a different point of view. Some maps, for example, show relations between authors or journals based on co-citation data.

Practical implications (if applicable): Researchers can utilize bibliometric maps to obtain a better understanding of the field in which they are working.

Originality/value: The authors analyse the broadest set of papers (309) ever covered in previous literature reviews on humanitarian logistics. This paper is also the first in humanitarian logistics to use bibliometric mapping analysis as the main methodology to analyse literature in a structured way, which is of particular value to the academic community as well as practitioners.

Keywords: Bibliometric mapping, Term map, Humanitarian logistics

AN ANALYSIS OF THE COMPETITIVE POSITION OF THE EURASIAN LAND BRIDGE, CHINA TO GERMANY

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ABSTRACT

Purpose: The purpose of this paper is to highlight the realities of commercial transport operations against the Chinese 'One Belt, One Road initiative. .

Design/methodology/approach: This paper analyses foreign trade routes used by the Changchun automobile manufacturer in supplying parts to the Volkswagen in Wolfsburg, Germany. An established multimodal transport cost model is used as a framework to standardise the data which were obtained from commercial sources. The implementation of the 'One Belt and One Road' strategy provides the political context for the commerce-based case study. It is shown that the choice of multimodal transport route is directly related to the type and value of the goods, the handling capacity of the terminal, clearance rates, transport time and transport cost.

The land bridge route is tested against traditional scheduled shipping services using 20 foot and 40 foot ISO standard container units. Results suggest that, although the land bridge via China, Kazakhstan and Russia is considerable more expensive than traditional shipping services, its speed provides a critical advantage for certain cargoes both within the automotive sector and beyond it.

Findings: The land bridge route is tested against traditional scheduled shipping services using 20 foot and 40 foot ISO standard container units. Results suggest that, although the land bridge via China, Kazakhstan and Russia is considerably more expensive than traditional shipping services, its speed provides a critical advantage for certain cargoes both within the automotive sector and beyond it.

Research limitations/implications Only one company formed the focus of analysis. Use of data from other companies and sources would strengthen the findings particularly if time-series data were used. .

Practical implications The paper demonstrates the position of the Eurasian Landbridge in relation to the deep-sea shipping and air freight alternatives. .

Originality/value: This study represents one of the first of its kind to present a detailed assessment of the performance of the landbridge route against the main alternatives.

Keywords: Landbridge, One Belt, One Road; Transport Costs; Schedules

INFLUENCES OF INFORMATION SHARING ON AIRPORT SUSTAINABILTIY DEVELOPMENT

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ABSTRACT

Purpose: This paper aims to explore contributions of information and knowledge sharing to establish long- term collaboration between airport stakeholders and ultimately to develop an airport in a sustainable way.

Design/methodology/approach: exploratory research is considered as the fundamental research method for this study as airports especially in Thailand do not recognises importance of knowledge sharing and stakeholder engaging on balancing economic, social and environment benefits of airports. Focus group meeting and questionnaire are used for collecting data from perspectives of stakeholders and airport operators. The data collected are then analysed on the basis of descriptive statistical analysis.

Findings: there are wide varieties of stakeholders involved in running an airport. Sharing information owned by each party is important for operating aircrafts and handling passenger and cargo in timely and safely manner. This shared information is also crucial for the airport operator in designing the development plan of airside and landside infrastructures with less impacts on environment and communities surrounded the airport. it will also enable the airport to successfully engage the stakeholders not only in the daily operations but also in the long-term development. To sustain this sustainable development requires the airport to integrate economic, environmental and social performance altogether. However, the study find that economic benefits seems to be the prime performance dimension of airports in Thailand.

Research limitations/implications (if applicable): as the findings of research shows that a sustainable quality system is considered as a critical success factor for an airport to sustain its economic development with less impacts on environment and communities around the airport.

Originality/value: Although there are numbers of research focusing on airport planning and developing, there are gaps in integrating environmental and social considerations into the airport development plan. Moreover, contributing factors especially for airports in Thailand in effectively carrying out these three combinations seems to be insufficient.

Keywords: Airport, Sustainability development, Information and knowledge sharing

- Maximum is 300-350 words in total.

The Effect of Value Chain Capabilities on Sustainable Performance: A Study of the Airline Industry

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ABSTRACT

Purpose: This research examines the value chain capabilities and their effect on sustainable performance of airlines in the US and Asia Pacific markets and discusses some resulting academic and managerial implications.

Research Design and Methodology: The initial phase of this research involves the case study approach with the full-service airline industry. Three major airlines, one is based in North America and the other two in Australasia, were chosen as case studies, in which six in-depth phone and Skype interviews with the senior executives in charge of respective value chain areas in each airline were conducted i.e. Operations, Sales and Marketing, Human Resources, Technology, Customer Service and IT. This is to investigate the effect the value chain capabilities on sustainable firm performance in terms of economic, social and environmental performance.

Findings: It is found that there is a positive relationship between value chain capabilities and sustainable firm performance. Especially, it is consistently acknowledged that resource-based value chain capability such as people and technology are at the core of sustainable performance but management-based value chain capability such as meritocracy, high performing teams and culture are also fundamental and in line with the relevant theories on how firms develop capabilities to improve performance.

Research limitations/implications: The main limitation of this research is that the data collected are only from the initial phase of a bigger study and thus may not fully unveil the whole findings.

Practical implications (if applicable): This research recognises that there are cultural differences between the airlines and their performance can be reflected by cultural norms. Therefore, monetary reward for high performance by staff is not necessarily accepted in some companies' or national cultures.

Originality/value: There is a link between sustainability and core business which has not been sufficiently recognized by companies as an opportunity but presents great potential for companies. This research is therefore original as there has not been much research on how value chain capabilities can be employed to result in sustainable performance.

Key Words: *Value chain, capabilities, airline value chain, sustainability*

SMEs Participation and Success Obstacles in Public Procurement: A Systematic Review

~~Factors Hindering SMEs Participation and Success in Public Procurement Market: A systematic Review and Conceptual Model~~

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Abstract

Purpose: There are numerous factors which have been identified in the literature as potential obstacles for SMEs participation and success in public procurement market. This study systematically reviews these factors and proposes a conceptual framework to research the relationships between these factors and SMEs participation and success in public procurement market.

Design/methodology/approach: The research will be conducted employing the critical and systematic review of the extant literature, encompassing studies conducted in developed and developing countries and across business sectors. A conceptual framework for further research will be subsequently proposed based on the results of literature review and relevant theories.

Findings: Several factors have been identified as potential obstacles for SMEs participation and success in public procurement market. These factors could be classified into several categories. SME-related factors include lack of sufficient access to technology and ICT, lack of administrative staff, low annual firm turnover, non-efficient management in firms, and firm size. Financial-related obstacles include lack of necessary financing, and high interest rate associated with their loans. Information asymmetry-related obstacles are unawareness about contract conditions, and lack of knowledge about the process. Regulatory-related factors include complexities of the regulatory framework, and strict participation conditions. Cultural-related variables are lack of reputation, and buying non-local bias. Meanwhile, factors relating to contract conditions are size of the contract, complicated lengthy contracts, lack of skilled staff, and awarding criteria.

Research limitations (if applicable): The main limitation of this research lies in its current method of literature review. A subsequent empirical validation is necessary to assure the reliability and validity of this research.

Originality/value: This research is original as it will provide a comprehensive and systematic review and understanding of factors affecting SMEs participation and success in public procurement market. The conceptual framework proposed in this study will hopefully be of value to further academic research in this field as well as practical guidelines for SMEs involved in public procurement market.

Keywords: small and medium enterprises (SMEs), public procurement, public contract, critical factors.

CONSISTENCY OF THREE SELECTED BANKRUPTCY PREDICTION MODELS

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Keywords: bankruptcy prediction models, transportation companies, Altman Z-score model, Springate model, Zemijewski model, sample, review

Abstract

Purpose: This paper aims to analyze the bankruptcy models developed by several authors, elaborating the consistency of the models in predicting the performance of the representative transportation companies. By analyzing the stated issue, suggestions are the focus of what should be noticeable if one is to conduct a similar research on bankruptcy prediction, improving the quality of the research.

Methodology: The paper chose to use three models with nearly similar set of indicators to create a basic analysis of them on how they predict the bankruptcy rate in transportation sector. Using samples of 30 transportation companies as database for the models, the paper summarized 11 indicators used among the three models and construct the database then proceed to apply the collected data into the models. Then the paper conducted simple comparison and analysis with the aggregate score compiled into tables. The secondary data collected from the firms has proven to be valuable for future research.

Findings: Altman Z-score utilizes more indicators and the prediction scores tends to follow a very broad sense, whereas the the Springate model and Zemijewski model presented a form of collective score largely based on the firms' selective financial results. Other authors or readers should pay attention to each model in their predicting capability in order to avoid confusion when considering a research in the similar field. As the statistical method is the single conduct with simple key indicators, more complex or hybrid methods should be in consideration for future research in order to better utilize the source of data available for research.

Originality/value: the paper was in conduct with the most recent data sample utilizing the range of data used for the comparison with the latest 5-year period. The paper in a sense illustrates the most basic concept on the development of bankruptcy prediction.

ASSENSSING THE IMPACT OF NEW TECHNOLOGY IN THE SUPPLY CHAIN: CASE IOT

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ABSTRACT
Purpose of this paper:
Supply chain management is undergoing continuous, considerable and rapid changes where new trends and technologies are being utilized in different parts of the network. While the new technologies have been identified in the current literature, understanding the impact of those to the customer value is still in its infancy. Therefore, the purpose of this study is to assess the possible impact of Internet of Things (IoT) in an international cross industry network.

Design / methodology / approach:
The study is based on both the integrated literature review and empirical case study evidence. A discovery-oriented mixed methods approach was applied, where literature-review-based cross industry focus group discussion and AHP were utilized as the primary methods of data collection and analysis.

Findings: This study provides an important, yet sparsely addressed viewpoint to the assessing the impact of new technology, namely IoT, to the customer value production in the supply chain. The study identifies the most important value determinants which should be considered when utilizing IoT in the in a cross industry supply network. The findings of the paper suggest that the value management in supply chains requires special attention in terms of the understanding the impact that new technologies can have to the customer value.

Practical implications: The presented study proposes a practical process which can be utilized to assess the impact of new technologies in the value chain. By better understanding the related factors and the importance of those to the customer value the managers can better utilize the benefits of new technologies and improve the effectiveness of value creation activities in the supply chain.

Originality/value: The value of the study lies in the insights it provides about the assessment of new technologies utilization in supply chains, firstly by identifying the relevant factors of IoT to the customer value in supply network and secondly, by illustrating how mixed methods approach can be utilized in assessing the new technologies impact in the value network.

Keywords: Customer value, Supply chain, impact, IoT.

Optimization of a warehouse storage area of automotive spare-parts using simplex linear programming model.

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ABSTRACT

The primary goal of Gasoline-Automotive part company as a reference case study is to enhance its manufacturing lines and sale revenues in 2016. Due to the limited warehouse storage space, it is not enough to store and replenish all products including future plan of automotive inventory stocks. The company therefore has a plan to relocate all raw material stocks and finish good stocks from the current warehouse to the new warehouse, which is not far from the company site. To achieve the goal, the estimation of the storage area to support all existing and new coming stocks is of importance before moving to the new location. It is because the company needs to prepare a number of trucks and total estimated budgets to support this activity.

Based on the above reasons, the optimized model to solve the problem about space utilization and maximize the storage area of new warehouse to support all automotive spare-parts is proposed. The main parameters to classify the storage area in the warehouse are the dimensions of product pallet and maximum storage space, which is assigned by the new warehouse. In this study, they are composed of three primary constraints that are dealing with this activity. Firstly, the minimum number of pallets must be equal to or greater than the capacity of first truck round of relocation activity. Secondly, the maximum number of pallets must be lower than the existing pallets in the current warehouse nowadays. Finally, the number of pallets is always integer and greater than zero. This optimized model in this work is performed using the linear programming function in Excel Solver, which is reliable, cheaper and faster.

According to the result, it is revealed that the optimization of storage area after processing is drastically closed to the maximized storage space in the new warehouse probably 100 percent. The result in this study is additionally used by the company to calculate and prepare a number of relocation trucks and total budgets for more precise and reduced non-value added costs. Ultimately, the management in the new warehouse demonstrates higher efficiency, and the warehouse has enough storage area to consolidate and store automotive spare-parts.

Inter-personal and Inter-organizational Relationships in Supply Chain Integration: A Resource Orchestration Perspective

Bill Wang, Paul Childerhouse, Yuanfei Kang

Purpose – The research is to extend resource orchestration theory (ROT) into supply chain management (SCM) area to investigate the dyadic relationships at both individual and organizational levels in supply chain integration (SCI). Also, we try to explore the interaction mechanism between inter-personal relationships (IPRs) and inter-organizational (IORs) during the whole SCI process.

Methodology/approach – The research employed an exploratory multiple case study approach of four New Zealand companies. The data was collected via semi-structured interviews of top, middle, and lower level managers and operators from different departments of both suppliers and customers, triangulated with company archival data.

Findings – The research highlights the important role of both IPRs and IORs in the whole SCI process. Both IPRs and IORs are valuable, inimitable resources but IORs are formal and exterior while IPRs are informal and subordinated. In the initial stage of SCI process, IPRs are seen as key resources antecedents to IOR building while three IPRs dimensions work differently: personal credibility acts as an icebreaker to strengthen the confidence forming IORs, and personal affection acts as a gatekeeper, whilst personal communication expedites the IORs process. In the maintenance and development stage, IORs and IPRs interact each other continuously: good interaction between IPRs and IORs can facilitate SCI process while bad interaction between IPRs can damage the SCI process. On the other hand, during the life-cycle of SCI process, IPRs can facilitate the formation, development of IORs while IORs development can cultivate the ties of IPRs. Out of the three dimensions of IPRs, Personal communication plays a more important role to develop IORs than personal credibility and personal affection.

Originality/value – This research contributes to ROT in supply chain management literature by highlighting the interaction of IPRs and IORs in SCI. The intangible resources and capabilities of three dimensions of IPRs need to be orchestrated and nurtured to achieve efficient and effective IORs in SCI. Also, IPRs and IORs need to be orchestrated in terms of breadth, depth and life-cycle of whole SCI process. Our study provides further insight at the rarely explored inter-personal level of SCI.

Managerial implications – Our research provides top management with further evidence of the significance roles of IPRs at different levels when working with trading partners. This highlights the need to actively manage and develop these soft IPRs skills as an intangible competitive resource. Further, the research identifies when staff with specific skills and connections should be utilized during the different stages of building and maintaining inter-organizational ties. More importantly, top management needs to orchestrate and balance the resources of IPRs and IORs.

Keywords: Case study, Inter-organizational relationships, Inter-personal relationships, Resource orchestration, Supply chain integration.
Paper type Research paper

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The competitiveness of Vietnam logistics industry in the context of ASEAN integration

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Abstract

Purpose

The research aims at clarifying the current situation of Vietnam Logistics Industry in the context of international economic integration. On that basis, the achievements and shortcomings from its development are evaluated in order to lay a solid foundation for solutions that help to enhance competitiveness of this industry.

Design/Methodology/Approach

The research combines qualitive research methodology in analyzing the competitiveness of Vietnam Logistics Industry and quantitative one in identifying the groups of factors that affect it. Then, the comments, evaluation and development strategy that sticks to the global context are drawn out.

Findings

On one hand, the Vietnam Logistics Industry has achieved many positive results over the last years. For instance, its growth rate is up to 20 percent per year, the number and scale of companies that enter this industry is increased and service quality is enhanced.

On the other hand, the development of Vietnam Logistics Industry still has many drawbacks such as: the scale of the companies providing logistics service is small, their business is in the fragmentation and the infrastructure is too poor with shortage of consistency. Moreover, the government's policies for logistics are still inadequate, the customer formalities remain lengthy and nontransparent and the human resource is in shortage both in quantity and quality.

Originality/Value and References

The research uses the information from the reports of the government agencies that relate to the logistics industry. Some researches from domestic authors and the data from the World Bank's reports and international magazines about relating issues are also used as references.

The author hopes that this research can bring a more objective and comprehensive perspective about the existing situation of the competitiveness of Vietnam Logistics Industry as well as the logistics companies.

SUSTAINABLE AND RESILIENT SUPPLY CHAIN MANAGEMENT: A SURVEY OF THAI MANUFACTURERS

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Abstract

Purpose – This paper reports on an investigation about the extent of implementation of sustainable and resilient supply chain management (SResSCM) practices in Thai manufacturing firms, and also examines the relation between sustainable and resilient supply chain management practices on supply chain performance and organization performance.

Design/Methodology/Approach – The SResSCM framework and hypotheses were developed from a systematic literature review and based on extant frameworks of Carter and Rogers (2008) and Pettit et al. (2010). This empirical research employed a multi-method approach with qualitative interviews that informed an e-mail survey of manufacturers in electrical, electronic and automotive industry in Thailand. Hypotheses were tested via the partial least squares (PLS) SmartPLS 3.0 program for structural equation model (SEM) due to the low sample size.

Findings – Findings suggest that a firm's understanding of definitions for sustainable supply chain management (SSCM) and supply chain resilience management (SRES) did not have a positive association with sustainable and resilient supply chain management practices. However, sustainable and resilient supply chain management practices have a positive association with supply chain performance and organization performance. Moreover, sustainable and resilient supply chain management practices have a higher impact on short-term performance rather than long-term performance.

Originality/Value: This paper and related research contribute to SCM theory by enhancing our understanding of positive outcomes to supply chain and organization performance through insights from a SResSCM framework.

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PURSUING SUPPLY CHAIN SERVICE EXCELLENCE AT A REGIONAL SERVICE CENTRE

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ABSTRACT

Purpose: This research project is a real-life case study on an international company that specializes in Test and Measurement instruments which provides various services and solutions to customers in the electronic measurement industry.

At one of their Singapore Service Centre, there was a substantial dropped in their customer satisfaction scores attributed to frequent customer complaints. The aim of this project is to purse service excellence in the company's Singapore service centre using six sigma techniques to identify factors that has influence over customer satisfaction as well as to uncover logistic issues that lead to customer dissatisfactions

Design/methodology/approach: The goal of this case study is to provide initiatives to purse service excellence for the company's Singapore Service Centre. The approach used is to utilise Six-Sigma (DMAIC) methodology as the overarching design and using qualitative and quantitative technique to collect and analyse the data.

Findings: Customers' feedback from survey results are sorted into different categories. Using Pareto analysis, we have identified the main critical factors that contributed to most customer dissatisfaction are service turn-around time (33%), service quality (28%) and communication (20%) whereby customers expect a shorter service time of their equipment with better service quality and more efficient communications. Since service turn-around time (TAT) has the highest impact to customer dissatisfaction, an-depth root cause analysis was performed to identify factors that influenced the service turn-around time, which mainly due to work processes, people, availability of resources (core equipment, tools, parts) and environment issues.

Research limitations/implications (if applicable): In a service center context, delay is unavoidable and cannot be totally eliminated due to unexpected factors such as availability of parts, sudden technical failures on core equipment or traffic conditions, etc.

However, it is important and necessary to keep the customer informed of the order progress and alert them on potential delay.

Practical implications (if applicable): The company recognised the importance of excellent customer service and service quality will creates good reputation, customer loyalty as well growth in business because customers are more likely to return to the business if the company is able to resolve their issues, exceed their expectations and delight them with the service experiences. Hence, with the implementation of three improvement solutions expect to increase customer satisfaction level and service

performance in terms of improvement in service turn around, service efficiency and customer experience.

Originality/value: The research is undertaken at a company based in Singapore.

Keywords: Parts Management, Repair center, supply chain management, Six Sigma

• Maximum is 300-350 words in total.

Emergency logistics in NZ: learning from aid organisations

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ABSTRACT

Purpose: This study aims to identify a set of good humanitarian logistics practices and to examine whether these practices are used by New Zealand's (NZ) emergency management agencies. In doing so, it supports the identification of mechanisms that have the potential to improve the rapid mobilisation and deployment of relief items in the aftermath of a disaster in NZ.

Design/methodology/approach: The logistics practices of two humanitarian organisation exemplars are examined and the extent to which these practices are used by NZ's emergency management agencies is evaluated by reviewing their logistics-focused documentation publicly available.

Findings: The extent to which the following six practices from the field of humanitarian logistics are used by NZ's emergency management agencies is considered:

1. Decentralised stockpiles;
2. Product standardisation;
3. Framework agreements with suppliers;
4. Information management and visibility;
5. Inter-agency collaboration;
6. External partnerships.

Those numbered 1, 2 and 6 are identified as having the potential to speed up the mobilisation and deployment of urgently needed resources in the aftermath of a disaster in NZ.

Research limitations/implications: A systematic overview of the logistics practices used in disaster management in NZ is recommended to evaluate more comprehensively the logistics capacity and capabilities of the emergency management agencies operating in this country.

Practical implications: As NZ is subject to recurrent disasters, the identification of new logistics skills and mechanisms with the potential to support the implementation and management of responsive and flexible relief supply chains is critical.

Originality/value: This pilot study reflects on good humanitarian logistics practice and, in doing so, aims to stimulate discussions and further investigation on the improvement of the emergency logistics mechanisms in place in NZ.

Keywords: Humanitarian logistics, Preparedness, Emergency responses, New Zealand disaster relief

Koranee Wiwattananon 2017, **Modeling Humanitarian Logistics Responsiveness during Earthquake**

Research Advisor: Assoc. Prof. Dr. Ruth Banomyong

Abstract

In forty years of Thailand earthquake history, the strongest earthquake in Thailand occurred at Phan District, Chiang-Rai. The epicenter was located at a point of 9 km south of Mae Lao District, measured 6.3 on the Richer scale, the hypocenter depth was 7 km and aftershocks report shown more than 180 times. At least one person killed, one hundred and seven injured and many buildings and roads damaged, require 500 volunteer engineers from all over the country to help to reconstruct. Based on this situation, the disadvantage of this situation are from untrained staff and the government sector does not concern about the disaster management. The objective of this study are to study and evaluate the existing reaction during earthquake responses phase, to identify the major constrain regarding the logistics in order to select proper routes and to model the transportation to evacuate wounded people to the medical center and deliver commodities to the concerned area. The constrain that has been considered are the pickup time not more than 10 minutes due to the unpredictable aftershock, only 5 vans available with the demand per vehicle is 800 kilograms and the depot located at Phan Pitayakhom School in order to pick up in the area 15 nodes in total. Then, the capacitated vehicle routing problem with time window (CVRPTW) is employed. The genetic algorithm has been adopted to solve the problem in this project with the added-in software for Microsoft Excel. The result has been provided by Evolver is very efficient in finding the result and meeting all the hard constraints. With the optimal solution reached, the model of the total distance to evacuate people out of the area is 266.1 kilometers and the time window of each vehicle not over than 130 minutes.

Keyword: Capacitated Vehicle Routing Problem with Time Window (CVRPTW), Genetic Algorithm (GA), Humanitarian Logistics, Earthquake

Multi-actor dynamic multi-objective optimization for temporary logistic hub selection during disaster response

***Rajali MAHARJAN** **Shinya HANAOKA**

Purpose

Disaster response is a challenging task humanitarian responders face in the aftermath of a disaster. Efficient and effective response to a disaster is generally complicated by the presence of multiple actors often with multiple conflicting objectives or their priorities. The purpose of this study is to develop a multi-actor, multi-objective optimization model to determine the optimal locations of temporary logistic hubs considering robustness requirements and the dynamic nature of demand, capacity, and cost.

Design/Methodology/Approach

This study addresses the problem of determining location of temporary logistic hubs as a multi-objective optimization problem with multi-sourcing for priority assignment based on severity of disaster impact. The objectives comprise of (1) minimizing costs; and (2) minimizing total unsatisfied demand. To represent multi–actor heterogeneous nature of decision makers, the concept of fuzzy set theory and factor rating system is used to evaluate the preference of different decision makers for different objectives.

Findings

The results give a set of optimal locations for placing temporary hubs. The trade-off between minimizing cost and maximizing the demand met is depicted. The results also highlight the sensitivity of cost and unmet demand with the capacity of logistic hubs and their numbers.

Originality/Value

This study identifies the role and importance of temporary logistic hubs for the effective and efficient disaster response. A multi-actor, multi-objective optimization model including several dynamic factors and robustness consideration is developed. The multi-sourcing idea introduced in this study ensures robustness. This model can be implemented for easing complex decision making process.

Practical Implications

The outcome of this study can be used to place temporary logistic hubs in the response phase of disaster management. The model can also be used to determine the capacity requirements of the logistic hubs to minimize unmet demand while also minimizing the costs.

References

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INTEGRATION AND SECURITY EXTENSION IN EXPORT SUPPLY CHAIN IN INDONESIA: AN AGENCY THEORY PERSPECTIVE

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ABSTRACT

Purpose: Using agency theory, this paper aims to investigate the extent of integration focusing primarily on security aspect of goods and information flow in export supply chains in Indonesia. The AEO (Authorized Economic Operators) operated firms certified for security measures was introduced under the scheme of supply chain security initiative developed by the World Customs Organization (WCO) which focuses on risks of terrorism. It questions the extent of coordination between chain partners to ensure that the export chain delivers goods and information in a secured way.

Design/methodology/approach: This paper employed qualitative case study method involving four export chains in Indonesia. Semi-structured interviews with export and security related managers, as well as observations on their export and security operations were carried out. The interview data were thematically analysed under four integrative themes: ownership, contractual arrangement, operational interdependence, and information sharing.

Findings: Analysis of cases revealed different chain structure with varying degree of integration among chain partners where the security issue was a likely concern. Given that the AEOs are fully aware of the security measures including terrorism as a risk, most chain partners only follow the agreed common practices without clear understanding of its negative impact if not executed fully at the point of goods exchange among partners. From agency theory perspective, it appears that the involvement of many partners may dilute the security measures. Additionally, this paper identified agency costs in security extension throughout the chain using the elements of integration mechanisms.

Implications: Theoretically, this paper offers an insight for the AEOs to manage the full security measures of goods and information while exploring the extent of integration in support of these flows. While security of goods and information flow are crucial in any export, the newly introduced AEOs will soon realise the need of coordination and integration among the chain operators to strengthening these security measures.

Originality/Value: While integration and security are widely investigated in supply chain literature, a study involving security issues in AEO operated export supply chain needs further investigation to explore the degree of security practices and the extent to which integration mechanism helps in achieving that. The use of agency theory in exploring the security concern in export chains is novel in this study.

Keywords: Supply Chain Security, Supply Chain Integration, Authorized Economic Operator.

ANOTHER HUMANITARIAN LOGISTICS IN AN AGEING SOCIETY

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ABSTRACT

Purpose: The purpose of this paper is to address new research fields in humanitarian logistics and supply chain management (SCM) for an ageing society. Since a society is ageing, the missions of logistics and SCM should change especially for the elderly who are so-called the restricted consumers on the last mile in a supply chain. Unlike the victims of disasters or wars, the restricted consumers are not in a temporary circumstance so that another humanitarian logistics and SCM are required in an ageing society.
As several research have found the difficult situation of restricted consumers and the issues of the measures for them, further research are indispensable in order to help all stakeholders in SCM conduct continuous measures. This paper, therefore, identifies another humanitarian logistics and SCM in an ageing society and suggests new research fields to be done from the collaborated viewpoints of humanitarianism and business.

Design/methodology/approach: Several practical cases and comprehensive research were chosen with the aim to propose new research fields to be done considering the features of humanitarianism and business in an ageing society.

Findings: The result indicates another humanitarian logistics and SCM in an ageing society that must have a mission of continuous supplying for the restricted consumers. Several business models and related research including rolling stores, e-procurement system and efficient delivery system are also suggested. Furthermore, the result proposes further research topics for each stakeholder in a supply chain.

Research implications: This paper suggests further business models of SCM. Moreover, the paper addresses the necessity of new research on SCM in an ageing society that has both humanitarianism and business. New research topics for each stakeholders including administration and private volunteers are also strongly implied.

Practical implications: Companies can take chances of new business in an ageing society and public sector can apply to its welfare schemes. This paper can also be applied to volunteer activities in humanitarian logistics.

Originality/value: Several practical cases and interviews for the restricted consumers in Japan are discussed and various solutions for the humanitarian logistics and SCM are suggested.

References: Jimyoung Lee (2014) Consideration of the commitment of volunteers and government to restricted shoppers, Takahashi et al. (2013) Solutions for the problem of limited access to shopping facilities: from the viewpoint of logitstics-oriented town management, Gyongyi Kovacs and Karen M. Spens (2007) Humanitarian logistics in disaster relief operation.

Keywords: humanitarian logistics, humanitarian SCM, restricted consumers, ageing society

Paper type: Research paper

THE ENVIRONMENTAL IMPACT OF HUMANITARIAN LOGISTICS

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ABSTRACT

Purpose: The research contribution is to show the actual environmental impact, in terms of emissions of carbondioxide, from humanitarian logistics for ongoing continuous humanitarian logistics operations, to create a baseline for current state of affairs.

Design/Methodology/Approach: To collect empirical data in case studies from a major organisation active in the humanitarian sector, at headquarters and at country offices, to build a foundation on which to make analysis and draw conclusions from. The research focus is on the movements in-country, from the "port of entry" via warehouses to points of distribution.

Findings: The environmental impact of transportation in the humanitarian sector has been largely neglected to date. There are limited considerations to this aspect when procuring services, setting up the distribution network, and executing operations. There are scope for improvements in terms of loading factor utilisation and consolidation of different types of cargo on common vehicles.

Research limitations: Only one organisation has been investigated in these case studies. The research does not consider the initial stages of responding to a sudden onset catastrophe, but rather on the later protracted stages where operations are ongoing for several years.

Originality/Value: This is the first study of its kind on humanitarian logistics and investigate not only the environmental impact but also show the degree of transport resources utilisation and consolidation factor during the time period investigated.

Keywords: Humanitarian logistics, Environmental impact, Supply chain, Loading factor, Emissions.

THE ROLE OF MACROLOGISTICS IN SUSTAINABILITY

Abstract for consideration for the 9th International Conference on Logistics and Transport 2017

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Purpose

The contribution of macrologistics to macroeconomic management is the estimation of sustainable freight logistics configurations on national- and industry levels to enable macroeconomic trade-offs against other production factors. The purpose of this paper is to showcase how the outputs of macrologistics modelling can create a more efficient national logistics platform to aid the microeconomic execution of Supply Chain 4.0.

Design/Methodology/Approach

Commodity-level, spatially-disaggregated freight-flow models are quantified using the input-output model of economies as a platform. This is translated into component-level logistics costs models via a bottom-up approach – allocating costs to the detailed commodity flow outputs from the aforementioned model – to enable the costing and subsequent prioritisation of national- and industry-level freight logistics scenarios.

Findings

This research supplements the microeconomic successes of Supply Chain 4.0 – the advances made by industry leaders to individualise and customise supply chains to improve performance and customer satisfaction (Alicke et al., 2017) – by advocating for the development of the macrologistics context within which these microeconomic successes take place. The benefits of a sound macrologistics platform are showcased through the application of the macrologistics models of South Africa and India. The outputs allow for e.g. the development of optimal modal strategies, streamlined cross-border operations, realistic port reform agendas, positioning of freight villages to redirect freight and decongest cities, and an incentive for the inclusion of freight externality costs to increase logistics' contribution to sustainability. The policy reforms and infrastructure investments enabled by these macrologistics optimisations will, in turn, facilitate the microeconomic execution of Supply Chain 4.0.

Originality/Value

This research provides a macrologistics backdrop for Supply Chain 4.0 by showcasing the benefits of collaboration on a national- and industry-level.

Practical Implications

National- and industry-level collaboration can provide significant cost benefits to the supply chain which can further enable the realisation of Supply Chain 4.0.

Keywords: *Macrologistics, freight, collaboration, Supply Chain 4.0*

Reference: Alicke, K., Rexhausen, D. and Seyfert, A. (2017), *Supply Chain 4.0 in consumer goods*, McKinsey and Company.

EVIDENCE-BASED ROLE OF SUPPLIERS IN SUPPLY CHAIN SUSTAINABILITY

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ABSTRACT

Purpose:

This study empirically investigates suppliers' role in supply chain sustainability, from agency and institutional theory perspectives. It aims to test the hypothetical impacts of multiple factors, including economic incentives and information asymmetry, on the propensity of suppliers to, firstly, fulfil their customers' sustainability requirements; and secondly, convey these requirements to their suppliers, so called double agency role. The analysis is to be conducted in the context of manufacturing industry in Vietnam – a developing country to which various activities are outsourced.

Design/Methodology/Approach: Data were collected using surveys, and analysed using Structural Equation Modelling (SEM).

Findings: Suppliers' primary agency role was found to be positively influenced by one institutional and one agency factor: regulatory pressures and economic incentives; while the secondary agency role was associated with two agency factors: economic incentives and information transparency. We also found strong positive correlation between the implementation of the two roles, indicating suppliers might accrue greater benefit by investing in both roles in tandem.

Research limitations: The study did not account for (1) additional contingency factors that could influence suppliers' engagement in the double agency roles; and (2) the rate of institutional isomorphism in the analysis. It also did not address potential connection between sustainability effort and involved parties' bottom lines. Future research that responds to the identified shortcomings is therefore desirable.

Practical implications: Findings of the study provided evidence-based understanding of the interactions between suppliers' propensity to implement their double agency roles, and agency and institutional factors. They act as guidelines for not only focal firms, but also suppliers on how to invest their resources to ensure sustainability along the supply chain.

Originality/Value: This study represents a response to the need for (1) further empirical study of supply chain sustainability from suppliers' perspective; (2) a better understanding about how suppliers in developing countries embrace sustainability issues; and (3) a counterpart to the predominance of qualitative study in the field.

Keywords: suppliers, agency, double role, Vietnam

Estimating the ship dismantling capacity in compliance with the European Union's Ship Recycling Regulation

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Purpose

End-of-life vessels are often dismantled in substandard conditions, causing environmental and health concerns. The European Commission has introduced a new Directive on the matter inspired by IMO's so-called Hong Kong Convention. The Directive calls that in the future EU-flagged ships must be dismantled sustainably in shipyards certified by EU. This paper has two objectives: i) what is the level of capacity needed in order to dismantle the existing EU-flagged fleet; and ii) how available EU-certified dismantling capacity is able to match this need.

Methodology
The level of required dismantling capacity is estimated by size and age structure for all the merchant vessels under the EU-flag as per Jan. 1, 201X. The fleet data is obtained from the Clarkson World Fleet Register and dismantling capacity data is compiled based on EU and OECD statistics. Main research methods include descriptive statistics, regression analysis and ANOVA.

Results
Based on actual fleet data, more EU-certified dismantling capacity is needed in the future. This suggests that EU shipyard certification process must be extended well beyond the borders of EU. Additionally, the introduced EU-regulation will most likely shift the dismantling market balance towards Europe, and thus increase the prices of dismantling.

Originality / Value
To our knowledge, the fit between existing and required dismantling capacity of EU-flagged ships has not previously been analysed. The paper contributes to policymaking by evaluating the implications of EU Ship Recycling Regulation while also providing valuable insights for the future.

References
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European Parliament (2013) Regulation No 1257/2013 of the European Parliament and of the Council of 20 November 2013 on ship recycling and amending Regulation (EC) No 1013/2006 and Directive 2009/16/EC Text with EEA relevance

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ASSESSING THE IMPORTANCE OF ASIAN PORTS BY APPLYING SOCIAL NETWORK ANALYSIS

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ABSTRACT
The paper aims to analyse the characteristics of the containerized maritime routes between 153 ports. For this purpose, a network analysis was conducted. Data have been collected from Lloyds. A particular attention has been paid to the 78 major Asian ports in the sample, 36 out of which are among the ASEAN designated container ports. The asymmetry between inward and outward flows (containerships traffic) helps to provide a classification between main exporting and importing countries. The study also includes whether the distance has an effect on the competition on maritime routes.

Purpose:
The main purpose of the study is to assess the importance of ports by taking into account various centrality measures (degree, closeness and betweenness). We aim to obtain valuable insights regarding the competition on different maritime routes, regional misbalance and improvement of the network between major ports in Asia, Africa, Europe, North America and South America.

Design/methodology/approach:
In the recent years, Social Network Analysis has gained a significant importance in maritime economics. We investigate the networked structures between 153 ports in terms of nodes (individual ports) and the links (maritime routes). Each link is weighted according to the number containerships operating on each route and their average size in TEUs, the number of operators on each route and the distance between each pair of countries. We use many tools from graph and networks theories to visualize our results.

Findings:
The preliminary results reveal that the Hub and Spoke configuration is prevalent in comparison with the multiport one within the Asian region. Moreover, by aggregating data on a country level, we assess the efficiency of countries with respect to their world trade position. We show that world trade market shares may significantly differ from maritime trade market shares. We have also found that the competition on longer routes is less intense than the short ones.

Originality/value: We haven't found any research using a similar dataset. Moreover very few authors used Social Network Analysis as a tool to analyze the role of all designated container ports in ASEAN.

Keywords: Social Network Analysis, Maritime routes, Ports, Network, Centrality

• Maximum is 300-350 words in total.

A STUDY OF APPLICATION OF THE VIRAL REALITY TECHNOLOGY IN VIETNAMESE SUPPLY CHAIN

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ABSTRACT

Purpose: In spite of being applied for many years in many research applications, the viral reality (VR) technology has only recently been universally applied in supply chain management. Its application brings many remarkable breakthroughs in the whole supply chain from its production, distribution and operation. This research focuses on analyzing the operation of a VR supply chain, the benefits of applying this technology in supply chain and giving some examples of its models around the world. From that point, the author points out the reality of applying this technology in the supply chain of Vietnamese enterprises and gives some solutions to make it popular.

Methodology: In this study, the methodology used was qualitative method that based on previous studies on VR supply chains, in-depth interviews with firms and experts on supply chain management in Vietnam.

Findings: This is the first research of applying VR supply chains in Vietnam. It has shown that VR technology has boosted sales configurations by helping customers have complete and detailed experiences before making any purchase decisions, simplifying and improving speed and quality of the order fulfillment cycle and thus helps the companies increase its sales and profitability. Besides, this research also points out that the VR technology has been applied in the supply chain of Vietnamese enterprises already. However, the application of this technology of Vietnamese enterprises only still is in the distribution phase, so its benefits has not been fully utilized.

Implications: The results of this study provide foundations for the development of VR technology in the supply chain in Vietnam, help businesses manage their supply chains more efficiently and enhance their competitive capacity.

Value: The results of this study provide an overview of the application of VR technology in the supply chain in Vietnam. The solutions and recommendations in this research are considered to be practical for Vietnamese enterprises in their efforts to build a VR supply chain to optimize its efficiencies.

Keywords: VR technology, virtual reality technology, VR supply chain, application, production, distribution and operation of VR supply chain, Vietnam.

References:

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2. Craig Rawlings (2017), VR and AR: A game changer in retail and supply chain?, KPMG in Singapore.

LAST MILE DISTRIBUTION IN HUMANITARIAN LOGISTICS UNDER STOCHASTIC AND DYNAMIC CONSIDERATION

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ABSTRACT

Purpose: Last mile distribution is an inherent risk in humanitarian logistics due to its high uncertainty and dynamic nature. Thus, building responsive last mile distribution system is essential in the face of unpredictable demand and conditions. This study proposed last mile distribution model in considerations of the stochastic and dynamic situation. By incorporating flexible vehicle routing process, it is yearned to be able to minimize unmet demand while being responsive at the same time.

Design/methodology/approach: First, a conceptual overview regarding last mile distribution in humanitarian logistics is built and the mathematical model is then developed. The problem is then solved using simulated annealing algorithm and comparison between three cases, deterministic, stochastic, and stochastic dynamic is analysed.

Findings: After initial distribution plan constructed, each vehicle will be dispatch to serve the assigned route. The information gap resulted in the continuous process of modifying tours and serving the demand. Ideally, the unanticipated demand location can be added, and the routing continued as per plan. Unfortunately, that condition might not happen, as the vehicle has limited capacity or time constraints. The results show than by incorporating stochasticity and dynamicity into the model, optimal solution is harder to find. In addition, due to several constraints, adding new node to be served during routing forced the modification of the route thorough the time horizon.

Research limitations/implications: This study, however, only concentrates on the logistical decisions, though there are some other important decisions like coordination, funding, needs assessment, information, and communication, cultural food habits, etc. which also affect the last mile relief distribution. In addition, uncertainty regarding time also has not incorporate yet in the proposed model.

Originality/value: This study proposes a flexible vehicle routing into mathematical model due to dynamic nature of the disaster to understand the challenging situation in last mile distribution system.

Keywords: humanitarian logistics, last mile distribution, disaster response, dynamic situation

COORDINATION MECHANISMS IN SUPPLY CHAIN WITH THIRD PARTY LOGISTICS OUTSOURCING,

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ABSTRACT

Purpose: By making logistics outsourcing decision, companies have been able to improve the logistics performance, maintain focus on core business, and minimize distribution cost. However in decentralized condition, there is only limited control of the third party logistics service provider (TPLSP), whose logistics service performance affect the products availability, quality, price, and market share. The paper aim to develop the model of coordination mechanisms in supply chain with third party logistics outsourcing.

Design/methodology/approach: Revenue sharing contracts are developed in the proposed model to coordinate the supply chain consisting of a manufacturer, a TPLSP, and multiple retailers. Moreover the incentive and penalty scheme are implemented in accordance to the supply chain logistics service performance, so the risks and the necessary costs could be allocated to all players.

Findings: To increase the desirability level of the contracts for all players, we should determine the contracts parameter so that all entities could obtain higher profit than in decentralized conditions chain and win-win condition can be achieved.

Originality/value: The paper provides new model of coordination mechanism in supply chain with logistics outsourcing and offers the incentive and penalty scheme into the basic model of revenue sharing contracts.

Keywords: Coordination mechanism, Logistics outsourcing, Revenue sharing contracts, Supply chain

Simulation Study of Twin Automated Stacking Cranes Operation Strategy with Dynamic Handshake Area in Seaport Automated Container Terminal

Maulin Masyito Putri, Muhammad Hafidz Azhar

ABSTRACT

Purpose:
The purpose of this research is to study the impact of dynamic handshake area operation strategy on the performance of Twin Automated stacking Cranes (ASC's) one of which operate inside landside and seaside zones. Handshake area is a container temporary storage in the middle of container yard (Gharehgozli A. H., 2017). One of ASC's will put container that it carries in handshake area. Then, it will be taken by another ASC's to be placed in the slot location. Today, handshake area which applied in automated container seaport terminal is fixed handshake.

Design/methodology/approach:
Three settings of simulation model are used to test ASC's performance. Those settings are without handshake area, with fixed handshake area, and with dynamic handshake area.

Findings:
Measured performance:

- total travel distance and total travel time of ASC's when fulfilling all requests
- total distance of unnecessary movements (not carrying a container)
- total waiting time of ASC's when there are other ASC's inside handshake area
- total energy cost produced by ASC operation.

Decision variables:

- container slot allocation
- ASC's scheduling
- handshake area location
- handshake area size
- handshake area shape

Research limitations/implications (if applicable): We assume that there is no reshuffling inside container yard and handshake area.

Practical implications (if applicable): A new seaport automated container terminal that use ASC's without significantly applied handshake area just opened in Indonesia. The planning and operation manager of that terminal can use this research to operate ASC's more efficiently.

Originality/value: Some parameters are being considered. Those parameters are:

- the arrival time of vessel and truck to deliver and receive the container.
- 20-ft and 40-ft containers
- the weight of the container

- dynamic handshake area that can be changed based on demand
- the shape of handshake area that can be changed

Keywords: Dynamic handske area, Simulation Model, Twin Automated Stacking Crane

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A MULTIMODAL DISTRIBUTION NETWORK DESIGN PROBLEM FOR DELIVERING BULK PRODUCT: A CASE STUDY IN CEMENT DISTRIBUTION

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ABSTRACT

Purpose: This paper discusses a typical practical problem in cement distribution of a leading cement industry in Indonesia. Currently, majority of cement distribution in Java Island have been dominated by trucks. Due to traffic and congestion, this transportation mode resulted in higher logistics costs. The company has initiated several logistics improvements including the use of multimodal transportation and Hub and Spoke (H&S) strategy, rather than direct shipment strategy. Based on these two strategies, this paper proposes a model of robust distribution network for multimodal transportation to minimize total logistics costs. We also develop algorithm for solving this problem and conducting some numerical experiments based on real cases.

Design/methodology/approach: This research proposes a two-steps heuristics algorithm for solving this NP-hard problem. First, the algorithm will determine the best transportation mode used between cities which result in cheapest transportation cost for each range of freight volume. Then the algorithm will aggregately determine combination of hubs and spokes that produces the optimal distribution network. Based on this algorithm we develop a decision support system (DSS) based on visual basic application (VBA) which is easy to modify and user friendly.

Findings: The numerical experiments have shown that the developed algorithm is valid and has a reliable performance for solving the problem. As expected, using multimodal transportation with consolidation strategy outperformed the existing direct shipment strategy in resulting cheaper distribution costs.

Practical implications: This research solved a case study with real data from one of leading cement distributor in Indonesia. By the result, we can suggest that employing multimodal transportation and hub and spoke concept, rather than direct shipment, will give a more efficient distribution cost for the company.

Originality/value: This research provides an algorithm to solve multimodal distribution network design problem which considering consolidation for cement industry. The industries can employ the DSS to make strategic decision regarding cement distribution.

Keywords: Multimodal Distribution Network Design, Hub and Spoke Strategy, Consolidation, Cement Distribution

IMPACT OF MARITIME CONNECTIVITY ON ECONOMIC GROWTH

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ABSTRACT

Purpose: Much has been mentioned of the linkage between trade and transport connectivity on economic development. As such, this paper seeks to investigate the impact of maritime connectivity on the economic development of a country in the context of ASEAN. Our intent is to determine if there is indeed a direct linkage between the constructs of maritime connectivity and economic growth.

Design/methodology/approach: We will adopt a system dynamics approach to understand the causal loops influencing economic development through industry growth, multiplier effects and maritime connectivity, over a period of time. For the data, we will draw on public domain information available on the web. The ANYLOGIC software will be employed for our analysis in this paper.
In the analysis, GDP growth is taken as the dependent variable while total traffic figures, imports and exports, ship calls number of workers and storage/warehousing are considered to be the independent variables for the construct on maritime connectivity.

Findings: As we are just embarking on our research, the findings will be supplied nearer the time of the conference presentation, and on submission of the full paper.

Research limitations/implications: We will attempt to test the actor-network theory in this context, which was first put forth by Henderson et al.[1] (2002). However, the quality of this effort depends very much on the quality and extent of data available in the public domain.

Practical implications: Our work serves to inform policy makers, business strategists on how to string maritime connectivity into greater trade impact and hence the economic development for a country in ASEAN. Next, we can through, systems dynamics, appreciate the effects of vertical and horizontal integration between different segments of the economic cogwheel.

Originality/value: The paper brings to focus the importance of effective maritime connectivity for the economic development of a nation in a quantitative and statistical manner through the simulation of a real world system. While some of this work has been performed in Europe and other trading blocs, it remains un-investigated in ASEAN.

Keywords: ANYLOGIC, economic growth, actor-network theory, ASEAN.

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Application Of Location Routing Problem Using Spatial Data On Food Distribution And Evacuation Of Gresik Flood Disaster

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ABSTRACT

Purpose: In recent years, humanitarian logistics has attracted much attention due have contributed a lot in helping and saving human life. In this research will be developed mathematical model of Location Routing Problem that applied using spatial data for flood disaster in Gresik, East Java, Indonesia. The purpose of the model to be developed in this research, is to minimize the time of sending aid to the victim by determining the most efficient location of aid post and the route of the food distribution. The vehicle that used, must be matched with the real condition. In addition to distributing relief items, if desired caused an extreme condition, the vehicle can also pick up the victim to be evacuated.

Design/methodology/approach: Determination of the location of post and route of vehicle decided by the number of victims based on the location of the house, travel time, the number of people and the amount of aid needs. The complexity of the problem will be solved using metaheuristic method. The algorithm will be developed into a user friendly web-based application that integrated with Spatial Data on Geographical Information System (GIS) to obtain more accurate data on disaster location.

Findings: Therefore, at the end of the research is expected to be able to answer the challenge of humanitarian logistics for flood disaster that occurred in Gresik. This will be shown in the form of application that can be used by government to facilitate the distribution of logistic aid.

Research limitations/implications (if applicable): The object of research is sub districts in Gresik. The more different geographical conditions, the more adjustment to the method needed.

Practical implications (if applicable): This research is proposed to be done in collaboration with Gresik Regency Disaster Mitigation Agency. Therefore, Government can use this application to update the information in accordance with real conditions related to be more quickly and responsive in delivery of logistics assistance.

Originality/value: We develop a web-based application of Humanitarian Logistics based on Location Routing Problem in Gresik, East Java, Indonesia which is very useful for government, and so the victims of the flood disaster.

Keywords: Flood Disaster, Gresik, Location Routing Problem, Metaheuristics, Spatial Data

• In total 335 words.

AN OPTIMIZATION APPROACH FOR FRESH FRUIT EXPORTION WITH QUALITY LOSS DUE TO TRANSPORTATION AND HOLDING

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ABSTRACT

Purpose: The quality loss of fruit due to the mechanical injuries and the physiological change during storage and transportation is an important cause of downgrading and wastage of fruit exportation (5% to 60%). The objective of this paper is to propose an optimization approach for scheduling fresh fruit exporting operations considering the cost of quality loss based on the above-mentioned cause.

Design/methodology/approach: The methodology is divided into 3 phases**.** Firstly, the damage cost due to mechanical injury and holding cost due to physiological change are estimated by using linear regression**.** Secondly, mathematical modelling of exportation costs for the exporter considering the damage and holding cost is developed to formulate the objective function**.** Lastly, solution spaces of scenarios are analysed by numerical study to determine two decision variables**:** the quantity of fruit to be exported in each day and on hand inventory duration**.**

Findings: In case studies of mangoesteen exportation, the damage and holding cost of fruit exportation can be considered as a linear function with time. This can be used to determine markdown policy with steeper discount and develop the mathematical model via linear regression approach to optimize scheduling fresh fruit exporting operations.

Practical implications: The model provides important improvement in profit and cost of fruit exportation. This improvement is more significant for the logistics exporter to make decision in part of export planning, choosing the appropriate distribution scheme, and mark down policy under uncertainty of supply and demand rate.

Originality/value:
This paper is a combination of the cost of quality loss from mechanical injury and physiological change of fruit, which is developed in a single mathematical models. To the best of the authors' knowledge, no mathematical model has yet been proposed.

Keywords: Fruit exportation, Food Quality, Holding Cost, Perishable products, Transportation

RISK MANAGEMENT IMPROVEMENT BASED ON SMART CONTAINERS FOR REAL-TIME TRACEABILITY

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ABSTRACT

Purpose: Electronic Product Code Information Services (EPCIS), is current global traceability standard which RFID or barcode capturing is limited to event (date-time, location, event-type) so tracing status in between reading points during logistics is then invisible and further restricted to risk awareness and handling decisions. Soon under the Industry 4.0 environment, visibility is extending through the chain in real-time by technologies of the Internet of Things (IoT) such as Smart Object attached with Extended Real-time Data (SO-ERD) sensing actual status of the tracing object (e.g. temperature, container's status, etc.) and transmits to the network in real-time, not limited to event-based. This study identifies challenges of current chain traceability and implications for future research in the implementation of SO-ERD to extend risk controlling for logistics and transport.

Design/methodology/approach: The academic literature review of traceability in supply chain and logistics are conducted. Results are classified by the usage of current traceability data to support risk detection and decisions in operational, tactical and strategical levels.

Findings: Difficulties of the chain analysis caused by data and information shared among chain's partners under limitations of the event-based standard, scattered data storage and data standardization. Further, business requirements are volatile in process, strategy, and decision procedure while feedback of changes for adaptive decision is limited. Traceability of SO-ERD has potential to overcome these difficulties and broaden capability of the chain collaboration and analysis.

Research limitations/implications: The analysis focuses on the chain traceability of logistics and transport which concerns cooperation among partners, internal traceability within each partner's organization is not major.

Practical implications: Once the extension of real-time visibility through the chain traceability is possible, data can extend usage to applications for logistics collaboration to improve efficiency of risk management.

Originality/value: The classification and analysis of current usage of traceability data to handle risks is provided. The applicability of extended real-time data captured by smart objects for chain traceability and business decision support is also discussed.

Keywords: Risk Management, Chain Traceability, Internet of Things (IoT), Smart Container, Real-time Traceability

• Maximum is 300-350 words in total.

INVESTIGATING ENABLERS AND BARRIERS TO GREEN LOGISTICS SERVICE QUALITY

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ABSTRACT

Purpose: Companies have become increasingly interested in logistics service quality and green issues and these issues may become trade barriers in developing countries competing with global rivals. The characteristics of companies and other factors may either be enablers or barriers in improving logistics service quality with attendant green credentials. Therefore, it is useful for academia and companies to know what are the drivers or/and barriers for green logistics service quality. The purpose of this paper is to systematically review the literature and present a proposed research agenda to explore these issues.

Design/methodology/approach: The paper is based on a systematic literature review in three key areas: drivers for building up the green logistics service quality, barriers for not taking action, and features of green logistics service quality.

Findings: The systematic literature review will suggest a set of measures and a research framework and agenda to further explore and test these measures.

Research limitations/implications: This paper only discusses a systematic literature review and provides a research agenda, and thus does not feature any empirical research.

Practical implications: The paper investigates the enablers and barriers to green logistics service quality and the resultant proposed research agenda combined with a green logistics service quality framework should help practitioners understand what are the important drivers and obstacles to achieving better performance in these areas.

Originality/value: While green and logistics services issues are independently high priorities for logistics service providers and other companies, this paper provides a framework for combining these issues and determining important enablers and barriers.

Keywords: logistics service providers, green logistics, logistics service quality, enablers, barriers

HOW TO MEASURE LOGISTICS PERFORMANCE OF REGIONS WITHIN A COUNTRY

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ABSTRACT

Purpose: A number of indices exist to measure the logistics performance of countries (e.g. Logistics Performance Index – Arvis et al. 2014, Global Competitiveness Report - Schwab and Sala-i-Martin 2014). However, due to their global approach, they are not suitable for the measurement of logistics performance of a single and highly developed country. The aim of this research is to develop a procedure on how to measure the logistics performance capability of regions within a particular country. To this end, an indicator system is established and the regions of Austria are evaluated as an example. The results give politicians and decision makers in logistics and infrastructure development recommendations at hand on how to sustainably improve logistics within regions.

Design/methodology/approach: A review of already existing indices was conducted, where the methodology and the included key performance indicators were analysed. The indicators were pre-processed in a scientific workshop following Hohenstein et al. (2014). Furthermore, an expert workshop series with important stakeholders was conducted, determining the most influential indicators and discussing on how to operationalize them.
In order to measure the indicators, a survey is to be conducted and secondary data will be used. To secure objectivity, replicability and a limited effort to update the evaluation priority is given to secondary data sources, and only a limited number of questions are needed. Finally, data will be aggregated to one overall rating for each region.

Findings: This measurement lead to a stable index, which make changes and the impact of applied improvement potentials traceable on different dimensions of logistics performance. The measurement gives a comparison of strengths and weaknesses of the different regions and improvement potentials can be deducted and verified in turn.

Originality/value: A procedure on how to measure the logistics performance capability of regions within a particular country is developed and prototypically applied for the regions in Austria.

Research limitations/implications: At current state the indicator system is established to display logistical performance and improvement potentials with a special focus to the specifics of Austrian regions. Further research could apply and adapt this approach to other countries to enhance applicability.

Practical implications: This index will help politicians and decision makers in the field of logistics to better direct their investments on a regional level and to better understand the impact of their past activities.

Keywords: Logistics performance, performance capability, key performance indicator, sustainability, performance measurement

References:

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IMPACT OF TRADE FACILITATION ON BILATERAL TRADE FLOWS BETWEEN VIETNAM AND ASEAN COUNTRIES

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ABSTRACT

Purpose: This paper focuses on examining the relationship between bilateral trade flows and trade facilitation and estimating the gains in trade derived from improvements in trade facilitation for ASEAN members.

Methodology/design/approach: The relationship between trade facilitation and bilateral trade flows is estimated using a gravity model that includes other standard variables. The paper uses panel data obtained from Vietnam and 8 ASEAN members over the period 2004 – 2015. Trade facilitation is measuring through UNCATD's Liner Shipping Connectivity Index.

Findings and originality: Based on the research results, the paper provides evidence that the marginal effect of the sea transport efficiency improvement on trade flows. The results also suggest that the impact of sea transport efficiency is somehow larger than the traditional variables including GDP per capita, distance and exchange rate. In addition the paper provides recommendations and solutions that encompass a series of policies to enhance ASEAN members' and Vietnam's capacity.

Research limitations: Limitation is related to the availability of the required assessment data. Choosing the impact of trade facilitation on Vietnam-ASEAN bilateral trade flows as a research subject limits us using various indicators in estimating, thus posing restriction on further results.

Keywords: Trade facilitation, Liner shipping connectivity index (LSCI), gravity model, bilateral trade flows, ASEAN, Vietnam.

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Artificial Neural Networks-Based Techniques in Supply Chain Management

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ABSTRACT

Purpose: This paper aims to investigate applications of Artificial Neural Networks (ANNs) based techniques within the field of supply chain management (SCM) under key components of supply chain process.

Design/methodology/approach: The literature review of ANNs-based techniques was conducted. The key activities of SCM based on Lambert et al (1998) and Banomyong & Supatn (2011) was established as a foundation and scope of the review. This paper set out to review recent research works conducted during the past years, from 2005 – 2017. The classification of the papers was also constituted under 8 basic categories: simulation, experimental, classification, case study, analytical, conceptual, surveys, and comparative. The results were then discussed to outline the future direction of ANNs applications in SCM.

Findings: The review indicated the tendency of ANNs-based techniques for problem-solving and modelling among the field of SCM. ANNs-based techniques were found to be effective among the problematic domains of SCM regarding a pattern recognition which mostly found in the issues regarding forecasting and simulation.

Research limitations/implications: Limitation is related to the availability of research papers in some of SCM domain which ANNs is required to be established. From academic point of view, this implicates the gap which can be fulfilled by future research works.

Practical implications: The review of ANNs-based applications might provide practitioners with guidance in selecting an applicable ANNs-based technique to deal with problematic issues in supply chains.

Originality/value: This paper contributes to knowledge of ANNs-based applications which extend toward domain of SCM activities as well as identifies further research direction.

Keywords: Supply chain management; Artificial neural networks; ANNs applications

LOGISTICS PERFORMANCE OF HANOI: ASSESSMENT AND RECOMMENDATIONS

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ABSTRACT

Purpose: The purpose of this paper is to present and analyse the logistics performance in Hanoi and barriers in improving the current status. This is supported by the assessment of the logistics system of representative firms in major fields and in critical areas. The criteria to evaluate (Grant *et al.*, 2015) are logistics-related dimensions that have profound impacts on logistics performance as well as trade. Furthermore, this paper compares the logistics performance in Hanoi with the country's LPI key dimensions and, whenever possible, provides evidence of determinants that affect to the improvement of logistics system of the city.

Methodology/ design/ approach: The paper bases on theoretical and empirical research, using data obtained from more than 200 firms who respond to the survey in 2017 on measuring logistics performance in Hanoi. The survey was designed with a view to assessing the logistics performance in Vietnam multifaceted, under the perspectives of both logistics service providers and the manufacturing and import-export firms; respondent firms differ in the type of business owner (joint stock companies, private companies, state companies, foreign companies, etc...). There has been a survey conducted by Dang Thi Thuy Hong (2015) about the logistics situation in Hanoi. However, this paper focuses thoroughly on the assessment of logistics service providers of Hanoi, thus being able to give a more precise analysis of the city's logistics performance.

Findings: Based on the research results, the paper defines the logistics performance of Hanoi and its key dimensions, identifies its pros and cons, therefore provides recommendations to effectively improve the logistics system of Hanoi.

Research limitations/ implications: Limitation is related to the availability of the required assessment data. The availability data is a reflection of systematic data collection and storage

procedures of the respondent firms. The inadequate understandings in logistics field of firms that lead to the limited number of respondents also imply the research result constraints.

Originality/value: Proposed solutions and recommendations can be considered as reliable practical for both local authorities and enterprises in a common effort to improve logistics system of Hanoi.

Keywords: logistics performance, logistics system, logistics service provider, manufacturing firm, import-export firm, Hanoi, Vietnam.

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SIMULATION GAME FOR "OUTBOND LOGISTICS" BASED ON COLLABORATION IN CEMENT INDUSTRY

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ABSTRACT

Purpose: Logistics and distributions activities require high costs although these are non value added to products, but these activities for cement industry which has mature on production technology, influences the competition to struggle the market segment. Outbond logistics of cement industry, need to perform daily decisions either strategically or technically.

Design/methodology/approach: logistics and distribution aspects have to be managed effectively in order to avoid shortage or stockout in some market and overstock in others. A simulation approach will be run to imitate the competition of the Indonesian cement industry with multiplayer players to simulate the performance and cost of logistical decisions.

Findings: A new simulation game was developed to imitate the characteristics of outbond logistics on cement industry. This simulator simulates several companies that compete in the same market in some areas in which all player are decision makers. This model is expected to be used to perform various "what-if" scenarios to know the behavior of decision makers in the face of logistics and distribution problems.

Research limitations/implications (if applicable): We demonstrate the players as several companies which have some division of each company to compete the same region and market.

Practical implications (if applicable): This simulation game is expected to be used for academic in learning of logistics activities and can be used for new employees in training activities

Originality/value: The goal is simulate SCM collaboration performance and cost as results of logistics decision

Keywords: Logistics and Distribution, Logistics Simulation Game, SCM Collaboration, Outbond Logistics

EXPLORING OPTIMAL AID MIX IN HUMANITARIAN INTERVENTIONS: AN ARCHIPELAGIC PERSPECTIVE

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ABSTRACT

Purpose: The purpose of this manuscript is to explore whether a combined humanitarian assistance involving traditional aid delivery and cash transfer modalities is the most optimum response in an archipelagic country. This study aims to assess whether in such context, cash-based intervention may rise as a more suitable transfer model that is rapidly scalable given the wide-reach of the banking, mobile technology and financial sectors compared to the traditional aid delivery model.

Design/methodology/approach: A qualitative approach has been selected for the study. Data has been collected through a series of semi-structured interviews, and unstructured observations to obtain perspectives from various stakeholders.

Findings: The expanding use of digital money, mobile wallets and e-cash arguably serves as an effective modality for a humanitarian intervention in the remote places in archipelagic countries. These cash based interventions offer greater flexibility for the disaster affected populations to restore their livelihoods and resume their normal lives. However, traditional aid delivery cannot be totally eliminated because of limited access to information, communication and technology infrastructure.

Research limitations/implications (if applicable): The study is an exploratory research and therefore is more conceptual than empirical. It is intended to gain further information to suggest hypotheses to the topic under review.

Practical implications (if applicable): Insights will be obtained from practitioners on the optimal mix between traditional aid delivery and cash based programmes based on experiences in archipelagic countries.

Originality/value: As cash-based programming is anticipated to grow larger than the traditional supply chain of aid delivery within the next decade, many relief organisations have attempted to come up with the most suitable operational setup for both cash-based and voucher-based interventions but are lacking guidelines on the optimal mix.

Keywords: Cash-based programming, Archipelagic, humanitarian intervention

• Maximum is 300-350 words in total.

MANAGING THE AGILITY OF LOCAL SUPERMARKETS SUPPLY CHAIN USING ICT SYSTEMS APPROACH: A COMPETITIVE STRATEGY IN THE GLOBAL MARKET

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Purpose: The paper was undertaken to examine the agility of local supermarkets supply chains in the competitive of global retail market. The paper aims to help fill the research gap by investigating how managerial practice concerning manager of supermarkets may increase the agility in their operation and supply chains.

Design/methodology/approach: The agility of supermarket is a capability of supermarket in their operation that responds to the increasing pressure of variability of customer demand and changing of customer behavior. The supermarkets need to be quick respond to their customers. Unfortunately, for some local supermarkets has too many lack and problems. Limitation of using information, communication and technology (ICT) and operational issues are the most happens for local supermarkets. They often facing problem in time distribution, stock of inventory, distribution lead time and lack of communication with their suppliers/ manufacturer.

A survey questionnaire involved operation managers of supermarkets and their supply chains (i.e. Manufacturers and suppliers). Data collection involved 30 local supermarket firms that spread in three big cities such as Surabaya, Balikpapan and Samarinda. Connected to these local supermarkets are manufacturers and suppliers that support their products. A total of 164 usable responses (with response rate of 40%) were collected from 60 local supermarkets and 104 manufacturers or suppliers.

This study examines the agility of local supermarkets supply chain and provides the framework with string up some variables that shore up the agility of the retail business supply chain. The research identified some issues and part of evidence both in literature and field work experience that support of material distribution and how to provide strategic planning to overcome uncertainty of customer demand in the global market.

Findings: The results show that Inventory Management and ICT play an important role in managing inventory to maximize the supermarkets supply chains agility (SCA). The results

also show that local supermarkets have many lack of operation problem such as quick response to their consumer, stock of inventory, distribution lead-time and lack of fulfillment.

Practical implications: The finding can contribute to the operation managers to change their future scheme relating their inventory and ICT application in their firms

Originality/Value: The findings of the study indicate that significant amount of operation problems does exist both in local supermarkets and their supply chains (manufacturers and suppliers) confirming the operation agility. Furthermore, the results show that tick operation managing and agility are plays an important role especially in inventory management and the use of ICT application.

Keywords: Agility, supplychain approach, local supermarkets, competitive strategy, customer demand

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CHALLENGES AND OPPORTUNITIES OF INDUSTRY 4.0 FOR LOGISTICS & SUPPLY CHAIN MANAGMENT

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ABSTRACT

Purpose: Around the world, traditional manufacutring industry is in the throes of a digital transformation that is accelerated by exponential growing technologies. (e.g., autonomous robots, big data and analytics, augmented reality, additive manufacturing, Internet of Things, horizontal and vertical system integration, simulation, the Cloud, and cyber security). The ubiquitous connection of people, things and machines enabled through networking across the "internet of things", services, data and people would create a seamless link between the virtual world and the physical objects within the real world (Hofmann & Rüsch, 2017). These are expected to transform the future of work. Products, tools and services such as transportations are expected to “negotiate” in a virtual marketplace regarding which production elements could best accomplish the next production and service step.

Design/methodology/approach: Although Industry 4.0 has received a lot of attention recently in practitioner oriented articles, research in this area is scarce. This study fill this gap through a conceptual research approach (Meredith, 1993) to provide a better understanding of this rather undiscovered topic. The exploratory research process will involve an initial phase of narrowing down the topic and its scope. This will be accomplished first through desk research as well as through multiple unstructured discussions within the affiliated research team of the authors.

Findings: This study sets out the key challenges that logistics and supply chain companies face in digital transformation and potential benefits from the adoption of exponential technologies. We focus on how companies can transform work processes to achieve real time information integration so as to enable supply chain visibility and optimizes supply chain performance.

The study provides a conceptual framework that characterise the levers that can be applied to design solutions geared for the individual companies. The paper also examines basic principles in lean and how they can be integrated with the next generation of logistics and supply chains to bring about simplification in processes and operational complexity.

Originality/Value: This paper provides insights on how logistics companies can transform their *work processes* and *improve the knowledge, skills and abilities (KSA)* of human resources to meet the challenges arising from disruptive technologies such as automation and digitalization.

Practical implications: The findings from this study is expected to provide a deepened understanding of the impact of the transformation that can be brought about by disruptive technologies.

Keywords: Supply Chain Performance, Disruptive Technologies, Lean, Case Study

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ANALYSIS OF THE POTENTIAL MARKET FOR THE IMPLEMENTATION OF HYDROGEN SYSTEMS (ORH_2) IN MÉXICO

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ABSTRACT

Purpose: 27.9% of the energy produced worldwide is used in the transport sector. Consequently, the large amounts of CO_2 emitted to the atmosphere by the use of motor vehicles around the world, is one of the main causes of global warming. As a solution to this The Intergovernmental Panel on Climate Change estimates that by 2050 it may be possible for 77% of energy requirements to be replaced by renewable energy, which include the use of hydrogen. In the search to implement the development of technologies of high environmental impact, it has been selected the systems of in situ generation of hydrogen called Reactor Oxyhydrogen (ROH_2), as product in increasing demand and opportunity to develop and position this innovative technology within the next five years, so that in this research a potential market analysis is presented in order to know the feasibility for the commercialization of ROH_2 in Mexico.

Design/Methodology/Approach: As part of Phase I of the Integral Model for New Product (IMDPN), it was necessary to identify the potential market to determine the beginnings of this analysis, through a comprehensive review of scientific literature and the development of surveys as primary sources of research.

Findings: As a result of this study it was found that the demand for alternative energies, continues to increase due to the society's need to reduce the emission of pollutants to the environment. According to the results obtained from the surveys, 88% of the people answered that, they could buy the product, which means a great acceptance of the product of society. On the other hand, it is detected the need to obtain more financing in order to conclude with the stage of testing and adaptation of the product to accelerate the insertion of this technology to the market.

Originality: Research on the use of hydrogen energy is widespread, however, in Mexico, its share of the current energy system remains low relative to other similar sources of renewable energy. According to the information obtained, on the supply and demand of hydrogen, its presence is significant in some countries of the European Union, the United States and Japan. So, to detect a niche market in Mexico, is essential to create a business model and a logistics appropriate to the Society.

Keywords: Hydrogen, Marketing, Business Model, Transport Sector

Developing an Humanitarian Supply Chain Assessment Tool (HumSCAT)

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ABSTRACT

Purpose: The purpose of the manuscript is to propose a comprehensive humanitarian assessment tool entitled the Humanitarian Supply Chain Assessment Tool (HumSCAT). The rationale of HumSCAT is to provide a set of assessment methods for the three main stages of humanitarian supply chain: (1) preparation (2) response and (3) recovery.

Design/methodology/approach: A comprehensive literature review of existing supply chain assessment tools was conducted. The Quick Scan Audit Methodology (QSAM) was found to be the method that provided the most solid foundation for further development in the humanitarian context. In total 13 individual assessment tools were identified based on different disaster phases and objectives inherent in humanitarian supply chain. The use of the various tools, either singularly or in combination, is driven by the phases in humanitarian supply chain.

Findings: In each stage of the humanitarian supply chain phases, there are seven potential tools that can contribute to its objectives with some tools which can be used in more than one stage. Such tools are adapted from those used in manufacturing and service based supply chain. However, the expected outputs and benefits of the tools are also applicable to the nature of humanitarian supply chain.

Research limitations/limitations: This is a methodological framework based on existing assessment tools and therefore does not develop new assessment tools. The novelty is the identification of specific tools for specific humanitarian supply chain phases.

Practical implications: The manuscript propose a framework for humanitarian supply chain assessment, and identify specific assessment tools for each of the three humanitarian supply chain phase.

Originality/Value: This is the first attempt to provide a reference toolbox for humanitarian supply chain assessment. The toolbox is separated under three different phases of humanitarian supply chains with specific tools that can be used within each phase.

Keywords: Humanitarian, supply chain management, assessment tool, humanitarian phases.

ASEAN ECONOMIC COMMUNITY'S LOGISTICS PERFORMANCE INDEX BENCHMARK

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ABSTRACT

Purpose: ASEAN Economic Community, comprising of 10 ASEAN countries, has agreed to develop a single market and a single production base. Regional supply chain can be redesigned in order to optimize supply chain performance. However, the logistics performance of each country is disparate. Therefore, this paper aims at investigating and benchmarking the logistics performance of 10 ASEAN countries.

Design/methodology/approach: 6 Logistics Performance Indexes by the World Bank, i.e., Customs, Infrastructure, International shipments, Logistics quality and competence, Tracking and tracing and Timeliness, are used to benchmark logistics performance of 10 ASEAN countries. To allow benchmark the different proficiency, Gross Domestic Market (GDP) per capita is crossed over. Data from 2010, 2012, 2014 and 2016 are also taken and reflect the logistics development trends.

Findings: The paper indicates normalized gaps between 10 ASEAN countries in terms of logistics performance. Findings also indicates overall logistics performance of ASEAN as a single entity.

Originality/value: The findings help understanding logistics performance and limitation of each country.

Keywords: ASEAN Economic Community, Logistics Performance Index

REDESIGN A TIME RESPONSIVE DISTRIBUTION NETWORK USING SIMULATION

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[b] NUS Business School, National University of Singapore, Singapore

ABSTRACT

Purpose: This research aims to redesign a more effective distribution network for a fast-moving consumer goods (FMCG) company in Singapore so as to ensure a higher service level with minimized cost structure.

Design/methodology/approach: Both strategic and operational approaches are applied in this study. At the strategic level, well-known distribution network models are introduced and five most important factors required for selecting the design of the distribution network for the company (response time, product availability, inventory, transportation, and facility & handling) were identified. After analysing the delivery data of the company, two demand and delivery patterns were identified for the five current delivery channels. For the second part of the study, at operational level, an agent-based simulation model is developed to investigate the trade-off analysis of service level versus cost. Clustering method is implemented to aggregate demand points according to their geographical locations.

Findings: At strategic level, two different distribution network designs are recommended for identified demand and delivery patterns. For the first demand pattern, manufacturer storage with direct shipping is suggested while distributor storage with last mile delivery is recommended for the second demand pattern. At the operational level, the simulation model assists the company to analyse the effects of different scenarios such as opening a new DC, modifying fleet size, changing replenishment policy, closing/opening channel(s), etc. For instance, the results reveal that adding a new distribution centre reduces the total transportation costs by 20%. This cost saving covers new DC's expenses such as rental, manpower, etc.

Practical implications: The Company uses the simulation model findings mainly to locate the new distribution centre and adjust the transportation fleet size and DCs inventory levels.

Originality/value: It adds value to the previous literature on supply chain networks by providing a real life case study. This study is able to support decision makers to design a cost effective and time responsive distribution network, in consideration of the trade-off analysis of service level versus cost.

Keywords: Distribution network, Simulation model, Service level, Operational costs, Consolidated deliveries.

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Admission to the program will be based on the Admission Committee's careful evaluation of the applicant's qualifications.

Master's degree requirement

Applicant must hold a Master's degree in related field.

Interview

Applicant must show strong commitment, strong research capability, and ability to communicate in English.

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Only an applicant enrolling for plan I has to submit a research proposal in area of interest and the Ph.D. executive committee will consider and suggest the dissertation advisor who might be interested in the proposal.

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2) A GMAT score of 550 or GRE score of 1100 (verbal and quantitative parts) or SMART II score of 600 (minimum of 250 for each part) or satisfactory level score of Graduate Program Admission Test taken within 5 years on the application date.
3) Three letters of recommendation
4) A statement of intent to pursue a Ph.D. degree
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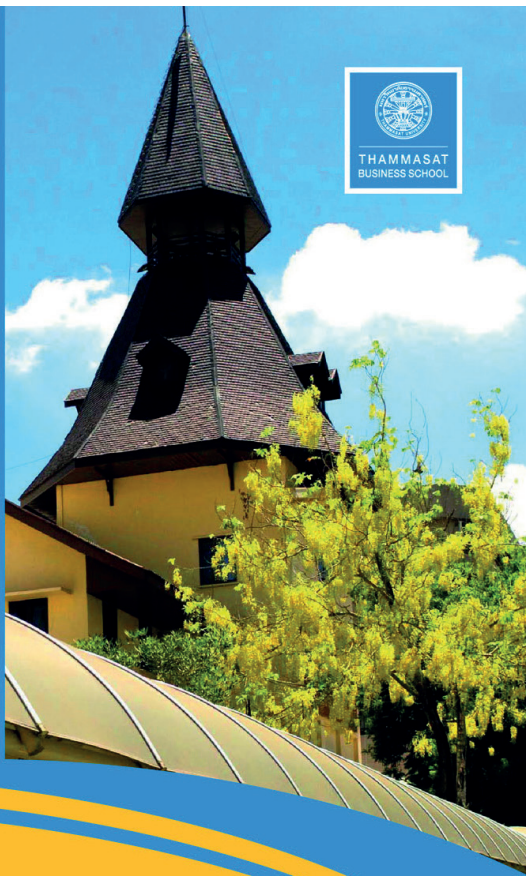

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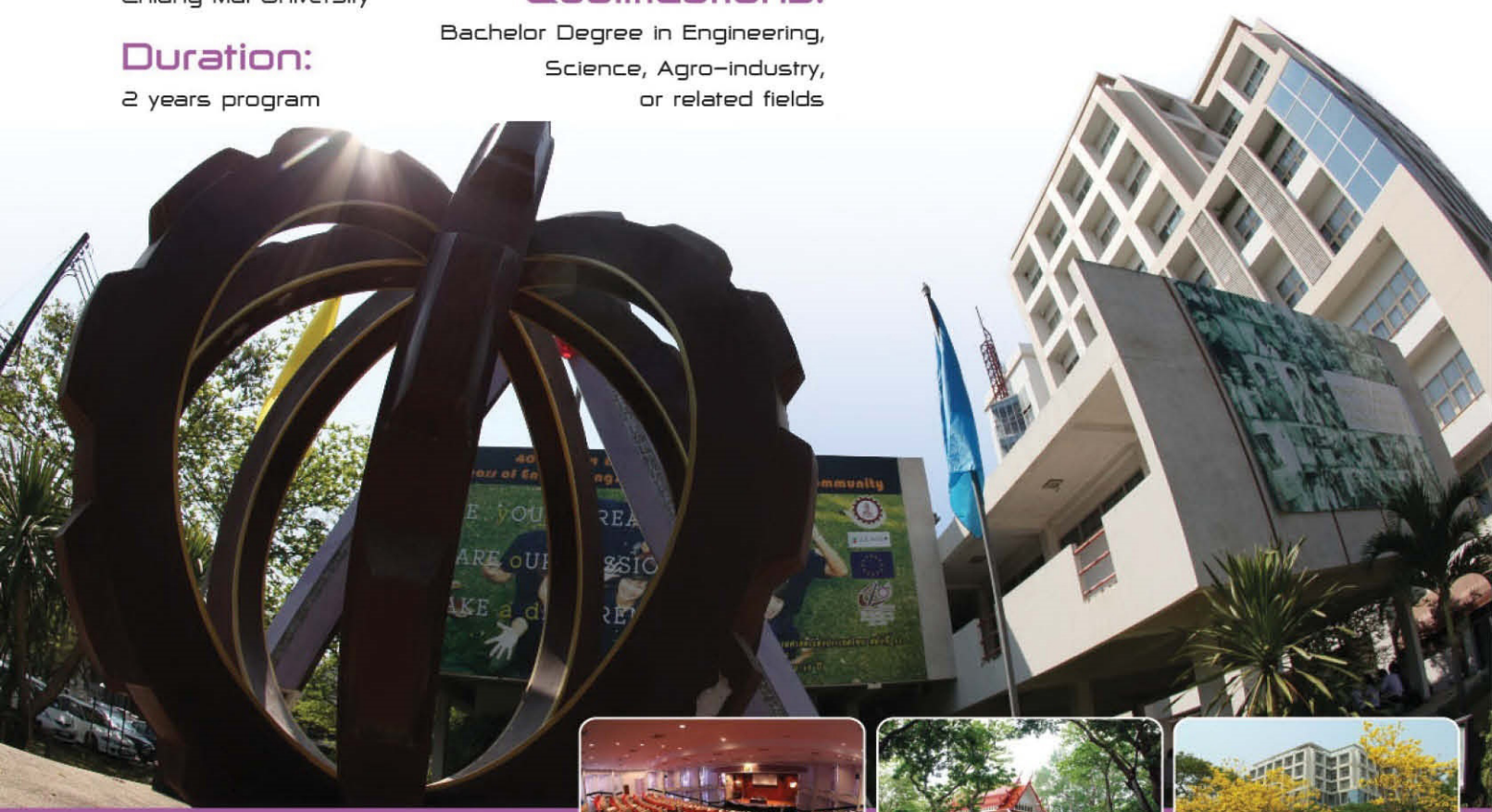

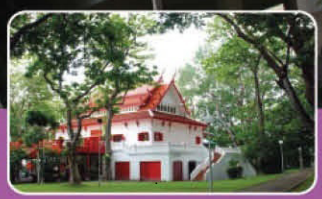

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