

GPRRA 2015

Global Port Research Alliance Conference on “Port and Logistics Connectivity”

Special Session 1: Logistics Connectivity Development in the Wave of Asian Economic Integration

- ❖ **Date: 21 May 2015**
- ❖ **Time: 2:15pm – 3:45pm**
- ❖ **Venue: R1109, R Core (Shirley Chan Building), PolyU**

In the Asia-Pacific region, several regional economic blocks have been developing in tandem with free trade agreements (FTAs). Both trade and logistics activities have impressively flourished among the member countries over the past decades. Organised by Soochow University and National Taipei University in Taiwan, this session aims to deal with logistics connectivity development in the Asia-Pacific region.

- Recently, the Association of Southeast Asian Nations (ASEAN) is promoting free trade partnerships with other economies in the Asia Pacific region. Based on the observations in ASEAN, the first study conjectures that trade liberalisation and logistics development are mutually reinforced.
- To examine the first effect (derived demand) and the second effect (supply), the second study of this session uses a case study approach to draw implications of Trans-Pacific Partnership (TPP) on the maritime logistics. The insight of this study facilitates the optimal design of maritime logistics policies in the era of trade liberalisation.
- The third study aims to analyse the interaction mechanism and spatial development pattern of port-hinterland system. The method of grey correlation analysis is utilized to establish a model to measure the correlation degree of port-hinterland. Empirical data from the Liaoning Economic Region is employed to illustrate the correlation measure of port-hinterland system.

Session Chair: Prof. Paul T-W Lee, Soochow University, and Dr T.C. Lee, National Taipei University

Title	Author(s)
The Role of Logistics in Trade Facilitation: The Lessons from ASEAN	Yu Pang, Kee-hung Lai, Christina W.Y. Wong, and Venus Y.H. Lun (The Hong Kong Polytechnic University)
Implications of New Generation Free Trade Agreements on Maritime Logistics in Asia: A Case Study of Trans-Pacific Partnership	Tsung-Chen Lee (National Taipei University), and Paul T-W Lee (Soochow University)
Correlation Measure of Port-Hinterland System: Empirical Evidence of China Dalian Port and Liaoning Economic Region	Dan Li (Liaoning University)

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Special Session 2: Sustainable Connectivity Management in Logistics Clusters

- ❖ **Date:** 21 May 2015
- ❖ **Time:** 4:15pm – 5:45pm
- ❖ **Venue:** R1109, R Core (Shirley Chan Building), PolyU

The aim of the session is to deepen the notion of connectivity for logistic clusters through interchange of different views on connectivity and the ways of its management. Organised by the Asian German Knowledge Network (AGKN), this session consists of five studies.

- The first study discusses a management control system for the sustainable development of seaport clusters which are at the same time transshipment hubs in green transport corridors. Based on the Key Performance Indicators (KPI) system of East-West Transport Corridor (EWTC) together with green corridor balanced scorecard, this study presents a strategic approach for sustainable development of sea port clusters to solve the weaknesses of the existing green corridor.
- To examine the distribution of cooperation benefits in port cooperation, Shapley value and τ -value are compared and evaluated in the second study. Although the core concept suffers from the problem that there is sometimes an empty set and even when the core is a non-empty set it usually admits a continuum of solutions, it is shown that the application is adequate in the context of port cooperation.
- The third study presents a systems thinking approach for analysing the benefits for port cooperation. The approach is useful for designing a systems dynamic model. The benefits are related to green sustainability, strategic flexibility, economic operations, logistics clusters development, and trade facilitation. Related examples for port cooperation are also outlined.
- The fourth study works out three themes, i.e., innovation through better communication and cooperation, regional economic development through cluster formation, and sustainable-driven logistics economics. This study uses a methodic approach to provide answer on whether and to what extent cluster management succeeds in promoting innovation and contributing to a more sustainable entrepreneurial and regional-economic development.
- To improve value chain of Vietnam export goods through efficient port logistics, the fifth study discusses the significance of logistics port sector in improving value chain, evaluates the Vietnam logistics sector, finds out specific solutions, and provides suggestions to both the government and the local logistics service providers to make necessary decisions.

Session Chair: Prof. Hans-Dietrich Haasis and Prof. Irina Dovbischuk, University of Bremen

Title	Author(s)
Sustainable Sea Port Clusters within Green transport Corridors	Gunnar Prause (Tallinn University of Technology)
Game Theoretic Benefit Allocation in Horizontal Port Cooperation	Dirk Sackmann, and Alexandra Rittmann (University of Applied Sciences Merseburg)
Systems Thinking Approach for Analyzing Benefits for Port Cooperation	Hans-Dietrich Haasis (University of Bremen)
Co-opetition in logistic regions for port connectivity	Irina Dovbischuk (University of Bremen)
Improving value chain through efficient port logistics	Ho Thi Thu Hoa (Ho Chi Minh City University of Transport), and Hans-Dietrich Haasis (University of Bremen)

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Special Session 3: Risk Management in Port and Maritime Logistics

- ❖ **Date: 22 May 2015**
- ❖ **Time: 9:00am – 10:30am**
- ❖ **Venue: R1108, R Core (Shirley Chan Building), PolyU**

Ports and shipping are considered as one of the most important causes for uncertainty in trade and logistics flows due to the concentration of goods being transported. Any major disruptions of ports and shipping networks would lead to significant business interruptions and losses causing damaging effects on a country's or region's economy. Organised by Nanyang Technological University, this session aims to examine risks in port and maritime logistics.

- Disruptions in a port can have a wide range of potential negative impacts on its transportation networks; while sometimes also benefit other ports in close proximity. The first study aims to present a model for a port-centric transportation network to investigate the long-term impact and management of port disruption risks. A numerical study based on the Tokyo Bay ports is presented to illustrate the long-term effect of risk mitigation strategies.
- The second study proposes a novel Failure Mode and Effects Analysis (FMEA) approach for assessing the safety performance of Container Terminal Operation System CTOS. This new approach is developed through incorporating a Fuzzy Rule-Based Bayesian Network (FRBN) with evidential reasoning (ER) in a complementary way. The FMEA is capable of facilitating risk evaluation of each Hazard Event (HE). A sensitivity analysis is also carried out to rank the HEs by taking into account their risk estimates (internally) and their risk influences to the port safety system (externally).
- By conducting literature review, the third study systematically presents the risk classifications. This study proposes a quality management-based improvement framework to facilitate the investigation of port logistics risk. The authors have also introduced a step-by step approach for improvement actions.

Session Chair: Dr Jasmine Siu Lee Lam, Nanyang Technological University

Title	Author(s)
Evaluating Performance of a Port-Centric Transportation Network under Disruption Risks	Jasmine Siu Lee Lam, and Yi Zhang (Nanyang Technological University)
Advanced uncertainty modelling for container port risk analysis	Hani Ai Yami, Zaili Yang, Ramin Riahi, Stephen Bonsall, and Jin Wang (Liverpool John Moores University)
Port logistics risk: classifications and quality management-based improvement framework	Kee-Hung Lai, Venus Y.H. Lun, and Wenting Zhu (The Hong Kong Polytechnic University)

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Special Session 4: Chinese Port and Logistics Studies

- ❖ **Date:** 22 May 2015
- ❖ **Time:** 11:00am – 12:30pm
- ❖ **Venue:** R1108, R Core (Shirley Chan Building), PolyU

This special session is designated for showcase the current development of Chinese port and logistics studies to the scholars from other parts of the world, to promote the information exchange and encourage further collaboration among global researchers in port and logistics studies. Organised by the IMC-Frank Tsao Maritime Library and R&D Centre of The Hong Kong Polytechnic University, this session consists of four studies.

- The first study aims to design a container shipping network for an inland river shipping company in a hub-and-spoke manner. To achieve this objective, the issue economies of scale is firstly explored, and a mixed-integer linear programming model is then proposed. Numerical experiments for container shipping along the Yangtze River are also carried out to illustrate the effectiveness of the proposed model.
- The second study examines the transport accessibility in China. This study consists of four stages: (1) define the concept of regional accessibility and identify the impacting factors, (2) analyse the path choice and build a model to calculate the international shipping accessibility, (3) use 358 cities in mainland China to build land transport network and shipping line network with ports as intermediate nodes, and (4) evaluate the international shipping accessibilities.
- The third study develops a simple index to delineate the spatial changes of the Shanghai gateway-hinterland relationship. A panel data model is applied for the determination of major factors for the hinterland evolution of the Shanghai Port. The authors identify the crucial factors being the corridors from a port to its hinterland, the economy development of hinterland and port competition. This study suggests that proper policy should be adopted for hinterland development in conjunction with port development.
- The fourth study aims to ascertain whether the coal containerisation will become an alternative transport mode for moving lump coal from the north to the south of China. Extensive field investigation and data analyses show that the cost difference between container mode and bulk shipping mode is not as significant as expected if factors such as fragmented demand, environment pressure, and geographic distribution characteristics of customers are taken into consideration.

Session Chair: Dr Meifeng Luo, The Hong Kong Polytechnic University

Title	Author(s)
Hub-and-spoke network design for container shipping along the Yangtze River	Jianfeng Zheng (Dalian Maritime University), and Dong Yang (China Waterborne Transportation Research Institute)
Evaluation of Ocean Shipping Accessibility for Mainland China	Guo Liquan, and Yang Zhongzhen (Dalian Maritime University)
Investigating the gateway-hinterland relationship: An empirical evidence from Shanghai, China	Yang Jinglei (Nankai University), Luo Meifeng (The Hong Kong Polytechnic University), and Ji Abing (Fudan University)
Study on the availability and trend of coal containerization in China	Dong Yang (China Waterborne Transport Research Institute), Jinxian Weng (Shanghai Maritime University), and Jia Hu (China Waterborne Transport Research Institute)

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Special Session 5: Contemporary Research in Logistics

- ❖ **Date: 22 May 2015**
- ❖ **Time: 1:45pm – 3:15pm**
- ❖ **Venue: R1108, R Core (Shirley Chan Building), PolyU**

The aim of this special session is to present recent research methodologies and models for solving logistics problems, and report their analytical findings. Organised by the Logistics Research Centre of The Hong Kong Polytechnic University, this session consists of three studies.

- The issue of traffic congestion affects the selection of distribution channel. The first study investigates distribution strategy concerning e-commerce. A theoretic model is established in this study to examine the impact of e-commerce on traffic congestions and social welfare. Based on the findings, public policies are proposed to align the firm's channel incentive with the social interests.
- The risk of accidents faced by an enterprise depends on its own risk management strategy and other stakeholders in the cluster. To reduce the probability of accidents, enterprises need to take investment strategy. This study establishes an N-enterprise investment game to analyse the static game and evolutionary game for the safety investment in the chemical cluster.
- The third study examines the electricity time-of-use tariff. An electricity company offers two tariffs, i.e., the flat rate (FR) tariff and the time-of-use (TOU) tariff. This study aims to derive the optimal capacity investment and pricing decisions for the electricity company. The effects of the demands, market size, proportion of customers using the TOU tariff, and cost parameters on the optimal decisions are also discussed.

Session Chair: Dr Daniel Ng and Dr Johnny Wan, The Hong Kong Polytechnic University

Title	Author(s)
Impact of e-commerce on traffic congestion and social welfare	Jing Shao, Liu Yang, Xiaoqiang Xing, and Hangjun Yang (University of International Business and Economics)
An evolutionary game approach to the safety investment of enterprises in a chemical cluster	Jun Wu, Hui Yang, Yuan Cheng (Beijing University of Chemical Technology), C.T. Ng, and T.C.E. Cheng (The Hong Kong Polytechnic University)
The effects of time-of-use tariff on the pricing and capacity investment for an electricity company	Ciwei Dong, and C.T. Ng (The Hong Kong Polytechnic University)