

OBOR Conference 2016

1 – 2 December, 2016 | RMIT University | Melbourne, Australia

Hosting Institute
and Organiser



School of Business IT and Logistics
RMIT University, Australia

Co-organisers



Jungseok Research Institute
of International Logistics and Trade
Inha University, Korea



International Logistics Research Department
Korea Maritime Institute, Korea



Transport Institute; Asper School of Business
University of Manitoba, Canada

Conference
Sponsor



Soochow Management Academic Foundation
Soochow University, Taiwan

Conference
Supporter



Enabling Capability Platforms (ECPs) Activity
Support Fund
RMIT University, Australia



Asian Logistics Round Table (ALRT)

Contents

CONFERENCE PROGRAMME	1
OPENING CEREMONY	9
CONFERENCE ORGANISERS' WELCOME MESSAGE	10
WELCOMING REMARK	12
PLENARY SESSION (I)	14
KEYNOTE SPEECH (I)	15
KEYNOTE SPEECH (II)	16
COMMITTEES OF 2016 OBOR CONFERENCE	17
2016 OBOR CONFERENCE PAPERS (ABSTRACTS)	21
PAPER CODE & TITLE & AUTHOR	22
PAPER CODE: 005	25
PAPER CODE: 010	26
PAPER CODE: 011	27
PAPER CODE: 016	28
PAPER CODE: 025	29
PAPER CODE: 030	30
PAPER CODE: 035	31
PAPER CODE: 036	33
PAPER CODE: 043	34
PAPER CODE: 051	35
PAPER CODE: 052	36
PAPER CODE: 053	37
PAPER CODE: 061	38
PAPER CODE: 062	39
PAPER CODE: 065	40
PAPER CODE: 070	41
PAPER CODE: 075	42
PAPER CODE: 085	43
PAPER CODE: 091	44

PAPER CODE: 097	45
PAPER CODE: 098	46
PAPER CODE: 101	47
PAPER CODE: 102	48
PAPER CODE: 103	49
PAPER CODE: 110	50
PAPER CODE: 115	51
PAPER CODE: 118	52
PAPER CODE: 128	53
PAPER CODE: 131	54
PAPER CODE: 132	55
PAPER CODE: 133	56
PAPER CODE: 135	57
PAPER CODE: 138	58
PAPER CODE: 139	59
PAPER CODE: 140	60
PAPER CODE: 142	61
PAPER CODE: 143	62
PAPER CODE: 145	63
PAPER CODE: 146	64
PAPER CODE: 147	65
PAPER CODE: 150	66
PAPER CODE: 151	67
PAPER CODE: 152	68
PAPER CODE: 153	69
PAPER CODE: 154	70
PAPER CODE: 157	71
PAPER CODE: 167	72
PAPER CODE: 168	73
PAPER CODE: 170	74
PAPER CODE: 171	75
PAPER CODE: 172	76
PAPER CODE: 173	77
PAPER CODE: 174	78
PAPER CODE: 181	79
PAPER CODE: 182	80
PAPER CODE: 183	81
PAPER CODE: 184	82

PLENARY SESSION (II) **83**

ECP WORKSHOP FOR OBOR 83

CONFERENCE INFORMATION **85**

CAMPUS MAP 86

CONFERENCE GALA DINNER BY YARRA RIVER CRUISE 87

ACKNOWLEDGEMENTS TO THE ANONYMOUS REVIEWERS 88

AUTHORS INDEX 89

THE ASSOCIATED JOURNALS 93

Conference Programme

30 November, 2016

14:00-17:00 **Colloquial Meeting: Pre-conference event**

Venue: RMIT University, Building 80, Level 1, Room 2, Cinema, City campus, 445 Swanston Street, Melbourne

Event Organisers: Professor Prem Chhetri, Professor Paul Tae-Woo Lee

"Hub Connectivity and Applications"

» **Professor Anming Zhang**, YVR Authority Chair Professor in Air Transportation, University of British Columbia, Canada

"Date with Editor-in-Chief for Research & Publication"

» **Professor Jiuh-Biing Sheu**, Editor-in-Chief, *Transportation Research Part E: Logistics and Transportation Review*, National Taiwan University, Taiwan

"My Recent Research in Green Transportation and Logistics"

» **Professor Young-Tae Chang**, Inha Fellow Professor, Inha University, Korea; Chairman, **Green REsearch and Education Network (GREEN)**

"Boosting Problem-Solving Skills by Instilling Glocal Mindset"

» **Dr Venus Y.H. Lun**, Associate Head, Department of Logistics and Maritime Studies, Hong Kong Polytechnic University, Hong Kong SAR;
Editor-in-Chief, Int'l Journal of Shipping and Transport Logistics; Editor-in-Chief, Journal of Shipping and Trade

"Quantification of Maritime Risks under Uncertainty"

» **Professor Zaili Yang**, Co-Director of Liverpool Logistics, Offshore and Marine (LOOM) Research Institute, Liverpool John Moores University, UK

Discussant Panel

Kevin Li, Department of International Logistics, Chung-Ang University, Korea

Xiaowen Fu, Institute of Transport and Logistics Studies, The University of Sydney, Australia

Tsung-Chen Lee, Department of Economics, National Taipei University, Taiwan

Q & A – Professor Chandra Lalwani, University of Hull, UK; Adjunct Professor, RMIT University, Australia

18:00-20:30 **Welcome Reception**

Venue: RMIT University, Green Brain, Building 22, Swanston Street, Melbourne (Dress code: Smart casual)

1 December, 2016

08:20-09:00 Registration

Venue: RMIT University, Building 80, Level 4, Room 06, Swanston Street, Melbourne

09:00-09:30 Opening ceremony

09:00-09:05 Opening Remark by Conference Chairman: **Professor Paul Tae-Woo Lee**, School of Business IT and Logistics, RMIT University, Australia

09:05-09:08 Welcome to Country by **Wurendjeri Elder**

09:08-09:13 RMIT Welcome by **Ms Saskia Hansen**, Executive Director, Global Development and Performance, Australia

09:13-09:18 Welcoming remark by **Professor Caroline Chan**, Conference President; Head of School of Business IT and Logistics, RMIT University, Australia

09:18-09:23 Congratulatory Remark by **Mr Ken Waller**, Director, The Australian APEC Study Centre, RMIT University, Australia

09:23-09:30 Special Appreciation to the Contributors

09:30-09:40 Memorial photo taking with all the conference participants

09:40-10:10 Coffee break (RMIT University Building 80, Level 4)

10:10-12:00 Plenary session (I) chaired by **Professor Prem Chhetri**, School of Business IT and Logistics, RMIT University, Australia

OBOR Keynote speech and Panel discussion

Introduction of Keynote speakers:

“Current Status, Challenges and Opportunities of the ‘One Belt and One Road’ Initiative”

- » **Professor Zaili Yang**, Professor of Maritime Transport, and Co-Director of Liverpool Logistics, Offshore and Marine Research Institute at Liverpool John Moores University, UK.

“Belt & Road: Economic Implications for Australia”

- » **Mr David Olsson**, International lawyer and senior consultant to global law firm King & Wood Mallesons

Discussant Panel

- » **Professor Anming Zhang**, YVR Authority Chair Professor in Air Transportation, University of British Columbia, Canada
- » **Professor Jiuh-Biing Sheu**, Department of Business Administration, National Taiwan University, Taipei, Taiwan
- » **Professor Young-Tae Chang**, Inha Fellow Professor, Inha University, Korea; Chairman, **Green REsearch and Education Network (GREEN)**
- » **Associate Professor Meifeng Luo**, Department of Logistics & Maritime Studies, IMC-Frank Tsao Maritime Library and R&D Center, The Hong Kong Polytechnic University, Hong Kong
- » **Associate Professor Victor Gekara**, School of Business IT and Logistics, RMIT University, Australia

12:00-13:00 LUNCH (RMIT University Building 80, Level 7)

1 December, 2016

13:00-15:00				Paper presentation sessions (A): Challenges and Opportunities in the OBOR (I)				Venue: RMIT University, Building 80, Level 10			
Conference Room		Session A: Room 6		Session B: Room 14		Session C: Room 15					
Session Chairperson		Zaili Yang (Liverpool John Moores University, UK)		Hong-Oanh Nguyen (University of Tasmania, Australia)		Xuehao Feng (Zhejiang University, China)					
13:00-13:40		Paper 051: Challenges and Opportunities of the 'One Belt and One Road' Initiative		Paper 097: Study on Effect Factors on the Value Creation for the Cruise Industry Chain in China Led by the "Belt and Road Initiative" Strategy		Paper 016: Trans Asian Railway: Containerized Trade Opportunities and Challenges for Central and East European Landlocked Markets					
		Anqiang Huang, Lijun Yao, Zaili Yang, Xianliang Shi, Paul Tae-Woo Lee		Ling Qiu, Linkai Qi		Petr Kolar, Hans Joachim Schramm, Günter Prockl					
13:40-14:20		Paper 143: Forecasting Time-Varying Logistics Distribution Flows in the One Belt-One Road Strategic Context		Paper 101: Risk Management in Maritime Fleet Renewal Problem: A CVaR Approach		Paper 043: Infrastructure Charge and Capacity Investment: The Case of One Belt One Road					
		Jiuh Biing Sheu, Tanmoy Kundu		Amir H. Ansaripoor, Sobhan Asian, Shahrzad Faghieh-Roohi, Paul Tae-Woo Lee, Zhi-Hua		Hyosoo (Kevin) Park, Young-Tae Chang					
14:20-15:00		Paper 145: The Impacts of Trade Liberalization on Chinese Economy with OBOR		Paper 102: Assessing the Displacement Effect of Exports with Gravity Trade Model: China's Textile and Clothing case and OBOR Implications		Paper 139: The Primary Exploration of Concept "Beautiful Island Tourism Belt" of New Marine Silk Road Strategy					
		Meifeng Luo, Lingge Zhang, Dong Yang, Kevin Li		Yui Yip Lau, Man Hin Chan, Hong-Oanh Nguyen		Huan Zhang, Xiao Ruan, Xuehao Feng					
15:00-15:20				COFFEE-BREAK (Building 80, Level 10)							

15:20-17:20			
Paper presentation sessions (B): Transportation, Logistics, and Port along the OBOR			
Venue: RMIT University, Building 80, Level 10			
Conference Room	Session A: Room 6	Session B: Room 14	Session C: Room 15
Session Chairperson	Petr Kolar (University of Economics, Czech Republic)	Victor Gekara (RMIT University, Australia)	Jasmine Siu Lee Lam (Nanyang Technological University, Singapore)
15:20-15:50	Paper 005: Resilience in Transportation Systems: A Systematic Review and Future Directions Chengpeng Wan, Zaili Yang, Di Zhang, Shiqi Fan, Xiping Yan	Paper 103: Logistics as a Driving Force for Economic Growth—The Chinese Model for Developing Countries Kevin X Li, Mengjie Jin, Guanqiu Qi, Adolf K.Y. Ng, Wenming Shi	Paper 010: Impacts of the Carat Canal on the Evolution of Hub Ports along the 21st-Century Maritime Silk Road Qingcheng Zeng, Grace W.Y. Wang, Kevin Li, Chenrui Qu
15:50-16:20	Paper 030: Horizontal Merger and Efficiency - An Empirical Investigation of Government-guided Mergers of Chinese Airlines Jia Yan, Xiaowen Fu, Tae Oum, Kun Wang	Paper 147: Agricultural Products from Wellcamp to China: Distributing Channels and the Role of Cold Chain Logistics Shane Yahua Zhang, Alice Woodhead	Paper 065: Chinese Container Port Sector: Performance and Readiness for the Silk Road Strategy Quan Zhang, Hong-Oanh Nguyen, Quazi Sakalayan
16:20-16:50	Paper 035: A General-Equilibrium Analysis of Airport Pricing, Capacity and Regulation Yukihiro Kidokoro, Ming Hsin Lin, Anming Zhang	Paper 150: Weighing Logistics Strategy Factors of One Belt and One Road Initiative using Fuzzy Multiple Criteria Decision Making (FMCDM) Ying Wang, Gi-Tae Yeo, Paul Tae-Woo Lee, Vinh V. Thai	Paper 140: Impact of One Belt One Road on port competitiveness using the Balanced Theory approach Douglas Hales, Jasmine Siu Lee Lam, Young-Tae Chang
16:50-17:20	Paper 132: Foldable Container in Empty Container Repositioning in Intermodal Transportation Network of OROB: Strengths and Limitations Xuehao Feng, Xiao Ruan, Shuzhu Zhang	Paper 154: An Analysis of Logistics Capabilities: A Case Study of Myanmar Theingi Lwin, Hyun-Duk Kim, Ahmad Abareshi, Paul Tae-Woo Lee	Paper 173: The Risk Assessment Model of International Multimodal Transport System Based on Complex Network Hongjie Lan, Lijun Yao
18:45-22:00	River Cruise Conference Dinner - Pickup and Drop off point: Federation Wharf, Yarra River, Corner Princes Bridge & Federation Square Complex - Vessel name: Yarra Countess - Dress code: Business casual		

2 December, 2016

08:50-10:10

Paper presentation sessions (C): Shipping, Trade and Connectivity

Venue: RMIT University, Building 80, Level 10

Conference Room

Session A: Room 6
(Level 10)

Session B: Room 14
(Level 10)

Session C: Room 15
(Level 10)

Session Chairperson

Juliang Zhang
(Beijing Jiaotong University, China)

Shu-Ling (Peggy) Chen
(University of Tasmania, Australia)

Koichiro Tezuka
(Nihon University, Japan)

08:50-09:10

Paper 011: Passage Safety Evaluation of 21st Century Maritime Silk Road

Jing Lu, Shuang Wang

Paper 091: Korean Connectivity of Container Transportation with OBOR Initiative

Kevin X. Li, Tae-Joon Park, Paul Tae-Woo Lee, Wenming Shi

Paper 052: Economic Linkage Between Shipping Freight Rate and Commodity Markets

Masahiro Ishii, Motokazu Ishizaka, Koichiro Tezuka

09:10-09:30

Paper 061: A Study on How to Improve the Effectiveness of IoT-based Fleet Management

Kangbae Lee, Doo-hwan Kim, Hyung Rim Choi, Byung Kwon Park, Min-je Cho, Dong Yeon Kang

Paper 131: Implications of One Belt One Road for Malaysian Connectivity to International Trade Routes

Jagan Jeevan, Shu-Ling Chen, Hilary Pateman

Paper 110: Key Impediment Factors of Free Trade Zone Development in Korea and Taiwan

InKyo Cheong, Cheng-Wei Lin, Kyoungsuk Choi, Paul Tae-Woo Lee

09:30-09:50

Paper 146: Evaluating Economic and Environmental Value of Liner Shipping Vessel Sharing in the Maritime Silk Road

Xuan Qiu, Eugene Y.C. Wong, Jasmine Siu Lee Lam

Paper 157: Social Network Perspective on Trade in Value Added: Focused on the Logistics Industry

Kisoon Hyun, Junyeop Lee

Paper 168: Factors Influencing Chartering Behavior of Container Shipping Lines with Reference to the Case of Hanjin Shipping Company

Paul Tae-Woo Lee, Sung-Ho Shin, Sung-Woo Lee

09:50-10:10

Paper 167: China and Shipping Market

Dae-Sik Lim, Yuan-Yuan Mu, Kwangbae Lee

Paper 098: A Study on Linking Myanmar's Transport Networks to OBOR

Joo-Hyung Lee, Hyun-Duk Kim

Paper 133: Simulation System for Automated Loading Equipment at Warehouse

Yong-Seok Choi

10:10-10:30

COFFEE-BREAK (Building 80, Level 10)

2 December, 2016

10:30-12:00

Paper presentation sessions (D): Cluster and Corridors in the OBOR

Venue: RMIT University, Building 80, Level 4 and Level 10

Conference Room	Session A: Room 6 (Level 10)	Session B: Room 14 (Level 10)	Session C: Room 15 (Level 10)	Session D: Room 6 (Level 4)
Session Chairperson	Prem Chhetri (RMIT University, Australia)	Meifeng Luo (The Hong Kong Polytechnic University, Hong Kong)	Hwa-Joong Kim (Inha University, Korea)	Special session: Data-driven maritime network analysis Zhi-Hua Hu (Shanghai Maritime University)
10:30-11:00	Paper 025: Strategic Investment in Enhancing Port-Hinterland Container Transportation Network Resilience: A Network Game Theory Approach	Paper 085: An Exploratory Study on Policy of the Public-Private Partnership to Develop Seaport in Vietnam	Paper 053: Locating Electric Vehicle Charging Stations for Load Balancing	Paper 181: Dry-port-based Hub-and-Spoke Logistics Networks for Inland Regions in China Connected to OBOR
	Hong Chen, Jasmine Siu Lee Lam, Nan Liu	Hyung Rim Choi, Thi My Hanh Le, Luis Alfredo Martínez Alfaro	Woosuk Yang, Oh-Seong Kwon, Hwa-Joong Kim, Kyung-Yeon Lee	Hairui Wei, Zhaohan Sheng
11:00-11:30	Paper 142: Global Logistics City Concept: Developing a Cluster-led Strategic Policy Framework	Paper 115: Public Private Partnership Investment to Execute Policies of Port Community System in Central America	Paper 062: An IoT based Dynamic Demand Forecasting Method: Focusing on the Tire Industry	Paper 183: Networking Australia ports embedded in global maritime network
	Prem Chhetri, Konrad Peszynski, Mathews Nkhoma, Anjali Chhetri, Paul Tae-Woo Lee	Luis Alfredo Martínez Alfaro, Hyung Rim Choi, Thi My Hanh Le	Kangbae Lee, Dong Yeon Kang, Hyung Rim Choi, Byung Kwon Park, Min-je Cho, Doo-hwan Kim	Zhi-Hua Hu, Wan-Ying Yao, Chen Wei
11:30-12:00	Paper 153: Port Cluster Configuration along Maritime Silk Road in the Context of Industry Transfer and Site Production Capacity	Paper 138: Economic Significance of China-Pakistan Economic Corridor: A Quantitative Analysis	Paper 128: Optimization on Route Selection and Fleet Allocation of China's Crude Oil Import after Arctic Routes Opening	Paper 184: Ranking maritime ports based on a network of vessel flows
	Dongxu Chen, Zhongzhen Yang	Tsung-Chen Lee, Paul Tae-Woo Lee	Zhenhua Yang, Yanning Jiang, Zhihong Jin, Hui Zhu	Zhi-Hua Hu, Chan-Juan Liu, Yang-Yang Hao

12:00-13:00

Lunch (RMIT University, Building 80, Level 10)

2 December, 2016

13:00-15:00			
Paper presentation sessions (E): Challenges and Opportunities in the OBOR (II)			
Venue: RMIT University, Building 80, Level 10			
Conference Room	Session A: Room 6	Session B: Room 14	Session C: Room 15
Session Chairperson	Special session: Multi-modal Transport in the OBOR Region Xiaowen Fu (University of Sydney, Australia) Xianliang Shi (Beijing Jiaotong University, China)	Mu-Chen Chen (National Chiao Tung University, Taiwan)	Zhihong Jin (Dalian Maritime University, China)
13:00-13:30	Paper 118: Opportunities and Challenges Associated with the Development of Sino-Europe Block Trains in the Perspective of “B&R” Initiative Yitong Ma, Xianliang Shi, Lamei Zhang	Paper 036: Evaluating the Supply Chain Disruption Risks of 21st Century Maritime Silk Road: Case of Taiwan Kai-Chieh Chia, Mingying Lu, Kai-Chieh Hu	Paper 070: Development of a Framework for IoT-Based Container Tracking System for Global Logistics Security and Visibility Hyung Rim Choi, Young Sik Moon, Jae Joong Kim, Jae Kee Lee, Chae Su Kim, Byung Kwon Park, Kang Bae Lee, Joog Jo Shin
13:30-14:00	Paper 170: Container Shipping in Northern Sea Route and its Environmental Costs Shengda Zhu, Xiaowen Fu, Meifeng Luo, Adolf K.Y. Ng	Paper 075: Circular Containership Routing with Speed Optimization Dong-Hoon Son, Woo-Suk Yang, Hwa-Joong Kim	Paper 135: Supply Chain Security Initiatives: The Authorized Economic Operator and Indonesia’s Experience Dicky Hadi Pratama, Sophia Everett
14:00-14:30	Paper 171: Design of Hub-and-Spoke Network for Indonesian Maritime Port Development Ningwen Tu, Dimas Adiputranto, Xiaowen Fu, Zhichun Li	Paper 151: Evolution of OBOR Initiative and Its Impacts on Japan’s Companies Operating in China Ippei Machida, Mu-Chen Chen	Paper 152: Korean Peninsula’s Logistics Collaboration for Accomplishing the ‘One Belt One Road’ Policy Sung-Woo Lee, Soo-yong Shin
14:30-15:00	Paper 172: Impacts of the “One Belt, One Road” Strategy on the Wine Industry Development in Mainland China Yui Yip Lau, Ka-chai Tam, Adolf K.Y. Ng, Xiaowen Fu, Zhang Jing	Paper 174: Impacts of Infrastructure Developments under “One Belt One Road” Initiative: A Trade Network Perspective Booi Kam, Leon Kok Yang Teo, Duy Dang-Pham, Mathews Nkhoma, Siddhi Pittayachawan, Ahmad Abareshi	Paper 182: Maritime connectivity between Australia and the Maritime Silk Road Zhi-Hua Hu, Zheng-Xuan Yang, Wen-Wen Zhao, Jian-Kun Hu
15:00-15:30	COFFEE-BREAK (Building 80, Level 4)		

15:30-16:30 **Plenary session (II):**
ECP Workshop for OBOR chaired by Professor Young-Tae Chang, Inha Fellow Professor, Inha University, Korea
Professor Anming Zhang, University of British Columbia, Canada

Venue: RMIT University, Building 80, Level 4, Room 06, Swanston Street, Melbourne

Welcoming remarks:

» **Speech by Paul Tae-Woo Lee** (Conference Chair; RMIT University, Australia), **Zhi-Hua Hu** (Shanghai Maritime University, China), and **Sang-Jeong Lee** (Korea Advanced Institute of Science and Technology, Korea)

» **Discussants:**

Professor Zhihong Jin, Dalian Maritime University, China

Professor Prem Chhetri, RMIT University, Australia

Professor Junyeop Lee, Inha University, Korea

Associate Professor Jasmine S.L. Lam, Nanyang Technological University, Singapore

» **Building OBOR Research Network**

16:30-17:00 **Closing ceremony**

» **Chaired by** Professor Paul Tae-Woo Lee, Conference Chairman; RMIT University, Australia

» **Best paper award by** Professor Anming Zhang, Chairman of the OBOR Prize Committee; University of British Columbia, Canada

» **Best reviewer award by** Professor Paul Tae-Woo Lee, Conference Chairman; RMIT University, Australia

» **Closing remark by** Professor Paul Tae-Woo Lee



Opening ceremony

Conference Organisers' Welcome Message

On behalf of the Organizing Committee of the One Belt One Road Conference 2016, we welcome all the participants to Melbourne.

In 2013, the Chinese government initiated the concept of the “Silk Road Economic Belt and the 21st-Century Maritime Silk Road” (hereinafter referred to as the One Belt and One Road: OBOR) in tandem with launching the Asia Infrastructure Investment Bank (AIIB) in 2015, in which 57 countries have joined as members. The OBOR aims “to promote the connectivity of Asian, European and African continents and their adjacent seas, establish and strengthen partnerships among the countries along the Belt and Road, set up omni-dimensional, multi-tiered and composite connectivity networks, and realize diversified, independent, balanced and sustainable development in these countries”. Considering the significance of the OBOR, there is a need to investigate its impacts on the global supply chain and international logistics. Having said that, academia, policy makers, and businessmen are encouraged to join this conference under the main theme of the “Silk Road Economic Belt and the 21st Century Maritime Silk Road for Transportation and Global Supply Chain”. The conference touches upon this main theme with experts, scholars and policy makers across the world.

Our conference presentations consist of the following three types:

- 1) Full paper presentation,
- 2) Industry/special session presentations with full paper or ppt file, and
- 3) On-going research presentation with PowerPoint.

The abstracts of all the three types have been included into the Conference Proceedings. We appreciate the 148 authors' joint submissions with single or joint work who come from 18 countries. We also express thanks to reviewers who contributed to enriching the conference papers and improving the conference quality. In addition, the Conference Organisers wish to express their gratitude to the sponsor and supporters for this conference as well as the four Editors-in-Chief of Transportation Research Part E, Maritime Policy & Management, Journal of Transport Geography, and Transport Reviews who have arranged special issues for this conference.

Last but not least, we extend our gratitude to RMIT University in particular the Enabling Capability Platforms and the College of Business for funding a special session and OBOR Colloquium for researchers, respectively. Without their gracious contributions and support, this event would not have been held.

Once again, we welcome all of you and wish that you have enjoyable time and make indelible memory in Melbourne.

Conference Organisers:

Professor Paul Tae-Woo Lee, School of Business IT and Logistics, RMIT University, Melbourne, Australia

Professor Oh Kyoung Kwon, Director of Jungseok Research Institute of International Logistics and Trade, Inha University, Incheon, Korea

Dr Sung-Woo Lee, Director General, Port and Logistics Research Division, Korea Maritime Institute, Busan, Korea

Professor Adolf K.Y. Ng, Director, Transport Institute, Asper School of Business, University of Manitoba, Winnipeg, MB, Canada

Welcoming remark



Professor Caroline Chan

Conference President; Head of School of Business IT and Logistics, RMIT University, Australia; President, Australian Council of Professors and Heads of Information Systems (ACPHIS)

It gives me great pleasure to extend to you all a very warm welcome on behalf of the School of Business IT and Logistics at RMIT University and to say how grateful we are to have your participation in the first One Belt One Road (OBOR) conference in RMIT University, Melbourne.

I consider this event as an opportunity to establish and renew contacts, to discuss issues of mutual interest with the academia and with industry practitioner participants and to strengthen our joint efforts in offering solutions to the problems that the logistics, transport and supply chain communities are facing in the world, particularly in relation to the OBOR initiatives or their implications.

While many OBOR conferences have been held in the past few years, most of these have focused on the implications of the policy to economic growth and the benefits coming from infrastructure investments as a result of such a policy. Noting that the agenda of the current conference cover a wide range of interesting paper presentations and panel discussions is gratifying. These are all relevant to the implications of the introduction of the OBOR policy since 2013.

Undoubtedly, China's OBOR policy, which was introduced in 2013, has generated considerable interest in the academia and business community because it could open up significant market access opportunities with many countries. Although China's economic growth has slowed down in recent times, China's commitment and ambitious OBOR initiative to invest in infrastructure over the next decade or so has the potential to address logistics, transport and supply chain issues, as well as to rejuvenate economic activities not only in China but throughout the region. Therefore, I consider this conference as a venue for collaboratively discussing such issues, enhancing our understanding of the implications of these issues and potentially offering some resolutions.

The concept of OBOR, which has a geographic part that links China to the various countries in Europe, the Middle East and Central Asia, will undoubtedly have many implications to the area of transport logistics, the network of ports and maritime roads, an emerging area that RMIT researchers are interested in and have been growing their capabilities.

Many efforts have been made around the world in terms of research activities in these areas, including major investments in research funds and research activities. Through this conference, in which many scholars are gathered, I am hopeful that we can have a collective approach to developing research ideas and collaborative projects that address the issues posed by businesses and industries. I strongly believe that no matter how much we can do by ourselves, whether it be in terms of research or development, having a spirit of true cooperation and collaboration in our actions and efforts is always better to resolve our common problems.

In conclusion, I wish you all every success in your presentations, discussions, deliberations and networking activities. Have a productive conference, and enjoy your very pleasant stay in Melbourne.

Bionote: Professor Caroline Chan is head of the School of Business IT and Logistics and is a full professor of information systems. She is currently the president of the Australian Council of Professors and Heads of Information Systems (ACPHIS), the prime body representing Australian academics in the field of information systems in matters of national and international importance. Caroline undertakes research in e-business and supply chain management, particularly in the use of standards and technologies in the supply chain. She chairs and is a member of various academic and industry initiatives and projects including food composition database, healthcare data crunch and low value parcel processing.

Plenary session (I)

Chaired by

- **Professor Prem Chhetri**

School of Business IT and Logistics, RMIT University, Australia

Keynote speech

- **Professor Zaili Yang**

Professor of Maritime Transport, and Co-Director of Liverpool Logistics, Offshore and Marine Research Institute at Liverpool John Moores University (LJMU), UK.

- **Mr David Olsson**

International lawyer and senior consultant to global law firm King & Wood Mallesons

Discussants

- **Professor Anming Zhang**

YVR Authority Chair Professor in Air Transportation
University of British Columbia, Canada

- **Professor Jiuh-Biing Sheu**

Department of Business Administration
National Taiwan University, Taiwan

- **Professor Young-Tae Chang**

Graduate School of Logistics
Inha University, Incheon, Korea

- **Associate Professor Meifeng Luo**

Department of Logistics & Maritime Studies,
IMC-Frank Tsao Maritime Library and R&D Center
Faculty of Business, The Hong Kong Polytechnic University

- **Associate Professor Victor Gekara**

School of Business IT and Logistics
RMIT University, Melbourne, Australia

Keynote speech (I)

“Current Status, Challenges and Opportunities of the ‘One Belt and One Road’ Initiative”



Professor Zaili Yang

Professor of Maritime Transport, and Co-Director of Liverpool Logistics, Offshore and Marine Research Institute at Liverpool John Moores University (LJMU), UK.

Prof. Yang’s research interests are system safety, security and risk based decision making modelling, especially their applications in marine and supply chain systems. He has successfully completed 4 postdoctoral and 11 PhD projects. He currently has 1 postdoctoral and 11 PhD students under his supervision in the research areas of maritime safety, logistics operation and port optimisation.

His research findings have been published in more than 150 technical papers in risk and supply chain areas, including 60 refereed journal papers. Prof. Yang is a member of editorial boards of seven international journals. He has also served as a member of review boards for national research councils of USA, UK, Norway and China etc.

He has won several awards for his research work including an award for outstanding contributions to scholarship and research in Maritime Operation Safety and Risk Analysis in International Conference on Reliability, Infocom Technology and Optimisation in 2010 and an Eagle Prize for Outstanding Potential Young Scholars in Maritime Research, awarded during IAME 2012 Conference, Taipei, September 6-8, 2012.

<https://www.ljmu.ac.uk/about-us/staff-profiles>

Keynote speech (II)

Belt & Road: Economic Implications for Australia

- What are the potential economic implications of OBOR?
- What opportunities might Australia see?
- How do we take advantage of those opportunities?



Mr David Olsson

International lawyer and senior consultant to global law firm King & Wood Mallesons

David Olsson is an international lawyer and senior consultant to global law firm King & Wood Mallesons. He has a particular interest in the development of China's financial markets and cross-border capital flows. He chairs an Australian government sponsored and private sector led initiative that is promoting the use of Renminbi for trade, finance and investment in Australia, and leads a NSW government committee supporting Sydney's position as the leading offshore RMB centre in Asia Pacific region. He is also on the advisory board of the *Australia-China One Belt, One Road Initiative* which was launched in mid 2016 to promote participation by Australian companies in China's economic development program. David was senior partner of KWM in Beijing for nearly 6 years (2008 – 2013). Prior to this he was a Managing Partner of the Australian firm with over 30 years' experience as a specialist in the areas of cross-border investments, debt capital markets and corporate finance. He is a former Chairman of the Australian Chamber of Commerce, Beijing (2010 – 2013), a member of the executive committee of Australia China Business Council (Victoria) and on the advisory board of policy think-tank China Matters and the Australia-China One Belt, One Road Initiative. He was appointed a member of the Australia China Council in January 2013.

Committees of 2016 OBOR Conference

Conference President

Professor Caroline Chan

Head of School, School of Business IT and Logistics
President, Australian Council of Professors and Heads of Information
System (ACPHIS)
RMIT University, Melbourne, Australia

Conference Hosting Institute and Conference Organiser

Professor Paul Tae-Woo Lee

School of Business IT and Logistics, RMIT University
Melbourne, Australia

Conference Co-organiser

Professor Oh Kyoung Kwon

Director, Jungseok Research Institute of International Logistics and Trade,
Inha University, Incheon, Korea

Dr Ken Sung-Woo Lee

Director General
Port and Logistics Research Division, Korea Maritime Institute,
Busan, Korea

Professor Adolf K.Y. Ng

Director, Transport Institute
Asper School of Business, University of Manitoba,
Winnipeg, MB, Canada

Conference Secretary-General

Associate Professor Victor Gekara

School of Business IT and Logistics, RMIT University
Melbourne, Australia

Conference Sponsor

Soochow Management Academic Foundation, Soochow University,
Taiwan

Conference Supporters

Enabling Capability Platforms (ECPs) Activity Support Fund
RMIT University, Australia

Professor Kai-Chieh Hu

Chairman of Asian Logistics Round Table (ALRT)
Soochow University, Taiwan

International Steering Committee (ISC)

Chairman, Paul Tae-Woo Lee, RMIT University

No.	Name	Institute	Country
1	Adland, Roar	Norwegian School of Economics and Business Administration	Norway
2	Bandaralage, Jay	University of Griffith	Australia
3	Bang, Hee-Seok	Chung-Ang University	Korea
4	Casaca, Ana Cristina Paixão	Federal University of Maranhão	Brazil
5	Chang, Young-Tae	Inha University	Korea
6	Chen, Mu-Chen	National Chiao Tung University	Taiwan
7	Cheong, Inkyo	Inha University	Korea
8	Chhetri, Prem	RMIT University	Australia
9	Choi, Hyung-Rim	Dong-A University	Korea
10	Chung, Cheng-Chi	National Taiwan Ocean University	Taiwan
11	Cullinane, Kevin	University of Gothenburg	Sweden
12	Duru, Okan	Texas A&M University at Galveston	USA
13	Emrah Bulut	Yildiz Technical University	Turkey
14	Fawcett, James A.	University of Southern California, LA	USA
15	Fu, Xiaowen	Sydney University	Australia
16	Gillen, David	University of British Columbia	Canada
17	Hoffmann, Jan	International Association of Maritime Economists	Switzerland
18	Hu, Kai-Chieh	Soochow University	Taiwan
19	Hu, Zhi-Hwa	Shanghai Maritime University	China
20	Ishii, Masahiro	Sophia University	Japan
21	Jin, Zhihong	Dalian Maritime University	China
22	Kim, Hwa-Joong	Inha University	Korea
23	Lalwani, Chandra	Hull University	UK
24	Lam, Jasmine Siu Lee	Nanyang Technological University	Singapore
25	Lee, Paul Tae-Woo	RMIT University	Australia
26	Lee, Tsung-Chen	National Taipei University	Taiwan
27	Li, Kevin X.	Chung-Ang University	Korea

28	Lun, Y.H. Venus	The Hong Kong Polytechnic University	Hong Kong, China
29	Luo, Meifeng	The Hong Kong Polytechnic University	Hong Kong, China
30	Meng, Qiang	National University of Singapore	Singapore
31	Ng, Adolf K.Y.	University of Manitoba	Canada
32	Nguyen, Owen Hong-Oanh	Australian Maritime College, University of Tasmania	Australia
33	Notteboom, Theo	Dalian Maritime University	China
34	Pallis, Athanasios A.	University of the Aegean	Greece
35	Parola, Francesco	University of Naples "Parthenope"	Italy
36	Rodrigue, Jean-Paul	Hofstra University	USA
37	Shen, Minghui	Chinese Academy of Social Sciences	China
38	Shi, Xianlin	Beijing Jiao Tung University	China
39	Slack, Brian	Concordia University	Canada
40	Stone, Susan F.	United Nations Economic and Social Commission for Asia and the Pacific	Thailand
41	Strandenes, Siri Pettersen	Norwegian School of Economics and Business Administration	Norway
42	Su, Shong-lee Ivan	Soochow University	Taiwan
43	Suthikarnnarunai, Nanhti	University of the Thai Chamber of Commerce	Thailand
44	Suthiwartnarueput, Kamonchanok	Chulalongkorn University	Thailand
45	Tezuka, Koichiro	Nihon University	Japan
46	Wang, Grace W.Y.	Texas A&M University at Galveston	USA
47	Wang, Yi-Wei	National Penghu University of Science and Technology	Taiwan
48	Wilmsmeier, Gordon	University of Applied Sciences Bremen	Germany
49	Yang, Zaili	Liverpool John Moores University	UK
50	Zhang, Anming	University of British Columbia	Canada

Local Steering Committee (LSC)
Chairman: Dr Pak Poon

No.	Name	Institute	Country
1	Abbasi, Babak	RMIT University	Australia
2	Asian, Sobhan	RMIT University	Australia
3	Gekara, Victor	RMIT University	Australia
4	Poon, Pak	RMIT University	Australia
5	Thai, Vinh	RMIT University	Australia
6	Tran, Huan Vo	RMIT University	Australia



2016 OBOR Conference Papers (Abstracts)

PAPER CODE & TITLE & AUTHOR

Paper	Author(s)
Paper 005: Resilience in Transportation Systems: A Systematic Review and Future Directions	Chengpeng Wan, Zaili Yang, Di Zhang, Shiqi Fan, Xinpeng Yan
Paper 010: Impacts of the Carat Canal on the Evolution of Hub Ports along the 21st-Century Maritime Silk Road	Qingcheng Zeng, Grace W.Y. Wang, Kevin Li, Chenrui Qu
Paper 011: Passage Safety Evaluation of 21st Century Maritime Silk Road	Jing Lu, Shuang Wang
Paper 016: Trans Asian Railway: Containerized Trade Opportunities and Challenges for Central and East European Landlocked Markets	Petr Kolar, Hans Joachim Schramm, Günter Prockl
Paper 025: Strategic Investment in Enhancing Port-Hinterland Container Transportation Network Resilience: A Network Game Theory Approach	Hong Chen, Jasmine Siu Lee Lam, Nan Liu
Paper 030: Horizontal Merger and Efficiency - An Empirical Investigation of Government-guided Mergers of Chinese Airlines	Jia Yan, Xiaowen Fu, Tae Oum, Kun Wang
Paper 035: A General-Equilibrium Analysis of Airport Pricing, Capacity and Regulation	Yukihiro Kidokoro, Ming Hsin Lin, Anming Zhang
Paper 036: Evaluating the Supply Chain Disruption Risks of 21st Century Maritime Silk Road: Case of Taiwan	Kai-Chieh Chia, Mingying Lu, Kai-Chieh Hu
Paper 043: Infrastructure Charge and Capacity Investment: The Case of One Belt One Road	Hyosoo (Kevin) Park, Young-Tae Chang
Paper 051: Challenges and Opportunities of the 'One Belt and One Road' Initiative	Anqiang Huang, Lijun Yao, Zaili Yang, Xianliang Shi, Paul Tae-Woo Lee
Paper 052: Economic Linkage Between Shipping Freight Rate and Commodity Markets	Masahiro Ishii, Motokazu Ishizaka, Koichiro Tezuka
Paper 053: Locating Electric Vehicle Charging Stations for Load Balancing	Woosuk Yang, Oh-Seong Kwon, Hwa-Joong Kim, Kyung-Yeon Lee
Paper 061: A Study on How to Improve the Effectiveness of IoT-based Fleet Management	Kangbae Lee, Doo-hwan Kim, Hyung Rim Choi, Byung Kwon Park, Min-je Cho, Dong Yeon Kang
Paper 062: An IoT based Dynamic Demand Forecasting Method: Focusing on the Tire Industry	Kangbae Lee, Dong Yeon Kang, Hyung Rim Choi, Byung Kwon Park, Min-je Cho, Doo-hwan Kim
Paper 065: Chinese Container Port Sector: Performance and Readiness for the Silk Road Strategy	Quan Zhang, Hong-Oanh Nguyen, Quazi Sakalayan
Paper 070: Development of a Framework for IoT-Based Container Tracking System for Global Logistics Security and Visibility	Hyung Rim Choi, Young Sik Moon, Jae Joong Kim, Jae Kee Lee, Chae Su Kim, Byung Kwon Park, Kang Bae Lee, Joog Jo Shin
Paper 075: Circular Containership Routing with Speed Optimization	Dong-Hoon Son, Woo-Suk Yang, Hwa-Joong Kim
Paper 085: An Exploratory Study on Policy of the Public-Private Partnership to Develop Seaport in Vietnam	Hyung Rim Choi, Thi My Hanh Le, Luis Alfredo Martínez Alfaro

Paper 091: Korean Connectivity of Container Transportation with OBOR Initiative	Kevin X. Li, Tae-Joon Park, Paul Tae-Woo Lee, Wenming Shi
Paper 097: Study on Effect Factors on the Value Creation for the Cruise Industry Chain in China Led by the "Belt and Road Initiative" Strategy	Ling Qiu, Linkai Qi
Paper 098: A Study on Linking Myanmar's Transport Networks to OBOR	Joo-Hyung Lee, Hyun-Duk Kim
Paper 101: Risk Management in Maritime Fleet Renewal Problem: A CVaR Approach	Amir H. Ansaripoor, Sobhan Asian, Shahrzad Faghieh-Roohi, Paul Tae-Woo Lee, Zhi-Hua Hu
Paper 102: Assessing the Displacement Effect of Exports with Gravity Trade Model: China's Textile and Clothing case and OBOR Implications	Yui Yip Lau, Man Hin Chan, Hong-Oanh Nguyen
Paper 103: Logistics as a Driving Force for Economic Growth—The Chinese Model for Developing Countries	Kevin X Li, Mengjie Jin, Guanqiu Qi, Adolf K.Y. Ng, Wenming Shi
Paper 110: Key Impediment Factors of Free Trade Zone Development in Korea and Taiwan	InKyo Cheong, Cheng-Wei Lin, Kyoungsuk Choi, Paul Tae-Woo Lee
Paper 115: Public Private Partnership Investment to Execute Policies of Port Community System in Central America	Luis Alfredo Martínez Alfaro, Hyung Rim Choi, Thi My Hanh Le
Paper 118: Opportunities and Challenges Associated with the Development of Sino-Europe Block Trains in the Perspective of "B&R" Initiative	Yitong Ma, Xianliang Shi, Lamei Zhang
Paper 128: Optimization on Route Selection and Fleet Allocation of China's Crude Oil Import after Arctic Routes Opening	Zhenhua Yang, Yanning Jiang, Zhihong Jin, Hui Zhu
Paper 131: Implications of One Belt One Road for Malaysian Connectivity to International Trade Routes	Jagan Jeevan, Shu-Ling Chen, Hilary Pateman
Paper 132: Foldable Container in Empty Container Repositioning in Intermodal Transportation Network of OROB: Strengths and Limitations	Xuehao Feng, Xiao Ruan, Shuzhu Zhang
Paper 133: Simulation System for Automated Loading Equipment at Warehouse	Yong-Seok Choi
Paper 135: Supply Chain Security Initiatives: The Authorized Economic Operator and Indonesia's Experience	Dicky Hadi Pratama, Sophia Everett
Paper 138: Economic Significance of China-Pakistan Economic Corridor: A Quantitative Analysis	Tsung-Chen Lee, Paul Tae-Woo Lee
Paper 139: The Primary Exploration of Concept "Beautiful Island Tourism Belt" of New Marine Silk Road Strategy	Huan Zhang, Xiao Ruan, Xuehao Feng
Paper 140: Impact of One Belt One Road on port competitiveness using the Balanced Theory approach	Douglas Hales, Jasmine Siu Lee Lam, Young-Tae Chang
Paper 142: Global Logistics City Concept: Developing a Cluster-led Strategic Policy Framework	Prem Chhetri, Konrad Peszynski, Mathews Nkhoma, Anjali Chhetri, Paul Tae-Woo Lee
Paper 143: Forecasting Time-Varying Logistics Distribution Flows in the One Belt-One Road Strategic Context	Jiuh Biing Sheu, Tanmoy Kundu
Paper 145: The Impacts of Trade Liberalization on Chinese Economy with OBOR	Meifeng Luo, Lingge Zhang, Dong Yang, Kevin Li
Paper 146: Evaluating Economic and Environmental Value of Liner Shipping Vessel Sharing in the Maritime Silk Road	Xuan Qiu, Eugene Y.C. Wong, Jasmine Siu Lee Lam

Paper 147: Agricultural Products from Wellcamp to China: Distributing Channels and the Role of Cold Chain Logistics	Shane Yahua Zhang, Alice Woodhead
Paper 150: Weighing Logistics Strategy Factors of One Belt and One Road Initiative using Fuzzy Multiple Criteria Decision Making (FMCDM)	Ying Wang, Gi-Tae Yeo, Paul Tae-Woo Lee, Vinh V. Thai
Paper 151: Evolution of OBOR Initiative and Its Impacts on Japan's Companies Operating in China	Ippei Machida, Mu-Chen Chen
Paper 152: Korean Peninsula's Logistics Collaboration for Accomplishing the 'One Belt One Road' Policy	Sung-woo Lee, Soo-yong Shin
Paper 153: Port Cluster Configuration along Maritime Silk Road in the Context of Industry Transfer and Site Production Capacity	Dongxu Chen, Zhongzhen Yang
Paper 154: An Analysis of Logistics Capabilities: A Case Study of Myanmar	Theingi Lwin, Hyun-Duk Kim, Ahmad Abareshi, Paul Tae-Woo Lee
Paper 157: Social Network Perspective on Trade in Value Added: Focused on the Logistics Industry	Kisoon Hyun, Junyeop Lee
Paper 167: China and Shipping Market	Dae-Sik Lim, Yuan-Yuan Mu, Kwangbae Lee
Paper 168: Factors Influencing Chartering Behavior of Container Shipping Lines with Reference to the Case of Hanjin Shipping Company	Paul Tae-Woo Lee, Sung-Ho Shin, Sung-Woo Lee
Paper 170: Container Shipping in Northern Sea Route and its Environmental Costs	Shengda Zhu, Xiaowen Fu, Meifeng Luo, Adolf K.Y. Ng
Paper 171: Design of Hub-and-Spoke Network for Indonesian Maritime Port Development	Ningwen Tu, Dimas Adiputranto, Xiaowen Fu, Zhichun Li
Paper 172: Impacts of the "One Belt, One Road" Strategy on the Wine Industry Development in Mainland China	Yui Yip Lau, Ka-chai Tam, Adolf K.Y. Ng, Xiaowen Fu, Zhang Jing
Paper 173: The Risk Assessment Model of International Multimodal Transport System Based on Complex Network	Hongjie Lan, Lijun Yao
Paper 174: Impacts of Infrastructure Developments under "One Belt One Road" Initiative: A Trade Network Perspective	Booi Kam, Leon Kok Yang Teo, Duy Dang-Pham, Mathews Nkhoma, Siddhi Pittayachawan, Ahmad Abareshi
Paper 181: Dry-port-based Hub-and-Spoke Logistics Networks for Inland Regions in China Connected to OBOR	Hairui Wei, Zhaohan Sheng
Paper 182: Maritime connectivity between Australia and the Maritime Silk Road	Zhi-Hua Hu, Zheng-Xuan Yang, Wen-Wen Zhao, Jian-Kun Hu
Paper 183: Networking Australia ports embedded in global maritime network	Zhi-Hua Hu, Wan-Ying Yao, Chen Wei
Paper 184: Ranking maritime ports based on a network of vessel flows	Zhi-Hua Hu, Chan-Juan Liu, Yang-Yang Hao

Resilience in Transportation Systems: A Systematic Review and Future Directions

Chengpeng Wan^{a,b,c}, Zaili Yang^c, Di Zhang^{a,b*}, Shiqi Fan^{a,b}, Xinping Yan^{a,b}

^a National Engineering Research Center for Water Transport Safety, Wuhan University of Technology, Wuhan 430063, P.R. China

^b Intelligent Transportation Systems Research Center, Wuhan University of Technology, Wuhan 430063, P.R. China

^c Liverpool Logistic Offshore & Marine Research Institute, Liverpool John Moores University, Liverpool L3 3AF, UK

* Corresponding author, email address: zhangdi@whut.edu.cn

Abstract

The One Belt and One Road (OBOR) initiative was introduced by the Chinese government to promote the worldwide economic development and multilateral cooperation between China and the associated countries. As a crucial part in global supply chains, transportation plays a key role to ensure the implementation of the OBOR. Safety is one of the issues with great importance in transportation research. However, its foci have been expanded from traditional risk through security, to resilience and sustainability. Resilience has attracted considerable interests from both researchers and practitioners across different research domains in recent years. Various studies have been conducted on transportation resilience from different perspectives. Consequently, different definitions have been developed to define and describe resilience. This paper presents a systematic review on transportation resilience with emphases on its definitions, characteristics, and research methods applied in different transportation systems/contexts. It aims to figure out what transport resilience is, and what kind of essential characters it usually has. More importantly, research challenges are analysed and a future research agenda on resilience of transportation systems is proposed. This paper will provide comprehensive insights into understanding the transportation resilience, as well as establish new horizons for relevant research topics within the context of the OBOR.

Key Words: OBOR, resilience, transportation systems, literature review

Impacts of the Carat Canal on the Evolution of Hub Ports along the 21st-Century Maritime Silk Road

Qingcheng Zeng^{a*}, Grace W.Y. Wang^b, Kevin Li^c, Chenrui Qu^a

^a School of Transportation Management, Dalian Maritime University, Dalian, China

^b Department of Maritime Administration, Texas A&M University, Galveston, USA

^c Department of International Logistics, Chung-Ang University, Korea

* Corresponding author, email address: qzeng@dlnu.edu.cn

Abstract

The Carat Canal is a potential new channel of the 21st-Century Maritime Silk Road. Its construction has impacts on the regional trade pattern and shipping routes, thus influencing the distribution of the shipping network and the evolution of hub ports. In this paper, the impacts of the Carat Canal on the evolution of hub ports are investigated. A spatial interaction model has been developed to calculate the change in transshipment traffic of the main hub ports. Meanwhile, the factors determining the competition of hub ports are analyzed, such as density of shipping lines, location advantage, transshipment volume and operation efficiency. To evaluate the change in the hub degree of the main hub ports along the 21st-Century Maritime Silk Road, two indicators are used: hub degree of port traffic generation and hub degree of port connectivity. Numerical experiments indicate that the opening of the Carat Canal shifts traffic volume from the Malacca Strait, influences the transshipment volume of different hub ports and promotes the evolution of the shipping network pattern. The hub degrees of Singapore, Klang and Tanjung Priok ports decrease while the hub degree of Shanghai, Hong Kong, Pusan and the Carat Canal ports increase. This study provides a tool for evaluating the effects of the Carat Canal, and it also provides a reference for hub port development along the 21st-Century Maritime Silk Road.

Key Words: 21st-Century Maritime Silk Road, Carat Canal, hub ports, hub degree

Passage Safety Evaluation of 21st Century Maritime Silk Road

Jing Lu*, Shuang Wang

Institute for Transportation Economy, College of Transportation Management, Dalian Maritime University, Dalian, China.

* Corresponding author, email address: lujing@dlnu.edu.cn

Abstract

The purpose of this paper is to play a safety evaluation of the transport passages for 21st Century Maritime Silk Road. In this paper, factor analysis is introduced to help construct safety evaluation index system, and the passage safety assessment model is established through projection pursuit technique, which is capable of solving high-dimensional nonlinear data problem for the transport passages. To solve the model, genetic algorithm is proposed. The evaluation results illustrate the effectiveness of the projection pursuit model applied to the passage safety evaluation. This study can provide scientific basis for developing relevant safeguard measures, which has great significance to realize the 21st Century Maritime Silk Road Strategy.

Key Words: 21st Century Maritime Silk Road, Transport Passage, Safety Evaluation, Factor Analysis, Projection Pursuit

Trans Asian Railway: Containerized Trade Opportunities and Challenges for Central and East European Landlocked Markets

Petr Kolar^{a*}, Hans Joachim Schramm^{bc}, Günter Prockl^c

^a Department of Logistics, Faculty of Business Administration, University of Economics, Prague, Czech Republic

^b Institute for Transport and Logistics Management, Vienna University of Business Economics and Business, Vienna, Austria

^c Department of Operations Management, Copenhagen Business School, Copenhagen, Denmark

* Corresponding author, email address: petr.kolar@vse.cz

Abstract

Since the 2000s, Trans-Asian Railway (TAR), including the links of Trans China Railway (TCR) and Trans-Siberian Railway (TSR), started to serve as inland transport routing alternative to the predominant container shipping on the maritime Royal Route (RR) between Far East Asia and Europe. However, once aiming on further integration of all the segments in order to speed up transit times, reduce high transport costs compared to maritime RR, and improve service reliability, these complex Eurasian intermodal transport chains face challenges. Based on qualitative research with semi-structured in depth interviews of key actors in the Czech Republic, the paper examines the perception of container inland transport chains for a diverse range of market players that are active in such a landlocked market in Central and East Europe (CEE). The research questions if competitive pricing, service time reliability and transit time determine changes in service supply by freight forwarders. It investigates the position taken by their customers and shipping lines in regard to TAR links. Although the empirical evidence is limited to a sample of market players in the Czech Republic, the results support valuable conclusions for importers demanding all-in transport services from Far East Asia to CEE landlocked hinterland markets.

Key Words: Intermodal Transport, Landlocked Hinterland, New Eurasian Land Bridge, One Belt One Road, Trans-Siberian Railway

Acknowledgement

The research project is co-financed by the University of Economics, Prague Grant Agency, project no. VSE IP305026.

Strategic Investment in Enhancing Port-Hinterland Container Transportation Network Resilience: A Network Game Theory Approach

Hong Chen^a, Jasmine Siu Lee Lam^b, Nan Liu^{a*}

^a School of Management, Zhejiang University, Hangzhou, China

^b School of Civil and Environmental Engineering, Nanyang Technological University, Singapore

* Corresponding author, email address: nliu@zju.edu.cn

Abstract

The ‘One Belt One Road’ national strategy of China has demonstrated the importance of maritime logistics to economic development. To ensure the efficiency and safety of the whole maritime logistics chain, a resilient port-hinterland freight transportation network is a prerequisite. The present paper aims to study the strategic investment behaviors of players in a port-hinterland container transportation network (PHCTN) in enhancing the network resilience to man-made unconventional emergency events (MUEEs). This is achieved by reducing the network vulnerability, which is one of the dimensions in the resilience concept. The combination of multiple players’ involvement and their interacted complementary and competitive business relationships makes a PHCTN somewhat complex. Therefore, the method of network game theory is adopted to conduct this study. Results show that players’ investment decisions and behaviors are connected to their total (relative) complementary influence in the network, while affected by their local original MUEE vulnerabilities. The present paper is one of the very few studies that investigates PHCTN resilience from the perspective of strategic investment, especially taking the method of network game theory. This is the originality of the paper which would bring scientific and practical contributions.

Key Words: Port-hinterland container transportation network, resilience, vulnerability, investment, network game theory

Horizontal Merger and Efficiency - An Empirical Investigation of Government-guided Mergers of Chinese Airlines

Jia Yan^a, Xiaowen Fu^{b*}, Tae Oum^c, Kun Wang^c

^a School of Economic Sciences, Washington State University, US

^b Institute of Transport and Logistics, University of Sydney, Australia

^c Sauder School of Business, The University of British Columbia, Canada

* Corresponding author, email address: xiaowen.fu@sydney.edu.au

Abstract

One core issue in merger analysis is the trade-off between market power effects vs. possible efficiency gains in firm production. However, whether significant efficiency improvements can be obtained through horizontal mergers has been a long debated issue. Although empirical investigations have studied market and industry specific cases, it is not straightforward to draw general conclusions, partly due to the endogenous choices of target companies when firms make merger and acquisition decisions. In 2002, the Chinese government ordered major industry consolidation by merging the nine largest carriers into three airline groups. This provides a rare natural experiment to identify the effects of horizontal mergers on firms' productive efficiency. Applying a Difference-in-Differences (DID) approach to a panel data of airline costs and production, this study benchmarks the efficiency changes of Chinese carriers to other major international airlines during the same period. The effect on economies of traffic density has been controlled for in our model, and both non-parametric Total Factor Productivity (TFP) and estimated cost functions have been utilized in efficiency measurement. Overall, our empirical estimation found positive efficiency gains brought by airline mergers, and moderate economies of scales effects for the airline industry. The implications to anti-trust and aviation liberalization policies are briefly discussed.

Key Words: efficiency, airline merger, Chinese airlines

A General-Equilibrium Analysis of Airport Pricing, Capacity and Regulation

Yukihiro Kidokoro^{a*}, Ming Hsin Lin^b, Anming Zhang^c

^a National Graduate Institute for Policy Studies, Tokyo, Japan

^b Osaka University of Economics, Osaka, Japan

^c Sauder School of Business, University of British Columbia, Vancouver, BC, Canada

* Corresponding author, email address: kidokoro@grips.ac.jp

December 2015; revised June 2016; 2nd revision September 2016

Abstract

Using a general-equilibrium model that includes consumers, airlines, and an airport with both aeronautical service and non-aeronautical service, this paper investigates the airport's decisions on its aeronautical charge and capacity, as well as the size of its non-aeronautical service. In contrast to the existing literature, we formally model an airport's non-aeronautical service by taking into account the endogenous determination of the size of the airport's non-aeronautical service. First, we characterize the results for welfare maximization, and find that the self-financing property does not hold. Apart from carriers' market power as a source for the failure of the self-financing property, we identify the presence of non-aeronautical service as a new source. We further show that the common practice of cross-subsidizing from the non-aeronautical to aeronautical services is incompatible with welfare maximization, because welfare maximization requires exact self-financing within the non-aeronautical sector. Second, we derive the results for profit maximization by a monopolistic airport, and demonstrate that the imposition of two taxes, one on the airport's aeronautical service and the other on its capacity investment, can recover the welfare-maximization results. Third, we analyze the two types of regulation, single-till and dual-till regulations, which are often used in practice, and show that dual-till regulation yields higher welfare than single-till regulation, as long as the profit from non-aeronautical service is positive. This result is in contrast to the prevailing wisdom in the literature, which in general favors single-till regulation.

Key Words: Airport pricing, Capacity, Regulation, Non-aeronautical service, Self-financing property, Single- vs. dual-till regulation

Acknowledgement: We would like to thank two anonymous referees and Nathaniel Baum-Snow (co-editor) for constructive comments which have improved the paper markedly. We also thank Achim Czerny, Andre De Palma, Xiaowen Fu, Akio Kawasaki, Robin Lindsey, Kun Wang, and participants at the seminar at University of British Columbia, the 29th meetings of the Applied Regional Science Conference at Keio University, and the Conference on Logistics and Maritime Studies on “One Belt, One Road” at the Hong Kong Polytechnic University for helpful comments. Financial support from JSPS KAKENHI Grant Number 24330086, 24330087, and 16H03610 (to Yukihiro Kidokoro), JSPS KAKENHI Grant Number 16K03681 (to Ming Hsin Lin) and the Social Science and Humanities Research Council of Canada (to Anming Zhang) is gratefully acknowledged.

Evaluating the Supply Chain Disruption Risks of 21st Century Maritime Silk Road: Case of Taiwan

Kai-Chieh Chia^a, Mingying Lu^b, Kai-Chieh Hu^{c*}

^a Department of Business Administration, Soochow University, Taipei, Taiwan

^b Center for Big Data Analysis and Research, Soochow University, Taipei, Taiwan

^c Department of Business Administration, Soochow University, Taipei, Taiwan

* Corresponding author, email address: hkchieh@scu.edu.tw

Abstract

Key to One Belt, One Road's success is the development of an unobstructed network between China and Europe. The countries along with China will strengthen cooperation with China is trend. The plan involves more than 60 countries, Taiwan is one of them and close to Fuzhou, the origin of 21st Century Maritime Silk Road. The success of the Maritime Silk Road relies on the cooperation of all involved countries. For Taiwan, the participation and cooperation with China cannot be exempted. The supply chain disruptions of Taiwan and China may impact on One Belt, One Road. It needs to be considered as an essential issue that how to manage and control these risks. Therefore, the purpose of this research is assessing the disruption risks of maritime export transport between Taiwan and China. Base on the possible failure points of maritime export transport system, Failure Mode and Effects Analysis (FMEA) was used to identify the disruption risks. The results show that "influences by typhoon", "port shut down due to natural disaster", and "suspension of damaged dock after disaster" were top 3 potential failure modes. This research further developing coping strategies for each risk. The findings have implications for both authorities and researchers.

Key Words: supply chain disruption risks, maritime silk road, One Belt One Road, FMEA

Infrastructure Charge and Capacity Investment: The Case of One Belt One Road

Hyosoo (Kevin) Park, Young-Tae Chang*

Graduate School of Logistics, Inha University, Incheon, Korea

* Corresponding author, email address: ytchang@inha.ac.kr

Abstract

China's ambitious vision to build the One Belt One Road (OBOR) opened new possibilities to boost economic growth in China and other regions spanning East Asia, Middle East, and Europe. This new opportunity, however, poses daunting challenges for China to coordinate financial institutions, export firms, consumers, and the OBOR developers. The success of the OBOR project would depend on how to harmonize different parties' interests. In this backdrop, this paper develops analytical models of the OBOR to examine decisions on optimal capacity and usage charge of OBOR infrastructure. Our theoretical model incorporates two decision makers that are in leader-follower relationship: a regulatory leader named "the OBOR developer" determines capacity and infrastructure usage charge, which is followed by international firms' export decision. Three scenarios are adopted for the analysis: 1) OBOR developers only care about their revenue maximization; 2) the developers care not only their maximum revenues, but also export firms' profit maximization; 3) the developers care their own revenue, export firms' profit and consumer surplus. The major findings are summarized as follows. First, if export firms invest in the OBOR and the OBOR authority considers these firms' profit or welfare in the OBOR management, the infrastructure usage charge tend to be lowered because reduction in transportation costs can increase firms' profit and welfare. As lowered usage charge facilitates more exports, the OBOR authority expands capacity to accommodate the demand in the OBOR. On the other hand, when the smallest firm has a full investment share, but exports no goods along the OBOR, the profit- or welfare-maximizing charge is the same as the revenue-maximizing charge. In this situation, the smallest firm acts as an outsider whose sole interest is to seek revenue from charges.

Key Words: One Belt One Road, Silk Road Economic Belt, Usage Charge, Capacity, Investment

Challenges and Opportunities of the ‘One Belt and One Road’ Initiative

Anqiang Huang^a, Lijun Yao^a, Zaili Yang^{b*}, Xianliang Shi^a, Paul Tae-Woo Lee^c

^a School of Economy and Management, Beijing Jiaotong University, Beijing 100044, China

^b Liverpool Logistics, Offshore and Marine Research Institute, Liverpool John Moores University, Liverpool L3 3AF, UK

^c School of Business IT and Logistics, RMIT University, Melbourne, Australia

* Corresponding author, email address: Z.Yang@ljmu.ac.uk

Abstract

The ‘One Belt One Road’ (OBOR) initiative by the Chinese government, involving 65 countries and regions, and about 63% of the world population, is attracting fast growing interest from researchers and scholars across different countries. It is largely due to the opportunities and challenges arisen from the significant economics and political impacts that the OBOR possibly generates as well as the high demand on cooperation and collaborations among the stakeholders from diversified perspectives, including but not limited to, science, technical, engineering and managerial aspects. However the identification of the opportunities and challenges in the implementation of the OBOR initiative has not been fully explored, even in its leading county China, revealing a significant gap to fulfill. This paper therefore aims at investigating the OBOR’s development potentials with particular foci on the associated opportunities and challenges through a deep investigation of a hybrid data source obtained by the combination of expert interviews, field research, text mining, inquiring open government data bases, etc. The collected data involves 18 China’s provinces along the Silk Road Belt, 26 Sino-EU railway routes, 6 Chinese giant transportation companies, and more than 20 important ports. It covers various aspects including imports and exports, transportation and logistics, infrastructures and relative policies, etc. The meta synthesis method is implemented for data exploration, combining advanced statistical techniques and expert systems. The findings will provide significant insights into the OBOR related studies in future and form a clear research agenda of high value for both political decision makers and scientific scholars.

Key Words: 21st-Century Maritime Silk Road, OBOR, data analysis, prospective outlook, policy making

Economic Linkage Between Shipping Freight Rate and Commodity Markets

Masahiro Ishii^a, Motokazu Ishizaka^b, Koichiro Tezuka^{c*}

^a Faculty of Economics, Sophia University, Tokyo, Japan

^b Faculty of Commerce, Fukuoka University, Fukuoka, Japan

^c College of Economics, Nihon University, Tokyo, Japan

* Corresponding author, email address: BZE12763@nifty.com

Abstract

In this paper, relations among spot and derivatives markets of commodities and shipping freight rates are examined. The analysis is focused on not only finding some linkages, so called, cross-market correlations, return and volatility spill-overs, return co-movements, and contagion, but also unveiling the structure of interdependences among those markets. For this purpose, we apply statistical models that are based on an equilibrium or structural model. At the beginning, the freight forward price formula derived in Tezuka et al. (2012) is employed to calibrate the averaged risk attitude of market participants. The calibration result is applied to inspect the linkages between the shipping freight markets and the related commodity futures markets. In the inspection process, a structural equation model, which involves a spot shipping freight rate, spot prices of related commodities, a forward freight agreement (FFA), futures prices of these commodities, and a latent variable, is applied to reveal the relationship between those markets. According to our preliminary data analysis, the estimation results show that the latent variable affects the FFA price and other dependences among the markets. As for a period from March 1, 2007 to March 31, 2010, which was still affected by the Lehman Brothers collapse, a remarkable relation between the calibrated averaged risk attitude and the latent variable can not be found for a period from March 1, 2007 to March 31, 2010. On the other hand, the two variables are significantly associated during the after period from April 1, 2010 to September 31, 2013, when the shipping freight rate was less volatile. These results show that the risk attitude was a driving factor for FFA and commodities futures prices during the less volatile period.

Key Words: market linkage, risk attitude, shipping freight rate, structural model.

Locating Electric Vehicle Charging Stations for Load Balancing

Woosuk Yang^a, Oh-Seong Kwon^b, Hwa-Joong Kim^{c*}, Kyung-Yeon Lee^b

^a Jungseok Research Institute, Inha University, Incheon, 22212, Korea

^b Graduate School of Logistics, Inha University, Incheon, 22212, Korea

^c Asia Pacific School of Logistics, Inha University, Incheon, 22212, Korea

* Corresponding author, email address: hwa-joong.kim@inha.ac.kr

Abstract

In this paper, we present a case study on planning the locations of electric vehicle charging stations (EVCS) for Jeju Island, the largest resort island of South Korea. It has been planned to be transformed into one of the most environmentally friendly cities and was taken as a testbed for electric vehicle industries by the government of South Korea. Our proposed model determines where EVCSs to be installed so as to balance the load of EVCSs while satisfying demands representing the average daily charging time during peak hours for electric vehicle flows between nodes. The model considers not only capacities on EVCSs but also the maximum allowed distance that drivers would detour to recharge their EV instead of using the shortest path to their destination. For a public service with EVCSs by some government or non-profit organization, load balancing between EVCS locations may be one of major measures to evaluate or publicize the associated service network. Nevertheless, this measure has not been receiving much attention in the related literature. Thus, we consider the measure as a constraint and an objective in the proposed model. With the proposed model, a variety of numerical analysis is conducted to identify effects of the maximum allowed detour distance and the tightness of budget for installing EVCSs. From the analysis, we discuss the effects and draw practical implications.

Key Words: Electric Vehicles, Charging Stations, Location Problem, Load Balancing

A Study on How to Improve the Effectiveness of IoT-based Fleet Management

Kangbae Lee^a, Doo-hwan Kim^{a*}, Hyung Rim Choi^a, Byung Kwon Park^a, Min-je Cho^a,
Dong Yeon Kang^a

^a Department of Management Information Systems, College of Business, Dong-A University,
Busan, Republic of Korea

* Corresponding author, email address: kdhblack@donga.ac.kr

Abstract

Recently many companies introduce information technology (IT) in order to cut down logistics cost. Freight transport is an important component of supply chain management (SCM), in particular, road freight transport accounts for up to 80 percent of the entire freight transport. The dispatch and route planning, considering factors such as demand location, delivery time, and number of vehicles available, are important issues in road freight transport. Thanks to advanced IT, vehicle telematics has been promoted. Using vehicle sensors and telematics, we can collect diverse information. Besides, we can analyze vehicle information such as status, location, and traffic by applying Internet of Things (IoT) technology that generates real-time/near-real-time data. The aims of this study is to propose a fleet management efficiency promotion scheme, with consideration on several constraints such as information available with the IoT technology, dispatch planning, and transport routes.

Key Words: IoT, Supply Chain Management, Fleet Management

An IoT based Dynamic Demand Forecasting Method: Focusing on the Tire Industry

Kangbae Lee^a, Dong Yeon Kang^{a*}, Hyung Rim Choi^a, Byung Kwon Park^a, Min-je Cho^a,
Doo-hwan Kim^a

^a Department of Management Information Systems, College of Business, Dong-A University,
Busan, Republic of Korea

* Corresponding author, email address: ghkxko1@donga.ac.kr

Abstract

Accurate demand forecasting is crucial to supply chain management (SCM), while predicting and responding to the future needs is difficult in virtual. For higher accuracy more information is needed. The current Internet of Things (IoT) has evolved that is able to obtain a large amount of precise real-time data. For a wide range of SCM, an IoT based information collection and processing system with a much faster and accurate way is necessary. The aims of this study is to suggest an effective demand forecasting method, applying an IoT based real-time information of the tire industry by proposing a new algorithm, it is helpful for the whole production planning and inventory management.

Key Words: Dynamic Demand Forecasting, IoT, Supply Chain, Recurrent Neural Network

Chinese Container Port Sector: Performance and Readiness for the Silk Road Strategy

Quan Zhang^a, Hong-Oanh Nguyen^{a*}, Quazi Sakalayan^a

^a National Centre for Ports and Shipping, Australian Maritime College, University of Tasmania

* Corresponding author, email address: o.nguyen@utas.edu.au

Abstract

Against the background of globalisation, China's economy has secured a dominant place in the world. The contribution of international trade to the country's economic growth would not be successful without the support of the maritime industry, especially container terminals along its 14,500 km coastline. In recent decades, nearly all the Chinese coastal provinces and municipalities have massive investment in container terminals to meet growing containerised trade. The sector has also seen extensive involvement and investment by global terminal operators. This paper aims to evaluate the trends in these developments, their effect on Chinese container terminals' performance and provide an exploratory research into the sector's readiness for the country's Silk Road (One Belt One Road) strategy.

The analysis makes use of two sample frames; the first sample is a cross-sectional dataset consisting of 46 Chinese container terminals and the second one is a panel data set of 27 container terminals over the 2005-2013 period. The analysis results indicate the performance of Chinese container ports have improved significantly over the last decades but also varied cross terminals in the same port and across regions. Foreign investment and involvement in the operation of Chinese container terminals have a positive effect on the sector's performance. The results of the four hypothesis tests of the sector's readiness indicate that the sector is capable of supporting the country's Silk Road strategy. In particular, the results of three hypothesis tests on performance trend, intra-port competition, and the effect of the global terminal operators' participation on the sector's performance are in favour of its readiness for the Silk Road strategy, while the result of hypothesis test on returns to scale is inconclusive. Thus, while the sector as a whole will benefit from the Silk Road strategy, some terminal would benefit more than the others.

Key Words: Chinese container ports, data envelopment analysis, reference network, growth readiness, Silk Road

Development of a Framework for IoT-Based Container Tracking System for Global Logistics Security and Visibility

Hyung Rim Choi^a, Young Sik Moon^{b*}, Jae Joong Kim^c, Jae Kee Lee^d, Chae Su Kim^e,
Byung Kwon Park^f, Kang Bae Lee^g, Joog Jo Shin^h

^{a,c,d,e,f,g} Intelligent Container R&D Center, Dong-A University, Busan, Korea.

^b Intelligent Container R&D Center, Dong-A University, Busan, Korea

^h Swinnus Co., Ltd., Busan, Korea

* Corresponding author, email address: tambagu@dau.ac.kr

Abstract

The volume of cargo conveyance that makes use of containers, which are commonly used in global logistics, is increasing constantly, recording approximately 140 million TEU over the world in 2015. With this, the requirements of the consumers that utilize containers are changing from quantitative aspects, such as cost-saving, of the past to qualitative aspects including safe conveyance of cargo and securing of logistics visibility. In addition, many countries, including the USA and the EU, as well as international organizations, are reinforcing regulation on logistics security of container-based conveyance by applying such programs as the C-TPAT (Customs-Trade Partnership Against Terrorism), the AEO (Authorized Economic Operator), the CSP (Customs Security Programme), and the ISPS Code to cope with worldwide risks of terrorism. However, the current container tracking systems cannot satisfy such changes. Accordingly, we analyzed the requirements of container users and the limitations of the existing container tracking systems, and developed a framework for container tracking systems based on the result of the analysis. Furthermore, based on the framework for container tracking systems, we developed an IoT-Based Container Tracking System comprising a container tracking device that enables real-time monitoring of container conditions under conveyance, and a tracking control program that can receive real-time information on the container conditions transmitted from the container tracking device, processes the information into a form of information needed by users, and displays the processed information. In addition, we verified the performance of the developed system by carrying out a pilot operation with actual container cargo that was transported from Korea to Poland. According to the verification result, the system was found to be able to satisfy the requirements of container users, and the regulation on logistics security that is being reinforced. Lastly, this study concludes with discussion on communications cost, how to recover the equipment, and conformity to international standards—all of which should be considered in applying the container tracking system.

Key Words: Container Monitoring, CSD (Conveyance Security Device), Real-Time Visibility

Circular Containership Routing with Speed Optimization

Dong-Hoon Son^a, Woo-Suk Yang^b, Hwa-Joong Kim^{c*}

¹ Graduate School of Logistics, Inha University, Incheon, Korea

² Jungseok Research Institute, Inha University, Incheon, Korea

³ Asia Pacific School of Logistics, Inha University, Incheon, Korea

* Corresponding author, email address: hwa-joong.kim@inha.ac.kr

Abstract

The shipping route network design is a strategic decision issue for shipping lines because liner ships operate along routes and timetables published months ahead. Although the route and speed of their liner ships should be determined in an integrated manner, most previous studies considered the two decision issues separately to the best of our knowledge. To fill this research gap, this paper considers the integrated planning problem of determining the speed and circular route of a ship, so as to maximize a carrier's profit, which is the revenue minus cargo handling charge, bunker consumption cost, port charge, container time cost and ship time cost. We present a nonlinear shortest-path model to represent the proposed problem. Since the model requires an excessive amount of solution time, we develop a simulated annealing algorithm with some analytic methods. Performance evaluation experiments show that the suggested algorithm works well for small-sized test problems. Scenario analyses to investigate the impact of changes in exogenous factors including bunkering cost, chartering cost, revenue (sea freight rate) and ship size are performed with the suggested algorithm. It shows that the route, the schedule and the operational performance of the liner ship can be changed by variation of the factors. The performance tests and scenario analyses show that the suggested algorithm may be utilized as an efficient and effective planning tool for ship lines at the current or feasible future situations.

Key Words: Ship speed, Routing, Nonlinear program, Simulated annealing algorithm

An Exploratory Study on Policy of the Public-Private Partnership to Develop Seaport in Vietnam

Hyung Rim Choi^a, Thi My Hanh Le^{b*}, Luis Alfredo Martínez Alfaro^b

^a Department of Management Information Systems, Dong-A University, Busan, South Korea.

^b Department of Port and Logistics Systems, Dong-A University, Busan, South Korea

* Corresponding author, email address: hanhle74@gmail.com

Abstract

In recent times, the Vietnamese seaport sector has strived hardly for reforming the port development and fostering the socio-economic growth. Seaport industry integration becomes an indispensable trend to expand the country and reaching the efficient competition with the other nations. The developing countries have opened their “complicated-doors” with the advocate of developed countries to connect and affirm their own position in the maritime field that they could grow, compete and succeed. In order to reach this goal, Vietnam, and the other developing states have innovated and exposed the appropriate policy to attract the investment from in-side to out-side of the country to improve the infrastructure, technologies, businesses, etc.; increasing public investment efficiency and strengthen competitiveness. One of the most practical successful tendencies these days is Public Private Partnership project, especially in seaport system. By document review method with case studies from widespread resources such as World Bank, Asian Development Bank and country’ public-private partnership database project; this study discovers and evaluates the Public Private Partnership framework in Vietnam to figure out which policy, procedure issues and contract approach that Vietnam could learn and choose the right way to overcome the current obstacles, achieving this public-private collaboration and integrating prosperous global economic.

Key Words: Public Private Partnership, seaport, developing countries, Vietnam, policy

Korean Connectivity of Container Transportation with OBOR Initiative

Kevin X. Li^a, Tae-Joon Park^b, Paul Tae-Woo Lee^c, Wenming Shi^{d*}

^a Department of International Logistics, Chung-Ang University, Seoul, South Korea

^b Department of Business Administration, Yonsei University, Seoul, South Korea

^c School of Business IT and Logistics, RMIT University, Melbourne, Australia

^d Maritime and Logistics Management, Australian Maritime College, University of Tasmania, Australia

* Corresponding author email: Wenming.Shi@utas.edu.au

Abstract

The primary objective of this paper is to introduce a Transportation Network Connectivity Index (TNCI) to measure the connectivity of network components with considering multimodal circumstance and qualitative information like efficiency and balance degree of the network components. The TNCI is based on the concept of connectivity under graph theory. In development of the TNCI, we also consider the factors of the easiness of connection, variableness of demand and possibility of future extension from the public transportation literature and reinterpret them to fit container transportation network. Therefore, the model can be used widely for future research in container transportation. We test the model with Korean container transportation network under the condition of OBOR, 16 nodes and 256 links are considered. Each criterion of TNCI is revised for reflecting the situation of South Korea. First, the revised shortest path method' transforms the current O-D data to the detailed data included the path information where it pass and handled. After that, the model for node and link are calculated in the different criteria. Finally the container connectivity of South Korea is analysed based on the TNCI under OBOR initiative.

Key Words: Container transportation, Connectivity, Graph theory, Transportation network, O-D pair data, OBOR

Study on Effect Factors on the Value Creation for the Cruise Industry Chain in China Led by the "Belt and Road Initiative" Strategy

Ling Qiu^a, Linkai Qi^{b*}

^a School of management, Shanghai University of Engineering Science, Shanghai, P.R. China

^b School of management, Shanghai University of Engineering Science, Shanghai, P.R. China

* Corresponding author, email address: ashlynn86@163.com

Abstract

The "Belt and Road Initiative" strategy takes the peace and friendship, solidarity and mutual trust, equality, tolerance and mutual learning, and people and self-assistance as its value pursuit, which not only is the carrying on and promotion of the ancient "Silk Road" spirit, but also lets the "Silk Road" transcend the simple category of the cruise products, cruise lines and gives the new idea for the cruise industry to promote the regional integration. And the facility exchange, economic cooperation, personnel exchanges, cultural integration brought by it has brought great development opportunities for the related regional industry. This paper focuses on the analysis of the specific content of The "Belt and Road Initiative" development strategy to dock the cruise industry and analyze the main effect factors influencing the value creation for the cruise industry chain in China and explore the correlation of factors by grey relational analysis method.

Key Words: effect factors, value creation, cruise industry chain, Belt and Road Initiative

A Study on Linking Myanmar's Transport Networks to OBOR

Joo-Hyung Lee^a, Hyundeok Kim^{a*}

^a Department of Logistics, Sunchon National University, Korea

* Corresponding author email address: hdkim@sunchon.ac.kr

Abstract

Myanmar has been identified the only land bridge connecting South Asia, Southeast Asia and East Asia. Being a strategic location position, Myanmar has the potential to become Asia Regional Hub to serve as a gateway not only to connect East and West but join Asia and Southeast Asia. Integrating the current ASEAN highways, railways, regional Greater Mekong Sub-region economic corridors with the development of two deep-sea ports (Kyauk Phyu and Dawei) can engage Myanmar transport routes to access the international market. The purpose of this paper is to describe and highlight current and future potential of effective linking inland transport networks in Myanmar strategically replacing maritime trade with inland trade. It also discusses the importance of new deep-sea ports to create alternative shipping routes entrance that is essential to accessing global market. Strategic investments in transport infrastructure are urgently needed because existing transport links between Myanmar and its neighbors are limited and substandard (De and Ray 2013). The result of the literature review suggests that engaging of OBOR initiative: New Silk Road, Myanmar has a pivotal role to become the West Coast of China that depart from the risks associated with trade through the Straits of Malacca. Currently 25% of world oil trade and 70% of China's energy oil and gas imports are passing through Malacca (Wheeler, 2016). Placing their energy security in a single trade route is substantially in a risk. The research describes a suitable transport networks approach of how Myanmar can be an alternative inland trade hub through Economic Silk Road that reduces the dependency on maritime or sea trade.

Key Words: Regional hub, Myanmar, Deep sea ports, Southeast Asia, New silk road, Malacca Straits, Land trade

Risk Management in Maritime Fleet Renewal Problem: A CVaR Approach

Amir H. Ansaripoor^a, Sobhan Asian^{b*}, Shahrzad Faghih-Roohi^c, Paul Tae-Woo Lee^b,
Zhi-Hua Hu^d

^a School of Information Systems, Curtin Business School, Perth, Australia

^b School of Business IT and Logistics, College of Business, RMIT University, Melbourne, Australia

^c Delft Centre for Systems and Control, Delft University of Technology, Delft, Netherlands

^d Logistics Research Center, Shanghai Maritime University, Shanghai, China

* Corresponding author, email address: sobhan.asian@rmit.edu.au

Abstract

Recent studies reveal the new dimensions of complexity of maritime fleet planning problem and highlight the significant need for the development of an accurate and efficient decision support system. This paper presents a stochastic programming model using conditional value at risk (CVaR) in maritime transportation, considering the constraints and uncertainties inherent in the liner shipping industry and frequent mismatches between fleet capacities and demands. We draw an optimal solution for the model, perform several tests, and validate the established model, particularly focusing on a real case of COSCO, which is a major global maritime transportation company and will play an important role in the One Belt One Road (OBOR) initiated by China. We then discuss how the optimal solutions are affected by risk aversion preference of decision makers. Referring to the computational results, we address insightful managerial discussion and implications. Finally, we present the main conclusions and suggest the future research direction.

Key Words: Maritime transportation, Fleet Planning, CVaR, COSCO, One Belt One Road

Assessing the Displacement Effect of Exports with Gravity Trade Model: China's Textile and Clothing case and OBOR Implications

Yui Yip Lau^{ab}, Man Hin Chan^c, Hong-Oanh Nguyen^{d*}

^a Hong Kong Community College, The Hong Kong Polytechnic University, Hong Kong, China

^b Transport Institute, University of Manitoba, Winnipeg, Canada

^c Faculty of Design and Environment, Technological and Higher Education Institute of Hong Kong, China

^d Department of Maritime and Logistics Management, University of Tasmania, Australia

* Corresponding author, email address: o.nguyen@utas.edu.au

Abstract

This paper employs the gravity model to investigate how the growth of China's textile and clothing (T&C) exports is displacing the exports of other Asian developing countries over the 1990-2015 period. Aggregate analyses were undertaken, and the endogeneity of Chinese exports were accounted by applying instrumental variables with country fixed effects. It was found that there was a negative impact of China's emergence on T&C exports from other Asian developing countries. Further, we explored if the displacement effect varies across Asian countries and the result showed that a more pronounced effect was found in low-income than in high-income Asian countries. Therefore, the export competitiveness of China's neighbours, both more and less developed Asian countries, are affected by the emergence of China in T&C Trade. The implications for China's One Belt, One Road initiative are also discussed.

Key Words: China, Asian developing countries, Gravity Model, Textile and Clothing Exports

Logistics as a Driving Force for Economic Growth —The Chinese Model for Developing Countries

Kevin X Li^a, Mengjie Jin^a, Guanqiu Qi^{a*}, Adolf K.Y. Ng^{bc}, Wenming Shi^d

^a Department of International Logistics, Chung-Ang University, Republic of Korea

^b Department of Supply Chain Management, Asper School of Business, University of Manitoba, Canada

^c Transport Institute, Asper School of Business, University of Manitoba, Canada

^d Maritime and Logistics Management, Australian Maritime College, University of Tasmania, Australia

* Corresponding author, email address: xiao20107@cau.ac.kr

Abstract

An important objective of the “One Belt, One Road” (OBOR) initiative is to promote the economic growth of countries along the OBOR region. China’s successful development model proposed in the initial stage of reform can be summarized as “Looking for development, building the highway first”. The study therefore first is to evaluate whether logistics infrastructure has indeed contributed to economic growth by employing an error correction model with panel data from 2002–2014. Second, we rank the influence degree of different sector of logistics infrastructure based on different region, i.e., developed and developing regions. For this study, we focus on developing region as it can serve as good development model for developing countries. For developing region, we find the most influential factor is telephone sector and followed by airway transportation, Internet, and express sectors in the short-term whilst, in the long-term, the order is telephone, rail transportation, airway transportation, internet, and express. The research confirms that logistics is indeed a driving force for economic growth in China and that the contribution ranking of specific sectors can be a useful reference for developing countries in prioritization of their investment in different logistics sectors.

Key Words: Logistics Infrastructure, Economic Growth, One Belt One Road, China

Key Impediment Factors of Free Trade Zone Development in Korea and Taiwan

InKyo Cheong^a, Cheng-Wei Lin^b, Kyoungsook Choi^c, Paul Tae-Woo Lee^{d*}

^a Department of Economics, Inha University, Korea

^b Department of Logistics and Shipping Management, Kainan University, Taiwan

^c Department of Industrial Organization Management and Control, Shandong Normal University, China

^d School of Business IT and Logistics, RMIT University, Australia

* Corresponding author, email address: taewoo.lee@rmit.edu.au

Abstract

Since names, definitions and characteristics of free trade zones (FTZs) are different from country to country, it is difficult to make direct comparison. Despite that, this study chooses FTZs in Korea and Taiwan that are similar in terms of their characteristics and goals and location in adjacent with container ports, namely Incheon and Busan FTZ in Korea and Kaohsiung in Taiwan. This research has been motivated by the question: why are some free economic zones in Korea and free trade zones in Taiwan suffering from inferior performance? While prior research emphasizes the importance of key success factors for a free trade zone, this study attempts to direct our attention to the key impediment factors against the development of FTZs zones in Korea and Taiwan. A comprehensive literature review of the key factors of free trade zones identifies five critical dimensions for FTZ cases in Korea and Taiwan: A. labor, B. incentives, C. infrastructure, D. government's administration and service, E. operational costs, and F. location, and their associated factors. This study applies consistent fuzzy preference relation (CFPR) and PROMETHEE with questionnaire survey. Respondents of the survey are from manufacturing firms, logistics firms, governments and logistics experts. The MCDM method ranks relative importance of key impediment factors as well as performance of FTZ in the two countries. Besides, visualized diagrams for detail result descriptions will be provided. We expect that the results of this study have important implications for practitioners as well as policymakers.

Key Words: Free economic zone, Free trade zone, Key impediment factor, Consistent fuzzy preference relation, PROMETHEE

Public Private Partnership Investment to Execute Policies of Port Community System in Central America

Luis Alfredo Martínez Alfaro^{a*}, Hyung Rim Choi^b, Thi My Hanh Le^c

^a Department of Port and Logistics Systems, Dong-A University, Busan, South Korea

^b Department of Management Information Systems, Dong-A University, Busan, South Korea

^c Department of Port and Logistics Systems, Dong-A University, Busan, South Korea

* Corresponding author, email address: myamerica81@gmail.com

Abstract

This research explores Central America and the current action plan to adopt the use of Port Community Systems (PCS) & Port Single Windows (PSW) commonly applied in the Maritime sector which in general is classified as Port & Logistics. The study also includes an analysis of the existing investment in Infrastructure development, current adoption levels & necessity to use Technology and dissemination of Policies to execute Public Private Partnership projects in this field. The topic remarks essential high level standards needed in Central America regarding a systematic implementation of Informatics Coordination Systems (ICS) commonly utilize to improve port chain logistics operations. As Central America recently denotes awareness to implement a convergence initiative of the Maritime sector, but yet the outputs is nearly poor of results while also present evidence in delays to obtain a better integration and efficiency procedures. The scope embraces a literature review, analysis, current drawbacks, policies and establishment of objectives to integrate a PCS/ SW basis. The main author intends to highlight commitment of adopting a global vision to incorporate PCS/ SW as a top level priority from key policy makers representatives in Central America through their governments, but also a framework proposal to improve the low productivity created when there is not sufficient management of land regards the connectivity in the logistic port chains, operating aspects of in-land interface, customs, freight transportation, land carriers, citizens, conflicts in the port-city relationship, port deficient access and inter-port service (seaport, road and railways), etc. Finally, the authors target to obtain a fortify effect to consider improvements, attractiveness of investments, operations and strategy services in accordance with a future worldwide demand from the Maritime industry where Central America by adopting international standards through such as PCS/ SW technology, innovation plans, training of people and follow-up prerequisites could join to become a leading & strategically region of hub services.

Key Words: Public Private Partnership (PPPs/ PPAs), Central American Governments, Port Community Systems & Single Window PCS/ SW, Maritime Transport, Seaport Policy - El Salvador Case Study

Opportunities and Challenges Associated with the Development of Sino-Europe Block Trains in the Perspective of “B&R” Initiative

Yitong Ma^{a*}, Xianliang Shi^a, Lamei Zhang^a

^a School of Economics and Management, Beijing Jiaotong University, Beijing, China

* Corresponding author, email address: mayt1992@bjtu.edu.cn

Abstract

Sino-Europe Block Trains is important to implement “B&R” initiative. It is significant and meaningful that studying opportunities and challenges associated with Sino-Europe Trains for counties along “B&R” initiative, and it is really a hot topic in current research. Firstly, we represent the overall development of Sino-Europe Block Trains from the quantity, the frequency, logistics channel and operating model, respectively. And then, we describe the achievements by analyzing typical trains operation. Secondly, through the analysis of the status quo, we put forward development opportunities brought by Sino-Europe Block Trains for countries from the infrastructure, opening to the outside world, industrial development, investment, and economic cooperation, respectively. Finally, we point out that the different standards of infrastructure, insufficient capacity of frontier ports, huge trade surplus between China and the Europe, and the differences of culture are all challenges needed to face.

Key Words: “the Belt and Road” Initiative, Sino-Europe Block Trains, status quo, Opportunities, Challenges

Optimization on Route Selection and Fleet Allocation of China's Crude Oil Import after Arctic Routes Opening

Zhenhua Yang, Yanning Jiang, Zhihong Jin*, Hui Zhu

College of Transportation Management, Dalian Maritime University, Dalian, China

* Corresponding author, email address: jinzhihong@dmlu.edu.cn

Abstract

With the implementation of the “One Belt and One Road”, the commercial navigation and resource development of the Arctic is expected to become a reality. After the Arctic is navigable, there will be new routes, which can affect the shipping route selection and the transportation volume of China's crude oil import. In this paper, the route selection and fleet allocation after Arctic routes opening is studied. First of all, the situation of Arctic routes navigation and that of China's crude oil import are stated. The exponential smoothing method is used to forecast the total demand for crude oil in China. Following this the counter cost ratio method and the linear regression method are applied to distribute the volume ratio of each crude oil import route. Then based on the predicted results, an optimization model of route selection and fleet allocation considering the Arctic navigation is established. Finally, a multi-neighborhood simulated annealing algorithm is developed to solve the model. Results illustrate that Arctic routes will play a more and more important role in the future of China's crude oil import.

Key Words: Arctic routes; Crude Oil Import; Transportation Volume Forecast; Route Selection; Fleet Allocation

Implications of One Belt One Road for Malaysian Connectivity to International Trade Routes

Jagan Jeevan^a, Shu-Ling Chen^{b*}, Hilary Pateman^b

^a School of Maritime Business and Management, University of Malaysia Terengganu, Terengganu, Malaysia

^b Department of Maritime and Logistics Management, Australian Maritime College, University of Tasmania, Launceston, Australia

* Corresponding author, email address: pchen@amc.edu.au

Abstract

This paper discusses the implication of OBOR initiatives on Malaysia's development of transport infrastructure. Currently, there are several projects being undertaken that are linked to the OBOR strategy, such as the industrial park and maritime industry park, port alliances, port expansions, and electrified doubled tracking railways. These projects have created potential to promote economic development on the east coast of Malaysia and southern part of Peninsular Malaysia, boost trade and investment for seaports, promote maritime tourism, increase demand for refuge seaports in Malacca Straits, and enhance freight for utilizing dry ports. The introduction of high speed rail and rapid transit systems improve the development of passenger transportation between Thailand-Malaysia-Singapore. These OBOR initiatives will enhance connectivity between Malaysia and other South East Asia countries offering opportunities for trade and development.

Key Words: Malaysia, OBOR, Freight transport systems, connectivity

Foldable Container in Empty Container Repositioning in Intermodal Transportation Network of OROB: Strengths and Limitations

Xuehao Feng^{a*} Xiao Ruan^a, Shuzhu Zhang^b

^a Ocean College, Zhejiang University, Hangzhou, China

^b Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University, Hong Kong SAR, China.

* Corresponding author, email address: fengxuehao@zju.edu.cn

Abstract

In 2013, the concept of the “Silk Road Economic Belt and the 21st-Century Maritime Silk Road” (OBOR) strategy is initiated by the Chinese government, which involves Asian, European and African continents and their adjacent seas. Logistics plays a core role in such a large framework of economics and trade. In recent years, China, European Union, and Southeast Asia pay much attention to the design and development of the intermodal transportation network towards both economic and environmental efficiency. In this paper, we propose an empty container repositioning model in the intermodal transportation network of OBOR by considering both standard and foldable containers. In this model, empty containers are repositioned from the inland of the original area, such as China, to other areas of OBOR related countries and regions, such as European Union and Southeast Asia. We develop a Mixed Integer Linear Programming model to determine the optimal repositioning of empty container via the intermodal transportation network. An Artificial Bee Colony algorithm is developed to solve large size problems in practice and numerical experiments are conducted to show the efficiency of our proposed algorithm. We provide managerial insights regarding the impact on the network performance of foldable containers transportation.

Key Words: One Belt One Road, Empty container repositioning, Intermodal transportation, Foldable container, Artificial bee colony algorithm

Simulation System for Automated Loading Equipment at Warehouse

Yong-Seok Choi *

Department of Logistics, Suncheon National University, Suncheon City, Korea

* Corresponding author, email address: drasto@sunchon.ac.kr

Abstract

Warehousing operations include palletizing operations that consist of pallet handling with forklift dock, and pallet shifting between rack areas and docking area using forklifts. However, the loading and unloading operations are subject to the waiting time needed to perform lifting operations by the forklift. To solve this problem of increased waiting time, the loading and unloading system can perform the operation by batched pallet with its own power. Recently, a design that uses a simulation method was proposed to minimize the error in the new system in warehouses and utilize multiple simulation techniques to reduce design time. Previous studies reviewed the simulation model to check specific changes in the performance of the new system when it was introduced in a warehouse. This study does a comparative analysis of the performance of the proposed alternative and the current designs. The cargo loading and unloading system that uses the specification designed to target a prototype testing phase, with the input data as presented in this study, does not reflect the operating conditions of a complete warehouse. As a result, it means that if the truck service is improved and the waiting time of the forklift is greatly reduced, then the number of forklifts required to handle external trucks can be reduced sufficiently. The design support simulator plays a role in periodically simulating and calculating the actual forklift's movement, according to the operational rules, and the transfers of cargos by stacking rules. By using statistics measures, we can design its physical layout. This study aims to provide feasible alternatives for automated loading and unloading equipment used in warehouse. The result of this study should take into consideration the design of warehouses as well.

Key Words: Warehouse, Pallet, Loading, Docking, Simulation

Supply Chain Security Initiatives: The Authorized Economic Operator and Indonesia's Experience

Dicky Hadi Pratama^a, Sophia Everett^{b*}

^a PhD Candidate, College of Business, Victoria University, Melbourne, Australia

^b Professorial Research Fellow, College of Business, Victoria University, Melbourne, Australia

* Corresponding author, email address: sophia.everett@vu.edu.au

Abstract

Discussion of security in supply chains has been intensified since the tragedy of 9/11 in the United States. Abuse of supply chains for terrorist purposes has been added as a contemporary risk with massive potential damage. The risk is amplified in the context of global international trade where more than 600 million containers are used annually and only 2% are physically inspected (UNODC, 2013). The World Customs Organization's SAFE Framework with its Authorized Economic Operators (AEO) program is one of the prominent supply chain security initiatives. At the time of its introduction in 2005, 168 member countries signed their support for its implementation (WCO, 2006). However, the last AEO Compendium reports only 69 countries currently have AEO program in place (WCO, 2016). This relatively slow development indicates the complexity of issues that might challenge countries to implement the initiative. As an example, Indonesia takes almost a decade to finally have AEO program regulated. Against this background, this paper aims to look at the AEO implementation in an environment where supply chain security initiative is relatively new. It focuses on policy development perspectives where the case study of Indonesia might represent challenges of other countries. Involving methods of desk research, interviews and field observation from author's ongoing PhD research, this paper starts with the development of various international supply chain security programs where the AEO finds it prominence. It follows with discussion on the Indonesian AEO implementation where challenges and its policy development process are explored.

Key Words: Supply Chain Security, Supply Chain Integration, Authorized Economic Operator

Economic Significance of China-Pakistan Economic Corridor: A Quantitative Analysis

Tsung-Chen Lee^a, Paul Tae-Woo Lee^{b*}

^a Department of Economics, National Taipei University, Taiwan

^b School of Business IT and Logistics, RMIT University, Melbourne, Australia

* Corresponding author, email address: taewoo.lee@rmit.edu.au

Abstract

“China-Pakistan Economic Corridor (CPEC)” is one of the corridors proposed in the One Belt One Road (OBOR) Initiative and is supported by the Silk Road Fund and the Asian Infrastructure Investment Bank (AIIB). The economic significance of CPEC is twofold. First, infrastructure investment plays a key role in sustainable economic growth, poverty reduction, and environmental sustainability, and is important for developing countries such as Pakistan where the associated investments are at present far from sufficient. The injection in infrastructure investment can stimulate economic prosperity and job creation during the phase of construction. Second, the significance of CPEC can be attributed to its superior geographical location serving as the link between China’s maritime and overland silk road. The completion of CPEC can facilitate cargo movement from the inland of China bounding for Europe and Africa and is expected to reduce more than 70% of current trade distance. Accordingly, the primary objective of this study is to make a quantitative contribution to a better understanding of the economic gains arising from CPEC during construction phase and after completion of construction. A global computable general equilibrium (CGE) model, named Global Trade Analysis, and its version 9 database are adopted for the quantitative assessment. The conclusions and insights of this study will shed light on the development of CPEC and other projects of AIIB under OBOR.

Key Words: China-Pakistan Economic Corridor (CPEC), Asian Infrastructure Investment Bank (AIIB), economic impact analysis, Global Trade Analysis Project

The Primary Exploration of Concept “Beautiful Island Tourism Belt” of New Marine Silk Road Strategy

Huan Zhang^a, Xiao Ruan^b, Xuehao Feng^{b*}

^a College of Civil Engineering and Architecture, Zhejiang University, Hangzhou, China

^b Ocean College, Zhejiang University, Hangzhou, China

* Corresponding author, email address: fengxuehao@zju.edu.cn

Abstract

The Marine Silk Road is covered with various of islands which involves a good many countries. In the new period of Marine Silk Road strategy, the interconnection of large domestic projects and the concept of going out the large-scale infrastructure updates are often confronted with other countries' conflicting excuses from the environmental concerns, especially alone the islands with environment and fragile ecology. This paper absorbs the essence of the most widely accepted concept “Beautiful China” to guide “Beautiful Industry” in the island areas along the Marine Silk Road to develop and plan all kinds of construction activities with “Beautiful Island” image. This study aims to shed lights on how to construct the soft “beautiful island tourism zone” into livable, industrial, touristy “global marine ecological civilization demonstration zone”. Our theoretical results would be helpful to reach the sustainable integration between China's strategy and the consciousness of other countries which are involved in the Marine Silk Road.

Key Words: Maritime Silk Road, Beautiful island tourism zone, Beautiful industry, Planning and construction

Impact of One Belt One Road on port competitiveness using the Balanced Theory approach

Douglas Hales^a, Jasmine Siu Lee Lam^{b*}, Young-Tae Chang^c

^a University of Rhode Island, USA.

^b School of Civil and Environmental Engineering, Nanyang Technological University, Singapore

^c Inha University, Incheon, Korea.

* Corresponding author, email address: sllam@ntu.edu.sg

Abstract

Contemporary ports face unprecedented challenges and opportunities arising from global scale infrastructure development plan of OBOR along the major transportation corridors between East Asia and Europe. The corridors comprise major trade routes and inland routes linking Asia, Eurasia and Europe by more expanded and capable transportation network. This global scale development plans are believed to affect most of major nodal points including international trading seaports. Therefore, a new phase of port competition looms large stemming from the OBOR development plan in many parts of the world. Existing studies, however, are myopic in understanding port competitiveness. More specifically, extant literature mainly focuses on either customer competitiveness or investor competitiveness, whereas port competitiveness in the real world lies in port strategy on both customers and investors. A new theory, called 'Balanced theory of port competitiveness', has been proposed in recent literature of transportation (Hales et al., 2016, Transportation Journal) and logistics journal (Hales et al., forthcoming, International Journal of Logistics Management). The theory examines the port competitiveness considering both investor and customer sides and developed a measurement framework using analytical hierarchy analysis with its application to major ports in the world. This study intends to redress the port competitiveness using the theory with particular focus on how current and future OBOR plans affect the port competition in various regions. Port competitiveness arising from customer side is captured by port location, port facility, cargo volume, service level and port fees. Port competitiveness stemming from investor side is measured by price, institutional structure, legal framework, financial resources and port reputation. Data on these variables are collected from ports along OBOR trade routes and the impact by OBOR development plan on these ports will be assessed using the framework developed by the theory. The implications and future policy directions are discussed.

Key Words: Port competitiveness; port competition; balanced theory of port competitiveness; One Belt One Road

Global Logistics City Concept: Developing a Cluster-led Strategic Policy Framework

Prem Chhetri^a, Konrad Peszynski^a, Mathews Nkhoma^a, Anjali Chhetri^a, Paul Tae-Woo Lee^{a*}

^a School of Business IT and Logistics, RMIT University, Melbourne, Australia

* Corresponding author, email address: taewoo.lee@rmit.edu.au

Abstract

Using an indicator-based approach, this paper develops a cluster-led strategic policy framework for key global logistics cities in Asia. Cities were mapped along the two dimensions to assess the competitive and strategic positioning in terms of their logistics infrastructure capacity and service responsiveness. The relative positioning of these cities is evaluated to provide the regional context for key city clusters within the “One Belt One Road” region. The results show the prevalence of a tier system. Shanghai and Hong Kong have attained the status of global logistics city; whilst Manila, Jakarta and Bangalore are making slow but steady progress in that direction. In contrast, Dhaka, Phnom Penh and Ho Chi Minh City are showing potential to further enhance their strategic positioning through significant investment in infrastructure and service improvement. A strategic policy framework is developed to identify key action plans to tackle the challenges in managing global logistics cities. Challenges such as road congestion and bottlenecks, supply chain disruptions, capacity constraint, and productivity concerns however continue to hinder the seamless flow of freight and impose significant economic costs. This framework will help deploying strategies for key city clusters in the OBOR region through a strategic alignment to emergent production networks and functional integration with global trading hubs and transport corridors within the broader region in Asia.

Key Words: Global Logistic City; Cluster Theory, Logistics Infrastructure, Service Responsiveness, One-Road One Belt, and Strategic Policy

Forecasting Time-Varying Logistics Distribution Flows in the One Belt-One Road Strategic Context

Jiuh Biing Sheu, Tanmoy Kundu*

Department of Business Administration, National Taiwan University, Taipei, Taiwan

* Corresponding author, email address: tan.kundu@gmail.com

Abstract

“One Belt-One Road” (OBOR) is a new regional development perspective, proposed by the Chinese government that has increasingly contributed to unknown effects on global companies and policy-makers, particularly those in the field of international logistics network configuration. This work presents a multi-methodological approach to address the dynamic and stochastic challenges that underlie the problem of international logistic network reconfiguration induced by the OBOR initiative. A three-layer supply chain framework is proposed to forecast time-varying logistic distribution flows by developing a spatial-temporal logistics interaction model integrated with Markov chain. Further, numerical forecasts based on two industrial cases of Chinese oil supply chain network from West Africa and the Middle East are carried out to account for the effectiveness of the proposed model. The analytical results of the case study highlight and suggest various development strategies for the practitioners and the policy makers in optimizing their logistics and transportation decisions in the OBOR context.

Key Words: International logistics network, One Belt-One Road (OBOR), Logistics distribution flow, Spatial-temporal interaction, Markov chains.

The Impacts of Trade Liberalization on Chinese Economy with OBOR

Meifeng Luo ^{a*}, Lingge Zhang ^a, Dong Yang ^a, Kevin Li ^b

^a Department of Logistics & Maritime Studies, Faculty of Business, The Hong Kong Polytechnic University, Hung Hom, Hong Kong S.A.R.

^b Department of International Logistics, Chung-Ang University, Seoul, Korea

* Corresponding author, email address: meifeng.luo@polyu.edu.hk

Abstract

China has been continuously implementing the open-door policy for past 15 years ever since it joined the World Trade Organization. Compared with the other major importing countries in the world, China's importing tariff is relatively low. Under the One Belt One Road initiatives, more Free Trade Agreements to be concluded and more Free Trade Zones to be established, it is expected that the effective import tariff rate may continue to decrease in the future. This study analyzed the impact of further reduction in Chinese import tariff rate on major economic indicators using a computable general equilibrium (CGE) model and based on the Chinese macro-economic data of 2012. The model results show that, with a balanced international payment, such a reduction can increase GDP, resident consumption, both imports and exports, and reduce GDP price, trade surplus, and government revenue. The results ease the concern that further import tariff reduction may harm the domestic production. Rather, it points out that there are still rooms to improve national economy and increase the consumer utility by trade liberation.

Key Words: OBOR, Trade Liberalization, CGE model, Import Tariff Reduction, Chinese Economy

Evaluating Economic and Environmental Value of Liner Shipping Vessel Sharing in the Maritime Silk Road

Xuan Qiu^a, Eugene Y.C. Wong^b, Jasmine Siu Lee Lam^{c*}

^a Department of Industrial Engineering and Logistics Management, School of Engineering, The Hong Kong University of Science and Technology

^b Department of Supply Chain and Information Management, School of Decision Sciences, Hang Seng Management College;

^c School of Civil and Environmental Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798.

* Corresponding author, email address: SLLam@ntu.edu.sg

Abstract

The One Belt One Road initiative is a novel exploration of China towards strategic collaboration with Eurasia countries to an extent of a larger scale with higher and deeper level of cooperation. The development of this initiative will facilitate more trade among regions and thus catalyse the movement of seaborne cargoes and boost higher demands for liner shipping services. In order to meet the growing global demand of transportation, increasing numbers of liner shipping companies collaborate and form alliances to share vessel capacity and reduce capital costs. Effective liner shipping vessel sharing is essential for the Belt and Road initiative in terms of building efficient maritime transport networks. In promoting environmental development, shipping companies are required to attain higher environmental standards. However, limited literature relates vessel sharing to environmental performance. Also, prior studies have not analysed liner shipping alliances and vessel sharing along the maritime transport networks of Belt and Road corridors. This paper studies the impacts of liner shipping vessel sharing from the economic and environmental perspectives. Two container allocation models are developed for the two scenarios: with and without vessel sharing. The carbon emissions in transportation are calculated under both scenarios. Numerical studies are carried out using services along the China-Indochina Peninsula Economic (CIPE) Corridor. Liner shipping companies could benefit from vessel sharing in terms of significant profit improvement. Vessel sharing could also benefit the environment by reducing the CO₂ emissions dramatically.

Key Words: Environmental value, Carbon emission, Vessel sharing, Liner shipping alliance, One Belt One Road, Maritime silk road

Agricultural Products from Wellcamp to China: Distributing Channels and the Role of Cold Chain Logistics

Shane Yahua Zhang^{a*}, Alice Woodhead^b

^a Australian Centre for Sustainable Business and Development, School of Commerce, University of Southern Queensland, Toowoomba, Australia

^b Australian Centre for Sustainable Business and Development, University of Southern Queensland

* Corresponding author, email address: shane.zhang@usq.edu.au

Abstract

The Darling Downs region where Toowoomba situates is the largest agricultural productive area in Queensland and the second largest in Australia. The opening of Brisbane West Wellcamp Airport (BWWA) presents new market access opportunities for agricultural businesses and related industries in Toowoomba and its surrounding areas. This paper has discussed the possible flow channels for Australian agricultural products from Wellcamp to China and assessed the role of cross-border e-commerce and cold chain system in facilitating the export of perishable goods to China. Zhengzhou has been identified as an ideal import and export port and distribution centre for perishable products because of its strategic location, excellent transport connectivity, supportive customs and quarantine policies, and reliable infrastructures being constructed. The cross-border e-commerce has become increasingly popular in China and could serve as an effective platform to distribute perishable food products and represent a new mode of international trade. The need to construct massive cold chain infrastructures in China presents enormous opportunity for Australian cold chain industry to export designing and engineering services. The participation of Australian logistics firms with their experiences and expertise will benefit not only Australian food exporters in terms of mitigating the possibility of disruptions in food supply chain, but also other Australian businesses in China such as restaurant operators that rely on reliable cold chain services.

Key Words: cold chain logistics, Toowoomba, agricultural product, e-commerce

Weighing Logistics Strategy Factors of One Belt and One Road Initiative using Fuzzy Multiple Criteria Decision Making (FMCDM)

Ying Wang ^a, Gi-Tae Yeo^b, Paul Tae-Woo Lee^c, Vinh V. Thai^{c*}

^a School of Economics & Management, Yantai University, China

^b Graduate School of Logistics, Incheon National University, Korea

^c School of Business IT & Logistics, RMIT University, Melbourne, Australia

* Corresponding author, email address: vinh.thai@rmit.edu.au

Abstract

The One Belt and One Road Initiative proposed by China president Xi Jinping in 2013 promotes the development of logistics in the corridor countries by removing barriers in the missing sections of core international transportation passages and advancing the construction of port infrastructure facilities. Policy coordination, facilities connectivity, unimpeded trade, financial integration, and people-to-people bonds are five major strategy factors of the Belt and Road Initiative for enhancing the logistics cooperation and service level among the corridor countries. This paper aims to evaluate the importance of these factors influencing logistics development in order to give some indications for Chinese government to focus on investment in these factors. Fuzzy Multiple Criteria Decision Making (FMCDM) method which uses natural language that can express the experts' thinking and preferences is employed for the evaluation process because it is an effective method for dealing with data with the characteristics of uncertainty, ambiguity, non-observability, and scarcity. Finally, a sensitivity analysis is conducted for determining the variation effects on the final ranking of the logistics strategy factors and identifying potential factors for future development.

Key Words: Logistics strategy factor, One Belt and One Road Initiative, Fuzzy Multiple Criteria Decision Making (FMCDM), Sensitivity analysis

Evolution of OBOR Initiative and Its Impacts on Japan's Companies Operating in China

Ippei Machida^a, Mu-Chen Chen^{b*}

^a School of Commerce, Meiji University, Tokyo, Japan

^b Department of Transportation and Logistics Management, National Chiao Tung University, Taipei, Taiwan

* Corresponding author, email address: ittchen@mail.nctu.edu.tw

Abstract

To achieve the China's inland economic development, China's government has approved the promotion and a huge amount of investment for constructing domestic transportation infrastructure. As a result, the transportation infrastructure from Eastern to Midwestern has substantially improved, and it paves the way for the One Belt and One Road (OBOR) policy. The main focuses of OBOR Initiative not only on expanding the trade and interaction between China and Europe (including the areas along the road from China to Europe), but also constructing the new transportation infrastructure and the interconnection among the existing transportation facilities along OBOR. This paper firstly analyzes the arrangement of China's OBOR Initiative and the evolution of China's domestic transportation infrastructure development supporting the OBOR Initiative. After understanding the OBOR Initiative and evolution of transportation development, we try to analyze the impacts of OBOR Initiative on China's manufacturing and logistics industries. China's manufacturing and logistics need to react the impacts caused by OBOR. There are many Japan's companies, which have business operated in China, and they need to face the challenges resulting from the OBOR Initiative. Therefore, in this paper, we also analyze impacts of OBOB on Japan's manufacturing and logistics industries. Finally, we provide suggestions to China's enterprises and Japan's enterprises having business in China according to the analysis of impacts.

Key Words: OBOR Initiative, manufacturing industry, logistics industry, China, Japan

Korean Peninsula's Logistics Collaboration for Accomplishing the 'One Belt One Road' Policy

Sung-Woo Lee^a, Soo-Yong Shin^{a*}

^a Port & Logistics Research Division, Korea Maritime Institute, Republic of Korea

* Corresponding author, email address: shinsy@kmi.re.kr

Abstract

Processing 'one belt one road' policy, the People's Republic of China (PRC) has developed a platform for economic integration with contiguous European states. It illustrates the strategy targeting for medium level of economic growth, the China centric globalization (referred to Pax Sinica), and the change of foreign policy from reciprocally opened to totally opened. This foreign policy seeks for establishment of logistics network among 14 neighboring countries by land and sea, which got actually supported by foundation of AIIB in 2016. The Chinese 'one belt one road' policy includes policy interchange, infrastructure connection, promotion of international trade, expansion of financial cooperation, and stimulation of private communication. PRC has consistently promoted some projects with those five chief tasks. Nevertheless, the policy did not mention the relationship with neither Korean Peninsula (including North and South Korea) nor Japan, which are geopolitically located at right side of PRC. To accomplish the 'one belt one road' policy truly, PRC should consider the connection of the Northeast district with the Korean Peninsula. But they, so far, couldn't build a concrete framework because of the location of Democratic People's Republic of Korea (North Korea or DPK) and the economic and political conflicts with United States of America (USA). For the Northeast economic integration platform from logistics perspective, my research would illustrate what kind of cooperative projects with Korean peninsula would bring the perfection of 'one belt one road' policy. Combining with an Inland logistics network in North region of Korea (Extended line of east coast region) and Arctic route cooperated with ROK (Extended line of east coast road), the Eurasia continent would be connected with all the direction of inland and North and South sea routes. Therefore, this paper suggests to found a national level of logistics network projects such as DPK-PRC, DPK-Russia, and PRC-Russia to complete the 'one belt one road.' Also, this essay subsequently discusses the governmental perspective of South Korea on Eurasia initiative and Russia 'Eastern Policy.'

Key Words: One Belt One Road, Korean Peninsula, Logistics Network, Eurasia Initiative

Port Cluster Configuration along Maritime Silk Road in the Context of Industry Transfer and Site Production Capacity

Dongxu Chen, Zhongzhen Yang*

Dalian Maritime University * Corresponding author, email address: yangzhongzhen@263.net

Abstract

The strategy of “One Belt One Road (OBOR)” may enhance the location advantages along the Maritime Silk Road (MSR), and hence encourages the industry transfers and generate new shipping demand along in the region. It is necessary to study on the ports planning and development. This paper optimizes the port cluster configuration based on the shipping demands along the MSR, namely determining the number, the scale, the location and the hinterland division of the hub ports. In the model, we consider both the original port demand and the new demand from the manufacturing relocation due to OBOR strategy, and the equilibrium between port demand and supply during a certain period is discussed. The most important issues for model building is to consider the roles that the ports can not only serve the shipping demand but also encourage the shipping demand, and the fact that hinterland production capacity has upper bound due to the constraints from the availabilities of labor forces and land. The model is based on the method of designing a hub and spoke network. To analyze the impacts of OBOR strategy on port demand, we study the relationship between product demands and their supplies in different regions based on the spatial economics theory and forecast the freight distribution demand and optimize the port investment volumes in the context of industrial transfer pushed by OBOR strategy. In addition to cost factor, we also take the production capacity in the industry undertaking countries along MSR into account, and determine the growth potential of manufacturing industry along MSR with labor and land supply as the constraint. To test the impacting details of OBOR strategy, we use the main ports and the industry undertaking countries along MSR as the study subjects to do a case study. We partition the regions along MSR into several supply sites, and take the other regions around the world as one demand site. According to the data on world trade data the labor availability along MSR, we determine the structure of the port cluster system and calculate the optimal investment amounts for the ports and illustrate the equilibriums between ports, between regions and between ports and regions, which may offer some theoretical basis for OBOR strategy.

Key Words: Manufacturing relocation; maritime silk-road; port cluster system; growth potential of manufacturing industry

An Analysis of Logistics Capabilities: A Case Study of Myanmar

Theingi Lwin^a, Hyun-Duk Kim^a, Ahmad Abareshi^b, Paul Tae-Woo Lee^{b*}

^a Department of Logistics Management, Sunchon National University, Sunchon City, Korea

^b School of Business IT and Logistics, RMIT University, Melbourne, Australia

* Corresponding author, email address: taewoo.lee@rmit.edu.au

Abstract

With the 2nd lowest Logistics Performance Indexes (LPI) ranking among its South-East Asian peers, Myanmar faces particular difficulties with regards to the quality of transport-related infrastructure, late deliveries and the inability to track and trace consignments. Playing single in the market as small and medium enterprise (SME), Myanmar Logistics Service Providers (LSPs) are then faced with intense market competition. Thus, Myanmar LSPs need to consider starting effective cooperation by stopping destructive competition. Myanmar LSPs require thinking about which capabilities is necessary when establishing partnership. In doing so, reduction in destructive price competition, information synchronization, multicultural adaptability and flexibility, networking capabilities, language skills, joint-venture skills and better communication skills are required to build up trust between parties. Thus, to increase competitive advantage and improve performance, firms must identify those key strategic elements of logistics capabilities associated with their business and try to excel in them. This paper aims to investigate the relationships between firm's performances of two types of capabilities: firm's demand-side logistics capabilities and supply-side logistics capabilities improving cooperation and collaboration between Myanmar and Korea LSPs in order to increase long-term competitiveness in Myanmar logistics industry. Using a systematic literature review underlying dimensions of two types of capabilities are identified. The data is collected using a survey questionnaire on key logistics stakeholders in Myanmar. Both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) are employed to identify and analyze the underlying factors for logistics capabilities.

Key Words: Logistics service providers, Logistics capabilities, Exploratory factor analysis, Confirmatory factor analysis, Myanmar

Social Network Perspective on Trade in Value Added: Focused on the Logistics Industry

Kisoon Hyun^a, Junyeop Lee^{b*}

^a Research Professor, Korean Geographic Research Institute, Sungshin Women's University, Korea

^b Department of International Trade and Regional Studies, Inha University, Korea

* Corresponding author, email address: jylee@inha.ac.kr

Abstract

Using Social Network Analysis (SNA), and also based on the WTO-OECD Trade in Value Added database from 2000 to 2011, this paper examines the network dynamics of the cross-border trades. The main results of this paper are as follows: from the top 10 in-degree centrality industries, industries in China and Germany and domestic industries in the U.S. have emerged as the largest importers of foreign value added, implying that the global production network is dominated by two different types of industries. The first type of industries might be processing and assembling procedures in China and Germany. The other type of industries were importing foreign value added largely for domestic final demand in the U.S. Secondly, there are also two types of brokerage roles. U.S. industries are solely operating in a liaison role, while Chinese and German industries are mostly operating as coordinator or gatekeeper. Thirdly, manufacturing industries in China and Germany which have emerged as higher in-degree centrality could incur a large portion of their value added from the logistics industry. This suggests that those leading industries with the highest characteristics of hubness in the global production network cannot sustain their network status without efficient utilization of the logistics industry.

Key Words: Trade in Value Added, Social Network Analysis, Degree Centrality, Logistics Industry

China and Shipping Market

Dae-Sik Lim^a, Yuan-Yuan Mu^a, Kwangbae Lee^{a*}

^a Department of Logistics, Sunchon National University, Suncheon City, Korea

* Corresponding author, email address: kblee@sunchon.ac.kr

Abstract

The rapid growth of China's trade has had a great impact on the interdependency and trade patterns of South Korea and Japan. The China's influence is also found in the shipping market. This study modeled the ocean freight as a function of China's import and dry cargo ship's space and then examined the univariate time-series properties of the series by testing whether the series are stationary or not. The ADF test for unit roots and the GPH test indicated that both the differenced variables and the models are stationary. We, hence, estimated the model and found that China's imports had the significant positive signs in all of four freights, while the space had the negative signs. The space coefficients were greater than the import coefficients, showing that the dry cargo ship's space had greater impact on the freight than the China's imports had. We employed the dynamic rolling regression to show that China's imports were a principal factor in determining the ocean bulk freight and its influence has gotten stronger. This paper showed that ocean freight was not exogenous with respect to China's imports and dry cargo ship's space using the variance decompositions. We also employed the impulse response functions to get additional information regarding the responses of the variables to the shocks in the other variable. The result indicated that freights increased sharply before peaking three to four months after the shocks to trade and declined slowly to its pre-shock level, while freights responded negatively to the shocks in space and the impacts of the space shock seemed to disappear relatively fast.

Key Words: Shipping Market, Ocean Freight, Dynamic Rolling Regression, Variance Decompositions, Impulse Response Functions

Factors Influencing Chartering Behavior of Container Shipping Lines with Reference to the Case of Hanjin Shipping Company

Paul Tae-Woo Lee^{a*}, Sung-Ho Shin^b, Sung-Woo Lee^c

^a School of Business IT and Logistics, RMIT University, Melbourne, Australia

^b Department of Logistics and Maritime Studies, The Hong Kong Polytechnic University, Hong Kong

^c Port and Logistics Research Division, Korea Maritime Institute, Busan, Korea

* Corresponding author, email address: taewoo.lee@rmit.edu.au

Abstract

This paper aims to analyze chartering behavior for major container shipping companies and identify the influence of fluctuation in shipping market situation based on the contract charter rate and charter duration. The dataset contains fixture information of containership between 2010 and 2016. This study employs an econometric analysis approach with GLMs (Generalized linear models) and duration analysis to find influence factors of chartering activities including contract charter rates and charter period. Most container shipping companies in Europe having net earnings own large vessels instead of chartering in a tight period. However, some ocean carriers, especially Hanjin Shipping Company, chartered bigger ships with high rates and longer charter duration. Contract charter rate and charter periods of Hanjin Shipping company were higher and longer than other container carriers' ones, respectively. Hanjin could not retrieve their failure with their insufficient working capital. Also, Hanjin's failure may be attributed to the missed perceptions for chartering risk alongside the decision error for the forecast of shipping market condition.

Key Words: Chartering behavior, Hanjin Shipping Company, General linear models (GLMs), Duration analysis

Container Shipping in Northern Sea Route and its Environmental Costs

Shengda Zhu^a, Xiaowen Fu^{a*}, Meifeng Luo^b, Adolf K.Y. Ng^c

^a Institute of Transport and Logistics Studies, The University of Sydney, Sydney, Australia

^b Department of Logistics and Maritime Studies, The Hong Kong Polytechnic University, Hong Kong

^c Department of Supply Chain Management, I.H. Asper School of Business, University of Manitoba, Manitoba, Canada

* Corresponding author, email address: xiaowen.fu@sydney.edu.au

Abstract

The Northern Sea Route (NSR) may bring tremendous savings in time and distance for shipping operations between Europe and Asia. However, the Arctic area is very sensitive to emissions and pollutions, implying a trade-off between NSR's impacts on environment and shipping operations, compared with the traditional Suez Canal route (SCR). This study estimates the market shares of different shipping modes of container transport between Europe and Asia based on generalized shipping costs, and computes the associated environment costs under alternative scenarios. Our analysis suggests that NSR does bring some savings and benefits to the shipping industry under the status quo operations. However, NSR's savings in time and operational costs is likely to be lower than the high environmental damages caused, thus leading to net welfare loss. Our study highlights the importance of comprehensive assessment beyond the shipping sector, and calls for more systematic analysis on shipping operations related to environmentally vulnerable areas.

Key Words: Northern Sea Route, Environmental cost, Shipping operations

Design of Hub-and-Spoke Network for Indonesian Maritime Port Development

Ningwen Tu^a, Dimas Adiputranto^b, Xiaowen Fu^{b*} Zhichun Li^a

^a School of Management, Huazhong University of Science and Technology, P.R. China

^b Institute of Transport and Logistics, University of Sydney, Australia

* Corresponding author, email address: xiaowen.fu@sydney.edu.au

Abstract

This paper aims to present a model for design of the hub-and-spoke network for the Indonesia maritime sector. Based on the existing loaded/unloaded cargo data at the port level, a gravity type of cargo demand prediction model is first presented and calibrated. A cost minimization model is then proposed to determine the optimal domestic hubs and international gateways for the Indonesian maritime network as well as the vessel size and speed. The cost concerned includes the bunker fuel cost, capital and operating cost for vessels, lease cost for containers, handling cost and in-transit inventory cost for cargo. The effects of cargo handling rate and scale economy on the shipping cost are also investigated together with the evolution of the shipping network with the growing cargo demand. The results show that the shipping cost decreases with the cargo handling rate and/or the scale economy. For the current low level of cargo demand, a hub-and-spoke network is preferred regardless of the cargo handling rate and the scale economy. However, as the cargo demand grows to an enough high level, the optimal shipping network becomes a point-to-point structure.

Key Words: port choice, One Belt One Road, shipping network

Impacts of the “One Belt, One Road” Strategy on the Wine Industry Development in Mainland China

Yui Yip Lau^{ab}, Ka-chai Tam^c, Adolf K.Y. Ng^{d*}, Xiaowen Fu^e, Zhang Jing^f

^a Division of Business, Hong Kong Community College, The Hong Kong Polytechnic University, Hong Kong

^b Transport Institute, University of Manitoba, Winnipeg, MB, Canada

^c Department of History, Hong Kong Baptist University, Hong Kong

^d Department of Supply Chain Management, I.H. Asper School of Business, University of Manitoba, Manitoba, Canada

^e Institute of Transport and Logistics Studies, The University of Sydney Business School, The University of Sydney, Australia

^f Education Technology Center, Guangdong University of Foreign Studies, P.R. China

* Corresponding author, email address: Adolf.Ng@umanitoba.ca

Abstract

Thanks to globalization, the wine is regarded one of the most valuable commodities in international business. Since the economic reforms in the 1980s, wine consumption has grown dramatically in the Chinese population. On the one hand, the great demand for quality wine in East Asia, especially when a strong economy and a growing middle class are developing in Mainland China, will further solidify this region’s position as the leading wine trading and distribution centre of the world. On the other hand, China is also a vast country divided into different regions, which could be good for wine production. This paper first provides a critical overview of wine production in the different regions of China. Then it discusses the relationship between local economic development and the wine production business. These studies are followed by a cost-weighted transport network analysis for wine export to mainland China, with which the most favorable transshipment hubs are identified in the context of the “One Belt, One Road” initiative. Business and policy implications are discussed at the end of the paper.

Key Words: Wine logistics, One Belt One Road, mainland China

The Risk Assessment Model of International Multimodal Transport System Based on Complex Network

Hongjie Lan^a, Lijun Yao^{a*}

^a School of economics and management, Beijing Jiaotong University, Beijing, China

* Corresponding author, email address: 15120612@bjtu.edu.cn

Abstract

With the introduction of “the Belt and Road” strategy, the extending and stable of international multimodal transport network become more and more important. The paper built a prism conceptual model of international multimodal transport network based on complex network theory. Furthermore, network interruptions are classified as “interruptions related to point” and “interruptions related to edge” and a risk assessment model were established. This model considered about various risks in transit, customs clearance and transportation existing in the international multimodal transport system and aimed at providing a theoretical basis for intermodal transport system operator to assess risks.

Key Words: Complex Network, International Multimodal Transport, Risk Assessment Model

Impacts of Infrastructure Developments under “One Belt One Road” Initiative: A Trade Network Perspective

Booi Kam^a, Leon Kok Yang Teo^{a*}, Duy Dang-Pham^a, Mathews Nkhoma^b, Siddhi Pittayachawan^a, Ahmad Abareshi^a

^a School of Business IT and Logistics, RMIT University, Melbourne, Australia

^b Department of Business IT and Logistics, RMIT Vietnam, Ho Chi Minh City, Vietnam

* Corresponding author, email address: leon.teo@rmit.edu.au

Abstract

In 2013, the Chinese government proposed the Silk Road Economic Belt and Maritime Silk Road, Initiative known as One Belt One Road (OBOR), to develop transportation networks to link China to Europe via central Asia and to expand port capabilities in Asia, Middle East, Mediterranean and Africa to stimulate Chinese maritime trade. To implement OBOR Initiative, the Chinese government established the Asia Infrastructure Investment Bank (AIIB) to redress the imbalance of existing international institutions in financing the infrastructure needs of developing nations. Potential investments by AIIB in participating nations have considerable economic implications for the Asia-Pacific regions in terms of promoting trade and commercial activities. One of the biggest challenges for AIIB under the OBOR Initiative would be the identification of impactful infrastructural projects. Drawing on historical import and export trade data, this paper will examine the trade relationships between countries within the prospective catchment of OBOR using network analysis, a technique that allows for the examination of structural features of trade networks, from which central countries, e.g. hubs or nodes, holding critical roles can be identified. Our aim is to explore trade clusters to obtain insights for the implementation of OBOR initiatives. The paper will discuss the policy implications of the findings relating to infrastructure developments under the OBOR Initiative.

Key Words: One Belt One Road, Asia Infrastructure Investment Bank, Social Network Analysis, Clustering, Decision Making

Dry-port-based Hub-and-Spoke Logistics Networks for Inland Regions in China Connected to OBOR

Hairui Wei ^{a,b*}, Zhaohan Sheng ^{a,c}

^a Logistics Research Center, Shanghai Maritime University, Shanghai, China

^b School of Economics and Management, Tongji University, Shanghai 200092, China

^c College of Engineering Management, Nanjing University, Nanjing, 210093, China

* Corresponding author, email address: hrwei@shmtu.edu.cn

Abstract

From the perspective of the key role of dry ports in the connections, transit, and radiation effects among inland regions, seaport, and cross-border inland ports, this paper studies the structure of cross-border logistics network for inland regions in China to participating to OBOR with bi-level logistics gravity models. Firstly, this paper proposed a logistics gravity model to analyze the radiation relationships between inland regions and dry ports in the inland regions by measuring logistics gravity of dry ports. Secondly, according to the characters of the relationships among dry ports, seaports and cross-border inland ports in China, an improved logistics gravity model has been proposed based on Logistics Attractive Coefficients, from which the logistics connection relationship among candidate hub dry ports, seaports and cross-border inland ports, and all feeder dry ports can be obtained. Then the whole hub-and-spoke logistics network structure can be obtained. A case study involving 17 inland Provinces within 39 dry ports and 196 inland cities, 19 seaports and cross-border all the key nodes in OBOR have been conducted, and the results showed the effectiveness of the method proposed above, which provides decision direction for better participating in OBOR for inland regions.

Key Words: One Belt One Road, Dry ports, Logistics network, Seaports, Cross-border inland ports

Maritime connectivity between Australia and the Maritime Silk Road

Zhi-Hua Hu^{a*}, Zheng-Xuan Yang^a, Wen-Wen Zhao^a, Jian-Kun Hu^a

^a Logistics Research Center, Shanghai Maritime University, Shanghai, China

* Corresponding author, email address: zhhu@shmtu.edu.cn

Abstract

Australia is in the outside of while standing by the Maritime Silk Road with strong connects with the ports and regions in the Road in terms of trade and maritime logistics. This paper investigates the possibilities of connections between Australia and the Maritime Silk Road. Based on the big data set of global maritime network and vessel flows, the key maritime ports on the Maritime Silk Road and the Australia coast are first identified by ranking the connections of the ports. It is believed that the Maritime Silk Road should contribute to reduce the maritime transportation and cargo handling costs by using the effect of economy of scale. Also, hubbing maritime ports should also contribute to various advantages. Then, possible branch connections between the Maritime Silk Road and Australia are tested and evaluated in the aspects related cost reduction. By this two-stage method, possible ports and connections are discovered. Through visualization, the results can provide intuitive and quantitative impacts of the Maritime Silk Road on the regional maritime system.

Key Words: One Belt One Road, Maritime Silk Road, Connectivity, Maritime network, Big data

Networking Australia ports embedded in global maritime network

Zhi-Hua Hu^{a*}, Wan-Ying Yao^a, Chen Wei^a

^a Logistics Research Center, Shanghai Maritime University, Shanghai, China

* Corresponding author, email address: zhhu@shmtu.edu.cn

Abstract

Australia is a big island and is surrounded by the maritime transport system with about one hundred to one hundred and forty active maritime ports, while this system is embedded in the global maritime network by dense connections to the world. According to the data analysis results, this port system serve for the domestic and internal transportation simultaneously. In this study, the networking structure of the Australia ports are analyzed and evaluated by the connections among them and between them and the global maritime network. Thus, the ports are ranked in the aspect of connectivity. Then, a new network of organizing the Australia maritime ports as a hub-and-spoke is formulated and investigated based on the estimated cargo flows. In the policymaking aspect, the results help to quantify the relations between Australia and the global maritime network. Also, the results contribute to the port investments and port selection strategy for shipping liners.

Key Words: One Belt One Road, Maritime Silk Road, Hub-and-spoke, Maritime network, Big data

Ranking maritime ports based on a network of vessel flows

Zhi-Hua Hu^{a*}, Chan-Juan Liu^a, Yang-Yang Hao^a

^a Logistics Research Center, Shanghai Maritime University, Shanghai, China

* Corresponding author, email address: zhhu@shmtu.edu.cn

Abstract

Maritime ports and vessel flows are key fundamental resources of the maritime network and logistics. According to the big data analysis of vessel tracking data, about 5000 maritime ports are open and active in the network. In this study, based on the network of vessel flows as a result of mining a big data set, three groups of measures are created, namely, centralities in the realm of complex network, connectivity in trading ports and regions, potential marketing and regional impacts. Then sixteen measures are used to rank a set of 5433 ports. By the ranking results, three analysis scenarios are developed to show the distinct values of various measures. First, under each measure, top twenty ports are listed to show the differences. Second, by merging the two N ports of all measures and then choosing the top M ports from them, the prominent ports are emerged. Third, by visualization techniques, the distribution of routes of the ports are revealed. It can be found that the composite set of measures show difference preferences on evaluating maritime ports, which should help the policymakers and investors to choose them on by considering different costs and risks.

Key Words: One Belt One Road, Maritime Silk Road, Complex network, Vessel flow, Big data

Plenary session (II)

ECP Workshop for OBOR

» Chaired by

Professor Young-Tae Chang

Inha Fellow Professor, Inha University, Korea

Professor Anming Zhang

University of British Columbia, Canada

» Speech by

Paul T-W Lee (Conference Chairman; RMIT University,

Australia), **Zhi-Hua Hu** (Shanghai Maritime University,

China), and **Sang-Jeong Lee** (Korea Advanced Institute of Science and Technology, Korea)

» Discussants:

Professor Zhihong Jin

Dalian Maritime University, China

Professor Prem Chhetri

School of Business IT and Logistics
RMIT University, Australia

Professor Junyeop Lee

Department of Economics
Inha University, Korea

Associate Professor Jasmine S.L. Lam

Nanyang Technological University, Singapore

Closing ceremony

» **Chaired by**

Professor Paul Tae-Woo Lee

Conference Chairman; RMIT University, Australia

» **Best paper award by**

Professor Anming Zhang

Chairman of the OBOR Prize Committee; University of British Columbia, Canada

» **Best reviewer award by**

Professor Paul Tae-Woo Lee

Conference Organiser, Conference Chairman;
RMIT University, Australia

» **Closing remark by**

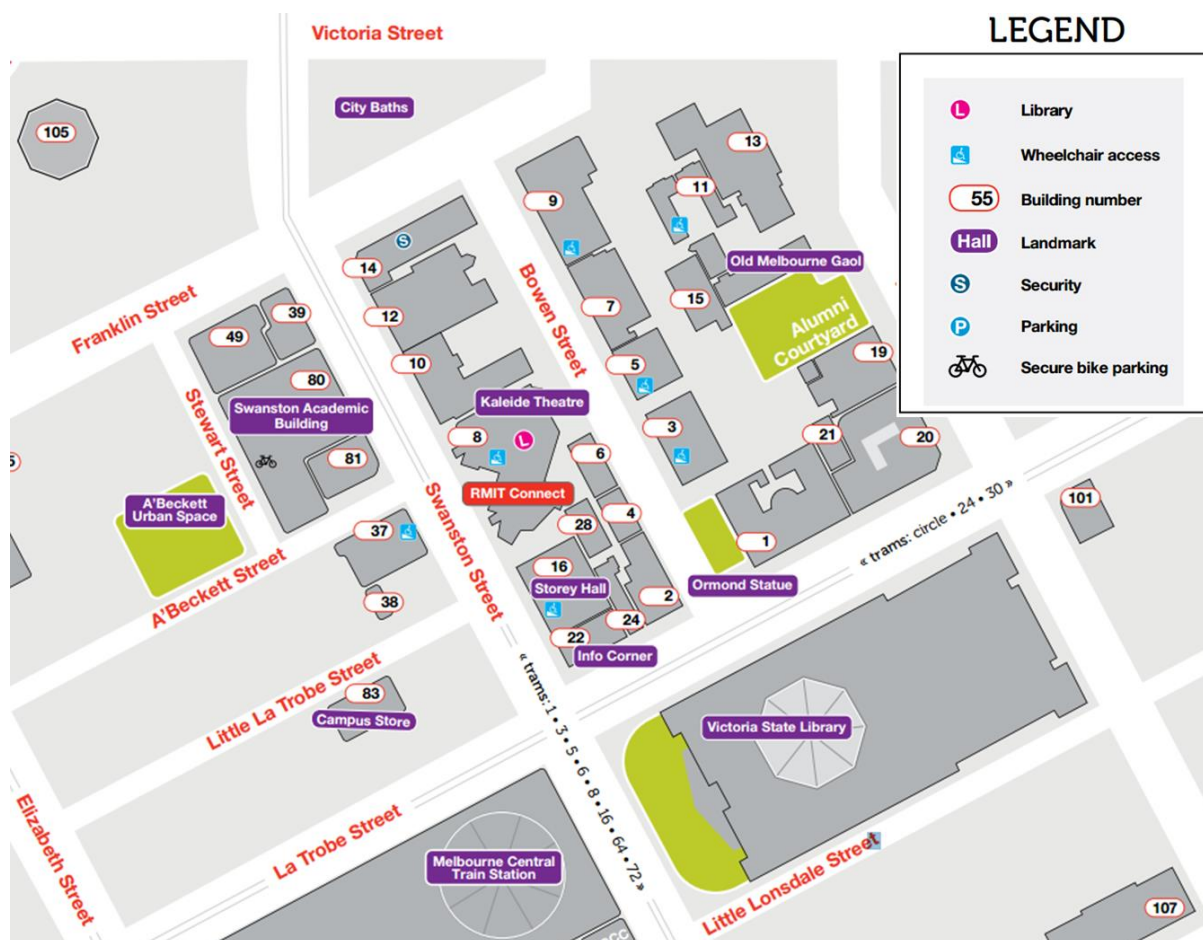
Professor Paul Tae-Woo Lee

Conference Organiser, Conference Chairman;
RMIT University, Australia



Conference Information

Campus map



- Colloquial Meeting (30 November, 2016, 14:00-17:00)**
Venue: RMIT University, Building 80, Level 1, Room 2, Cinema, City campus, 445 Swanston Street, Melbourne (Dress code: Smart casual)
- Welcome Reception (30 November, 2016, 18:00-20:30)**
Venue: RMIT University, Green Brain, Building 22, Swanston Street, Melbourne
- Opening Ceremony / Plenary session / Paper presentation (1-2 December, 2016)**
Venue: RMIT University, Building 80, Level 4 & Level 10, Swanston Street, Melbourne
 (* Lunch: Building 80, Level 7)

Conference Gala Dinner by Yarra River Cruise

- Cruise dinner time: 1845-2200 on 1 Dec, 2016
- Pickup and Drop off point: Federation Wharf, Yarra River, Corner Princes Bridge & Federation Square Complex
- Vessel name: Yarra Countess
- Dress code: Business casual

BOARDING AT FEDERATION WHARF

Corner Princes Bridge & Federation Square Complex



Acknowledgements to the anonymous reviewers of the 2016 OBOR conference papers

On behalf of the Conference Organising Committee, conference organisers would like to express their sincere thanks to all the anonymous referees to improve quality of all the papers and the conference.

Authors Index

Author	Affiliation	Country
Abareshi, Ahmad	RMIT University	Australia
Adiputranto, Dimas	University of Sydney	Australia
Alfaro, Luis Alfredo Martínez	Dong-A University	Korea
Ansariipoor, Amir H.	Curtin Business School	Australia
Asian, Sobhan	RMIT University	Australia
Chan, Man Hin	Technological and Higher Education Institute of Hong Kong	Hong Kong, China
Chang, Young-Tae	Inha University	Korea
Chen, Dongxu	Dalian Maritime University	China
Chen, Hong	Zhejiang University	China
Chen, Mu-Chen	National Chiao Tung University	Taiwan
Chen, Shu-Ling	University of Tasmania	Australia
Cheong, InKyo	Inha University	Korea
Chhetri, Anjali	RMIT University	Australia
Chhetri, Prem	RMIT University	Australia
Chia, Kai-Chieh	Soochow University	Taiwan
Cho, Min-je	Dong-A University	Korea
Choi, Yong-Seok	Sunchon National University	Korea
Choi, Hyung Rim	Dong-A University	Korea
Choi, Kyoungsuk	Shandong Normal University	China
Dang-Pham, Duy	RMIT University	Australia
Everett, Sophia	Victoria University	Australia
Faghih-Rooihi, Shahrzad	Delft University of Technology	Netherlands
Fan, Shiqi	Wuhan University of Technology	China
Feng, Xuehao	Zhejiang University	China
Fu, Xiaowen	The University of Sydney	Australia
Hales, Douglas	University of Rhode Island	USA
Hao, Yang-Yang	Shanghai Maritime University	China
Hu, Jian-Kun	Shanghai Maritime University	China
Hu, Kai-Chieh	Soochow University	Taiwan
Hu, Zhi-Hua	Shanghai Maritime University	China
Hu, Zhi-Hua	Shanghai Maritime University	China
Huang, Anqiang	Beijing Jiaotong University	China
Hyun, Kisoan	Sungshin Women's University	Korea
Ishii, Masahiro	Sophia University	Japan
Ishizaka, Motokazu	Fukuoka University	Japan
Jeevan, Jagan	University of Malaysia Terengganu	Malaysia

Jiang, Yanning	Dalian Maritime University	China
Jin, Mengjie	Chung-Ang University	Korea
Jin, Zhihong	Dalian Maritime University	China
Jing, Zhang	Guangdong University of Foreign Studies	China
Kam, Booi	RMIT University	Australia
Kang, Dong Yeon	Dong-A University	Korea
Kidokoro, Yukihiko	National Graduate Institute for Policy Studies	Japan
Kim, Chae Su	Dong-A University	Korea
Kim, Doo-hwan	Dong-A University	Korea
Kim, Hwa-Joong	Inha University	Korea
Kim, Hyun-Duk	Sunchon National University	Korea
Kim, Jae Joong	Dong-A University	Korea
Kolar, Petr	University of Economics	Czech Republic
Kundu, Tanmoy	National Taiwan University	Taiwan
Kwon, Oh-Seong	Inha University	Korea
Lam, Jasmine Siu Lee	Nanyang Technological University	Singapore
Lan, Hongjie	Beijing Jiaotong University	China
Lau, Yui Yip	The Hong Kong Polytechnic University University of Manitoba	Hong Kong, China Canada
Le, Thi My Hanh	Dong-A University	Korea
Lee, Jae Kee	Dong-A University	Korea
Lee, Joo-Hyung	Sunchon National University	Korea
Lee, Junyeop	Inha University	Korea
Lee, Kangbae	Dong-A University	Korea
Lee, Kwangbae	Sunchon National University	Korea
Lee, Kyung-Yeon	Inha University	Korea
Lee, Paul Tae-Woo	RMIT University	Australia
Lee, Sang-Jeong	Korea Advanced Institute of Science and Technology (KAIST)	Korea
Lee, Sung-woo	Korea Maritime Institute	Korea
Lee, Tsung-Chen	National Taipei University	Taiwan
Li, Kevin X.	Chung-Ang University	Korea
Li, Xiaoyu	University of Manitoba	Canada
Li, Zhichun	Huazhong University of Science and Technology	China
Lim, Dae-Sik	Sunchon National University	Korea
Lin, Cheng-Wei	Kainan University	Taiwan
Lin, Ming Hsin	Osaka University of Economics	Japan
Liu, Chan-Juan	Shanghai Maritime University	China
Liu, Nan	Zhejiang University	China
Lu, Jing	Dalian Maritime University	China
Lu, Mingying	Soochow University	Taiwan

Luo, Meifeng	The Hong Kong Polytechnic University	Hong Kong, China
Lwin, Theingi	Sunchon National University	Korea
Ma, Yitong	Beijing Jiaotong University	China
Machida, Ippei	Meiji University	Japan
Matczak, Maciej	Gdynia Maritime University	Poland
Moon, Young Sik	Dong-A University	Korea
Mu, Yuan-Yuan	Sunchon National University	Korea
Ng, Adolf K.Y.	University of Manitoba	Canada
Nguyen, Hong-Oanh	University of Tasmania	Australia
Nkhoma, Mathews	RMIT University RMIT Vietnam	Australia Vietnam
Oum, Tae	University of British Columbia	Canada
Park, Byung Kwon	Dong-A University	Korea
Park, Hyosoo	Inha University	Korea
Park, Tae-Joon	Yonsei University	Korea
Pateman, Hilary	University of Tasmania	Australia
Peszynski, Konrad	RMIT University	Australia
Pittayachawan, Siddhi	RMIT University	Australia
Pratama, Dicky Hadi	Victoria University	Australia
Prockl, Günter	Copenhagen Business School	Denmark
Qi, Guanqiu	Chung-Ang University	Korea
Qi, Linkai	Shanghai University of Engineering Science	China
Qiu, Ling	Shanghai University of Engineering Science	China
Qiu, Xuan	The Hong Kong University of Science and Technology	Hong Kong, China
Qu, Chenrui	Dalian Maritime University	China
Ruan, Xiao	Zhejiang University	China
Sakalayan, Quazi	University of Tasmania	Australia
Schramm, Hans Joachim	Vienna University of Business Economics and Business Copenhagen Business School	Austria Denmark
Sheng, Zhaohan	Shanghai Maritime University, Nanjing University	China
Sheu, Jiuh Biing	National Taiwan University	Taiwan
Shi, Wenming	University of Tasmania	Australia
Shi, Xianliang	Beijing Jiaotong University	China
Shin, Joog Jo	Swinnus Co., Ltd	Korea
Shin, Soo-yong	Korea Maritime Institute	Korea
Shin, Sung-Ho	The Hong Kong Polytechnic University	Hong Kong, China
Son, Dong-Hoon	Inha University	Korea
Tam, Ka-chai	Hong Kong Baptist University	Hong Kong, China
Teo, Leon	RMIT University	Australia
Tezuka, Koichiro	Nihon University	Japan

Thai, Vinh V.	RMIT University	Australia
Tu, Ningwen	Huazhong University of Science and Technology	China
Wan, Chengpeng	Wuhan University of Technology Liverpool John Moores University	China UK
Wang, Grace W.Y.	Texas A&M University	USA
Wang, Kun	University of British Columbia	Canada
Wang, Shuang	Dalian Maritime University	China
Wang, Ying	Yantai University	China
Wei, Chen	Shanghai Maritime University	China
Wei, Hairui	Shanghai Maritime University Tongji University	China China
Wong, Eugene Y.C.	Hang Seng Management College	Hong Kong, China
Woodhead, Alice	University of Southern Queensland	Australia
Yan, Jia	Washington State University	USA
Yan, Xinping	Wuhan University of Technology	China
Yang, Dong	The Hong Kong Polytechnic University	Hong Kong, China
Yang, Woo-Suk	Inha University	Korea
Yang, Zaili	Liverpool John Moores University	UK
Yang, Zheng-Xuan	Shanghai Maritime University	China
Yang, Zhenhua	Dalian Maritime University	China
Yang, Zhongzhen	Dalian Maritime University	China
Yao, Lijun	Beijing Jiaotong University	China
Yao, Wan-Ying	Shanghai Maritime University	China
Yeo, Gi-Tae	Incheon National University	Korea
Zeng, Qingcheng	Dalian Maritime University	China
Zhang, Anming	University of British Columbia	Canada
Zhang, Di	Wuhan University of Technology	China
Zhang, Huan	Zhejiang University	China
Zhang, Lamei	Beijing Jiaotong University	China
Zhang, Lingge	The Hong Kong Polytechnic University	Hong Kong, China
Zhang, Quan	University of Tasmania	Australia
Zhang, Shane Yahua	University of Southern Queensland	Australia
Zhang, Shuzhu	The Hong Kong Polytechnic University	Hong Kong, China
Zhao, Wen-Wen	Shanghai Maritime University	China
Zhu, Hui	Dalian Maritime University	China
Zhu, Shengda	The University of Sydney	Australia

The Associated Journals

● Transportation Research Part E: Logistics and Transportation Review (TRE)

Guest Editors:

Paul Tae-Woo Lee, Kevin Cullinane, Zaili Yang, and Zhi-Hua Hu

Link

<http://www.journals.elsevier.com/transportation-research-part-e-logistics-and-transportation-review/call-for-papers/call-for-paper-on-special-issue-the-impact-of-the-silk-road/>



● Maritime Policy & Management

Guest Editors:

Paul Tae-Woo Lee, Xuehao Feng and Sung-Woo Lee



● Journal of Transport Geography

Guest Editors:

Adolf K.Y. Ng and Paul Tae-Woo Lee

Link

<http://www.journals.elsevier.com/journal-of-transport-geography>



◎ **Journal of International Logistics and Trade (JLT)**

Guest Editors:

Hwa-Joong Kim and Jun Yeop Lee

Link

<http://www.ejri.net/en/>



◎ **Transport Reviews**

Guest Editors:

Jasmine Siu Lee Lam, Kevin Cullinane, and Paul Tae-Woo Lee

Link

<http://explore.tandfonline.com/cfp/pgas/transport-reviews-cfp>

