The Australian Maritime Logistics Research Network (AMLRN) 2023 Symposium

Tuesday, 28 November 2023

Hosted by

Griffith UNIVERSITY
Queensland, Australia

Griffith University, Griffith Business School

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WELCOME FROM THE AMLRN 2022 SYMPOSIUM CHAIR

Chair of the AMLRN 2023 Symposium
Associate Professor Yong Wu

Department of Business Strategy and Innovation
Griffith Business School
Griffith University

On behalf of the Organising Committee, we would like to warmly welcome all academic and industry participants, founding members of the AMLRN, distinguished guest speakers, industry discussion panellists, and paper presenters to the Australian Maritime Logistics Research Network (AMLRN) 2023 Symposium.

The AMLRN was launched in 2019 aiming to connect academics in the field of maritime logistics, as well as with industry professionals and organisations that have an interest in maritime logistics research and related activities to achieve the synergy in research grant applications, advocacy and advice to Government dealing with maritime logistics policy issues, joint conduct of research and industry projects and others. The annual symposium of AMLRN is one of the important platforms to achieve the objectives. Following the success of past four symposiums, it is an honour to welcome you to the beautiful Gold Coast.

The theme of the AMLRN 2023 Symposium is '***Promoting Maritime 5.0 in an Uncertain World'.*** Maritime logistics and the associated supply chains are heavily impacted by uncertainties. Such uncertainties include the climate change, geopolitical factors, and trade and industry actions, to name a few. These uncertainties can have significant consequences for the efficiency and effectiveness of maritime logistics operations, leading to supply chain disruptions, increased costs, sustainability risks, and reduced competitiveness. Maritime 5.0, a term referring to the fifth wave of innovation in the maritime industry, is characterized by the integration of new technologies such as artificial intelligence, blockchain, and the Internet of Things (IoT) into the maritime industry. The goal of Maritime 5.0 is to transform the maritime industry into a fully digital, connected, and automated ecosystem, capable of delivering better services to customers and improving the bottom line for workforce and industry players, and thus achieving greater efficiency, sustainability, and safety. While Maritime 5.0 can help address uncertainties in several ways such as providing real-time tracking and monitoring, predictive and prescriptive analytics, and increased automation, it itself brings technological uncertainties due to the lack of standardization and regulation in its technological areas. As a result, it is imperative for both industry and academia to investigate how Maritime 5.0 can be promoted for maritime logistics and supply chains to boost economic recovery, resilience, and prosperity in an emerging multi-polar world.

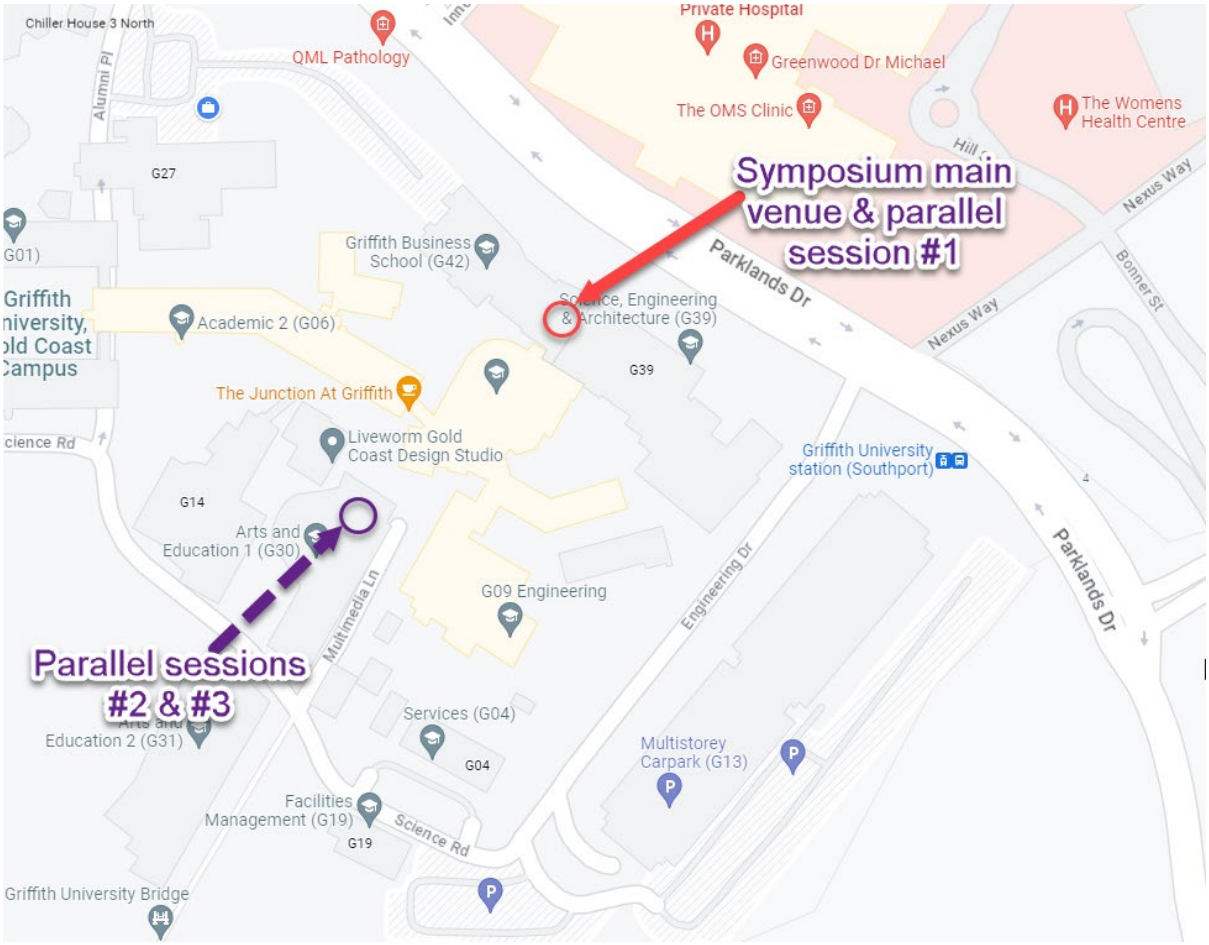
We appreciate that the Symposium features presentations from academics and practitioners not only from Australia but also other countries, such as South Korea, Tunisia, and Sri Lanka. We would like to express our deep appreciation to Griffith University for their great support! We hope you enjoy the symposium and look forward to seeing you again in the AMLRN 2024 Symposium.

SYMPOSIUM ORGANISING COMMITTEE

- **Symposium Chair**
  - Associate Professor Yong Wu, Griffith University
- **Members of Symposium Organising Committee**
  - Associate Professor Peggy Shu-Ling Chen, Australia Maritime College, University of Tasmania
  - Associate Professor Ferry Jie, Edith Cowan University
  - Associate Professor Sean Asian, La Trobe University
  - Associate Professor Hadi Ghaderi, Swinburne University of Technology
  - Professor Vinh Thai, School of Accounting, Information Systems and Supply Chain, RMIT University
  - Professor Michael Bell, Institute of Transport and Logistics, Sydney Business School, University of Sydney
  - Associate Professor Paul Bergey, University of Western Australia
  - Associate Professor Richard Oloruntoba, Curtin University
- **AMLRN Secretariat**
  - Dr Thuy Nguyen, School of Accounting, Information Systems and Supply Chain, RMIT University
  - Dr Aswini Yadlapalli, School of Accounting, Information Systems and Supply Chain, RMIT University
  - Dr Priyabrata Chowdhury, School of Accounting, Information Systems and Supply Chain, RMIT University

GETTING TO THE SYMPOSIUM

The AMLRN 2023 Symposium will be held at Gold Coast campus, Griffith University. The main venue for the symposium is Building G42, Room 2.17, which is shown by the red circle in the figure below. The parallel sessions will be held in G42_2.17 (red circle), and G30_1.11 & G30_1.12 (purple circle).



Getting to the venue by public transport:

From Brisbane Airport: Take the Gold Coast/Varsity Lakes train from the airport, and transfer to G:Link tram at Helensvale Station. Get off the tram at Griffith University station.

From Gold Coast Airport: Take the 777 bus and transfer at its final stop to G:Link tram. Get off the tram at Griffith University station.

THE AUSTRALIAN MARITIME LOGISTICS RESEARCH NETWORK (AMLRN) 2023 SYMPOSIUM PROGRAM

AGENDA

Please note that all indicated timeslots are <u>Brisbane Time (AEST/GMT +10:00)</u>.

8.50 – 9.05	**Opening Ceremony (G42_2.17)**
	Microsoft Teams host: Assoc Prof Yong Wu *Department of Business Strategy and Innovation, Griffith Business School, Griffith University* <u>Microsoft Teams: Click here to join the meeting</u>
	• **Opening and Acknowledgement of Country** Assoc Prof Yong Wu *Department of Business Strategy and Innovation, Griffith Business School, Griffith University*
	• **Opening statement of AMLRN** Prof Vinh Thai *School of Accounting, Information Systems and Supply Chain, RMIT University*
9.05 – 10.15	**Keynote presentations (G42_2.17)**
	Moderator: Prof Michael Bell *Institute of Transport and Logistics, Sydney Business School, University of Sydney* <u>Microsoft Teams: Click here to join the meeting</u>
	• 9.05 – 9.40 (includes 5-10 minutes Q&A) **Mr Paul Hodgson** *CEO, Scaling Green Hydrogen CRC* "The critical role of maritime and logistics in decarbonising Australia and the world" • 9.40 – 10.15 (includes 5-10 minutes Q&A) **Mr Peter Creeden** *Managing Director, MPC International* "Charting the Digital Waters: Navigating the Digitalization Curve"

10.15 – 11.15	**Industry Panel Discussion (G42_2.17)**
	Moderator**:** Prof Vinh Thai *School of Accounting, Information Systems and Supply Chain*, *RMIT University* Microsoft Teams: Click here to join the meeting
	Panelists: • **Mr Tim Cope**, Port of Brisbane • **Mr Dave Coughlin**, Mainfreight • **Rear Admiral Ayodeji Olugbode**, Nigerian Navy
11.15 – 11.45	**Morning Break**
11:45 – 13:30	Parallel paper presentation sessions: • Session 1 (G42_2.17): Maritime Analytics Click here to join the meeting • Session 2 (G30_1.11): Risk Management Click here to join the meeting • Session 3: (G30_1.12) Sustainability Click here to join the meeting
13:30 – 14:15	**Lunch Break**
14.15 – 14.45	**Certificate Award and Closing**
	Chair: Assoc Prof Yong Wu *Department of Business Strategy and Innovation, Griffith Business School, Griffith University* Microsoft Teams: Click here to join the meeting
	• **Award of Certificate of Appreciation and Certificate of Participation** Assoc Prof Yong Wu *Department of Business Strategy and Innovation, Griffith Business School, Griffith University* • **Concluding Remarks** Prof Vinh Thai *School of Accounting, Information Systems and Supply Chain*, *RMIT University*

PRESENTATION SCHEDULE – PARALLEL SESSIONS

Session 1: **Maritime Analytics**	**Session 2:** **Risk Management**	**Session 3:** **Sustainability**
Chair: Assoc Prof Paul Bergey	**Chair: Assoc Prof Peggy Chen**	**Chair: Assoc Prof Richard Oloruntoba**
G42_2.17, Click here to join the meeting	G30_1.11, Click here to join the meeting	G30_1.12, Click here to join the meeting
11.45 – 12.10: *Challenges, obstacles and solution for blockchain in maritime industry and shipping* By *Arbia Hlali*	**11.45 – 12.10:** *Analysis of obstacles to lower demurrage at grain terminals in South Korea* By Seok-Hawn Jeong Young-Seo Choi Maria Listan Bernal Gi-Tae Yeo	**11.45 – 12.10:** *Impact of workforce productivity enhancement practices on seaport competitiveness: A case of Nigeria seaports* By Kayode Adeyemi Muhammad Abdulrahman Shams Rahman
12.10 – 12.35: *Research note: Designing a prioritized call list for marine fuel bunkering* By Jiashan Mei Aida Lavik Ng Paul K. Bergey	**12.10 – 12.35:** *Risk management in seaport – A systematic literature review* By My Thi Ngoc Nguyen Vinh V. Thai	**12.10 – 12.35:** *Near real-time carbon accounting framework for international maritime transport* By Zhijun Li Jiangang Fei Yuquan Du Kok-Leong Ong Sobhan (Sean) Arisian
12.35 – 13.00: *Blockchain technology and sustainable maritime supply chains: Contributions and critical success factors* By Yaw Agyabeng-Mensah Richard Oloruntoba Hossein Mohammadi James Earnest	**12.35 – 13.00:** *Clusters as a means of mitigating geopolitical risk and providing resilience in supply chains* By Shanta Hallock Vinh V. Thai Konrad Peszynski	**12.35 – 13.00:** *Global challenges and sustainable prospects of the maritime industry* By Vinh V. Thai

13.00 – 13.25: *Scalability analysis of LogisticChain: A blockchain platform for maritime logistics* By Lifeng Ni Elnaz Irannezhad	**13.00 – 13.25:** *Operational risks of hydrogen ports* By Peggy Chen Hongjun Fan Hossein Enshaei Vera Zhang Wenming Shi Nagi Abdussamie Takashi Miwa Zaili Yang Zhuohua Qu	**13.00 – 13.25:** *A reference model for optimising cross-border logistics operations: Applications and benefits* By Namal Bandaranayake Senevi Kiridena Asela K. Kulatunga Hoa Dam

Please note that all indicated timeslots are <u>BrisbaneTime (AEST/ GMT +10)</u>.

MICROSOFT TEAMS MEETING LINKS

Main Room: Welcome Opening Statement Keynote Speakers Industry Panel Discussion Certificate Award and Closing	**Join on your computer, mobile app or room device** Click here to join the meeting Meeting ID: 473 951 716 263 Passcode: qruwkh Download Teams | Join on the web **Join with a video conferencing device** griffith@m.webex.com Video Conference ID: 136 399 964 2 Alternate VTC instructions Learn More
Parallel Session #1 Maritime Analytics	**Join on your computer, mobile app or room device** Click here to join the meeting Meeting ID: 456 952 669 070 Passcode: tgEueo Download Teams | Join on the web **Join with a video conferencing device** griffith@m.webex.com Video Conference ID: 137 280 383 2 Alternate VTC instructions Learn More
Parallel Session #2 Risk Management	**Join on your computer, mobile app or room device** Click here to join the meeting Meeting ID: 437 777 248 051 Passcode: qVxsDn Download Teams | Join on the web **Join with a video conferencing device** griffith@m.webex.com Video Conference ID: 137 908 547 8 Alternate VTC instructions Learn More
Parallel Session #3 Sustainability	**Join on your computer, mobile app or room device** Click here to join the meeting Meeting ID: 419 488 354 820 Passcode: rfyC2q Download Teams | Join on the web **Join with a video conferencing device** griffith@m.webex.com Video Conference ID: 139 309 780 0 Alternate VTC instructions Learn More

SYMPOSIUM KEYNOTE SPEAKERS

<table>
<tr><td>  </td><td><h2>Mr Paul Hodgson</h2> CEO, Scaling Green Hydrogen CRC </td></tr>
<tr><td>Biography</td><td>Paul Hodgson is an advisor in innovation, manufacturing, the energy transition and economic growth, with over thirty years' experience in the public, private and non-profit sectors.

He is currently CEO of the Scaling Green Hydrogen Cooperative Research Centre bid, an initiative to accelerate Australia's position as a global hydrogen superpower. With 97 partners, contributing $163m of cash and in-kind support, the bid is hoping to be funded in the current CRC round and operate for at least the next decade.</td></tr>
<tr><td>Keynote Overview

"The critical role of maritime and logistics in decarbonising Australia and the world"</td><td>As a large landmass, with a small population remote from the world's major centres, Australia has developed an economy reliant on long, complex and vulnerable supply chains. With an industrial base concentrated around our seaports, but with a lack of fuel sovereignty, Australia needs to lead rapid transport decarbonisation to ensure our future global competitiveness and connectivity. Not only will the maritime sector require huge quantities of green hydrogen and derivatives for fuel, it will be critical to safely and efficiently distributing the new fuels, chemicals, products and components globally to meet the decarbonisation challenge. In this presentation, Paul Hodgson will outline how the prospective Scaling Green Hydrogen Cooperative Research Centre plans to tackle this challenge with a group of 97 partners drawn from across the nascent green hydrogen value chain.</td></tr>
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<table>
<tr><td>  </td><td><h1>Mr Peter Creeden</h1> Managing Director, MPC International </td></tr>
<tr><td>Biography</td><td>Peter Creeden is a seasoned global supply chain executive and Managing Director of MPC International, bringing over a quarter-century of industry leadership. Before establishing MPC International, he had a 22-year career with Hamburg Sud.

A staunch champion for supply chain innovation, Peter actively contributes to various digital standard associations, including the International Port Call Optimisation Taskforce. He adds academic rigour to his professional expertise as an adjunct senior lecturer at the Australian Maritime College and a Senior Industry Fellow at RMIT's Centre for Future Skills and Workforce Transformation.

In 2019, Peter leveraged his industry insights to establish MPC International Pty Ltd, a leading strategic advisory firm delivering expertise in corporate governance, digital transformations, and AI compatibility roadmaps. As a seasoned strategic advisor, he is helping companies, small & large, navigate the future of the port and supply chain industry.</td></tr>
<tr><td>Keynote Overview

“Charting the Digital Waters: Navigating the Digitalization Curve”</td><td>During his presentation, Peter Creeden will discuss the challenges and possible industry roadmap for implementing the concept of Maritime 5.0. According to the speaker, more than talking about technology is needed. It is crucial to focus on developing digital proficiencies to prepare for significant transitions. Academics should play a leading role in translating technological potential while acknowledging the industry's challenges with understanding digital technology. There should be a two-pronged approach that involves researching emerging technologies and establishing a foundational knowledge hub. The emphasis should be on combining innovative research with creating a shared digital knowledge base to ensure the industry reaches the critical mass required to effectively integrate key technologies in the future.</td></tr>
</table>

SYMPOSIUM INDUSTRY PANELISTS

Mr Tim Cope

Senior Manager Business Development, Port Services, Port of Brisbane Pty Ltd

Tim has a strong background in the logistics industry, with more than 20 years' experience across Australia and New Zealand.

His role at the Port of Brisbane involves identifying, planning and implementing trade-related strategies to drive volume growth. A key focus is ensuring the optimisation of the port's supply chain and working towards a sustainable modal share across rail, road and sea. He has also previously managed the Port's marine operations, encompassing dredging and hydrographic surveying in the Brisbane River and Moreton Bay.

Prior to moving to Brisbane, Tim oversaw the domestic and export supply chain function for a New Zealand dairy manufacturer and was also a trade manager at the Port of Lyttelton.

Mr Dave Coughlin

Branch Manager, Mainfreight A&O (Sea)

Dave's current role is Branch Manager of Mainfreight A&O (Sea) here in Melbourne, one of the largest Branches in the Mainfreight 26 Country network. We are Logistics providers to many large & well known Brands here in AU and provide extensive logistics services, both globally and locally. Having been in the International Trade sector for the majority of his working career, Dave has worked across many facets of the International Supply Chain, including Finance, Account Management, Sales Management, Product Development, System/Process Development and currently manages a Team of 85. Dave relocated to Melbourne (from Adelaide), with Mainfreight in 2017.

Rear Admiral Ayodeji Olugbode

Nigerian Navy

Rear Admiral Ayodeji Olumide Olugbode, was born on February 28, 1971, in Liverpool, UK. He graduated with a BSc in Physics from the Nigerian Defence Academy in 1992 and was commissioned into the Nigerian Navy in September 1993.

Throughout his career, Rear Admiral Ayo held various appointments onboard several ships and shore bases, including Watch Keeping Office (WKO), Executive Officer (XO), Assistant Director (Policy) at the Nigerian Navy Hydrographic Office (NNHO). He also served as an Assistant Director Transformation,

	Nigerian Defence Adviser to India with concurrent accreditation to Bangladesh, Nepal, Sri Lanka, Singapore and South Korea Director of Information, Directing Staff (Faculty Member), Director of Curriculum and Programmes Development, and Director of Academic Research and Analytical Support, MD/CEO Admiralty Maritime Services Limited among several others. He is presently the Hydrographer of the Nigerian Navy. Rear Admiral Ayo has attended various courses, including Sub Technical Course (STC) at NNS QUORA, Junior, Senior Staff Courses at AFCSC, Jaji, Senior Executives Programme – Africa at the Harvard Business School, USA, Company Direction Course(I – III) at the Institute of Directors, Nigeria. Oxford Executive Leadership Programme - Saïd Business School - University of Oxford, UK, Higher Defence Management course at the National Defence College, Nigeria. He also obtained a BSc and Msc in Hydrography from the University of Plymouth, United Kingdom. Rear Admiral Ayo has also worked on various committees, including the International Maritime Organisation (IMO) Maritime Safety Committee, e-Navigation working groups, C-55 Report Review Committee, International Hydrographic Organisation 20th Capacity Building Sub-Committee, and 14th Inter-regional Coordination Committee in Bali, Indonesia. He is a member of the Royal Institute of Navigation (RIN), International Federation of Hydrographic Societies (IFHS), and Institute of Directors (MIoD). Rear Admiral Ayo has also been awarded military service medals, including the ECOMOG (Liberia) Medal, DSS, PSC, FDC(+), NWC(+), Silver and Golden Jubilee medals. He is married to Dr. Mojisola Olugbode and they have two lovely daughters.

SYMPOSIUM MODERATORS

OPENING STATEMENT AND MODERATOR OF INDUSTRY PANEL DISCUSSION

Professor Vinh Thai

School of Accounting, Information Systems and Supply Chains, RMIT University, Australia

Biography

Dr Vinh Thai is a professor at the School of Accounting, Information Systems and Supply Chain of RMIT University. He is currently an Associate Editor of the Asian Journal of Shipping and Logistics (Q1 journal) and is known internationally for his research in logistics and supply chain management in general and maritime logistics in particular. He has so far published international peer-reviewed journal articles and conference papers, and several book chapters, in leading academic journals e.g., *Transportation Research Part E*, *Transportation Research Part A*, *International Journal of Physical Distribution and Logistics Management*, *International Journal of Logistics Management*, *International Journal of Shipping & Transport Logistics*, *Maritime Policy & Management*, *Maritime Economics & Logistics*, etc. His work has been widely cited in academic journals as well as in industry magazines, newspapers, radio etc., such as *Daily Cargo News*, *Science Daily*, *Safety & Health Magazine*, *ABC News Fact Check*, *Herald Sun*, *ABC Radio National*, *2CC Canberra Radio*, *2GB Sydney Radio*, *Yahoo News*, etc.

Vinh is the founder of the Australian Maritime Logistics Research Network (AMLRN), established in 2019, connecting maritime academics and industry professionals in Australia and overseas. He has also been a consultant in numerous consultancy projects, for example, for ASEAN Secretariat (ASEAN maritime transport development study), Japan International Cooperation Agency – JICA (Vietnam Transport Sector Study), World Bank in Vietnam (Northern Region Comprehensive Transport Strategy Study), Japan Bank for International Cooperation – JBIC (Study of the national transport development strategy for Vietnam), World Bank in Indonesia (Port Development Priority Projects and Value for Money Study). Prior to joining academia, he worked for various companies in the maritime logistics industry including Asian Pacific Shipping, P&O Nedlloyd Shipping Line, and Vietnam International Container Terminal (VICT).

MODERATOR OF KEYNOTE PRESENTATIONS

Professor Michael Bell

Institute of Transport and Logistics, Sydney Business School, University of Sydney, Australia

Biography

Michael Bell is the Professor of Ports and Maritime Logistics in the Institute of Transport and Logistics, at the University of Sydney Business School. Prior to this, he was for 10 years the Professor of Transport Operations at Imperial College London and for the final 5 years at Imperial the Founding Director of the Port Operations Research and Technology Centre (PORTeC). He graduated from Cambridge University with a BA in Economics then obtained an MSc in Transportation and a PhD on Freight Distribution from Leeds University. His research and teaching interests span city logistics, ports and maritime logistics, transport network modelling, traffic engineering, and intelligent transport systems. Michael is the co-founder of the International Symposium on Transport Network Resilience (INSTR) in 2001 and is currently the convenor of its International Scientific Committee. He also serves on the International Advisory Committee of the International Symposium on Transport and Traffic Theory (ISTTT) and was its convenor from 2009 to 2015. Michael is the author of many papers and books (including Transportation Network Analysis, published in 1997). For 17 years he was an Associate Editor of Transportation Research B, the leading transport theory journal, and is now its Editorial Board Editor. He was also an Associate Editor of Maritime Policy & Management and is currently an Associate Editor of Transportmetrica A.

PARALLEL SESSION CHAIRS

Associate Professor Paul Bergey

University of Western Australia

Biography

Paul K. Bergey is Associate Professor and the founding Director for the Centre of Business Analytics at the University of Western Australia Business School. He has held prior appointments at the University of Melbourne (2012-2016) and at North Carolina State University (2000-2012), in the USA. Dr. Bergey has held visiting fellowships at the University of Cambridge, UK (2014, 2015) and Tulane University, USA (2011) during sabbaticals. He earned a Ph.D. in Management Science and Information Technology from Virginia Polytechnic Institute and State University (Virginia Tech), MBA from the College of William and Mary and Bachelor of Science in Marine Engineering from the United States Merchant Marine Academy at Kings Point, where he attended by congressional appointment.

Dr. Bergey is the past Editor-in-Chief of IEEE *Engineering Management Review (2011-2014)* and a member of the *Institute for Electrical and Electronics Engineers* (IEEE), the *Institute for Operations Research and Management Science*, the *Decision Sciences Institute* and the *Australia New Zealand Academy of Management.* He served past roles as Vice President of Planning and Development and Vice President of Publications for the *Southeast Decision Sciences Institute.* Dr. Bergey's research is focused on the application of mathematical modelling to support decision making on complex managerial issues. In particular, his research aims to explore the impact of innovation at the interface of information technology and supply chain management. His research has been published in *Decision Sciences*, *Journal of Marketing, Decision Support Systems, Personnel Psychology, Journal of Business Research, OMEGA, Supply Chain Management an International Journal, and the International Journal of Production Economics* among others. Dr. Bergey's teaching interests are in Strategic Supply Chain Management, Business Analysis and Decision Making, Procurement and Logistics, Decision Support Systems and Optimization. He has won several teaching awards, including the Carol Johnston Excellence in Teaching Award at the University of Melbourne and the Poole College of Management Outstanding Graduate Teaching Award from North Carolina State University.

Dr. Bergey has extensive industry experience as a project engineer at Newport News Shipbuilding and has consulted for government agencies and world class organizations such as the United States Department of Energy, The World Bank and several Fortune 500 companies like Dominion Resources, Progress Energy and Becton & Dickenson. In his current position as the Director for the Centre for Business Data Analytics at UWA, Dr. Bergey has developed industry partnerships with several local Australian companies including Fortescue Metals Group, IBM,

	Ferngrove Winery, Minnovare, RiseX, and the Department of Water and Environmental Regulation among many others.
	**Associate Professor Peggy Chen** *University of Tasmania*
Biography	Associate Professor Chen is the Director of the Centre for Maritime and Logistics Management at the Australian Maritime College (AMC), University of Tasmania. She joined AMC as an academic in 2004. Prior to AMC, Associate Professor Chen worked in different sectors in Taiwan, including Customs, banking, and tertiary education. She holds a PhD in Port Management and has great interest in the sustainable development of maritime sectors through research and education. Her research focus is on the fields of maritime logistics, port management, and supply chain management. Research in these areas is imperative to supply chain efficiency and effectiveness, which contributes to international trade and business. Her current research is focused on sustainable logistics and supply chains in the blue economy and renewable energy.
	**Associate Professor Richard Oloruntoba** *School of Business, Curtin University*
Biography	Richard Oloruntoba is the immediate past Discipline Lead Supply Chain Management at Curtin University Western Australia. He is currently Associate Professor of Supply Chain Management. Richard has had a successful career in a range of logistics, freight forwarding, sales and transport management roles in Nigeria and the United Kingdom for 13 years. Richard transitioned into a full-time academic career in 2001 at the Institute of Marine Studies later Centre for International Shipping and International Logistics, University of Plymouth, UK where he taught logistics, port management and maritime business. Since 2004, Richard has taught and researched logistics and supply chain management issues at the School of International Business, Queensland University of Technology, Brisbane, Queensland and at the School of Business and Commerce, later known as Newcastle Business School, Newcastle, New South Wales, Australia until he joined the School of Management and Marketing, Curtin Business School in August of 2020. Richard's research and teaching career of 22 years has been recognised with several awards such as the 2023 Curtin University Festival of Learning Poster Award for the integration of Sustainability Education into Curtin's Supply Chain Management Major, Faculty of Business and Law University of Newcastle Individual Teaching Excellence Award (2017) and the University of Newcastle Vice Chancellor's Teaching Excellence

	Award (2013). Richard's work has also earned the Newcastle Business School Deans Prize for Highest Citations (2019), Faculty of Business & Law Research & Innovation Award (Newcastle)(2017), Emerald UK Outstanding Reviewer Award (2015), Deutsche Bahn Schenker Award for Outstanding Research in Logistics (Germany) (2014), Highly Commended Thesis Award UK (Logistics and Supply Chain Management category) (2014), Queensland University of Technology Vice-Chancellor's Commendation for Research Excellence (2006), Emerald UK Literati Network Awards for Excellence Best Paper Awards (2007 & 2006), Charles Gee & Co Centenary Prize UK (2001) amongst others. Richard has undertaken and published research. He has published over 100 refereed articles in leading international journals, flagship conference proceedings and in research books on supply chain management, logistics, operations management, disaster management, sustainability and public health. His research programme is on the important subject of human and community sustainability, specifically to do with the logistics for disaster preparedness and response, humanitarian logistics, health and humanitarian operations management, and Covid-19 public health related risk management strategies. Richard's research has attracted over $350,000 in competitive research including a 2021 Australian Department of Defence funding for a study on security of maritime supply chains in the Indo-Pacific area. His industry and policy engagement has resulted in 12 industry and public engagement articles, 5 project reports, and tens of media appearances and commentaries. His scholarly impact is evidenced by over 3000 citations and h-index of 25 (Google Scholar). He has made 28 invited Australian and international speeches, presentations and keynote addresses on matters relating to logistics and supply chain management, and co-organised and chaired numerous panel discussions, workshops, seminars, conferences, and conference tracks and sessions on topical SCM issues. Richard has supervised and mentored 11 doctoral students to completion and served as external examiner for 11 Australian and international PhD theses. He is a founding member of the editorial advisory board of the *Journal of Humanitarian Logistics and Supply Chain Managemen*t, and a member of the editorial boards of the *International Journal of Physical Distribution and Logistics Management*, *Asian Journal of Shipping and Logistics* and *Journal of Business Logistics.* He is currently a Senior Associate Editor of the *International Journal of Physical Distribution and Logistics Management*, a Global Research Fellow in the Center for Human Rights and Humanitarian Studies at Brown University, Providence, Rhode Island. USA as well as an Emerald Publishers UK Sustainable Development Goal (SDG) Advisor for *Responsible Management* for Australia and New Zealand. Richard may be reached at Richard.Oloruntoba@curtin.edu.au

ABSTRACTS OF PRESENTATIONS

Session 1: Maritime Analytics 11:45 am – 1:30 pm

Challenges, obstacles and solutions for blockchain in maritime industry and shipping

Arbia Hlali

Department of Economics, University of Sfax, Tunisia

Abstract

The Blockchain technology have a huge impact on several sectors. It use an automation process based on smart contract to simplify the administrative procedures, to reduce their costs, to develop claims for reimbursement, and to manage multinational insurance contracts. Also, the blockchain gives a new impetus and have an impact on existing business models. So, it could be the future infrastructure of the service in different sector such as the maritime industry. In addition, the digitization of maritime transport documents has an economic interest. It lies in the facilitation of maritime transport of goods and the competitiveness of companies operating in the maritime sector in terms of time savings and cost reductions. However, the solutions to dematerialize and secure their electronic transaction as well as new disruptive technologies such as the Blockchain which constitute an innovative and inexhaustible solution for the dematerialization of electronic negotiable transport documents. In this context, this study highlights the challenges, the obstacles and the solutions that revolve around the application of the blockhain in maritime and shipping industry.

Research Note: Designing a Prioritized Call List for Marine Fuel Bunkering

Jiashan Mei*, Aida Lavik Ng* and Paul K. Bergey**

*Rise-X

**University of Western Australia

Abstract

Marine fuel bunkering transactions have traditionally been marketed via pull strategies whereby ship owners or leasing agents contact fuel providers to arrange for delivery of fuel at some specified location and time. This research study presents a novel approach that combines data from the Automatic Information System (which broadcasts information about ships' location, speed, destination, etc) with the judgement of marine fuel procurement and supply experts to yield a predictive model of fuel demand for a target port. From this, we devise a priority call list whereby marine fuel providers can reach out to ship owners and leasing agents to push market marine fuels. We also develop a model for the optimal pushing window where communication outreach is most likely to results in a successful transaction.

Background

Automatic Identification Systems (AIS) was implemented in 2007, by the International Maritime Organization (IMO) and is required on vessels rated over 300 dead weight tons to reduce the chance of collisions at sea. AIS uses GPS technology to transport data from ship to ship, ship to shore, and ship to satellite. It provides data on a ship's identity, position, course, speed, and about 50 or so other fields. Positional updates can range from every 2 minutes to every 2 hours depending upon

certain circumstances such as weather, location, communication mode, and equipment status. Broadcasting of AIS data is required except when it threatens the safety of the ship, such as when transiting waters known for attacks by sea pirates. Only the ship's Captain has the authority to switch the system off. The usage of AIS data has progressed from navigation-oriented applications to incorporating many important data and statistics, including carbon accounting, trade flow approximation, and vessel performance tracking. One could say that, since AIS was made available as a subscription data service, it triggered the digitization of assets in the maritime industry.

Blockchain technology and sustainable maritime supply chains: Contributions and critical success factors

Yaw Agyabeng-Mensah, A/P Richard Oloruntoba, Dr Hossein Mohammadi, and Dr James Earnest.

School of Management and Marketing, Curtin University, Western Australia

Introduction and background

Sustainable maritime supply chains are a network of maritime firms focusing on improving the benefits of their activities to people and the planet while ensuring long-term financial stability (Bernacki, 2021; Altarriba et al., 2022). Sustainability issues have become essential in maritime supply chains to address the alarming increase in global environmental pollution (Chan, 2022), excessive reliance on natural resources, child labour and human errors, unfair wages and salaries and corruption (Balci & Surucu-Balci, 2021; Difrancesco et al., 2022). Sustainability in maritime supply chains can generate several benefits, including enhanced reputation, satisfying international regulations and local regulatory regimes to avoid their associated fines, improving long-term profitability (Jozef et al., 2019), and ultimately safeguarding our planet (Yuen et al., 2019).

Maritime supply chains involve complex partners, creating mistrust among partners, an ineffective flow of information, slow document processing, and bribery and piracy issues undermining efforts toward maritime sustainability. In 2010, re-routing of maritime shipping resulting from piracy alone cost between USD 7 billion and 12 billion (Sandkamp et al., 2022). In Port of Maputo, Mozambique, bribery constitutes a 129% increase in total port costs for a standard 20 feet container (Sequeira & Djankov, 2014). Blockchain technology has been identified to offer potential solutions to the above challenges of maritime supply chains in practising sustainability (Esmaeilian et al., 2020). Blockchain is a digitalised peer-to-peer network where data is recorded and transferred between participants rather than central storage (Papathanasiou et al., 2020). Blockchain technology can generate a high degree of trust, accuracy and transparency, and real-time tracking of products, data, owners, and actions taken at any stage of the supply chain (Pu & Lam, 2021).

Blockchain technology is gaining increasing attention among maritime supply chains. For instance, IBM and Maersk have collaborated and implemented blockchain-based supply chains for their container shipping business by digitising and tracking all their containers. In 2017, 14 Japanese maritime firms, including NYK and MOL, announced an alliance to build a blockchain-based trade data-sharing platform. As of July 2021, the website of Tradelens, one of the major blockchain solution providers, displayed 285 ecosystem members, including terminals, ocean carriers, intermodal providers, and inland depots (Balci & Surucu-Balci, 2021). However, despite the growing popularity of blockchain among maritime supply chains, more is needed to know about its contribution toward sustainable maritime supply chains. Therefore, this study elaborates on the critical success factors of blockchain technology and its important role in achieving sustainability goals across maritime supply chains.

Scalability Analysis of LogisticChain: A Blockchain Platform for Maritime Logistics

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Abstract

The application of blockchain and smart contracts have been widely acknowledged as essential in digitised logistics, offering improved traceability, transparency, and efficiency. However, concerns regarding performance and implementation limitations persist. To demonstrate the challenges regarding the performance and efficiency of blockchain in logistics use cases, this study presents a proof-of-concept model by leveraging Hyperledger Fabric blockchain network to emulate shipping logistics process and illustrate the automated and self-executing nature of smart contracts and transactions among various logistics participants by implementing RAFT consensus mechanism. Performance evaluation of the PoC model using Hyperledger Caliper reveals that the number of clients and transactions per second significantly impact system performance. When exceeding the processing capacity, the average latency of transactions experiences an exponential increase due to limited resources. Furthermore, different types of operations are compared, with Read operations exhibiting the lowest latency and Update operations displaying the highest latency due to complex computations and validations involved. Lastly, the latency of the LogisticChain network between fixed-rate and linear-rate controllers are compared, highlighting lower latency with fixed-rate controllers. This research contributes to the advancement of knowledge in this field by developing open-source codes specifically tailored for maritime logistics use cases.

Keywords: Blockchain, Logistics, Freight Transportation, Proof of Concept, Performance Analysis, Distributed Ledger Technology, Hyperledger.

Introduction

International maritime transportation constitutes a dominant mode of conveyance in global trade, encompassing more than 90% of transported goods [1]. This industry plays a vital role in global supply chains, facilitating the transportation of diverse commodities ranging from raw materials and agricultural products to finished goods and electronics. However, the logistics and international maritime supply chain form a complex and decentralised system. The substantial requirements of this supply chain are met through a fragmented marketplace comprising diverse supply chain participants, which is plagued by inefficiencies and instances of fraud [2]. Nearly all the big importers, exporters and shipping companies run computerised data management software, and in some instances use digital shipping notices and RFID scanning. However, despite this huge investment in digital infrastructure most companies possess limited visibility and insight into when their shipments move along the supply chain when they leave their premises[3]. The fragmented freight transport market suffers from a lack of data standards harmonisation and integration which leads to difficulty in providing provenance of shipments and increasing the costs associated with monitoring, track and traceability, compliance management and fraud detection activities. A significant challenge faced by the logistics and container supply chain is the confidentiality concerns of data exchange among logistics participants. Logistics and supply chain transaction information is frequently treated as confidential, and companies are hesitant to share information regarding their transportation activities for fear of losing their competitive edge. To address these challenges, the maritime logistics industry is exploring various innovative strategies. These encompass the utilisation of the Internet of Things (IoT), advanced analytics and data visualisation tools to optimise supply chain processes, the implementation of intelligent sensors and devices to

monitor cargo and enhance logistics processes [4], and the deployment of intelligent decision support systems to facilitate collaboration among freight forwarders operating in port logistics, both horizontally and vertically [5].

Session 2: Risk Management 11:45 am – 1:30 pm

Analysis of Obstacles to Lower Demurrage at Grain Terminals in South Korea

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A grain terminal is a dock specializing in logistics using Continuous Ship Unloader (CSU) for loading and unloading grain, and grain storage silo, to treat grain freight. Among diverse disturbances in improving productivity and balance while operating the terminal, demurrage is the representative obstacle. Congestion can be generally defined as follows: the ship's time in port is longer than scheduled due to various circumstances while loading and unloading goods in the port, and then the laytime is exceeded. It is estimated that demurrage can affect the volatility of the total annual operating profit of the terminal (approximately 4 – 5%).

Although it has been highlighted to take countermeasures against disturbances for lowering demurrage at the terminals, relevant studies are still insufficient. In this sense, this study aimed at analyzing obstacles to lowering demurrage at the terminals. Consistent Fuzzy Preference Relations (CFPR) method was utilized as it can derive knowledge and experience of experts.

After literature reviews, and utilization of information from the websites of grain terminal operators, and materials about the companies to clarify the main factors requiring an improvement for lower demurrage, relevant factors were initially collected, and resultantly, 16 factors were identified. After the process, a total of 12 factors were finally confirmed after surveys and in-depth interviews with the staff in charge of the following companies: five companies at Incheon Port (i.e., CJ Logistics, Hanjin, Sunkwang, Korea TBT, and Korea Silo), two companies at Pyeongtaek Port (i.e., Taeyoung Grain Terminal, and Pyeongtaek Silo), one company at Ulsan Port (Taeyoung Industries), one company at Gunsan Port (Sunkwang), and one company at Busan Port (Koryo Silo). A questionnaire for the CFPR method was prepared by utilizing those derived factors, and the survey targets consisted of grain terminals (Silo operators), general companies for loading and unloading, shipping companies (grain transportation), and grain shippers. As a result, the most important disturbance was inventory requirements of grain shippers, followed by capacity of storage facilities, and port congestion.

This study is significant in identifying obstacles to lower demurrage at grain terminals in Korea, and evaluating the priorities. The analysis results are expected to play a role as a reference for stakeholders from ports, terminals, and governments to reduce demurrage.

Risk Management in Seaport – A Systematic Literature Review

My Thi Ngoc Nguyen & Vinh V. Thai

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This paper systematically reviews the existing literature on the topic of seaport risk management, serving as a basis for the formulation of a prospective research framework and agenda. Through a focused analysis of risk management within the seaport domain as portrayed in the scholarly

literature, the paper examines what threats and risks that lead to disruptions in seaport operations are, and how they have been addressed in the seaport industry. Additionally, the paper investigates the contribution of these risk management practices to enhancing the resilience performance of the port industry.

Employing the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology, the systematic literature review process was rigorously adhered to. This encompasses the sequential stages of identification, assessment, mitigation, and control. A comprehensive review protocol was meticulously formulated, outlining the reviewing scope, the designated databases, and the specific criteria that governed the selection process. Subsequently, a total of 224 articles were meticulously evaluated for inclusion in the systematic review. This comprehensive corpus facilitated the extraction of thematic insights that not only addressed the core review inquiries but also shed light on potential avenues for future research exploration.

Research in the literature primarily concentrated on developing metrics based on mathematical models, management frameworks, and technical support systems. These metrics were designed to assess and analyse risks, along with their effects on seaport performance at the organizational level. Despite these efforts, there exists a gap in research that investigates the practical implications of these metrics in bolstering the overall resilience and organizational performance of seaports. Consequently, this study introduces a novel empirical model to address this gap.

The proposed research model aims to advance knowledge in seaport risk and supply chain management. It will provide valuable insights for maritime policymakers and managers, aiding informed decision-making and strategy development. This connection between academia and practical application is expected to enhance the sector's resilience and success.

Clusters as a means of mitigating geopolitical risk and providing resilience in supply chains

Shanta Hallock, Vinh Thai, Konrad Peszynski

Purpose

Australia’s logistics industry contributes about 9% to Australian GDP with $132 billion value added and 1.2 million people employed. Logistics supports imports needing distribution to end users as well as exports from Australian producers. The imports and exports mentioned are part of “liner trades’ and are mostly containerised. In addition, a bulk trade of coal, ores, LPG, and bulk grains numerically swamps the volume of liner cargoes. Significant market consumption occurs along the Southeast-West Axis along the seaboard of Perth to Brisbane. In contrast, mining pastoral activity and grain occurs in the interior.

This research attempts to identify strategies that inform 1) resilience in supply chains and maritime logistics 2) managing geo-political risks and security in maritime logistics.

Methodology / approach

Research under the auspices of RMIT, ‘Enablers and outcomes of logistics benefits of clusters’ (Hallock 2021) will be examined for its applicability to the strategies above.

Findings

SEM was used to establish both direct and mediated relationships between:

1) Supply chain collaboration SCCOL and Logistics cluster benefits (LCB) direct, the mediation of SCCOL on the Firms logistics performance (FLP) by LCB (SCCOL→LCB→FLP) and SCCOL by Value added logistics services (VALS), (SCCOL→VALS →LCB).

2) The availability of VALS for industry and the creation of LCB. The indicators of VALS availability being the provision of VALS, anywhere, anytime, on time, at acceptable cost, competitive and meeting all needs, multiple applications in industry and multi-use to make operational decisions.

3) Interfirm logistics collaboration (INDCOL) and LCB. Indicators of collaboration among industries, such as collaborative problem solving, and aggregate purchasing of logistics, predict logistics collaboration.

4) Prediction of outcomes of LCB on FLP is because of the mediating effect of LCB on FLP. State's infrastructure investment necessitates that:

a) investment is committed, b) the timing of the investment is known and c) the certainty of the government's commitment ensures accessibility to logistics corridors.

Practical implications

INDCOL leads to timing of targeted incremental investment in logistics in Australia. The ex-ante prediction of outcomes (this research) of targeted investment enables logistics collaboration between the state and industry that protects the national interest and supply chain security. Investment goals are the co-location of industry, development of skilled labour pools, cluster formation, and generation of regional impacts. LCB are predicted as, efficient labour conducive to, infrastructure construction at optimal locations and a capability to meet performance indicators of FLP.

INDCOL's relationship being validated, supports State policy for regional development of clusters in Australia that generate logistics benefits. For example, grain clusters required the formation of produce collectives, provision of centralised purchasing and storage of agricultural output. In the Australian grain trade, super silos were established along with railheads (e.g., in Birchip, Tocumwal, Ouyen and Deniliquin, with state funding). Availability of high-quality rail track was the weak link resulting in less sustainable trucking from the farmgate that replaced rail in many areas. Quantifiable policy decisions may have recognised resultant agglomeration dis/economies (AE) prior to investment.

User preference for optimum market access is a determinant of clustering that enables the provision and receiving of services. Optimal location is related to the metric cost per tonne-km of a location, and the concept of DIFOTIS (Delivery in full on time in specification) a metric for timeliness. Where appropriate, a metric which is a combination of DIFOTIS and working capital reduction can operationalise working capital. The state's decision on where to target logistics investment is made easier when it knows the predictive importance of these metrics to industry decisions.

Implications for Supply Chain Resilience (SCR) and Security

Industry collaboration (INDCOL), SCCOL and VALS can be combined to ensure resilience and thus mitigate the consequences of unforeseen adverse events. At the simplest operational level, external collaboration by embedding suppliers, users and logistics service providers (LSP) enables agility and quick response to fast-changing circumstances. The co-location of firms in a cluster facilitates this.

Today's threats to supply chain resilience and security differ from past "black swan" occurrences. The logistics performance of firms (FLP) that is adversely impacted can be protected if clustering of logistics activity is used to support export, import and entrepôt trade.

The creation of hubs for agriculture, agro-industry, manufacture processing, distribution and resource stockpiles can reduce dependence on global supply chains benefitting trade between, Australia, New Zealand, the Pacific islands, Southeast Asia & the Sub-continent. Strategies that benefit the economy through cluster creation need to be identified, and choices made on permutations of cluster locations, peri-urban, regional, or port-located.

Finally, examination of the following issues will help focus on potential solutions, decide if:

1) 'Supply chains based in a cluster are more resilient'. Use of modelled indicators of FLP can ensure minimal incremental effort.

2) 'Resilience strategies based on SC security require a geopolitical orientation using linked clusters in Australia and selected regional locations offshore to be successful'.

3) Evaluate whether, 'Antecedents of LCB have an impact on supply chain resilience' (Hallock 2020).

Operational risks of hydrogen ports

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*Presenter

Abstract

Ports play an important role in global hydrogen supply chains as they provide infrastructure and facilitate logistics either for export or import. To become a logistics centre to best facilitate hydrogen trade, ports need to understand operational risks for safety management. This study conducted an online survey to experts in ports and potential hydrogen producers in Australia, Japan, and UK to gather their perceptions of the risks associated with H2 operations in ports.

The survey specifically addresses the operational risks associated with gaseous H2 (GH2) and Liquified Hydrogen (LH2). According to the risk matrix, both GH2 and LH2 operations within the port area do not have any hazardous events reaching the highest risk level. However, there are some events that reach "Substantial" and "Moderate" risk levels. It is crucial to implement additional risk mitigation measures to address these concerns. In developing relevant standards and risk management protocols, it is essential to prioritise mitigating these unacceptable hazardous events.

This study is based on macro-level evaluation using existing H2-related technical standards and operational experience, and conventional risk reduction measures have already been considered.

The risk assessment conclusions drawn from this research are not specific to any port and cannot be used as a basis for determining the risk level of H2 projects at ports.

Keywords: hydrogen; port; operational risk, LH2, GH2, risk matrix

Session 3: Sustainability 11:45 am – 1:30 pm

Impact of Workforce Productivity Enhancement Practices on Seaport Competitiveness: A Case of Nigeria Seaports

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Purpose of this paper

Seaport administrators in Nigeria have focused on provision of modern technologies and infrastructure to improve operational efficiency of the Nigerian seaports without much success (Ahmodu and Okuedo 2021). While literature supports the technological transformation for efficiency improvement (Heilig et al 2017), the Nigeria seaport inefficiency have not responded positively to multitudes of infrastructural and technological changes suggested and implemented at the seaports to date (Lagos Chamber of Commerce and Industry (2018). This suggest that apart from technological and infrastructural issues, other issues such as those associated with workforce motivation and productivity needs to be examined. These will include motivation practices that have been found to have significant positive impact on employee's productivity such as training, good salary and welfare package, promotion, career management and recognition, and socialisation of staff (Elrehail 2020 and Chowhan et al 2017). The purpose of this study is to examine the role of staff productivity enhancement practices in improving terminal operations and increasing speed of cargo clearance to improve competitiveness through the adoption of technology and building workforce capability. Practices that enhance skills of workers to achieve greater productivity and improve performance of the seaports will be examined.

Keywords: Productivity enhancement practices, Competitiveness, Seaport, Nigeria.

Near Real-Time Carbon Accounting Framework for International Maritime Transport

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Introduction

In the general perception, shipping is often regarded as low-carbon and environmentally friendly, commonly associated to large-volume transportation. Maritime transportation handles most of the trade volume in the global supply chain, yet it also bears corresponding negative effects. The cumulative emissions from shipping industry are increasingly being recognized as a significant source of global warming and environmental pollution (Xiao et al., 2022; Yeh et al., 2022). Alarmingly,

without any action, ship emissions are projected to surge up to 130% of its 2008 level by 2050 (Faber et al., 2021). The current condition has deepened concerns about carbon emissions. However, in a notable development, the Marine Environment Protection Committee (MEPC 80) of the International Maritime Organization (IMO) recently confirmed the implementation of marine GHG emissions pricing mechanism in 2027, as part of mid-term GHG reduction measures (IMO, 2023). Consequently, it has become urgent for shipping companies to adopt a reliable and precise carbon accounting tool to address their emissions responsibly. On the other hand, ship route planning, aiming at minimizing fuel consumption and subsequent carbon emissions, has traditionally been restricted to pre-departure planning or enroute planning at infrequent intervals (Zis et al., 2020). The ability for 'near-real-time' carbon accounting is the pre-condition to optimise (or minimise) fuel consumption as the ship, sea, and weather conditions unfold during a voyage, making the route planning dynamic.

To estimate shipping carbon emissions, two main approaches have been utilized: top-down and bottom-up methods (Corbett & Fischbeck, 1997; Endresen, 2003; Jalkanen et al., 2009; Johansson et al., 2017). In recent times, the bottom-up approach has gained prominence with the increasing availability of Automatic Identification System (AIS) data. This methodology predicts fuel consumption rates based on ship navigation characteristics, weather, and sea conditions, subsequently calculating carbon emissions using appropriate emission factors corresponding to fuel types (Albo-López et al., 2023; Budiyanto et al., 2022; Doundoulakis & Papaefthimiou, 2022; Woo & Im, 2022). However, obtaining real-world data presents a significant challenge for researchers, leading many to resort to simplified assumptions or simulation data when adopting the bottom-up approach. Moreover, the lack of precise ship fuel prediction models introduces multiple uncertainties in ship carbon accounting. The intricate interplay of factors such as sailing speed, draft, trim, weather, and sea conditions influences ship fuel consumption. Only a limited number of studies in the literature have effectively integrated these variables into their ship emissions estimation and developed accurate fuel efficiency prediction models. The inability to capture real-time fuel consumption or to precisely estimate near real-time (hereafter, NRT) consumption has directed existing research towards emission estimation based on historical carbon emissions (see Li et al., 2022). To address these practical dilemmas faced by the industry and bridge the gap in the literature, this study introduces a novel NRT carbon accounting framework that leverages machine learning (ML) models to enable carbon tracking at a 15-minute time interval. Specifically, this paper aims to answer the following research questions:

RQ1: How can different combinations of sailing speed, draft, trim, weather, and sea conditions be incorporated into an NRT ship carbon accounting framework?

RQ2: How can the NRT carbon emissions at the ship level be quantified and tracked?

RQ3: How can the container-level carbon emissions be calculated based on container type, size, and weight?

Global Challenges and Sustainable Prospects of the Maritime Industry

Vinh V. Thai

School of Accounting, Information Systems and Supply Chain, RMIT University

Shipping plays a major role among modes of transport to foreign trade as the lifeblood of the world economy, in that about 90% of all goods in volume transported in international trade are moved at one stage or another by sea. Shipping is international in nature. Thus, it is influenced by every aspect of world affairs: political strife, environmental lobbies, technical changes, economic turbulence, global pandemic, etc. It is included in any discussions on global concerns such as security, pollution, and climate change. As a result, shipping can be affected by various challenges

derived from socio-economical, technological, environmental, and legal factors. In the aftermath of the COVID-19 pandemic, these challenges are increasingly widespread which may jeopardise the effectiveness and efficiency of the shipping industry which may, in turn, affect world trade and global economy. In this short presentation, the challenges currently faced by the shipping industry will be identified, and implications for the industry will also be discussed.

A Reference Model for Optimising Cross-border Logistics Operations: Applications and Benefits

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Abstract

The objective of cross-border logistics (CBL) operations is the swift and even movement of cargo from the shipper to the consignee while complying with applicable regulations. However, given the multitude of stakeholders involved, protocols to be adhered to and the processes to be completed, CBL the flow of cargo is often affected by delays, variability in processing time and unpredictability in flow time. While underlying operations are broadly similar, each CBL location also exhibits unique characteristics due to social, economic, geographic, and political differences. In the face of fast-evolving technology and limited capacity to invest, CBL systems face challenges in improving operations to meet the dynamic demands of the constituent stakeholders. This paper demonstrates the utility of a novel reference model to optimise CBL operations, developed based on empirical research conducted in two countries over a period of three years. The reference model, grounded in process analysis, is applicable at systems, operations and process levels, and aids in identifying potential technology interventions and benchmarking across systems.

Introduction and Literature Review Summary

Some research suggests that easing restrictions at the border would result in expanded trade, enhanced inward investments and economic growth (Mann, 2012). However, unrestricted cross-border movement of cargo may lead to the inflow of prohibited goods, the prevalence of sub-standard and counterfeit goods, and the spread of invasive species and plant pathogens leading to the degradation of the environment, economy and society. As such, governments are compelled to control the flow of goods through a host of protocols which adds friction to CBL operations (Ferrantino, 2012). These measures include declarations and attestations as well as selective scanning and physical inspection of cargo. Each measure not only adds significant cost and time to operations but also requires investments in associated infrastructure and resources. Another challenge associated with CBL operations involves the secure transfer of funds from the consignee to the shipper while goods are received, as agreed in terms of trade, which could hinder the smooth and swift flow of cargo.