



**2022 World of Shipping Portugal,  
An International Research Conference on Maritime Affairs**

Summary Report

27 – 28 January 2022, Online Conference via Cisco-Webex

from Portugal to the World

Ana Cristina F. C. Paixão Casaca





2022 World of Shipping Portugal. An International Research Conference on Maritime Affairs  
27-28 January 2022, Online Conference, from Portugal to the World

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## **2022 World of Shipping Portugal, An International Research Conference on Maritime Affairs Summary Report**

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28 January 2022

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## ACKNOWLEDGMENTS

At a time when the world is still struggling to fight back the COVID-19 Pandemic and its numerous variants, despite the vaccination roll-out, I would like to express my gratitude to all my Colleagues and Friends, Members of the Steering Committee, Members of the Scientific Committee, Authors of Papers, Keynote Speakers, Decarbonising Shipping Guest Speakers and European Union Research Project Guest Speakers that supported me along this journey leading to the implementation of the 2022 World of Shipping Portugal. An International Research Conference on Maritime Affairs. My appreciation also goes to the Conference Sponsors (OPTNET PROJECT and SadoShip Repair) and Supporters (CIMOSM - Centro de Investigação em Modelação e Optimização de Sistemas Multifuncionais, EconomiaAzul and Institute of Chartered Shipbrokers).

I hope to see you in 2023!

Meanwhile, take care and keep safe!

Greetings from Parede, Cascais, Lisbon, Portugal

28 January 2022

Ana Casaca



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# 2022 World of Shipping Portugal

## An International Research Conference on Maritime Affairs

### Summary report

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## WELCOME MESSAGE

Distinguished Guest Speakers, Authors and Delegates,

When I started preparing for this Conference in February 2021, the world was confined. Only being able to walk around in a restricted area, without the possibility of travelling, is far from living a healthy life. The words to overcome the difficulties and the challenges that such a situation creates are adaptability, resilience, and flexibility.

Adaptability, resilience, and flexibility are also words we often hear in the shipping media. However, they are far from describing what the industry is witnessing. For that, we must also add the word ‘disruption’. In fact, when we look back at the events that occurred in 2021, we can say that adaptability, resilience, and flexibility originate from the several disruptions taking place. In March, the world woke up to the shipping industry, so often hidden from the public, with the Suez Canal blockage and the series of disruptions that caused in the economy and supply chains.

If that was not enough, the Chinese zero-Covid policy further increased the existing disruptions on supply chains in which shipping participates. But, again, the lack of appropriate hinterland logistics in the United States accelerated the increasing number of supply chain disruptions. The number of ships either anchored or loitering near Los Angeles/Long Beach terminals is far from diminishing.

In the middle of these events, the shipping industry has been struggling to research and develop the most appropriate and viable solutions to decarbonise its operations in the quest of a healthier, more sustainable planet.

Adaptability, resilience, and flexibility are also words that I incorporated in the organisation of this conference, even though the organisation of these events require us to have that approach.

With this background, the 2022 World of Shipping Portugal Conference takes place, looking forward that the coming months show considerable improvements that allow us to go back to our pre-covid everyday lives.

My appreciation goes to all research papers’ Authors, Keynote Speakers and Decarbonising Shipping Guests Speakers for accepting our invitation and being available to share their viewpoints on such important matters to the industry. In addition, I want to thank Conference Sponsors (OPTINET Project and Sadoship Repair) and Conference Supporters (CIMOSM, EconomiaAzul and Institute of Chartered Shipbrokers). All of you contributed in one way or another for this Conference could take place, even in a virtual environment.

I, sincerely hope that you can make the most of it!

Welcome to the 2022 World of Shipping Portugal Conference.

27 January 2022

Ana Casaca



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## 1. INTERNATIONAL STEERING COMMITTEE

The 2022 World of Shipping Portugal, an International Research Conference on Maritime Affairs International Steering Committee (ISStC), is made up of well-known representatives (hereinafter Members) that have developed a high reputation in shipping, ports, and logistics matters, and which are internationally recognised by the industry they serve. It embraces a balanced selection of 13 Members chosen according to their area of research and work performed and who are the cornerstone of the shipping and ports research network. ISStC Members were individually invited 'ad personam' by the Conference Chairman. The ISStC provides guidance and assistance to the Local Organising Committee and contributes to the publicity and promotion of the 2021 World of Shipping Portugal, an International Research Conference on Maritime Affairs. Maintaining the quality of submitted research papers and an appropriate balance between researchers and practitioners' interests are fundamental goals.

The following Members are part of the 2022 World of Shipping Portugal, an International Research Conference on Maritime Affairs International Steering Committee:

- 🌐 Chin-Shan Lu, *The Hong Kong Polytechnic University*, Hong Kong, China
- 🌐 Dong-Wook Song, *World Maritime University*, Sweden
- 🌐 Harilaos N. Psaraftis, *Technical University of Denmark*, Denmark
- 🌐 Heather McLaughlin, *De Montfort University*, United Kingdom
- 🌐 Jan Hoffmann, *United Nations Conference on Trade and Development*, Switzerland
- 🌐 Kee-Hung Lai, *The Hong Kong Polytechnic University*, Hong Kong, China
- 🌐 Kevin Cullinane, *University of Gothenburg*, Sweden
- 🌐 Masato Shinohara, *The University of Fukuchiyama*, Japan
- 🌐 Michael Roe, *University of Plymouth*, United Kingdom
- 🌐 Mihalis Chasomeris, *University of KwaZulu-Natal*, South Africa
- 🌐 Paul Tae-Woo Lee, *Zhejiang University*, China
- 🌐 Stephen Cahoon, *University of Tasmania*, Australia
- 🌐 Theo Notteboom, *Shanghai Maritime University / UGhent / University of Antwerp*, China/Belgium

## 2. INTERNATIONAL SCIENTIFIC COMMITTEE

The 2022 World of Shipping Portugal, an International Research Conference on Maritime Affairs International Scientific Committee (ISStC), comprises members who are familiar with the blind peer review process, even though new blood is always encouraged and welcomed. To follow a robust procedure, each Member will be asked to review/rank several papers, whose reviews/comments will be compiled by the Local Organising Committee and sent to the Authors to improve the quality of the work being presented. The Chairman of the ISStC is Amélia Loja. The following Members are part of the Conference ISStC:

- 🌐 Afroditi Anagnostopoulou, *Hellenic Institute of Transport*, Greece
- 🌐 Agata Krystosik-Gromadzińska, *West Pomeranian University of Technology in Szczecin*, Poland
- 🌐 Alessio Tei, *University of Genova*, Italy
- 🌐 Alkis John Corres, *City Law School/ALBA Graduate Business School*, Greece
- 🌐 Assunta di Vaio, *University of Naples "Parthenope"*, Italy
- 🌐 Beatriz Tovar de la Fe, *Las Palmas University - Gran Canaria*, Spain



- 🔒 Bruce Hartman, *University of St. Francis*, United States
- 🔒 Cassia Bomer Galvao, *Texas A&M University at Galveston*, United States
- 🔒 Chin-Shan Lu, *The Hong Kong Polytechnic University*, Hong Kong, China
- 🔒 Claudio de Jesus Marques Soares, *Rio de Janeiro Port Authority - Docas do Rio*, Brazil
- 🔒 Claudio Ferrari, *University of Genova*, Italy
- 🔒 Didem Ozer-Caylan, *Dokuz Eylul University*, Turkey
- 🔒 Dimitrios V. Lyridis, *National Technical University of Athens*, Greece
- 🔒 Dongping Song, *University of Liverpool*, United Kingdom
- 🔒 Enna Hirata, *Kobe University*, Japan
- 🔒 Enrico Musso, *University of Genova*, Italy
- 🔒 Evi Plomaritou, *Frederick University*, Cyprus
- 🔒 Francesco Parola, *Italian Transport Regulation Authority*, Italy
- 🔒 Ghiorghe Batrinca, *Constanta Maritime University*, Romania
- 🔒 Gul Denktas Sakar, *Dokuz Eylul University*, Turkey
- 🔒 Haiying Jia, *Norwegian School of Economics*, Norway
- 🔒 Harilaos Psaraftis, *Technical University of Denmark*, Denmark
- 🔒 Helen A. Thanopoulou, *University of the Aegean*, Greece
- 🔒 Hyunmi Jang, *Pusan National University*, Republic of Korea
- 🔒 Ioannis Lagoudis, *University of Piraeus*, Greece
- 🔒 Irwin U.J. Ooi, *Universiti Teknologi MARA*, Malaysia
- 🔒 Jose L. Tongzon, *Inha University in Tashkent*, South Korea and Uzbekistan
- 🔒 Kee-hung Lai, *The Hong Kong Polytechnic University*, China
- 🔒 Kimberly Tam, *University of Plymouth*, United Kingdom
- 🔒 Konstantinos Melas, *Metropolitan College*, Greece
- 🔒 Lauri Ojala, *University of Turku*, Finland
- 🔒 Lawrence Henesey, *Blekinge Institute of Technology*, Sweden
- 🔒 Lourdes Trujillo, *Las Palmas University - Gran Canaria*, Spain
- 🔒 Lutz Kretschmann, *Fraunhofer CML*, Germany
- 🔒 Manolis Kavussanos, *Athens University of Economics and Business*, Greece
- 🔒 Maria de Lourdes Bravo, *Agência Reguladora de Certificação de Cargas e Logística de Angola*, Angola
- 🔒 Maxim A. Dulebenets, *Florida A&M University-Florida State University*, United States
- 🔒 Mihalis Chasomeris, *University of KwaZulu-Natal*, Republic of South Africa
- 🔒 Mikael Lind, *Research Institutes of Sweden*, Sweden
- 🔒 Newton Narciso Pereira, *Federal Fluminense University*, Brazil
- 🔒 Nikitas Nikitakos, *University of the Aegean*, Greece
- 🔒 Orestis Shinas, *HSBA*, Germany
- 🔒 Pedro Antão, *CENTEC - Instituto Superior Técnico*, Portugal



- 🌐 Peggy Shu-Ling Chen, Australian Maritime College/University of Tasmania, Australia
- 🌐 Pierre Cariou, KEDGE Business School, France
- 🌐 Ruth Banomyong, Thammasat University, Thailand
- 🌐 Senka Šekularac-Ivošević, University of Montenegro, Montenegro
- 🌐 Soner Esmer, Dokuz Eylul University, Turkey
- 🌐 Stephen Pettit, Cardiff University, United Kingdom
- 🌐 Stratos Papadimitriou, University of Piraeus, Greece
- 🌐 Taih-Cherng Lirn, National Taiwan Ocean University, Taiwan
- 🌐 Thierry Vanelslander, University of Antwerp, Belgium
- 🌐 Tsz Leung Yip, The Hong Kong Polytechnic University, Hong Kong

### 3. LOCAL ORGANISING COMMITTEE

The 2022 World of Shipping Portugal, an International Research Conference on Maritime Affairs Local Organising Committee (LOC), is responsible for handling all administrative, organisational, and financial tasks related to the Conference's preparation, execution, and closure.

The Members of the 2022 WofSPortugal LOC are:

- 🌐 Ana Cristina Paixão Casaca Chairman and Conference Organiser, Founder and Owner of the 'World of Shipping Portugal'.
- 🌐 Amélia Loja, International Scientific Committee Chairman, Assistant Professor at Instituto Superior de Engenharia de Lisboa, Instituto Politécnico de Lisboa, Portugal.
- 🌐 Alvaro Sardinha, Consultant, Trainer and Founder of TransporteMaritimoGlobal.com platform, the Portuguese Seafarers Agency (Apormar.com), the Job Fair & Careers Working on a Ship (TrabalharNumNavio.pt), and the EconomiaAzul.pt initiative.

**Ana Casaca** started her working life a sea. Being at sea as a deck officer responsible for navigational watches gave her a thorough perspective of the operational side of the shipping industry. Some years later, she earned her Bachelor Degree in Management and Maritime Technologies at ENIDH in 1995, her M.Sc. Degree in International Logistics at the Institute of Marine Studies, the University of Plymouth in 1997, her professional accreditation from the Institute of Chartered Shipbrokers in 1998. She holds a PhD in International Transport/Logistics from the University of Wales-Cardiff, and her thesis focused on the "Competitiveness of Short Sea Shipping in Multimodal Logistics Supply Chains". Over the last 18 years, she has been an External Expert for the European Commission, evaluating R&D/CEF (6FP, 7FP, Horizon2020, Horizon Europe, TEN-T/CEF) proposals within the scope of transport. In parallel, she has carried out other projects. She has delivered training and been invited, since 2002, to peer review academic papers submitted to well-known international Journals. Currently, she is a Member of the Research Centre on Modelling and Optimisation of Multifunctional Systems (CIMOSM, Instituto Superior de Engenharia de Lisboa), Maritime Business Review Associate Editor, Journal of International Logistics Editorial Board Member, Universal Journal of Management Editorial Board Member, Frontiers in Future Transportation Review Editor, Journal of Shipping and Trade Guest Editor. In addition, she has been publishing her research. Altogether, this work has allowed her to gain immense knowledge of the maritime industry and develop numerous competencies. She is focused, thinks out of the box, and is always open to new challenges! Creativity is one of her strengths! Finally, she is Fellow of the Institute of Chartered Shipbrokers and a Member of the International Association of Maritime Economists.

LinkedIn Profile: <https://www.linkedin.com/in/ana-casaca-deck-officer-phd-fics-58253115/>



**Amélia Loja** is Adjunct Professor at Mechanical Engineering Department of the Engineering Institute of Lisbon (ISEL, IPL), collaborator of the Mechatronics Engineering Department at the University of Évora (UEvora) and Senior Researcher of the Mechanical Engineering Institute (IDMEC, IST). Her academic background integrates a BSc with honours in Marine Engineering from the Portuguese Nautical School and a BSc in Computer Science. Her MSc and PhD degrees in Mechanical Engineering were conferred by the Technical University of Lisbon and the Habilitation in Mechatronic Engineering by the University of Évora. Her major areas of interest include the scientific areas of Computational Solids Mechanics, Optimization and Reverse Engineering, among others. Until now she published 55 papers in peer-reviewed international scientific journals. Amélia Loja is Chairperson of the ECCOMAS thematic series of conferences SYMCOMP (International Conference on Numerical and Symbolic Computation: Developments and Applications) and she coordinates the Research Centre on Modelling and Optimisation of Multifunctional Systems (CIMOSM, ISEL). Since 2017 she has been invited by the European Commission Research Agencies and by National Agencies to evaluate project proposals in different subjects related to her competencies.

LinkedIn Profile: <https://www.linkedin.com/in/am%C3%A9lia-loja-009a3159/>

**Álvaro Máximo Sardinha** holds a bachelor's degree (BSc) in Marine Engineering, from the Escola Superior Náutica Infante D. Henrique (ENIDH), and a vast professional experience onboard cruise ships, as a merchant navy officer. He completed his Postgraduate Studies in Law and Economics of the Sea and his Master Degree (MSc) in Law and Economics of the Sea at the Faculty of Law of the Universidade Nova de Lisboa (FD-UNL). He has also completed a Postgraduate Studies in Strategic Digital Communication at the Universidade de Lisboa. He is currently a consultant and trainer in the blue economy, sea law, maritime law, shipping, strategic communication, and professional careers in the maritime sector and a ship and company security officer, STCW certified according to the International Maritime Organization (IMO). He is the Founder of the TransporteMarítimoGlobal.com platform, the Portuguese Seafarers Agency (Apormar.com), the Job Fair & Careers Working on a Ship (TrabalharNumNavio.pt), and the EconomiaAzul.pt initiative and author of the books "Mar, a terra dos segredos", "Objetivo: Trabalhar num Navio" and several sectorial studies.

LinkedIn Profile: <https://www.linkedin.com/in/alvarosardinha/>

#### 4. KEYNOTE SPEAKERS BIONOTES



Jan joined UNCTAD in 2003 and is Chief of the organisation's Trade Logistics Branch since 2016. The Branch implements research and technical assistance programmes in international transport and trade facilitation. Jan is co-author and coordinator of the "Review of Maritime Transport", "Maritime Country Profiles", and the "Liner Shipping Connectivity Index". Previously, he worked six years for the UN ECLAC in Santiago de Chile, and two years for the

IMO in London and Santiago. Prior to this, he held part time positions as assistant professor, import-export agent, and seafarer. Jan has studied in Germany, United Kingdom and Spain, and holds a PhD in Economics from the University of Hamburg. Jan is on the boards of various journals and associations and past president of the International Association of Maritime Economists.

LinkedIn Profile: <https://www.linkedin.com/in/drjanhoffmann/>



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Punit Oza is an Affiliated Research Fellow and a guest lecturer at Singapore Management University lecturing on “Geopolitical Risks and their impact on Shipping and Trade Flows”. Punit has worked in commercial shipping for last 27 years and sits on the board of Klaveness Asia Pte Ltd as a non-executive director. He has been closely involved with the Digital Transformation Journey of Klaveness Dry Bulk and is also a brand ambassador for MPA Singapore’s Maritime

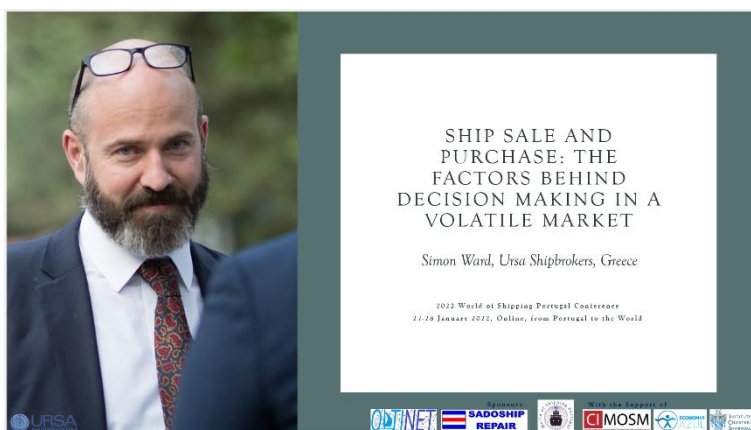
Digitalization Playbook (MDP), helping companies digitalize. Punit holds a Masters in Shipping, Trade and Finance from CASS Business School and an LLB from University of London. He is a fellow of the Institute of Chartered Shipbrokers (ICS), UK and is currently the Vice Chairman of the Singapore Branch. He is also currently the Executive Director of Singapore Chamber of Maritime Arbitration and a Senior Adjunct Fellow in Maritime and Port Authority of Singapore (MPA) Academy.

LinkedIn Profile: <https://www.linkedin.com/in/punit-oza-6149893/>



Arthur is the Lead Freight Analyst for Vortexa based in London. Prior to this, he was on the freight pricing desk at S&P Global Platts, covering dirty and clean tanker markets. He has lived and worked on 5 different continents, getting his first exposure to freight markets in Singapore as a consultant within a shipping industry team. As part of the conversation around freight markets and their impact from energy markets to our everyday lives he has contributed to Bloomberg, TradeWinds, Al Jazeera,

Tanker Shipping & Trade (part of Riviera Maritime Media), Ship & Bunker, The Moscow Times, The Business Times (Singapore), The Houston Chronicle and Gulf News among others. In his spare time, he sits on the board of the Shipping Professional Network of London, where he aims to bring together young professionals from all aspects of the shipping industry to network, socialise and learn more about the industry we proudly form part of. LinkedIn Profile: <https://www.linkedin.com/in/arthurrichier/>



Simon Ward is Director of Ship Sale and Purchase at Ursa Shipbrokers in Piraeus, Greece. He started his shipping career in Liverpool and worked for HSBC Shipping Services Ltd in London before setting and running the Piraeus office for four years between 2008-2012. After a short stint back in London he created the ship sale and purchase desk at Ursa Shipbrokers in 2013. Simon is also a lecturer for the Institute of Chartered Shipbrokers, a clinical professor at the University of Piraeus Maritime Studies

Department, and a frequent speaker at industry conferences.

LinkedIn Profile: <https://www.linkedin.com/in/simon-ward-a7b74a15/>



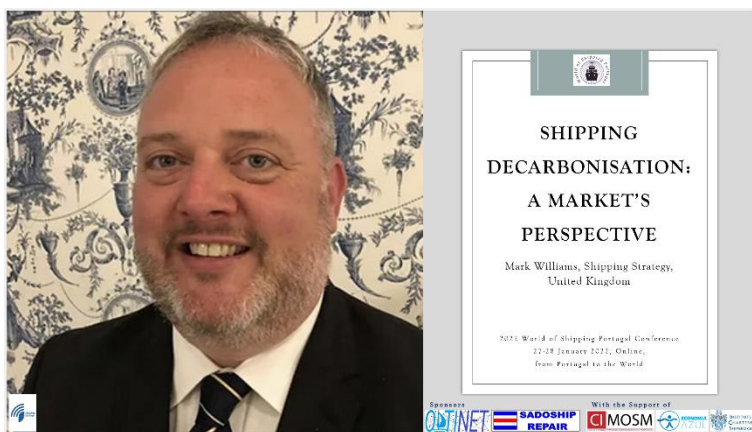
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Peter Sand joined Xeneta in 2021, as the Chief Analyst. Heading a team that delivers expert insights on container shipping and air cargo industries - from a logistics perspective. Focus on the essential drivers, demand and supply – and, obviously, the freight rates that impact us all.

Xeneta is the leading ocean freight rate benchmarking and market intelligence platform transforming the shipping and logistics industry.

LinkedIn Profile: <https://www.linkedin.com/in/peter-sand-0983084/>



Mark Williams is a maritime analyst and consultant for 25 years. He has advised governments, ship owners, charterers, investors, banks, ports, insurers, regulators, and other stakeholders throughout the years and built several successful research and consultancy teams. In 1996, he started his career as a business analyst and played various roles in diverse companies such as MRC Business Information Group Ltd, HSBC Shipping Services, Maritime Strategies International Ltd, Braemar Shipping Services Plc and Affinity Research LLP. In 2018, he established Shipping Strategy Ltd, of which he is the Founder

and Managing Director. Shipping Strategy Ltd provides shipping market intelligence and insight, including forecasting and strategy consulting. He delivers training services directly and in co-operation with Lloyd's Maritime Academy and BIMCO, is a regular speaker at international shipping conferences and in the wider media, and author of dozens of articles on shipping and operational research. Finally, he is a Member of the Institute of Chartered Shipbrokers.

LinkedIn Profile: <https://www.linkedin.com/in/markapwilliams/>



Paulo Almeida is the Chief Investment Officer at Tufton, joining in 2009. Tufton manages \$1.3bn in shipping investments, including the London-listed fund Tufton Oceanic Assets, which was the Marine Money IPO of the year in 2017. He was also among the winners of the Marine Money 2013 M&A deal of the year, Hafnia Tankers. Before joining Tufton, Paulo worked for nine years in investment banking at UBS and Macquarie. Shipping transactions he led at UBS received three IPO of the year

awards in 2005. Before business school, he spent four years in the shipping industry with the Skaarup Group. He worked for the group's founder, the late Ole Skaarup, who conceived the first dry bulker "Cassiopeia"



which was delivered in 1954. Paulo holds a BSc in Naval Architecture and Marine Engineering from Webb Institute, an MSc in Finance from London Business School and an MBA with Honors from Chicago Booth. At Webb 1991-1995, he had work experience as an apprentice ship fitter at Electric Boat, as a cadet with Exxon Shipping and in structural engineering at both Electric Boat and the Skaarup Group. Paulo is on the Board of Trustees and is Finance Committee Chair of Webb Institute.

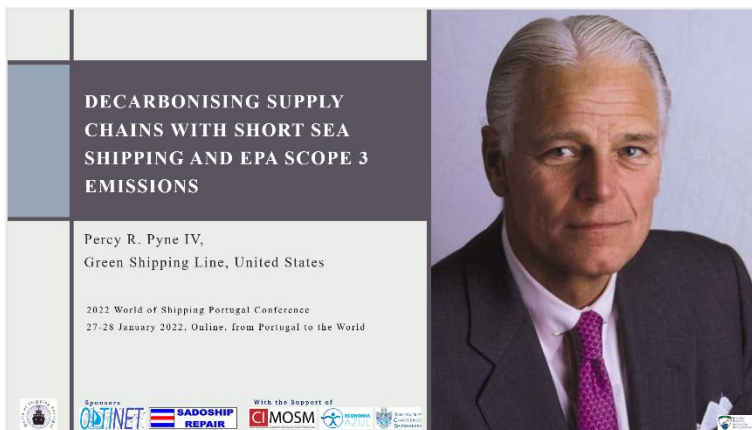
LinkedIn Profile: <https://www.linkedin.com/in/paulo-almeida-31635b24/>



Theo Notteboom is professor in port and maritime economics and management. He is Director and Research Professor at Centre for Eurasian Maritime and Inland Logistics (CEMIL) of China Institute of FTZ Supply Chain of Shanghai Maritime University in China. He is Chair Professor 'North Sea Port' at Ghent University in Belgium. He also is part-time Professor at University of Antwerp and the Antwerp Maritime Academy in Belgium. He is co-founder and co-director of [portecconomics.eu](http://portecconomics.eu), an online platform on port studies.

He is past President (2010-2014) of the International Association of Maritime Economists (IAME). He is editor, associate editor or editorial board member of a dozen academic journals in the area of maritime economics and logistics. His work is widely cited. He is a regular speaker at international conferences and a rapporteur/expert to leading organisations in the field. LinkedIn Profile: <https://www.linkedin.com/in/theo-notteboom-0a2692b/>

## 5. DECARBONISING SHIPPING SPEAKERS BIONOTES



Percy R. Pyne, IV is Chairman, CEO, and founding partner of Green Shipping Line. His legendary family history in marine transportation has cultivated his drive to pioneer a Jones Act compliant feeder concept to revolutionize the transport of containers in the United States. He is the first to amass a team of leading European and American partners to design, construct and operate a fleet of modern Jones Act short sea feeder vessels. This concept will modernize marine transportation in the United States,

improve today's supply chain crisis and reduce gridlock, create jobs, and reduce harmful EPA Scope 3 emissions. With more than 40 years in the shipping and marine transportation industry, Pyne has advised on major United States and international transactions, and is the co-founder of American Feeder Lines. He has received three America's Marine Highway project designations, had two vessel designs pre-approved by ABS and received wide union support for ongoing efforts to revive marine transportation in the United States. LinkedIn Profile: <https://www.linkedin.com/in/percypyne/>



**SHIPPING DECARBONISATION  
GIVEN RECENT IMO/EU  
DEVELOPMENTS**

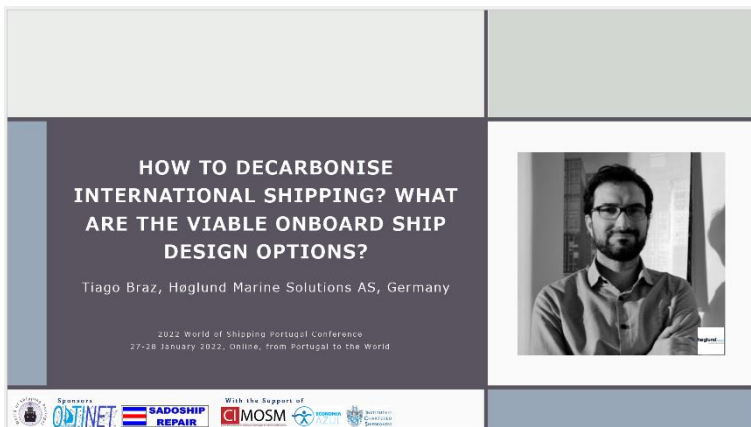
Harilaos N. Psaraftis  
Technical University of Denmark, Denmark

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Harilaos N. Psaraftis is a Professor at the Technical University of Denmark (DTU), Department of Technology, Management and Economics. He has a diploma from the National Technical University of Athens (NTUA) (1974), and two M.Sc. degrees (1977) and a Ph.D. (1979) from MIT, USA. He has been Assistant and Associate Professor at MIT from 1979 to 1989 and Professor at NTUA from 1989 to 2013. He has participated in some 55 research projects, of which 25 from the EU.

He has been a member and chairman of various groups at the International Maritime Organization (IMO), and has also served as CEO of the Piraeus Port Authority (1996 -2002). He has published extensively and has received several academic and industry awards. His latest book is entitled 'Sustainable Shipping: A Cross-Disciplinary View', Springer (2019). LinkedIn Profile: <https://www.linkedin.com/in/hnpsaraftis/>



**HOW TO DECARBONISE  
INTERNATIONAL SHIPPING? WHAT  
ARE THE VIABLE ONBOARD SHIP  
DESIGN OPTIONS?**

Tiago Braz, Høglund Marine Solutions AS, Germany

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Tiago has a Msc. in chemical engineering with a background in process engineering from Oil & Gas, petrochemical and the energy sectors. During this time he participated in refinery and petrochemical plant debottlenecking projects, biomass powerplant design and gas fired combined cycle power plant engineering projects. After developing into the maritime industry Tiago joined Wartsila in their Norwegian office to participate in LPG, multi-gas and ethylene carriers cargo system

engineering eventually graduating to Product Owner for the small scale LNG segment within Wartsila Oil&Gas. Recently Tiago was one of the co-founders of Hoglund Gas Solutions business line and currently belongs to the strategy and management team of Hoglund Marine Solutions with the role of Product Manager for Gas Solutions. In Hoglund he has developed LNG fuel systems for different types of marine engines and ship designs, LNG bunkering vessel cargo systems as well as liquid CO2 carrier engineering concepts. He is currently working on solutions for ammonia ready LNG systems and other carbon free energy sources. LinkedIn Profile: <https://www.linkedin.com/in/tiagobraz/>



**WIND PROPULSION AND THE  
DECARBONISATION OF THE  
SHIPPING INDUSTRY**

Gavin Allwright  
International Windship Association, United Kingdom

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Gavin Allwright is Secretary at International Windship Association. He has extensive experience in initiating, managing and delivering international scale projects in both developed and developing markets. In-depth knowledge of both the challenges and opportunities of operating in such challenging situations. Working knowledge of Japanese and international business culture and a proven ability to identify and develop commercial and educational opportunities in environmental/

sustainability, fair trade, publishing and media fields.  
LinkedIn Profile: <https://www.linkedin.com/in/gavin-allwright-bb20531/>

**RISE OF METHANOL AS FUTURE-PROOF MARINE FUEL**

Captain Saleem Alavi  
President, Sea Commerce America Inc., United States

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**DOES THE ONE-SIZE-FITS-ALL FUEL SOLUTION APPLIES TO ALL SHIPPING TRADES?**

Elizabeth Lindstad, SINTEF Ocean AS, Norway

2022 World of Shipping Portugal Conference  
27-28 January 2022, Online, from Portugal to the World

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**ALTERNATIVE FUELS SUPPLY CHAINS TOWARDS 2050: REQUIREMENT AND IMPACT FROM CRITICAL LEVERS**

Tue Johannessen  
Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping, Denmark

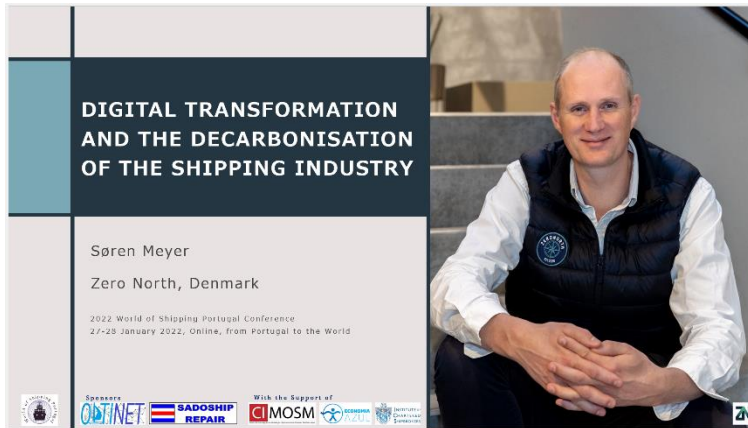
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## 6. AUTHORS' PAPERS BIONOTES

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World Customs Journal, Case Studies on Transport Policy, and International Journal of Business and Globalisation. <https://projects.au.dk/port-efficiency-and-public-private-capacity-in-ghana-pepp/>

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**Jelle Willeijns** is a motivated master student who brought his knowledge of ships and shipping to the Port of Rotterdam for his graduation project on Cold Ironing. His drive for sustainability and his willingness to learn from both experts from practice and scientific research has led to this crucial insight into the potential of cold ironing.

**Jeroen Pruyn** brings together the technological and economic side of shipping in his research work. This combination is crucial for the maritime energy transition, and he is therefore involved in many national and international research projects to investigate and support this transition. To bring this integration of technology and economy to the next generation, he has developed a Maritime Business Game, which is currently provided to maritime technology and maritime economics students at eight different programmes. He hopes his work will support the industry in dealing with the energy transition in the most effective way.

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## 7. EU RESEARCH PROJECTS SPEAKERS BIONOTES

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## 8. CONFERENCE REVIEW PROCEDURE

The World of Shipping Portugal Conference review procedure adopts a two-stage approach. The first stage involves the revision of Abstracts. All Authors will be notified about the decision made and Authors of accepted Abstracts will be invited to submit Full Papers. Full Papers need to demonstrate scholarly quality as evaluated on the strength of the methodology used, on the quality/depth of the theoretical background, and on the quality/depth of the analysis and related discussion. The second stage relates to the revision of the submitted Full Papers. All Authors will be notified about the decision made and Authors of accepted Full Papers will be asked to incorporate all Reviewers' comments. Allocation of Abstract / Full papers to be reviewed will be made according to Reviewers' expertise areas. The World of Shipping Portugal review procedure uses a "blind review" process where the Authors are not revealed to the Reviewers. Revision of Abstracts and Full Papers were reviewed according to a set of criteria announced in the conference website.

## 9. LIST OF FULL PAPERS

### **A Systems Approach to Developing a Port Community System for South Africa**

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**ABSTRACT:** Port community systems (PCS) are central to port supply chains as electronic platforms enabling the intelligent and secure exchange of information between public and private stakeholders in ports. PCS drive productivity, efficiencies, and competitiveness. The system allows supply chain participants to efficiently share information on a single platform drawing information from different enterprise resource management systems. They link various port users and stakeholders. This paper uses a soft systems methodology approach to develop a framework for a port community system in South Africa. This study reviews the current port community platforms and responds to the groundwork for establishing PCS for South Africa's ports. A qualitative soft systems methodology was used to investigate PCS's state and the possibility of implementing PCS in South Africa's ports. Non-probability sampling was employed to select the participants from different ports stakeholders' groups. A literature review was conducted on PCS, information and communication technologies and systems thinking. Interviews were conducted with representatives of 24 port stakeholder groups ranging from ships agents, the national port authority, port operators, hauliers' associations, freight forwarders, and government organisations participating in port affairs. Data from port committee forums and interviews recordings were transcribed, categorised, and analysed thematically. The research showed that South African port system stakeholders and port users operate in silos. There is no single platform for the port community to share standard critical information and documents regarding shipping. There is limited collaboration between stakeholders in South Africa's ports supply chains system. Inefficiencies in the flow of information and document hampers decision making in South Africa's ports. The paper presents a framework for developing a PCS and recommends an approach to implementing a PCS in South Africa.

**Keywords:** Port Community Systems, Soft System Methodology, Maritime, Ports, Information Systems, Supply Chain, Integration





## **Additive Manufacturing and Maritime Spare Parts: The Supply Chain Stakeholders Views**

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**ABSTRACT:** Spare parts supply chain (SPSC) plays an essential role in keeping the machinery running, and due to the differentiation from other consumer products, it requires exceptional management. Maritime assets operate in a unique operational context, making maintenance requirements particularly critical. The innovative technology of additive manufacturing (AM) makes possible the production of spares at the time and place required. This work aims to capture the stakeholders' views at the end of the chain (onboard, land office) and upstream (makers, suppliers), pointing out factors that will benefit and those likely to be an obstacle by employing the questionnaire method. Company objectives regarding spares (cost reductions, improvement of services, space reduction) have been prioritised differently by the stakeholders. According to the participants, the most critical barriers are the quality assurance of the spare parts made by the new technology, followed by the know-how and skills of staff. Besides assessing the industry's readiness, this work highlights the factors for the successful implementation of AM in the maritime SPSC; this is an added value from a practical perspective.

**Keywords:** 3D printing, Additive manufacturing, Spare part supply Chain, Maritime



## **An Innovative Tool for Maritime Transportation Network Design Based on Three-Level Operational Data Analysis: The Case of the Greek Archipelago of Islands**

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### **ABSTRACT**

This article proposes the OptiNet project, whose objectives are to address maritime connection problems between islands in archipelago states and connectivity to mainland ports, as the islands' small populations do not justify regular commercial ferry service. Furthermore, the Greek shipping network's current configuration is insufficient to serve island residents and tourists, who primarily arrive during the summer. The proposed project aims to develop a mathematical model and associated software to enable integrated network planning and management. The objective is to optimise the network on a multi-criteria basis: to provide the maximum number of services to travellers at the lowest possible cost. Thus, the new model will be based on a hub-and-spoke network, enabling rational schedule/route planning, which has never been done before in the area. The optimisation algorithm will determine the most feasible network based on the routes taken, the number of times taken, and the types of ships used. This way, existing routes will be evaluated and decisions made regarding the discontinuation of some and the development of potential new ones. The output will be optimised based on two factors: (i) the service provided to island residents and visitors based on the number and type of routes, and (ii) the system's operating costs for both normal and 'arid' lines. Additionally, the output will be evaluated





using Pareto optimisation to ensure that any changes are within socially acceptable limits. The OptiNet platform will collect, manage, and analyse the necessary data and display the problem's parameters and results. The platform mentioned above will enable dynamic parameter mapping of the coastal network and associated factors, will provide tools for collecting and evaluating data from various sources, such as field observations and Electronic Data Interchange, will enable scenario exploration using natural language scripts, and will provide access to results via business intelligence principles. The optimisation of services is inherently linked to the satisfaction of aggregate demand and the minimisation of waiting and travel times. Finally, the model will perform a sensitivity analysis of transport costs about realised demand.

**Keywords:** Maritime Transport, Ferry Service Optimization, Greek Archipelago, Island Shipping.



## **Cold Ironing; Modelling the Interdependence of Terminals and Vessels in Their Choice of Suitable Systems**

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**ABSTRACT:** Cold ironing has the potential to reduce the impact of ship exhausts in densely populated areas. However, especially for tankers, the implementation of this concept is almost non-existent. Still, these vessels have a relatively high port energy use as they provide power to both pumps and inert gas systems during unloading and loading. A key factor in the reluctance, besides the fact that a sparkless connection is required, is the lack of a standard and the uncertainty from both tanker owner and terminal owner side on which shore power systems to apply. This paper aims to investigate the interdependency between ship and terminal owner choices for systems and establish the overall most economical solution. A review of cold ironing was performed to identify existing systems and solutions and analyse the tanker fleet and terminals. The insights were combined in an economic model to two models; one relating terminal decisions to a cold ironing price and one establishing the vessel side costs and savings. Using fuel price as an input and acceptance rates (for both terminals and vessels) for cold ironing systems as key variables to determine. The models will be used to identify the potential of cold ironing for tankers against different fuel prices, establishing both the preferred system and minimal and resulting implementation on both ship and terminal sides.

**Keywords:** Cold Ironing, Emission Reduction, Port Strategy, Ship Owner.



## **Coronavirus Driven Social Transformation of Cruise Industry**

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**ABSTRACT:** Social transformation is an emerging trend in the cruise industry in the 21st century. Cruise lines encounter stiff competition with their competitors and face sophisticated and unpredictable challenges from the wave of social transformation. Furthermore, the outbreak of the COVID-19 pandemic has accelerated the social transformation phenomena in the cruise industry. As such, we may need to explore how social transformation reshapes the cruise industry. To investigate this social transformation, our study builds upon the 4C framework (i.e., Consumer, Technology, and Innovation, Consumer Behaviour, Consumer Experience, and Consumer Psychology) to suggest how cruise lines might take measures to create resilience against the influence affected by the social transformation. The study is conducted through semi-structured and in-depth interviews with cruise terminals, travel agencies, logistics association, tourism association, researchers, cruise



line, cruise passengers, and airlines. To this end, cruise lines can maintain sustainable development in the future.

**Keywords:** Social Transformation, Cruise Industry, COVID-19, 4C Framework.



## **Delineating the Relationship Between Maritime Insecurity and Covid-19 Pandemic on the West African Maritime Trade**

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**ABSTRACT:** In this paper, three things are done; thus, (1) effort is made to show that there is a consequential effect of maritime insecurity on seafarers and marine professionals. Thus, they are at risk of a complicated string of processes that have an impact on their life. Further to this, there is also the risk to the environment and property, (2) The economic cost of maritime insecurity in the region -largely from traditional maritime crimes of piracy and armed robbery, is examined against the potential maritime trade expansion from the African Continental Free Trade Area agreement, AfCTA's implementation. This condition is evaluated in a manner to suggest the additional cost burden placed on consumers of developing countries of sub-Sahara Africa. (3) The policy and regulatory measures identified in the first paper as implemented in the region are assessed towards proposing additional measures for improvement after deploying a case study approach in carrying out a three-year field observation over the Gulf of Guinea, GoG region, and concluding along with series of remote interviews, online surveys –over three months, respectively. The results showed there is inadequate maritime surveillance despite enormous legal frameworks and current structures of regional and international corporations. The cost of piracy is high and inevitable. Piracy response has been reactionary rather than proactive as attacks have continued in territorial and offshore areas into 2021. The impact will be visible on AfCTA post-covid-19. The study highlights the need for community-based approach surveillance modelled after the community policing model currently implemented in Ghana.

**Keywords:** Gulf of Guinea; Maritime Insecurity; Piracy and Blue Economy, Shipping Route; Africa Continental Free Trade Area, West Africa Maritime Corridor.



## **Employability of Seafarers: An Analysis of Preliminary Findings**

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**ABSTRACT:** The concept of employability has been evolving in the maritime sector in line with ongoing technology and sustainability developments. This article investigates the skills needs and gaps that arise from contemporary industry trends. For this purpose, the study conducts a pilot survey addressed to seafarers, followed by a large-scale international survey. The initial pilot survey involved a questionnaire that explores general perceptions of gaps and potential connections with the effectiveness of maritime education. The input from this survey informed the design of the large-scale survey, which comprised two questionnaires: one for employers and another one for employees. An adequate number of responses was received from both sides, allowing a robust statistical analysis. In the final survey, there were 1.206 responses received overall from the employees' side – onboard or on leave - and 41 responses on the employers' side. This was an expected discrepancy due to the much smaller number of shipping companies compared to ships and crew members. The results provide a veritable assessment of the perceived gaps measurably and shed some light on potential impediments to the employability and mobility of maritime professionals.

**Keywords:** Employability, Skills, Shipping, Maritime Education and Training.



### **Environmental Valuation of in-Port Shipping Emissions per Shipping Sector on Four Spanish Ports**

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**ABSTRACT:** This work provides an insight into the external costs associated from ship berthed in four Spanish ports before COVID-19. Firstly, at a port-by-port level but also at the level of individual vessel types as this can also provide valuable insights. The economic valuation is based on the combination of the major bottom-up European studies which follow the impact pathway approach (IPA) to calculate costs from transport air emissions application. Results showed higher total external costs for Las Palmas (€74.4 m), followed by Tenerife (€20 m), Palma (€19.5 m) and Pasajes (€1.5 m). The external costs by shipping sub-sectors give more insights into the relationships between ship types and external costs, not only to correctly assign the responsibility among the different shipping sectors inside a port, but also to better know the potential benefits of implementing abatement technologies, such as cold ironing, which differ hugely between the different ports analysed.

**Keywords:** Environmental Costs, Emissions from Ships Berthed; Air Quality, Port City, Cold Ironing



### **Forecasting Worldwide Empty Container Availability with Machine Learning Techniques**

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**ABSTRACT:** Due to imbalances in the global transport of containerised goods, liner shipping companies go to great lengths to match the regional supply and demand for empty containers by transporting equipment from surplus to deficit regions. Making accurate forecasts of regional empty container availability could support liner companies and other involved actors by taking better relocation decisions and thus avoid unnecessary



transportation costs of empty equipment. Against this background, this paper introduces two novel approaches based on machine learning and probabilistic techniques to predict the future availability of empty containers for more than 280 locations worldwide. The machine learning and probabilistic prediction models are built by analysing a unique data set of more than 100 million events from past container journeys. These events represent different stages during the transport process of a container. Both models use a two-step forecast logic: First, the expected future location of a container is predicted. Second, the expected timestamp for arriving at that location is estimated. The machine learning model uses artificial neural networks and mixture density networks to forecast the movements of containers. The models are quantitatively assessed and compared to the actual availability of containers and two more conventional forecasting approaches. The results indicate that the probabilistic prediction approach can keep up with conventional approaches while the neural network approach significantly outperforms the other approaches concerning every evaluation metric.

**Keywords:** Maritime Logistics Forecasts, Empty Container Relocation, Machine Learning, Mixture Density Network



### **Greenhouse Gas Emissions of Ships at Ports: Quantitative Estimations and Forecasts**

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**ABSTRACT:** Shipping is an environmentally friendly and energy-efficient transport mode; nevertheless, its environmental impact is not negligible: 2.5% of global greenhouse gas (GHG) emissions (about 940 million tons/year). Ships’ turnaround times at ports are also not negligible: from 0.7-2.0 days on average according to the last consolidated years (2018-2019). Therefore, the time spent in ports represents an excellent chance to minimise them by offering a broad set of technical options for emissions limitations and fewer constraints and complications than during the navigation. Moreover, it brings combined positive effects on local pollutions in a typical win-win Green Port challenge. Many ports estimate emissions because of various reasons. Structured inventories of emissions producers can help identify areas to improve energy efficiency by cost-effective strategies. The paper starts from results of inventories carried out in various ports worldwide, available in the scientific and grey literature, to depict a methodology to develop emissions inventories and forecastings. It includes analysis of existing datasets of emissions at ports, analysis of traffic data by ship typology, handling operations at ports, turnaround times, multivariable statistical analysis for cause-effect correlations, identification of correlations, quantifications of their reliability and setup of typical emission factors, sketch of a generalised systematic methodology for inventory, identification of integrative local measurements and estimations. The main findings will be the design of a systematic methodology for emissions estimations from typical data related to ships operation at ports and the estimation of availability and reliability of data, carefully considered in the paper.

**Keywords:** Ports, Environment, Emissions, Greenhouse Gas



### **Maritime Education During Covid-19 Pandemic. Challenges and Pitfalls**

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Maria Amélia Ramos Loja, CIMOSM, ISEL - Centro de Investigação em Modelação e Optimização de Sistemas Multifuncionais, Instituto Politécnico de Lisboa, 1959-007 Lisboa, Portugal

**ABSTRACT:** For many years, Portuguese trainers have been subject to pedagogic training, which had to be revalidated every five years. Through these continuous training programmes, the Portuguese trainers gained new knowledge and pedagogic competencies to improve their training performance. As information



technology/information systems evolved, these courses could be taken either in classroom or distance learning formats, including online training. However, in the latter option, the final assessment was carried out in a classroom context. Much emphasis has been put on trainers' training and the importance of being acquainted with new technologies, at least in Portugal, these professionals went on delivering their training in a classroom context. The COVID-19 Pandemic that emerged in January 2020 caused a revolution at socio-economic and healthy levels that is still seen today. As the disease spread worldwide, countries have been forced into confinement periods, which meant a transfer of almost all professional activities from an office/school (physical) environment to a remote working one. This transfer was also applied to all training activities, including primary, basic and secondary school, vocational and professional training and university education. Suddenly all trainers, teachers, lecturers, professors were faced with the urgent need to get acquainted with a range of supporting tools, including platforms that allow virtual meetings, classes, and webinars. Driven by this sudden change, the authors, decided to investigate the online training novelties and supporting tools available in the market. Faced with the information gathered, the authors questioned about the extent to which maritime education and training was prepared to 1) deal with the shift mentioned above and 2) incorporate the vast range of available online resources to keep education/training moving. To answer both questions, an online survey questionnaire was developed with the objective of studying the integration of online education/training in global maritime education/training context and provide an overall picture of the experience gained to identify possible strategies that foster more online training into maritime education/training.

**Keywords:** Maritime, Covid-19, Online Training, Challenges, Pitfalls.



## **Maritime Navigation Accidents and Risk Indicators: An Exploratory Statistical Analysis Using IMO Reports From 2011 To 2021**

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Rana Tassabehji, School of Management, Bath University, United Kingdom

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**ABSTRACT:** This paper aims to understand better the risk indicators in maritime accidents and how they are considered within the reporting of maritime accidents, taking ten years of data (2011-2020) from the International Maritime Organisation (IMO). While human error continues to be highlighted as the top-cited cause of accidents, this study examines the qualitative content of these reports under an analytical telescope to broaden the scope of other risk factors that might remain vague. Using a data-driven approach, it applies statistical (ANOVA) and advanced text mining techniques (using IRAMUTEQ software) to extract meaning from the semi- and unstructured narrative descriptions that are a core part of the investigation reports submitted by national administrations to the IMO. This study findings are two-fold. First, it illustrates how accidents' reporting are largely human-centric and that maritime accidents are very complex and involve a broader scope of actors. This paper proposes the Accident Maritime Ecosystem framework based on the text analysis (clusterisation and factor analysis). This framework incorporates individuals, the ship organisation (onboard), the internal ship ecosystem (onboard and onshore), the external ship ecosystem (external factors) and the global maritime ecosystem (policies and regulations); moreover, it identifies these entities as risk factors in maritime accidents. Secondly, it also highlights the lack of consistency of statistical results when examining vessel characteristics and their role in accidents. These are largely due to different methods, databases, techniques, and motivations for gathering and analysing data related to maritime accidents.

**Keywords:** IMO Accident Reports, Maritime Ecosystem, IRAMUTEQ, Risk Indicators





## Maritime Shipping in The Arctic: Steps Beyond the Polar Code

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**ABSTRACT:** The opening of the Arctic Sea routes ushers in many opportunities due to the melting of the Arctic sea ice. The International Maritime Organisation has introduced the Polar code for shipping and the training of seafarers. Incidents along with the Northern Sea Route and increasing ship casualties in the Arctic region have been analysed regarding the adequacy of existing regulations. The author's opinion is that these incidents bring out a need for governments of the Arctic to examine the adequacy of measures undertaken, including regulation to implement the Polar code, associated infrastructure in the Arctic for safe navigation and the current state of search and rescue. The challenges in implementing the Polar Code and the necessity for independent maritime regulatory authorities and greater sharing of information relating to the analysis of incidents are discussed.

**Keywords:** Arctic Shipping, Polar Code, Search and Rescue, NSR, Tourism



## MV Rhosus and the Beirut Explosion Disaster: Port Safety Mismanagement and Flag of Convenience

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**ABSTRACT:** On 4 August 2020, the Port of Beirut was rocked by an unexpected and devastating explosion caused by 2,750 tonnes of explosive ammonium nitrate. The blast resulted in over 200 deaths, 6,500 injuries, and damage to more than 300,000 homes and businesses (McKay, 11 August 2020). The blast further damaged hospitals, cultural heritage sites, museums, media offices and foreign embassies (Al-Hajj et al., 2021), with damages estimated in the billions (Ship Technology, 2020). The explosion was felt in Turkey, Syria, Israel, Palestine, and Cyprus. The incident continues to have long-lasting financial, political, and psychological damage to the residents of Beirut and Lebanon nationally and internationally with its lasting effect on the supply chains which used Beirut Port. How could this previously inconceivable disaster occur in 2020? We live in a world regulated by a myriad of rules, regulations, policies, procedures, and international conventions. So how did the ammonium nitrate come to be in Beirut? Where was it stored? And what caused this material to explode? This paper will explore these questions. Furthermore, it explains how the registration of vessels provided the perfect environment for unacceptable ship management practices and onboard safety standards.

**Keywords:** MV Rhosus, Beirut Explosion, Flag of Convenience, Port Safety Mismanagement



## Newbuilding Orders and Freight Rate Shocks: Evidence from the Containership Market

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**ABSTRACT:** This paper studies the behaviour of shipping investors following an unexpected shock in the freight rates while accounting for costs (fuel) and the macro environment (stock prices and trade). The estimates firstly confirm the existence of a long-term relationship between the macroeconomic environment and freight rates and between that and newbuilding orders. Most importantly, we find that when the source of the shock is less clear but still causes an increase in freight rates, shipping investors respond with a delay, which could last almost a year. The thinking behind this 'inaction period' is rational, given that the only way to observe whether a shock is permanent or transitory is to wait it out. The above findings have important policy implications for shipping investors and countries that rely heavily on shipbuilding industries.

**Keywords:** Shipping Markets; Containerships; Impulse Responses.



## **Recovery of Ro-Pax Ferry Traffic from Covid-19 Under Tightening Environmental Regulations: Case Helsinki-Tallinn**

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**ABSTRACT:** In 2020, the number of passengers on international ro-pax ferries collapsed due to the pandemic caused by the Covid-19 virus and subsequent travel restrictions. At the same time, both the International Maritime Organisation and the European Union are setting stringent regulations on carbon dioxide emissions from ships. In this paper, we look at what options companies offering ro-pax services must recover from the Covid-19 pandemic under-tightening environmental regulations and the future options for the industry. The case under study is ro-pax ferry traffic between Helsinki and Tallinn. It is one of the busiest international passenger ferry connections in the world. The economics of transport are based on large high-speed vessels, the combination of passengers and cargo, and sales onboard. In 2020, passenger volumes fell by more than 50%, but freight traffic remained stable. The financial result of the shipping companies collapsed. From the point of view of future development, it is crucial whether passenger traffic returns to its previous growth trajectory and what changes will be caused by tightening environmental regulations. We created four scenarios for the traffic. They were based on the following options: to continue the same high-speed ro-pax system as in 2019, to reduce the number of vessels, to switch to new types of ships, to slow down the speed of the vessels or to divide traffic into faster and slower ships. The main scientific contribution of this paper is the analysis of future options of a ro-pax route that is strongly dependent on passenger volumes.

**Keywords:** Covid-19, Decarbonisation, Ro-Pax Traffic, Helsinki-Tallinn



## **Situational Review of Nigerian Port Sustainability: Stakeholders' Perspective**

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**ABSTRACT:** Due to the global trending issues and challenges that concern the social and environmental aspects of existence, it has become essential that organisations and businesses look beyond the economic concerns of their establishments. The port sector is not an exception in this regard. Issues such as global warming, climate change, and social imbalance are now leading ports worldwide to incorporate sustainability concepts to maintain social, economic, and environmental balance to sustain future existence. However, most research on ports in West Africa, including Nigeria, has concentrated mainly on the economic dimension of port development with less concern on sustainability. Even when the research extends beyond the economic aspect, they have not been comprehensive to incorporate all the three pillars of sustainability. The essence of this research is to cover this research loophole by examining the state of Nigerian ports in this regard to identify the major sustainability drivers and barriers. The study is carried using a survey questionnaire while SPSS applied in analyses. In application, the research will be useful to port managers and other stakeholders for future planning and serve as a reference point for future studies.

**Keywords:** Sustainability Indicators, Drivers and Barriers, Sustainable Practices, Nigerian Seaports





### Statistical Properties and Analysis of Marine Fuel Prices

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**ABSTRACT:** The paper aims to provide a thorough statistical analysis of marine fuel prices, including the high sulphur (HS 380) and marine gas oil (MGO) prices, to indicate bunker price fluctuations in four major world bunkering spots: Houston Rotterdam, Singapore, and Fujairah. In addition, the derived time series of the difference between HS and marine gas oil (MGO) are presented, supporting further operators’ decisions on technical and operational measures. This analysis is a necessary step to support decisions related to fuels and in this regard with carbon emissions and levies.

**Keywords:** Marine Fuel Prices, Sustainable Logistics, Carbon Levy



### Tackling Impact of Maritime Insecurity Within the Gulf of Guinea along with Promising Expansion of Trade Coastal West Africa

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**ABSTRACT.** The Gulf of Guinea (GoG) region has growingly become the world’s hot spot for maritime piracy and armed robbery attacks despite the ongoing health crises and travel restrictions. The ongoing maritime insecurity situation which precedes the Covid-19 pandemic; was examined against the current economic and occupational challenges faced by the maritime community. These activities thus include the implemented Covid-19 travel restrictions and the ongoing effort at implementing Africa Continental Free Trade Area (AfCTA) agreement –a designed boost to Africa's industrial campaign and Intra trade amongst African nations. The piracy risk concerns potential sustainable maritime investment, measured are against the risk posed to a successful implementation of AfCTA. The study examines the current security threat in West Africa towards identifying the most appropriate recommendations with an integrated approach to tackling maritime piracy. The insecurity problems that risk the safety of marine operations, property, life, and environment; ought to be reduced —if not eliminated. The case study approach identifies and investigates current policies and practices regulating maritime security in the region. While the study finds the rising trend of piracy and armed robbery as a measure of inadequacy in security and surveillance, it does acknowledge the enormous legal frameworks and current structures of regional and international corporations that are currently ongoing. The problem of insecurity influencing insurance covers which goes to the cost of shipping. Piracy response has been reactionary rather than proactive in most instances, as attacks have continued in territorial and offshore areas well into 2021. Concerning its visible impact on AfCTA implementation amid covid-19, there is limited data on the issue. This part of the study concludes by highlighting effort directed at furthering the understanding of the impact of covid-19 and maritime insecurity on the maritime trade, to be completed in the second paper of this two-part study.

**Keywords:** Gulf of Guinea; Maritime Insecurity; Maritime Piracy, Shipping Route; Africa Continental Free Trade Area







## **Tanker Short-Term Spot Rates Trend Forecast: The Case of Yanbu – Rotterdam Shipping Transportation Route**

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Ioannis Karaoulanis, University of Piraeus, Dpt. of Maritime Studies

Theodore Pelagidis, Dpt. of Maritime studies, University of Piraeus & Deputy Governor, Bank of Greece

**ABSTRACT:** The substantial business risk arising from the volatility of freight rates is one of the most important sources of uncertainty for shipowners. This paper investigates whether creating a credible short-term forecast for the trend of tanker’s spot rates market is feasible and aims to mitigate future risk at the selected market. The examined rates dataset, on which the proposed forecast methodology has been developed and tested, comes from Yanbu–Rotterdam’s route case. This specific route has been selected due to the critical location of both ports and their significance for the wet cargo market. For our research purpose and to analyse the chosen time-series, a statistical model is synthesised by integrating the correlation analysis results into a “personalized” vector autoregression model (VAR). Our findings indicate that a short–term trend forecast for the spot market is reliable, for at least the chosen route. The oil shipping industry participants can improve their planning and decision-making at a practical level by taking advantage of our outcome.

**Keywords:** Tanker Market Analysis; VAR Analysis; Freight Rate Trend Forecast; Correlation Analysis; Time-Lag Effects; Tanker Risk Management



## **The Continuous Search for New Port Governance Models –Experiences From Tema Port, Ghana**

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Jonas Aryee, Lecturer, Royal Maritime University, Tema, Ghana

George Achampong, University of Ghana, Legon, Ghana

Annette Skovsted Hansent, Associate professor, Ph., Aarhus University, Denmark

**ABSTRACT:** This paper tries to bridge port governance and stakeholder theory by using one of the recent developments in a fast-changing part of the world. The focus is on Africa's “new” continent, particularly developing the modern and very large container terminal, Meridien Port Services (MPS), in Tema port outside Accra, Ghana. In the paper, we explore how various stakeholders develop and build an immense jump in infrastructure but fail to find an operating model that all actors consider fair. We hope to deliver new knowledge to the many hybrid port governance systems developing these years and inform authorities and companies about how the changes progress and the implications of different strategic choices.

**Keywords:** Port Governance, Stakeholder Theory, Inclusive Port Development



## **The Digitalisation in Chartering Business: Special Reference to The Role of E-Bill In The Bulk And Liner Markets**

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**ABSTRACT.** Previous research offering a comprehensive overview of digital transformation in the maritime transport sector is limited. In this paper, the authors examine the role of digitalisation in chartering business, using several cases. The development of innovative technologies to enhance the chartering business is



presented analytically. Special emphasis is given to the role of the e-bill of lading in the bulk and liner markets. The advantages, disadvantages and legal barriers of the e-bill of lading are examined thoroughly for both markets (bulk and liner markets). The research follows a qualitative case study approach. It shows that even though digital technologies offer important advantages in the chartering business, many legal barriers should be overcome. The findings fill the gap in the literature and assist the maritime professionals and shipping companies in understanding the necessity of digitalisation in chartering business.

**Keywords:** Chartering Business, Digitalisation, Digital Transformation, e-Bill of Lading, Charterparty



### Turkish Shipyards During Covid-19 Pandemic

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Mehtap Özdemir, Secretary General GISBIR, Istanbul, Turkey

**ABSTRACT:** It might be impossible to predict the pandemic but taking the initiative in measures when Covid-19 emerged was critical to be successful. However, it can be expected that this worldwide pandemic, ever known in World history, will cause social, economic, and political changes. The administrations and countries that have achieved this challenge overcame the economic and social crisis caused by this shock with the minimum damage and have developed new capabilities and competencies. This paper analyses the Covid-19 pandemic reflections in the Turkish shipbuilding sector in several ways. First, it reviews the measures taken and new working methods on the construction sites and ship delivery procedures. Second, it explains how the Turkish Shipbuilders’ Association (GISBIR) coordinated between shipyards and other stakeholders. Third, it examines the Baltic Exchange Dry Index (BDI), shipyards’ order book statistics, and the employment statistics of the shipbuilding and its sub-industry. Although there are some pessimistic expectations and reports in the literature dated to the start phase of the pandemic, the authors did not find any evidence to justify the mid-term negative impact of Covid-19 on the Turkish shipyards. There was a drop in the first quarter of 2020, but the BDI and order book statistics started to increase just after the second quarter. The recovery is related to the shipyards’ effective crisis management with the GISBIR support, and the ability to overcome the negative impact of the crisis by giving importance to the customised ship productions, continuous improvement efforts, investing in green technologies and systems.

**Keywords:** Covid-19, Shipyards, Shipbuilding



## 10. CONFERENCE PROGRAMME

The Conference programme comprises the following sessions:

### DAY 1

- 🕒 Opening Ceremony – Session 1
- 🕒 Opening Ceremony – Session 2
- 🕒 Session 1 - Shipping Markets 1
- 🕒 Session 2 – Port Sustainability
- 🕒 Session 3 – Shipping Markets 2
- Session 4 – Seafarers & Regulatory Issues

### DAY 2

- 🕒 Session 5 – Safety & Security
- 🕒 Session 6 – Ports & Shipbuilding
- 🕒 Session 7 – "OPTINET" Session on Maritime Transport
- 🕒 Session 8 – Eu Research Projects
- 🕒 Session 9 – Decarbonising Shipping 1
- 🕒 Session 10 - Decarbonising Shipping 2
- 🕒 Closing Ceremony

The next pages present the Conference Programme in detail.



## 10.1 DAY 1 - 27 JANUARY 2022



### 27 JANUARY 2022 – MORNING – SESSION 1

(0300 – 0505 EST) (0800 – 1005 UTC) (0900 – 1105 CET) (1600 – 1805 HK)

ROOM 1	
SESSION	OPENING CEREMONY
0300 - 0305 EST 0800 - 0805 UTC 0900 - 0905 CET 1600 - 1605 HK	<b>Ana Casaca</b> Chairman, 2022 World of Shipping Portugal. An International Research Conference on Maritime Affairs, Portugal <i>Welcome Speech</i>
0305 - 0335 EST 0805 - 0835 UTC 0905 - 0935 CET 1605 - 1635 HK	<b>Jan Hoffmann</b> Head of Trade Logistics Branch, Division on Technology and Logistics, United Nations Conference on Trade and Development, Switzerland <i>Trade and Development and the Impact of Supply Chain Disruptions</i>
0335 - 0405 EST 0835 - 0905 UTC 0935 - 1005 CET 1635 - 1705 HK	<b>Arthur Richier</b> Lead Freight Analyst, Vortexa, United Kingdom <i>Oil Price Fluctuations and the Impact on the Global Shipping Market</i>
0405 - 0435 EST 0905 - 0935 UTC 1005 - 1035 CET 1705 - 1735 HK	<b>Simon Ward</b> Director, Ursa Shipbrokers, Greece <i>Ship Sale and Purchase: The Factors Behind Decision Making in a Volatile Market</i>
0435 - 0505 EST 0935 - 1005 UTC 1035 - 1105 CET 1735 - 1805 HK	<b>Peter Sand</b> Chief Analyst, Xeneta, Denmark <i>The Good, the Bad and the Ugly! Where do Container Shipping Rates Stand</i>

### COFFEE-BREAK

(0505 – 0520 EST) (1005 – 1020 UTC) (1105 - 1120 CET) (1805 – 1820 HK)



### 27 JANUARY 2022 – MORNING – SESSION 2

(0520 – 0720 EST) (1020 – 1220 UTC) (1120 – 1320 CET) (1820 – 2020 HK)

ROOM 1	
SESSION	OPENING CEREMONY (CONT.)
0520 - 0550 EST 1020 - 1050 UTC 1120 - 1150 CET 1820 - 1850 HK	<b>Punit Oza</b> Guest Lecturer & Affiliated Research Fellow, Singapore Management University, Singapore <i>Geopolitical Risks in Shipping and Trading Flows</i>
0550 - 0620 EST 1050 - 1120 UTC 1150 - 1220 CET 1735 - 1805 HK	<b>Mark Williams</b> Managing Director, Shipping Strategy Ltd., United Kingdom <i>Shipping Decarbonisation: A Market's Perspective</i>
0620 - 0650 EST 1120 - 1150 UTC 1220 - 1250 CET 1920 - 1950 HK	<b>Paulo Almeida</b> Chief Investment Officer, Tufton Investment Management, United Kingdom <i>Shipping Decarbonisation and the Role of Ship Finance</i>
0650 - 0720 EST 1150 - 1220 UTC 1250 - 1320 CET 1950 - 2020 HK	<b>Theo Notteboom</b> Professor, Shanghai Maritime University   Ghent University   University of Antwerp <i>Towards More Sustainable and Resilient Land Management in Ports. The Case of Terminal Concessions</i>



**(BREAKFAST) LUNCH BREAK (DINNER BREAK)**

(0720 – 0800 EST) (1220 - 1300 UTC) (1320 - 1400 CET) (2020 – 2100 HK)



**27 JANUARY 2022 - AFTERNOON**

(0800 – 0940 EST) (1300 – 1440 UTC) (1400 - 1540 CET) (2100 – 2240 HK)

	ROOM 1	ROOM 2
SESSION	SHIPPING MARKETS 1	PORT SUSTAINABILITY
SESSION CHAIR	Alessio Tei, <i>University of Genoa</i> , Italy	Cassia Galvão, <i>Texas A&amp;M University at Galveston</i> , United States of America
0800 - 0825 EST 1300 - 1325 UTC 1400 - 1425 CET 2100 - 2155 HK	<b>Newbuilding orders and freight rate shocks: Evidence from the container market</b> Nektarios Michail, <i>Central Bank of Cyprus</i> , Cyprus Konstantinos Melas, <i>Faculty of Business and Economics</i> , Greece	<b>Situational review of Nigerian port sustainability: stakeholders' perspective</b> Uzokwe Reginald Chiemezie, <i>Pusan National University</i> , Korea Hyunmi Jang, <i>Pusan National University</i> , Korea
0825 - 0850 EST 1325 - 1350 UTC 1425 - 1450 CET 2125 - 2150 HK	<b>Tanker short-term spot rates trend forecast: The Case of Yanbu – Rotterdam shipping transportation route</b> Stella Lazou, <i>University of Piraeus</i> , Greece Ioannis Karaoulanis, <i>University of Piraeus</i> , Greece Theodore Pelagidis, <i>Bank of Greece</i> , Greece	<b>Greenhouse gas emissions of ships at ports: Quantitative estimations and forecasts</b> Jeyhun Hasanov, <i>Sapienza Università di Roma</i> , Italy Stefano Ricci, <i>Sapienza Università di Roma</i> , Italy Luca Rizzetto, <i>Sapienza Università di Roma</i> , Italy
0850 - 0915 EST 1350 - 1415 UTC 1450 - 1515 CET 2150 - 2215 HK	<b>Forecasting worldwide empty container availability with machine learning techniques</b> Christoph Martius, <i>Fraunhofer Center for Maritime Logistics and Services CML</i> , Germany Lutz Kretschmann, <i>Fraunhofer Center for Maritime Logistics and Services CML</i> , Germany Carlos Jahn, <i>Fraunhofer Center for Maritime Logistics and Services CML</i> , Germany Ole John, <i>Fraunhofer Center for Maritime Logistics and Services CML</i> , Germany	<b>Cold ironing; modelling the interdependence of terminals and vessels in their choice of suitable systems</b> Jeroen Pruyn, <i>Delft University of Technology</i> , The Netherlands Jelle Willeijns, <i>Delft University of Technology</i> , The Netherlands
0915 - 0940 EST 1415 - 1440 UTC 1515 - 1540 CET 2215 - 2240 HK	<b>Recovery of ro-pax ferry traffic from Covid-19 under tightening environmental regulations: Case Helsinki-Tallinn</b> Ulla Tapaninen, <i>Tallinn University of Technology</i> , Estonia Riina Palu, <i>Tallinn University of Technology</i> , Finland	<b>Environmental valuation of in-port shipping emissions per shipping sector on four Spanish ports</b> Thomas Spengler, <i>University of Las Palmas de Gran Canaria</i> , Spain Beatriz Tovar, <i>University of Las Palmas de Gran Canaria</i> , Spain



**COFFEE-BREAK**

(0940 – 1010 EST) (1440 - 1510 UTC) (1540 - 1610 CET) (2240 – 2310 HK)



**27 JANUARY 2022 - AFTERNOON**

(1010 – 1150 EST) (1510 – 1650 UTC) (1610 - 1750 CET) (2310– 1950 HK)

	<b>ROOM 1</b>	<b>ROOM 2</b>
<b>SESSION</b>	<b>SHIPPING MARKETS 2</b>	<b>SEAFARERS &amp; REGULATORY ISSUES</b>
<b>SESSION CHAIR</b>	Assunta Di Vaio, <i>University of Naples "Parthenope"</i> , Italy	Mihalis Chasomeris, <i>University of KwaZulu-Natal</i> , South Africa
1010 - 1035 EST 1510 - 1535 UTC 1610 - 1635 CET 2310 - 2335 HK	<b>Coronavirus driven social transformation of cruise industry</b> Yui-yip Lau, <i>The Hong Kong Polytechnic University</i> , Hong Kong, China sz Leung Yip, <i>The Hong Kong Polytechnic University</i> , Hong Kong, China	<b>Employability of seafarers: An analysis of preliminary findings</b> Vangelis Tsioumas, <i>Eugenides Foundation</i> , Greece Orestis Schinas, <i>Hamburg School of Business Administration</i> , Germany Christina Troumpetari, <i>Eugenides Foundation</i> , Greece Dimitris Papachristos, <i>Eugenides Foundation</i> , Greece Nikolia Pantazi, <i>Eugenides Foundation</i> , Greece
1035 - 1100 EST 1535 - 1600 UTC 1635 - 1700 CET 2335 - 0000 HK	<b>The digitalisation in chartering business: special reference to the role of e-bill in the bulk and liner markets</b> Evi Plomaritou, <i>Frederick University</i> , Cyprus Sotiris Jeropoulos, <i>Frederick University</i> , Cyprus	<b>Preparing the next generation of blue professionals - the sea of experience project</b> Nikolaos P. Ventikos, <i>National Technical University of Athens</i> , Greece Alexandros Rammos, <i>National Technical University of Athens</i> , Greece
1100 - 1125 EST 1600 - 1625 UTC 1700 - 1725 CET 0000 - 0025 HK	<b>User-driven development in MOSES: From Stakeholders needs to user requirements</b> Nikolaos P. Ventikos, <i>National Technical University of Athens</i> , Greece Christos Pollalis, <i>National Technical University of Athens</i> , Greece Konstantinos Louzis, <i>National Technical University of Athens</i> , Greece Haris Oikonomidou, <i>National Technical University of Athens</i> , Greece Marios Koimtzoglou, <i>National Technical University of Athens</i> , Greece Margarita Kostovassili, <i>National Technical University of Athens</i> , Greece Tom Huetting, <i>Netherlands Organisation for Applied Scientific Research (TNO)</i> , The Netherlands Hans van den Broek, <i>Netherlands Organisation for Applied Scientific Research (TNO)</i> , The Netherlands Mercedes de Juan Muñozerro, <i>Fundación Valenciaport</i> , Spain Nikos Monios, <i>Core Innovation and Technology</i> , Greece Alessandro Zanderigo, <i>Trelleborg AB</i> , The Netherlands	<b>Maritime Education during COVID-19 Pandemic. Challenges and Pitfalls</b> Ana Casaca, <i>World of Shipping Portugal</i> and <i>CIMOSM - Centro de Investigação em Modelação e Optimização de Sistemas Multifuncionais</i> , ISEL, Portugal Maria Amélia Ramos Loja, <i>CIMOSM - Centro de Investigação em Modelação e Optimização de Sistemas Multifuncionais</i> , ISEL, Portugal

EXIT DAY 1



## 10.2 DAY 2 - 28 JANUARY 2022



### 28 JANUARY 2022 – MORNING

(0300 – 0440 EST) - (0800 – 0940 UTC) - (0900 – 1040 CET) - (1600 – 1740 HK)

	ROOM 1	ROOM 2
SESSION	SAFETY & SECURITY	PORTS & SHIPBUILDING
<b>SESSION CHAIR</b>	Pedro Antão, <i>Centec - IST</i> , Portugal	Cláudio Soares, <i>Cia Docas do Rio de Janeiro</i> , Brazil
0300 – 0325 EST 0800 – 0825 UTC 0900 – 0925 CET 1600 – 1625 HK	<b>MV Rhosus &amp; the Beirut explosion disaster: port safety mismanagement &amp; flag of convenience</b> CJ Manjarres-Wahlberg, <i>HEM International</i> , Australia	<b>The continuous search for new port governance models – experiences from Tema Port, Ghana</b> Torben Andersen, <i>Aarhus University</i> , Denmark Jonas Aryee, <i>Royal Maritime University</i> , Ghana George Achampong, <i>Aarhus University</i> , Denmark Annette Skovsted Hansen, <i>University of Ghana</i> , Ghana
0325 – 0350 EST 0825 – 0850 UTC 0925 – 0950 CET 1625 – 1650 HK	<b>Maritime navigation accidents and risk indicators: An exploratory statistical analysis using IMO reports from 2011 to 2021</b> Carine Dominguez-Péry, <i>University of Grenoble Alpes</i> , France Rana Tassabehji, <i>Bath University School of Management</i> , United Kingdom Franck Corset, <i>University of Grenoble Alpes</i> , France Zainab Chreim, <i>University of Grenoble Alpes</i> , France	<b>A systems approach to developing a port community system for South Africa</b> Sphiwe Mthembu, <i>Transnet National Ports Authority and University of KwaZulu-Natal</i> , South Africa Mihalis Chasomeris, <i>University of KwaZulu-Natal</i> , South Africa
0350 – 0415 EST 0850 – 0915 UTC 0950 – 1015 CET 1650 – 1715 HK	<b>Delineating the relationship between maritime insecurity and Covid-19 pandemic on the West African maritime trade</b> Anthony Djaba Sackey, <i>Ant Marine W.A Consulting Services</i> , Ghana Bernard Lomotey, <i>DNV Maritime</i> , Ghana Abigail Dede Sackey, <i>German Institute of Technology</i> , Ghana Raphael Ofori-Dua Lee, <i>DNV GL Oil and Gas Accra</i> , Ghana Abraham A. Teye, <i>Ghana Navy</i> , Ghana Richmond K. Quaicoo, <i>Plastic Punch Organization</i> , Ghana John Bansah, <i>Mega Food Industries</i> , Sudan	<b>Turkish shipyards during Covid-19 pandemic</b> Mehmet Tantan, <i>Istanbul Technical University</i> , Turkey Hatice Camgöz Akdağ, <i>Istanbul Technical University</i> , Turkey Mehtap Özdemir, <i>Turkish Shipbuilders' Association</i> , Turkey
0415 – 0440 EST 0915 – 0940 UTC 1015 – 1040 CET 1715 – 1740 HK	<b>Tackling impact of maritime insecurity within the Gulf of Guinea along with promising expansion of trade coastal West Africa</b> Anthony Djaba Sackey, <i>Ant Marine W.A Consulting Services</i> , Ghana Abigail Dede Sackey, <i>German Institute of Technology</i> , Ghana Joseph Elorm Segbefia, <i>GISMA Business School</i> , Germany Raphael Ofori-Dua Lee, <i>DNV GL Oil and Gas</i> , Ghana Benjamin Lantei Lamptey, <i>University of Leeds</i> , United Kingdom Musah Chantiwuni, <i>Ghana Maritime Authority</i> , Ghana Abraham A. Teye, <i>Ghana Navy</i> , Ghana	<b>Additive manufacturing and maritime spare parts: The supply chain stakeholders views</b> Evanthia Kostidi, <i>University of the Aegean</i> , Greece Nikitas Nikitakos, <i>University of the Aegean</i> , Greece Maria Lambrou, <i>University of the Aegean</i> , Greece Theodore Lilas, <i>University of the Aegean</i> , Greece



**COFFEE-BREAK**

(0440 – 0510 EST) - (0940 - 1010 UTC) - (1040 - 1110 CET) - (1740 – 1810 HK)



**28 JANUARY 2022 – MORNING**

(0510 – 0650 EST) - (1010 – 1150 UTC) - (1110 - 1250 CET) - (1810 – 1950 HK)

	ROOM 1	ROOM 2
SESSION	"OPTINET" SESSION ON MARITIME TRANSPORT	EU RESEARCH PROJECTS
SESSION CHAIR	Claudio Ferrari, <i>University of Genoa</i> , Italy	Ana Rita Lynce, <i>VTM Global</i> , Portugal
0510 – 0535 EST 1010 – 1035 UTC 1110 – 1135 CET 1810 – 1835 HK	<p><b>The OPTINET Project</b> Dimitrios Lyridis, <i>National Technical University of Athens</i>, Greece Lambros Nakos, <i>Hydrus Engineering S.A.</i>, Greece</p>	<p><b>Discussing the MOSES project: automated technologies for efficient and green short sea shipping</b> Nikolaos P. Ventikos, <i>National Technical University of Athens</i>, Greece Konstantinos Louzis, <i>National Technical University of Athens</i>, Greece</p>
0535 – 0600 EST 1035 – 1100 UTC 1135 – 1200 CET 1835 – 1900 HK	<p><b>An innovative tool for maritime transportation network design based on three level operational data analysis: the case of the Greek Archipelago of Islands</b> Athanasios Pappas, <i>Hydrus Engineering S.A.</i>, Greece Dimitrios Lyridis, <i>National Technical University of Athens</i>, Greece Panagiotis Evangelou, <i>National Technical University of Athens</i>, Greece George Kougioumtzoglou, <i>Hydrus Engineering S.A.</i>, Greece Dimitrios Zachos, <i>Hydrus Engineering S.A.</i>, Greece Lambros Nakos, <i>Hydrus Engineering S.A.</i>, Greece</p>	<p><b>The Portforward Project – Towards green and sustainable ecosystem for the EU port of the future</b> Olaf Poenicke, <i>Fraunhofer Institute for Factory Operation and Automation</i>, Germany</p>
0600 – 0625 EST 1100 – 1125 UTC 1200 – 1225 CET 1900 – 1925 HK	<p><b>Statistical properties and analysis of marine fuel prices</b> Orestis Schinas, <i>Hamburg School of Business Administration</i>, Germany Rafat Beigpoor Shahrivar, <i>Hamburg School of Business Administration</i>, Germany</p>	<p><b>FLAGSHIPS - Clean waterborne transport in Europe</b> Jyrki Mikkola, <i>VTT Technical Research Centre of Finland Ltd</i>, Finland</p>
0625 – 0650 EST 1125 – 1150 UTC 1225 – 1250 CET 1925 – 1950 HK	<p><b>Maritime shipping in the Arctic: Steps beyond the Polar Code</b> Jawahar Bhagwat, <i>Northern Arctic Federal University</i>, Russia</p>	<p><b>Reshaping the evacuation process of large ropax and cruise vessels in extreme conditions: the SAFEPASS projec</b> Nikolaos P. Ventikos, <i>National Technical University of Athens</i>, Greece Panagiotis Sotiralis, <i>National Technical University of Athens</i>, Greece</p>

**(BREAKFAST) LUNCH BREAK (DINNER BREAK)**

(0650 – 0800 EST) - (1150 - 1300 UTC) - (1250 - 1400 CET) - (1950 – 2100 HK)



## 28 JANUARY 2022 – AFTERNOON – SESSION 1

(0800 – 1000 EST) - (1300 – 1500 UTC) - (1400 - 1600 CET) - (2100 – 2300 HK)

ROOM 1	
SESSION	DECARBONISING SHIPPING 1
SESSION CHAIR	Dimitrios Lyridis, <i>National Technical University of Athens, Greece</i>
0800 - 0830 EST 1300 - 1330 UTC 1400 - 1430 CET 2100 - 2130 HK	<b>Percy R. Pyne IV</b> Chairman & Co-Founder, Green Shipping Line, United States <i>Decarbonising Supply Chains with Short Sea Shipping and EPA Scope 3 Emissions</i>
0830 - 0900 EST 1330 - 1400 UTC 1430 - 1500 CET 2130 - 2200 HK	<b>Harilaos N. Psaraftis</b> Professor, Technical University of Denmark, Denmark <i>Shipping Decarbonisation Given Recent IMO / EU Developments</i>
0900 - 0930 EST 1400 - 1430 UTC 1500 - 1530 CET 2200 - 2230 HK	<b>Tiago Braz</b> VP Product Area Energy, Hoglund Marine Solutions AS, Germany <i>How to Decarbonise International Shipping. What are the Viable Onboard Ship Design Options?</i>
0930 - 1000 EST 1430 - 1500 UTC 1530 - 1600 CET 2230 - 2300 HK	<b>Gavin Allwright</b> General Secretary, International Windship Association, United Kingdom <i>Wind Propulsion and the Decarbonisation of the Shipping Industry</i>

## COFFEE-BREAK

(1000 – 1015 EST) (1500 – 1515 UTC) (1600 - 1615 CET) (2300 - 2315 HK)



## 28 JANUARY 2022 – AFTERNOON- SESSION 2

(1015 – 1215 EST) - (1515 – 1715 UTC) - (1615 - 1815 CET) - (2315 – 0115 (29th January) HK)

ROOM 1	
SESSION	DECARBONISING SHIPPING 2
SESSION CHAIR	Nikolaos Manos, <i>HYDRUS Engineering SA, Greece</i>
1015 - 1045 EST 1515 - 1545 UTC 1615 - 1645 CET 2315 - 2345 HK	<b>Captain Saleem Alavi</b> President, Sea Commerce America Inc., United States <i>Rise of Methanol as Future-Proof Marine Fuel</i>
1045 - 1115 EST 1545 - 1615 UTC 1645 - 1715 CET 2345 - 0015 HK	<b>Elizabeth Lindstad</b> Chief Scientist, SINTEF Ocean AS, Norway <i>Does the One-Size-Fits-All Fuel Solution Applies to All Shipping Trades?</i>
1115 - 1145 EST 1615 - 1645 UTC 1715 - 1745 CET 0015 - 0045 HK	<b>Tue Johannessen</b> Head of Maritime Application and Viability, Mærsk Mc-Kinney Moller Center for Zero Carbon Shipping, Denmark <i>Alternative Fuels Supply Chains Towards 2050: Requirement and Impact from Critical Levers</i>
1145 - 1215 EST 1645 - 1715 UTC 1745 - 1815 CET 0045 - 0115 HK	<b>Søren Meyer</b> Chief Executive Officer, Zero North, Denmark <i>Digital Transformation and the Decarbonisation of the Shipping Industry</i>





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### 28 JANUARY 2022 – AFTERNOON – SESSION 3

(1215 – 1245 EST) - (1715 – 1745 UTC) - (1815 - 1845 CET) - (0115 – 0145 (29th January) HK)

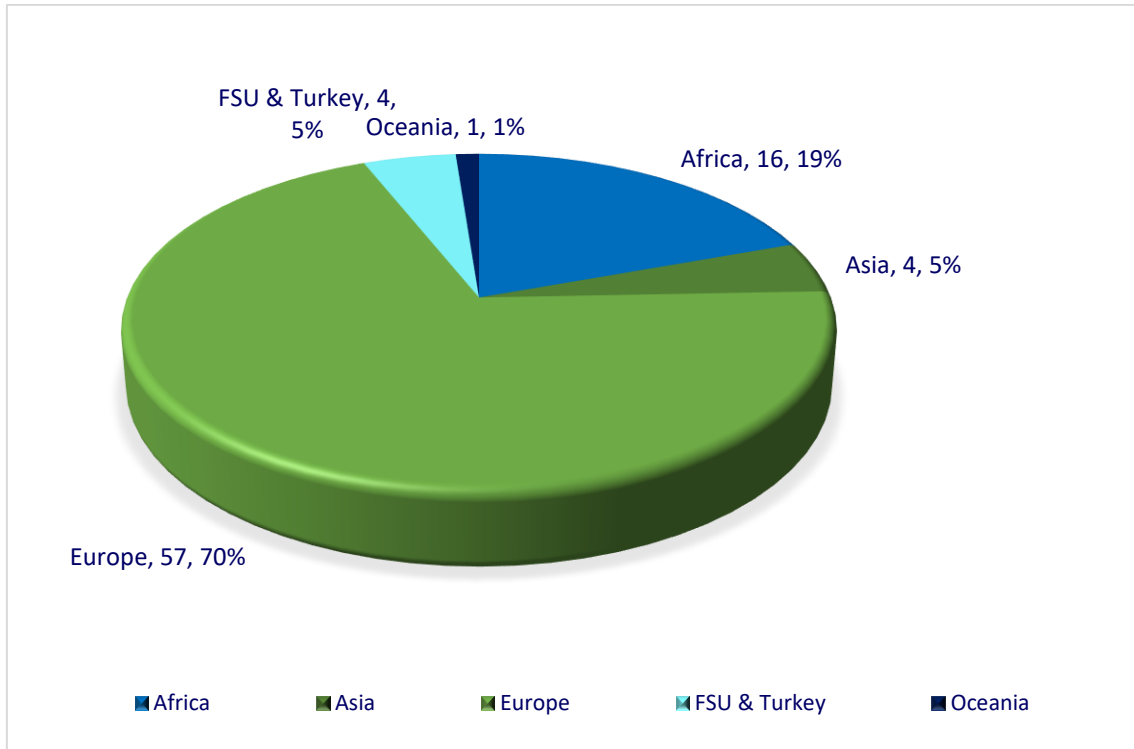
ROOM 1	
SESSION	CLOSING CEREMONY
1215 - 1245 EST 1715 - 1745 UTC 1815 - 1845 CET 0115 - 0145 HK	Ana Casaca Chairman of the 2021 World of Shipping Portugal. An International Research Conference on Maritime Affairs, Portugal  <i>Summing Up</i> <i>Presentation of the Conference papers to be published in a Special Issue of the Journal of Shipping and Trade</i> <i>2023 World of Shipping Portugal. An International Research Conference on Maritime Affairs,</i> 26-27 January 2022, Online/Physical Conference, Portugal

### EXIT DAY 2

See you Next Year 2023!

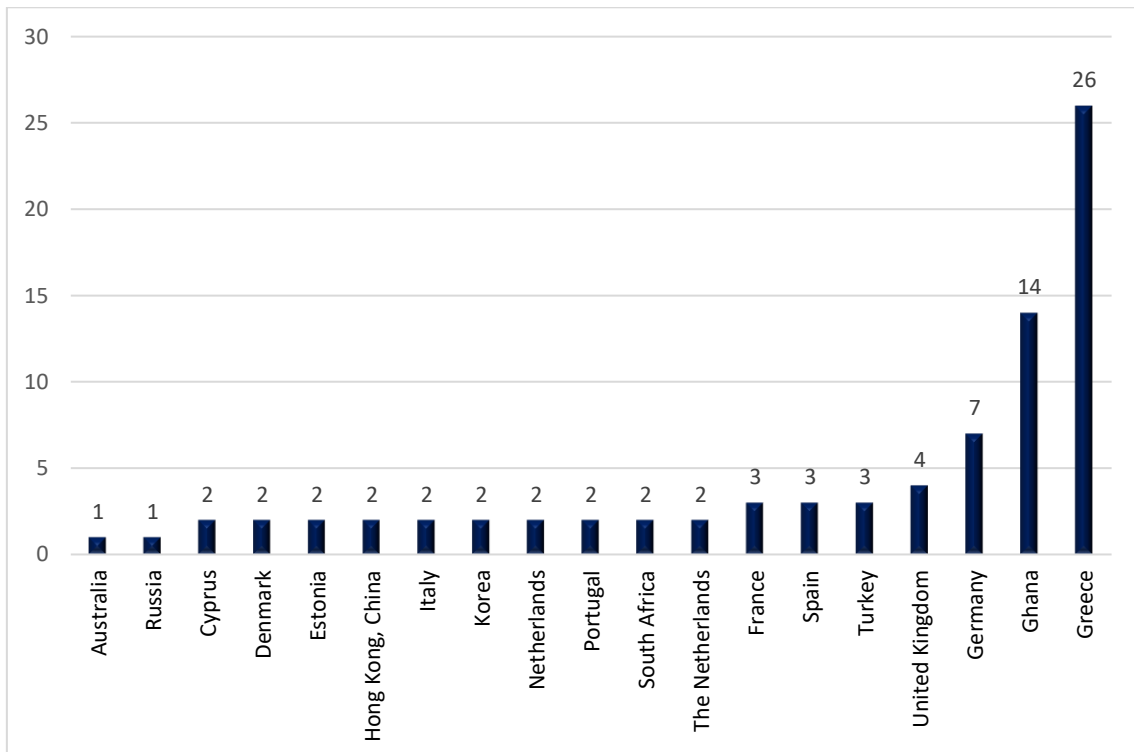
## 11. CONFERENCE STATISTICS

Graph 1: Authors by Continent



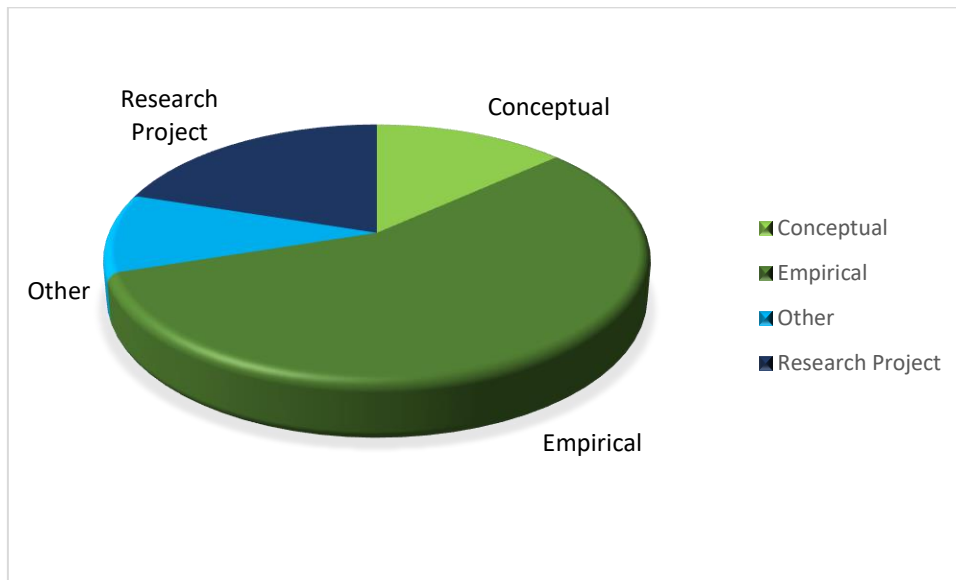
Source: 2021 World of Shipping Portugal

Graph 2: Authors by Countries



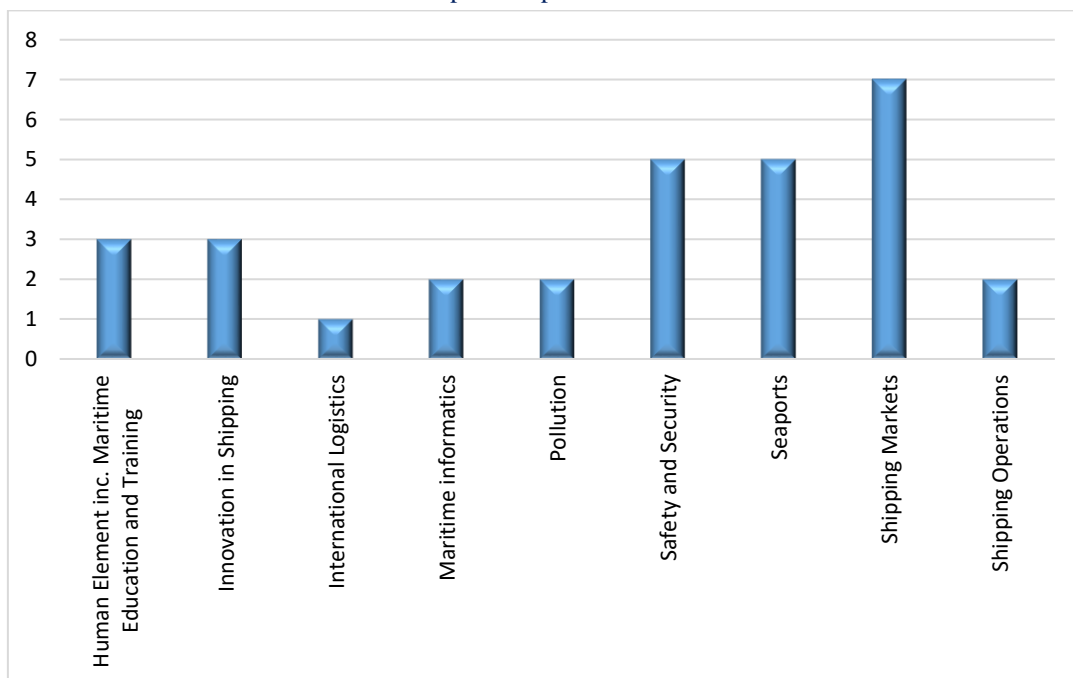
Source: 2021 World of Shipping Portugal

Graph 3: Type of Presentation



Source: 2021 World of Shipping Portugal

Graph 4: Topics Covered



Source: 2021 World of Shipping Portugal



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