Making Waves

Newsletter for Maritime Studies Students and Graduates

No. 8 July 2018

Posidonia Ποσειδώνια

Posidonia the international shipping exhibition that has long been established as one of the major events of the shipping industry. The event links the international shipping industry with ship-owners from around the world and puts ship-owners in touch with the latest research and development in the industry and showcases the latest shipping products and services. Naturally a key future orientated service is education and training the marine workforce of the future.

British Ambassador to Greece, Ms Kate Smith (far left) talking to Professor Carlton. The UK Parliamentary Under Secretary of State, Ms Nusrat Ghani (centre) talking to Professor Ryan of the City Law School on City's stand at Posidonia .

This is the first time that City , University of London has exhibited at Posidonia in its' own right. Over 500 people visited the stand at Posidonia this year asking for information about our programmes. The team distributed some 2000 leaflets generally!

On 5th June 2018 British Ambassador to Greece, Ms Kate Smith, and the UK Parliamentary Under Secretary of State, Ms Nusrat Ghani visited our City, University of London stand at Posidonia. We thank them for their interest.

For more information on studying for a City, University of London accredited Masters in Maritime Operations and Management in Greece Click here.

Welcome Flags at Posidonia 2018

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Institute of Chartered Shipbrokers

The Royal Institution of Naval Architects

The Honourable Company of Master Mariners

OBEs Awards - Congratulations

Professor Tong Sun's work is featured in Issue 2 of Making Waves December 2015 . Professor Ken Grattan supported the Maritime Operations and Management team to secure a trilogy of professional body accreditations.

Professor Tong Sun has been awarded an OBE for services to engineering Link to full story by Sophie Cubbin.
Professor Ken Grattan has been awarded an OBE for services to the science of measurement Link to full story by Sophie Cubbin.

Professor Tong Sun

Professor Ken Grattan

Professor Carlton commented "Both Tong Sun and Ken Grattan have been valued supporters of the University's marine activities. In particular, they have supported our PhD students in relation to instrumentation for the singing propeller and cavitation erosion studies. We thank them and look forward to continued involvement with them in the future."

Traditional and Modern Methods of Financing in Shipping

Marilena Kokonaki, our course officer in Greece reports that on Monday 18th December 2017 the Laskaridis foundation hosted an event on traditional and modern methods of financing in shipping.

The guest speakers included executives from the wider maritime business sector and bank finance. They discussed the current lending methods for financing industry and the difficulties and particularities of shipping finance.

Marilena Kokonaki representing City, University of London

Full house at the Laskaridis Library, Piraeus Greece

From the Press Release:

"Mr. Lykoudis noted that the termination of relationship banking has already come to an end and that the interpersonal relations that traditionally existed between bankers and shipowners are no longer the only ones that are being considered to make decisions on bank financing (or not) of an enterprise. "We have to assess the risk we take with very strict criteria," he said, explaining that shipping companies must understand that banks need to make a profit".

The event was attended by students and graduates from the National Maritime Academies and those looking to develop a career in shipping and the international maritime industries.
Isalos.net

Also discussed at the event were the funding challenges arising from the revised standardised approach for assessing market risk known as Basel IV.

Basel IV is coming

Basel IV is revisions to the existing financial regulatory framework that is focused on determination of risk weighted assets. This is to address the weaknesses of the current market risk framework exposed by the financial crisis. The framework aims to replace the existing regulation and harmonizes the treatment of market risk across national jurisdictions.

For an overview of all requirements of the revised standardised approach for market risk assessment click on the image on the left or the link below.

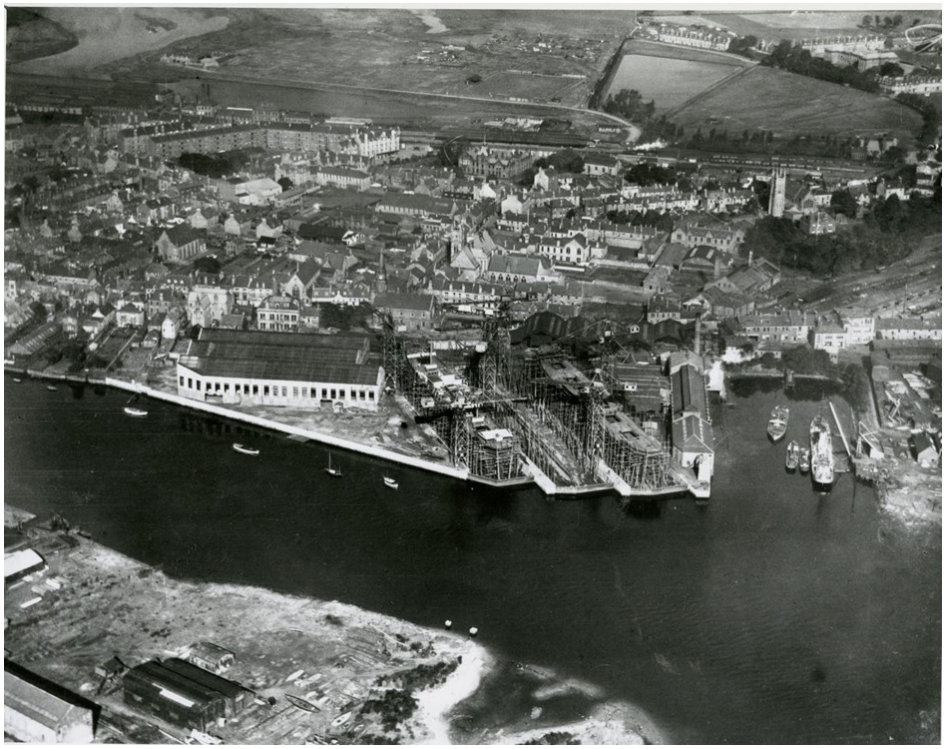
Click image to download report

Report— Basel IV Revised Standard

Denny of Dumbarton Pioneering Shipbuilders

Based on an article by Matthew Bellhouse Moran Assistant Curator Scottish Maritime Museum

Think of some celebrity ships. In that list will be *Princess Henriette,* TS *King Edward*, SS *Sir Walter Scott*, and the *Delta King* and *Delta Queen.* These were all built at the Denny yards in Dumbarton. The scale of engineering innovation was possible because Denny of Dumbarton, pioneering shipbuilders, invested in visionary research including building the world's first commercially run experiment tank to test model ships moving through water.



Aerial view of Denny of Dumbarton shipyard circa 1927

Denny Testing Tank in 1908

Today, the Denny Tank is managed as a site of the Scottish Maritime Museum. It offers visitors a look back to ship design and testing at its mid-century peak, with thousands of graphs, plans and calculations drawn up with rule, pencil, curves and compass, without a computer in sight; just slide rules and mechanical calculators.

Every story has a beginning.

In 1814 William Denny formed a partnership for steamship construction with Archibald McLachlan, based on the River Leven, and so began almost 150 years of a family firm building ships at the Denny yards in Dumbarton.

In 1881 the forward-looking company expanded into what we would now call research and development. From this came the experiment tank to test the performance of scale model ships moving through water. This was the first commercial towing tank in the world.

The original 73 meter long tank was 6.7 meters deep, a carriage above ran along the full length of the tank pulling a geosym model of a ship through the water.

A series of mechanical sensors recorded the models movement through the water, the readings would then be used to calculate the hull form for fast and fuel efficient vessel designs. The models were an example of prototyping, with moulds cast in paraffin wax and used to fabricate wood and later fibreglass hulls. Expanded in 1924 the tank continued the same work until the Denny yard closed in 1963. (*Continued on page 4*)

(Continued from page 3)

Denny of Dumbarton Pioneering Shipbuilders based on an article by Matthew Bellhouse Moran

Denny also built the MV *Princess Victoria*, Yard No. 1399, built for the London Midland and Scottish Railway Company as one of the first roll-on roll-off (RoRo) ferries. The launch in August 1946 was a happy occasion following many months of hard work as seen in the photograph below.

Sadly, the *Princess Victoria* infamously sank in a storm in January 1953 with the loss of 133 lives as the winds pushed seas over her stern doors – an early instance of a perennial problem with RoRo ferries.

The launch party of the MV 'Princess Victoria', Yard no. 1399, at the shipyard of Wm Denny & Brothers, Dumbarton on 27 August 1946

The capsizing of *Princess Victoria* was not due to lack of diligence during testing the hull at Denny - the original resistance and propeller test data still exists in the museum's collection – but rather the extreme real-world conditions exposing a design flaw that was not flagged up during testing, and therefore insufficiently compensated for.

The testing tank and attached drawing offices are now part of the Scottish Maritime Museum and all that remains of a yard that once sprawled across the water's edge. Hydrodynamic tests were run for almost all of their new builds and much of the original graphs and drawings still remain in-situ in their wooden boxes in the mid-century drawing office.

The current curator of the museum would be pleased to consider cooperation with students who might wish to undertake their projects in the area of ship resistance and design.

The Denny Tank today, managed as a site of the Scottish Maritime Museum

The MSc in Maritime Operations and Management makes extensive use of case studies. ***Learning from the history of engineering, and from other sectors is central to this approach.***

New on the reading list:

Hydrodynamic Scale Model Tests for Offshore Structures

Multidisciplinary Process Integration and Design Optimization of a Hybrid Marine Power System Applied to a VLCC

Why should shipping companies implement digitisation?

This is the topic of a new survey and report published by #SmarterShipping.

"Digitisation is currently making a lot of noise in the global shipping sector. Recent high-profile examples include Maersk and IBM's joint venture to commercialise blockchain technology; DNV GL and Kongsberg's introduction of digital platforms; Veracity and Kognifai and Rolls Royce's joint venture with Google studying autonomous shipping. Shipping is investing in digital change, and the impact on business process is likely to be profound. Ahead of the inaugural Smarter Shipping conference, we asked experts to tell us more about the steps they are currently taking to implement digitisation in their organisations, the areas where they see technology bringing the most benefit, and the companies which they consider to be the most innovative providers of digital shipping solutions." The report can be accessed here.

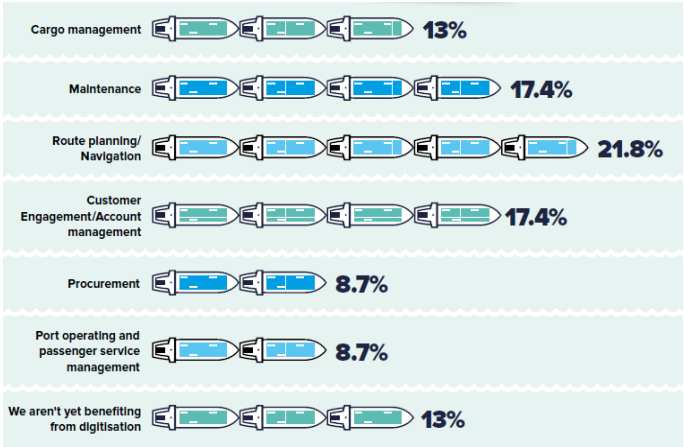
The survey respondents:

- Where they work: Satellite and 4G Airtime Suppliers, Freight Forwarders, Trade Associations, Consultancies, Digital Solutions Providers, Bunker Traders, Ship owners and Ship Operators, Port Personnel, Academic Institutions.
- What they do: Fleet Performance Superintendents, Marketing, Business Development and Sales, IT, Operational Logistics, Engineering, C-Suite/Senior Management.

Findings

Best describes your company

Area in which your business benefitting from digitisa-



The report suggests 5 ways in which smarter shipping will help transform sea freight?

1. Deliver cargo on time, every time by optimising approaches to navigation, vessel management and efficient energy usage.
2. Minimise vessel down-time by adopting a smarter, more predictive approach to maintenance, re-ordering and repair.
3. Close gaps in the logistics chain by enhancing data exchange ship-shore, and increase vessel-port connectivity to manage capacity and lessen the impact of disruption.
4. Improve customer service delivery by offering enhanced asset tracking and improved business process from contract to delivery.
5. Understand the emerging regulatory and insurance framework, and accelerate access to the benefits of maritime automation and digitisation.

Students studying on the MSc in Maritime Operations and Management are taught to critically deconstruct reports like this to shift through the hype and marketing speak. They work to understand, articulate and present the implications, affordances and challenges of emerging trends like digitisation and smart shipping.

Graduates 2018

Master of Science in Maritime Operations and Management

January graduation

Dimitrios Bellos
Chrysoula Bismpiroula
Dagmara Caluzinska*
Alexandros Koullias
Dimitrios Mylonas
Fatih Onder
Konstantinos Perogiannakis
Thiago Rangel Zanon*
Marios Siopis
Kaung Zaw Swe
Apostolia Thanasou
Maximos Tryfonopoulos
Carlo Zanon*

July graduation

David Matthew Appleton*
Konstantina Eleni Athanasiou
Maria Bourmpouli
Ioanna Charitodiplomenou"
Ogbogu Fredrick Chianugor
Anastasia Georgala*
Garyfalia Katsigianni
Evangelos-Alexandros Koukoravas
Stefanos Lakardis
Ioannis Langis
Panagiota Laskari*
Sophia Thomas Makiou*
Evangelos Maltezos
Irene Polia*
Javid Rahimli
Vasileios-Christos Rampos
Anthoula Christina Rassia
Georgia Rentifi*
Nikolaos Stefanidis

*with distinction

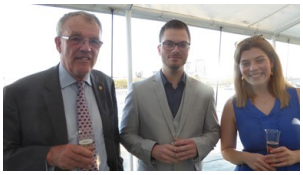
31st January Graduation Day at the Barbican

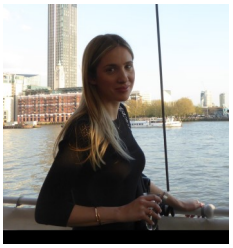
18th July Graduation Day at the Barbican

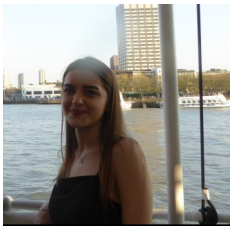
July graduation photos taken by Yanna Maltezos

Looking back to the Programme dinner on the HQS Wellington on the Thames

We look back at the midpoint of the Programme with photos from the annual programme dinner on board the HQS Wellington the livery hall of the *Honourable Company of Master Mariners.*







Looking back cutting the New Year pie in Piraeus

The 2016-18 Piraeus students are busy doing their research projects and writing their dissertations. Thank you to Marilena Kokonaki for sending us memories of the traditional cutting of the New Year's Pie which took place at the Hellenic Lloyd's Register training centre in Piraeus on 20th January 2018 at 14:40. Of course everyone was on holiday on the 1st of January! Mr Lewis Brown (Lecturer in Maritime Accounting) found the coin in the piece of the Vasilopita and bagged all the luck and warm wishes. It was also lucky nudge to explore 'Ship finder' (see story below)

What is out there? Introducing 'Ship Finder' App

Piraeus Harbour January 2018

A piece by Dr Uma Patel who is a module leader on the MSc in Maritime Operations and Management. She teaches 'Professional Studies' and prepares students for conducting research and writing an MSc dissertation.

In January when it was cold and wet in London a photo of Piraeus harbour, arrived in my email box. It accompanied a happy story of finding hidden treasure in a New Year pie and feeling lucky all year (see story above). Piraeus is a hardworking town with a constant stream of sea faring traffic as testified by the photographs taken over a number of years (see below).

But what is out there specifically?

Of course there are many location based Apps relating to shipping. My current favourite is called 'Ship Finder' . I tried it around Piraeus Harbour in July 2018. Here is an account of how it works .

(*continued on page 9)*

Scenes around Piraeus Harbour

(Continued from page 8)

Ship Finder

The Ship Finder App can be down loaded onto a phone or tablet and works on android and iPhone. There is a small cost for the professional version. The Lite version is free. The following is a log of how the App worked on Sunday 10th July at 10:00.

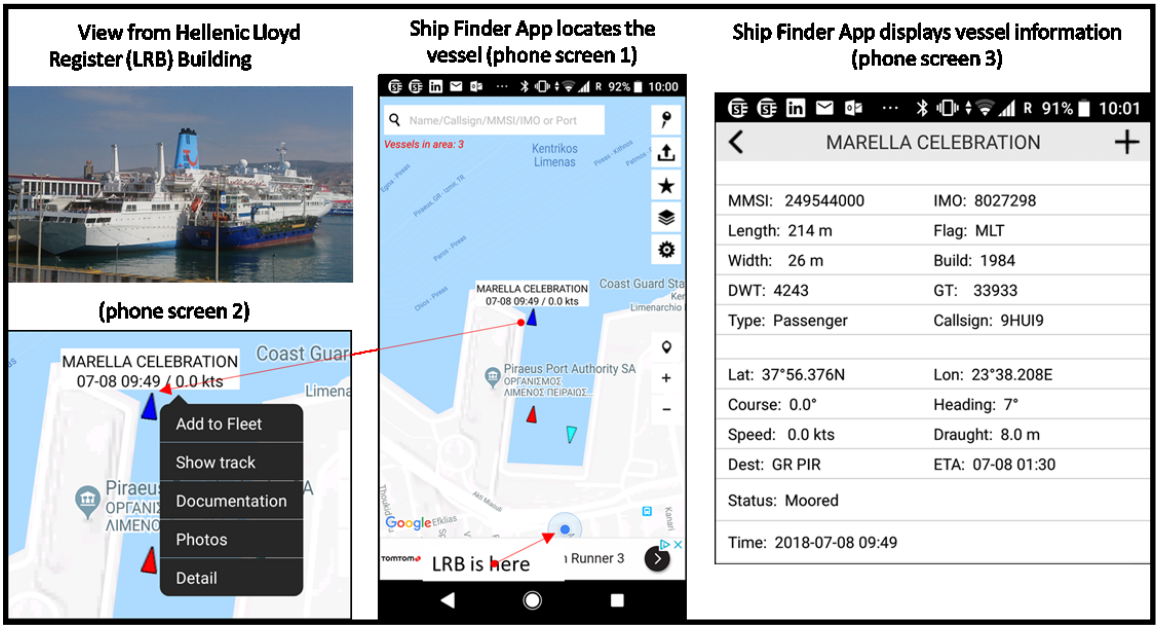
The photograph (top left) shows some of the vessels visible from the 2rd floor balcony of the Hellenic Lloyd's register building where the courses are taught.

- The larger vessel in the photograph is located on the map as Marella Celebration (screen 1).
- Clicking on the icon presents additional choices (screen 2).
- Finally more details can be pulled up as shown in screen 3.

The App works with google maps so it is possible to zoom out. This picks up many more vessels as illustrated by the screen capture on the phone of ShipFinder App screen (bottom image on the right). These photographs (bottom image left and middle) were taken with a zoom function on the phone. What the eye sees is unidentifiable vessels in the far distance.

The zoom function opens up the potential for exploring many more vessels that are visible in the far distance.

In some cases the App links directly to a website making the detective work even easier.



Ship Finder App- an Overview

Picking up many more vessels on the map by zooming out

Dissertation Showcase MSc in Maritime Operations and Management

Analysis of the Factors That Influence the Under-pricing of Shipping Initial Public Offerings: The Case of the US Stock Market. By Anastasia Georgala

Anastasia Georgala

'Initial Public Offerings' (IPOs) denote the first sale of a company's shares to the public. IPOs are one of the most rapidly growing alternative sources of ship financing, as 47% of the world's fleet belongs to public companies. When an IPO is significantly under-priced, the issuers suffer big financial losses as they fail to raise as much money as possible.

This aim of the investigation was to explore the phenomenon of under-pricing (if it exists), to then investigate the variables and causal factors involved to minimize the issue of under-pricing and assist both issuers and investors to make informed decisions.

The average level of under-pricing of the US shipping IPOs, included in the sample for the period 2004 to 2015, was found to be at 3.72%; with under-priced and over-priced issues at 9.72% and -3.94%, respectively. It was clear from the literature review that there is little consensus on the factors that influence under-pricing. In response to this gap, a multiple regression model was used to explore the critical factors associated with shipping IPO under-pricing. The analysis suggests two factors play a significant role in IPO under-pricing. First, the riskiness of the different technologies used in different shipping subsectors, and second, the effect of the different areas that the vessels are trading. This study makes further contribution to the shipping finance literature, as it finds an R^2 value of 73% for the regression model. This is a significantly more conclusive R^2 value compared to other studies that concentrate on the US shipping IPOs. This finding suggests that incorporating the two factors (above) into the decision process is a way forward for addressing under-pricing.

The Human Element in Greek Shipping: Contribution to Competitiveness, Influencing Forces and Youth Perspective By Ioanna Charitodiplomenou

Ioanna Charitodiplomenou

Greece controls the world's largest merchant fleet. Greek shipping industry was worth $9 billion in 2015, generating 4% of its GDP, and employing 192.000 people, that is 4% of workforce in Greece (Bergin, 2015).

A key contributing factor to the competitiveness of Greek shipping is the loyalty and productivity of the Greek seafarer, whose tacit knowledge contributes to the efficient operation and success of shipping companies. Yet, today fewer young people are choosing shipping as career. But how is the shipping sector perceived by today's younger generation? Why do they avoid a career in shipping and how can this attitude be changed?

This dissertation addresses these questions with data reported in the literature and survey findings from EY Greece (2016).

It was found that despite the importance of crew management and the quality of Greek Seafarers' performance and services, managerial decisions and ship-owners' strategies have recently pursued a lower cost labour approach. More precisely, the strategy for lower costs is to proceed with cutting crew costs, as well as taking advantage of Flags of Convenience and employing lower cost seafarers. In addition, the traditional profile of shipping companies, compared to progressive 'human resources' (HR) and 'technology' practices in other industries has been a major factor why younger people choose a different career path.

Overcoming this trend demands a change in the culture of shipping companies. This means taking advantage of the shipowners' quick responsiveness to market changes, implementing a more welcoming and inclusive company culture, adapting the same HR practices as multinational companies to attract and retain talent, and engaging with the Greek government to improve the quality and quantity of Greek Marine Academies. Historically, human talent was a key success factor for Greek shipping. Remaining successful means reengaging young people with the business of shipping.

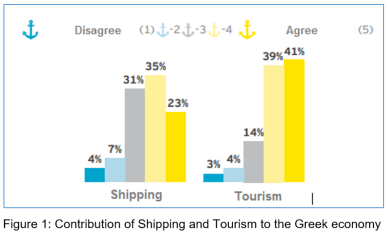


Figure 1: Contribution of Shipping and Tourism to the Greek economy

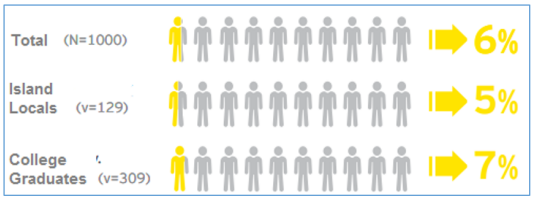


Figure 2: Willingness to work in Shipping

(Source: EY Greece, 2016: Survey conducted by IPSOS Opinion SA on behalf of EY Greece)

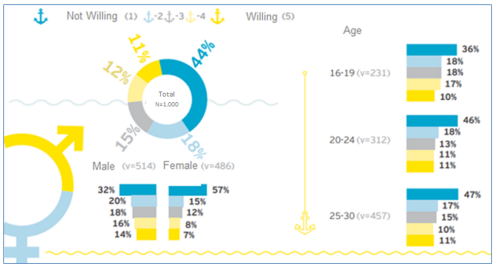


Figure 3: Willingness to work in shipping on shore

Dissertation Showcase MSc in Maritime Operations and Management

A Legal Analysis of Disputes that Arise Between Ship Owners and Charterers Following the Non-Payment of Hire Under Time Charter Parties. By Panagiota Laskari

Panagiota Laskari

The main purpose of this dissertation is to conduct a legal analysis of the most usual disputes that are generated between Shipowners and Charterers due to the failure to comply with the hire payment clause under time charter parties in the dry cargo sector. This investigation considered all the related provisions that are included in the main time charter party forms for the payment of hire, and the breach of the payment clause. To do this, relevant cases from the past were examined in some detail.

Within shipping industry, charter party is one of the most important documents as it incorporates all the agreed clauses and conditions between the two parties. The format and content of charter parties differ, as it depends on the type of employment (voyage, time or bareboat charter). One of the integral clauses under a charter party is the payment of hire. This clause provides the conditions - that under the payment of the hire should be remitted to Shipowners and incorporates all the legal means that Shipowners have available in case of a possible breach of this obligation from Charterers side. Nevertheless, over the years, there have been disputes within the shipping industry on whether the hire payment clause and a possible breach of this clause, should be treated as a condition or an innominate term within the charter party. The controversial decision of the court in previous cases such as in the ''The Hong Kong Fir Shipping Co Ltd v Kawasaki Kisen Kaisha Ltd '', ''The Kuwait Rocks Co v AMN Bulk Carriers Inc'' and the ''Spar Shipping As v Grand China Logistics Holding Group Co Ltd'' have created further confusion as far as the payment of hire and the relevant legal measures that a Shipowner can adopt for the breach of this clause.

Based on the investigation, recommendations and conclusions are presented including available solutions that could be adopted from Shipowners side, in order to handle possible similar situations in the future and mitigate any commercial and financial losses for both parties.

How 3D Printing and Online Data Platforms Can Change the Future of Shipping? By Irene Polia

Irene Polia

Recently Mr Remi Eriksen, the CEO and Group President of DNV GL said "digitalisation and de-carbonization are watch words for the coming decade…. is an arena for curiosity, innovation and opportunity" (DNV GL, 2017). This dissertation undertakes an analytical review of - technologies of 3D printing (for the aspect of digitalisation), and online data platforms (in the aspect of de-carbonisation), and from this makes informed suggestions about the possibilities and challenges of these innovations for the shipping industry.

The investigation found that, Additive Manufacturing (AM), although a fairly recent development, is widely taken up because of gains in speed, reduction of cost and affordances for prototyping. The dissertation discusses the future of AM and the prospect of 4D printing where smart material is bonded with standard plastic and capable of absorbing water. When a shape or model is printed, the smart material containing the water is able to expand, forcing the rest of the structure to start twisting or bending. "..Thus, when a printed model is being assembled it is also being programmed to react and form a new shape as the water layer expands." (QuartSoft, 2017). There is potential here for improvement in materials used in AM and development of new materials.

A similar story emerges around opportunities from Online Data Platforms. These online systems offer immense new capabilities but also demand appropriate training of end-users. Recently there have been examples of security breaches which threaten to derail the innovation process. The advantages, on the other hand, are significant e.g. in terms of reducing the carbon footprint, saving time and cost by simplifying operational logistics, and increasing safety. The future prospect of paperless operations is discussed from the perspective of operations and regulations.

Examples of spare parts used in the cost comparison in RAMLAB & Additive manufacturing Potential (overview here) (Dissertation section 4.1)

Port of Rotterdam (2016). Pilot Project: 3D Printing Marine Spares. [online] Rotterdam: Port of Rotterdam. Online

Thank You and Au Revoir

Alas we say goodbye to Dr Anne Brockbank. Anne has been part of the programme team for 7 years and has supported our students in her role as professional tutor and counsellor. Anne is the author of many books on facilitating learning. This is Anne's second retirement from services to City, University of London, and she says she is looking forward to having more time to spend with family and especially grandchildren. We also say goodbye to Captain W. Malcolm Parrott who has been module leader for Maritime Operations and Insurance for the past two years. Malcolm will continue to offer his valuable advice by being a member of the maritime studies advisory committee for the programme. Our esteemed external examiner Professor Chengi Kuo FRSE has been an invaluable critical friend of the programme. He has competed the full term of service and will retire after the next assessment board in October 2018.

We thank them all for their help, support and commitment to the programme, and wish them well in their new endeavours.

Welcome

Voula Trikalopoulou

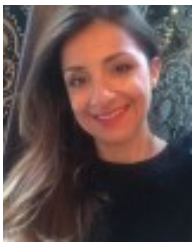
We welcome Mr Paul Armitage who has been appointed as the module leader for Maritime Operations and Insurance. Look out for his profile in the next issue of Making Waves.

Also welcome to Paraskevi Trikalopoulou who will be taking over the administration in Piraeus as maternity cover for Marilena Kokonaki. Paraskevi likes to be known as Voula.

Last but not least a warm welcome to Professor James Crabbe from Oxford who as been appointed as external examiner for the MSc in Maritime Operations and Management. Look out for an interview with him in the next issue of Making Waves.

Dissertation Showcase MSc in Maritime Operations and Management (continued from page 11)

The Cruise Industry Supply Chain Challenges. By Sophia Makiou



Sophia Makiou

The research in this dissertation examines the supply chain in relation to the cruise industry. The cruise business makes an important contribution to a country's economy and an ascending growth is observed since the 1990s. It is an industry in which a number of parties are involved in achieving in providing a service to satisfy the customers. A chain of dependencies means that precise orchestration in needed in order to attain passenger satisfaction. Given the significance of this tourism industry, its supply chain complexities are worthy of further research.

The findings are drawn from a review of the literature, and data from interviews with cruise directors, managers and shipping agents. Specific areas of the complex cruise operations are determined and analysed. The research showed that the main cruise supply chain complexities are demand forecasting of the cruise provisions, the small re-supply window of the cruise ships, the wide variety of the purchasing categories and the global nature of the ship operations. The development of a logistics culture is evaluated and it is identified that logistics science can provide solutions to cruise supply chain challenges. Dynamic programming can enhance efficient demand forecasting. The formation of a successful network of suppliers and shipping agents can support the management of the small ship re-supply window and the procurement function. The establishment of unified processes, the information systems integration, and radio frequency identification device technology can improve cruise global operations. Last but not least, focus on corporate sustainability can promote future agile performance in the appealing cruise market.

Autonomous Commercial Ships: Fiction or Reality? By Georgia Rentifi

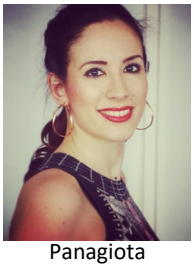
Georgia Rentifi

The shipping world is buzzing with visions of a future in which commercial 'ghost ships' sail the seven seas. These ships have no human crew! Moreover, technical specifications for the success of such ships are now in place. This dissertation examines the challenges of the autonomous ship concept with a wide-ranging literature -based theoretical analysis combined with quantitative research and an expert interview.

A literature review indicated some gaps in the modelling of threat systems and risk analysis. To address these the investigation proceeded in six steps. First, a detailed analysis of cyber-enabled ships' systems and subsystems was articulated. Second, this analysis was used to design an abstract model of predominate architecture in cyber-enabled vessels. Third, this was used to perform a threat analysis on the systems and subsystems of the architecture using the STRIDE methodology. Fourth, the findings from the threat analysis were then used to simulate an applied risk analysis. Fifth, consideration was given to new technologies such as quantum computers and blockchain and their applicability in shipping to solve the safety and security problems emerging from the risk analysis. Finally, the discussion considered the societal, operational and political repercussions and proposes suggestions for adapting the legal framework.

Current Students Studying on the MSc in Maritime Operations and Management

Raising the Standard for Corporate Responsibility By Panagiota Apostolopoulou



Panagiota Apostolopoulou

I am a senior administrator in the Marine and Offshore business stream at the Lloyd's Register Group in Piraeus, and a sponsored student on the MSc in Maritime Operations and Management at City, University of London. The programme has enabled me to analyse increasing complex scenarios for decision making. An example of this is the assignment undertaken as part of the Technology Module, on the environmental compliance challenges facing shipowners.

The analysis set out the technical characteristics of a specific vessel (a VLCC tanker), and the assumptions about operational deployment based on real data. The next stage was to review the options i.e. the alternative methods for compliance including the advantages and disadvantages. The Options were (1) Using Low Sulphur Fuel (LSFO); (2) Scrubbers and High sulphur Fuel (HSFO) and (3) Liquefied Natural Gas (LNG) as an alternative fuel source.

The options were then analysed critically under five different scenarios. First, Fuel Price Scenario-Steady price gap. Second, Fuel Price Scenario- Sharp price drop of HFO. Third, Fuel Price Scenario – Lower Gas Price after 2020. Fourth, Fuel Price Scenario-Sharp Price drop off of gas after 2020. Fifth, Fuel Price Scenario- HFO Sharp Price Drop off + Lower gas prices.

Based on these five scenarios and considering changes at fuel prices and investment payback time, it was concluded that for a VLCC tanker the HFO and scrubbers' option is the optimal solution.

It is worth noting that, from a marketing perspective, ship owners should be encouraged take proactive measures to reduce the sulphur emissions, despite their high cost. The Flag State issues statutory certificates (including MARPOL) and in cases of non-compliance with the requirements of the MARPOL Convention, the certificates could be withdrawn or suspended from the flag state under which the vessel is flying. This has a domino effect as vessels will be also at risk of losing classification status for non-compliance with international rules and regulations. The vessel's seaworthiness will be questioned and chartering will be impacted as ship-owners will need to guarantee to the charterers that cargo will be safely transferred and delivered. For New Buildings it is proposed that companies consider investing in new technologies such as LNG. A trend in this direction will show that corporate social responsibility can drive economic performance, efficiency and increase the competitiveness of a company.

Questions and answers by Leonidas Margetis

I work for the Tsakos Group. The Group's current fleet comprises of 90 vessels consisting of tanker, container and dry cargo ships with a capacity of over 9.5 million deadweight (dw) tons. Each year, the Group's tanker fleet carries approximately 445 million barrels of cargo safely and efficiently. Looking ahead, the Group has placed orders for 5 newbuilding vessels.

Leonidas Margetis

What is your education /work background?

I got a BSc on Environmental Engineering & Management in Bangor University and an MSc on Sustainability and Management in Royal Holloway, University of London. I am currently working for the last 5-6 years in a well known maritime company (Tsakos Columbia Shipmanagement) in the Energy and Environmental Department as a Marine Environmental Engineer.

What is your current post and what does it involve?

I am responsible for the Company's environmental management system. This involves ensuring environmental compliance with various environmental regulations worldwide, the preparation and maintenance of relevant procedures, certification and documentation, monitoring of vessels environmental performance through established environmental programmes, objectives and targets, coordinate the implementation and follow up of various environmental projects and provide training on environmental issues at all Company levels.

Why did you choose this course and what are your career aspirations.

The reason that I am doing this course is to expand my knowledge on various topics in shipping industry with the aim of providing me a more holistic view of maritime operations and management and expand my networking by participating in a well known and traditional university such as City, University of London. In the future I would like to pursue a higher managerial position.

Rajkumar Singh writes about taking up Higher Education to prepare for the increasingly complex environmental challenges facing maritime engineers

Rajkumar Singh

I was working as a Chief Engineer Officer on merchant vessels, mostly oil and chemical tankers, before I decided to pursue an MSc in Maritime Operations and Management at City, University of London in 2015-2016.

My decision to join the course was driven by my desire to acquire a holistic knowledge of the maritime industry, and to be able to contribute effectively to an organization involved in maritime technical and operation management.

The interdisciplinary design of the modules, experienced faculty staff, the teaching approach and the process of researching and writing a dissertation has been invaluable in interpreting my sea experience. In turn this has been immensely helpful in planning a career.

I have recently been appointed as a **Port Engineer** by Synergy Maritime Management Pvt. Ltd., Chennai, India, one of the fastest growing ship management companies with more than 100 vessels under their management. Significant environmental reforms, for example 0.5% Sulphur cap worldwide on fuel oil by 2020 has been putting shipping companies under enormous pressure to manage the transition. The challenges facing shipping companies are both technical and operational, and this requires, more than ever, personnel equipped with up-to-date knowledge, analysis skills and experience. I believe this is precisely what a professional masters programme should be about.

It is indeed a matter of great pride to be a graduate of the Maritime Operations and Management course, and an Alumni of City, University of London.

What does a Port Engineer do?

Port Engineers revel in a challenge and want a career which requires in-depth knowledge of marine machines. Port Engineers, are charged with the maintenance and repair of marine vessels of all kinds, including larger cargo ships. To perform their role they use their engineering skill, familiarity with machines, and keen attention to detail to keep fleets in top condition. Like any other machine, ships have regular maintenance schedules. The Port Engineer gets to know every vessel in fleet, what it's going to need, and when. He/she works with crews on land and at sea to coordinate regular maintenance. Ordering parts, and making sure that maintenance and repairs meet industry safety requirements are vital. When repairs are needed, the Port Engineer often prices out the parts and the work to be done to get the best deal for the company. A good Port Engineer is proactive. Properly priced, timely repairs and maintenance can save a company a lot of money over time. The work can be indoors, outdoors and in cramped mechanical access areas. Any mechanical job like this carries some risk of injury, so a comprehensive grasp of good safety procedures is essential.

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