



# CONFERENCE BOOKLET

## Programme and Abstracts of Presentations

"The green line of maritime business

"Benefits of the module system in modern-day education"

NATIONAL  
DEVELOPMENT  
PLAN 2020



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LITHUANIAN  
MARITIME  
ACADEMY

Conference

## "Green line of maritime business"

which is also a part of an International Project „Blue4Seas“

September 14th 2022

Location: Klaipeda, Lithuania

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Conference moto:

**Maritime sustainability**

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**The aim of the conference** is to promote scientific and creative initiatives in maritime scientific research linking the research with the principles of sustainable development in maritime business and by engaging in applied research in various fields

### **Topics of the conference:**

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Maritime engineering;  
Maritime economics;  
Maritime informatics;  
Management of maritime business;  
Maritime career;  
Maritime education and training;  
International logistics;  
Interdisciplinary research.



## Liepaja Marine College

### Conference

# "Benefits of the module system in the modern education"

In the scope of ESF programme's "To ensure better governance in higher education institutions" project  
"Ensuring a better governance in Liepaja Marine College"

September 15th 2022

Location: Liepaja, Latvia

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Conference moto:

**Modern education - a step forward to secure future.**

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The main **aim** of the conference is to create a meeting place for the exchange of the best innovative tendencies in education, debate and have an insight into the future.

#### **Foreseen thematic points:**

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Modular system advantages in modern-day education;  
Academic honesty;  
Modern distance learning and e-learning;  
Multi-disciplinary study programmes;  
International and joint study programs – pros and cons;  
Eco-innovations and green workplaces (in institutions/organizations); Eco-friendly and safer maritime transport;  
Study process in water-transport-oriented educational institutions;  
Reforms in maritime education other relative subtopics.

# SCIENTIFIC COMMITTEE

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Mircea cel Batran Naval Academy, Romania

**assoc. prof. Arnaud Serry**

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## AGENDA

### Conference "Green line of maritime business"

which is also a part of an International Project „Blue4Seas“

Date: 14/09/2022

Location: 210 room, Lithuanian Maritime Academy. I, Kanto str. 7, Klaipeda, LT-92123

Time format: GMT+3/

Time	Activity
9:30 – 10:00	<b>Registration</b> Arrival, warming-up coffee (113 room), technical connection
10:00 – 10:05	<b>Conference open speech</b> <i>Lithuanian Maritime Academy, director Vaclav Stankevič</i>
10:05 - 10:55	<b>ARITIME EDUCATION AND INNOVATIONS</b>
10:05 – 10:20	<b>"Joint research projects as a tool of innovation in maritime sector"</b> Online presentation hab dr Vadym Zakharchenko National University "Odessa Maritime Academy"
10:20 - 10:35	<b>"Multi-vessel operation in maritime education and training"</b> Online presentation Natalija Konon PhD Student, National University "Odessa Maritime Academy"
10:35-10:50	<b>"Digital competence in the education 4.0 framework: LMA maritime studies students case"</b> Indrė Dikšė career specialist, PhD student, Lithuanian Maritime Academy
10:50-10:55	<b>SHORT RESUMING DISCUSSION</b>

# AGENDA

Time	Activity
10:55 - 11:15	<b>"Why maritime industry needs to become more greener and sustainable"</b> Rima Mickienė deputy director, lecturer, Lithuanian Maritime Academy
11:15-11:30	<b>"Green logistics as an important part of CSR strategy"</b> Online presentation dr Pavlo Brin National Technical University "Kharkiv Polytechnic Institute"
11:30-11:45	<b>"Investigation of possibilities to use wind energy powered systems onboard"</b> Renata Jackuvienė lecturer, Lithuanian Maritime Academy
11:45-12:00	<b>"Investigation of the possibilities to apply more environmentally friendly technologies in short-sea shipping"</b> Online presentation Rugilė Braslauskaitė, dr Vytautas Dubra Lithuanian Maritime Academy
12:00-12:15	<b>"Assessment of the economic and ecological effects of merus ring technology used in the operation of ship water-filled systems"</b> Andrej Litoš, Renata Jackuvienė Lithuanian Maritime Academy
12:15-12:30	<b>"Assessment of port logistical connectivity in the context of import and export markets' diversification under the pressure of the emergencies in the external environment"</b> Online presentation Artur Šešel, dr Birutė Plačienė
12:30-12:35	<b>SHORT RESUMING DISCUSSION</b>
12:35-13:40	<b>PORT MANAGEMENT</b>
12:00-12:15	<b>"Theoretical approach on the port resilience as the new value of attractiveness"</b> dr Elena Valionienė Lithuanian Maritime Academy
12:50-13:05	<b>"The contribution of marketing to sustainable maritime business"</b> Online presentation asist. prof. dr Senka Šekularac-Ivošević University of Montenegro, Faculty of Maritime Studies Kotor



# AGENDA

Time	Activity
13:05-13:20	<b>"Investigation of port attractiveness in the context of stevedoring companies' business environment"</b> Darja Matvejeva, dr Jelena Belova Lithuanian Maritime Academy
13:20-13:35	<b>"A qualitative study on the validation of a maritime labour market attractiveness' model: demand for maritime professionals"</b> Vaiva Bučiūtė, dr Genutė Kalvaitienė Lithuanian Maritime Academy
13:35-13:40	<b>SHORT RESUMING DISCUSSION</b>
<b>PRESENTATIONS OF BLUE4SEAS PROJECT</b>	
13:40-13:55	<b>"Evaluation of the short-sea shipping cargo flows impact on GHG emission"</b> Online presentation Edvinas Šiurna, dr Elena Valionienė Lithuanian Maritime Academy
13:55-14:05	<b>"Analysing of opportunities for reducing greenhouse gas emissions by modelling the structure of the green tax portfolio"</b> Svajūnė Purkėnaitė, dr Elena Valionienė Lithuanian Maritime Academy
14:05 – 14:20	<b>"Hydrometeorological risk areas in the Mediterranean Sea basin and their influence on possible military actions carried out by the Romanian Naval Forces"</b> Maria Cătălina Dan, Captain (N) Associate Professor Dr. eng. Dinu ATODIRESEI, Col. Cătălin POPA, Associate Professor, PhD Romanian Naval Academy "Mircea cel Bătrân"
14:05 – 14:20	<b>Ballast water management on board military ships: legislative framework, possibilities of implementation and treatment techniques in the laboratory and on-board ships"</b> Dascălu Aurelian, Captain (n) associate professor dr. Dinu-Vasile Atodiresei, col. Cătălin Popa, associate professor, PHD Romanian Naval Academy "Mircea cel Bătrân"
14:35-14:50	<b>"Slovenian stakeholders engaged in oil spill response"</b> Bor Petrovčič Faculty of Maritime Studies and Transport, University of Ljubljana. Slovenia

# AGENDA

Time	Activity
14:35-14:50	<b>"Slovenian stakeholders engaged in oil spill response"</b> Bor Petrovčič Faculty of Maritime Studies and Transport, University of Ljubljana. Slovenia
14:50-15:05	<b>"Oil pollution-BLUE4SEAS"</b> Rana Kurtis, Perihan Farsakoglu Piri Reis University, Istanbul, Turkey
13:05-13:20	<b>COASTAL SENSITIVITY MAPPING AND VULNERABILITY ASSESSMENT IN SLOVENIA</b> Urban Pegan Faculty of Maritime Studies and Transport, Portorož, Slovenia
15:20-15:25	<b>SHORT RESUMING DISCUSSION</b>
15:25-15:30	<b>CLOSURE, QUESTIONS AND ANSWERS</b>
15:30-16:00	<i>Coffee time, discussions, room 113</i>



## AGENDA

# Conference "Benefits of the module system in the modern education"

Date: 15/09/2022

Location: Liepaja Marine College, Liepāja, Latvia (No.5 Uliha street, Liepāja)

Time format: GMT+3/

Time	Activity
10:30 – 11:00	<b>Registration</b> Arrival, warming-up coffee, technical connection
11:00 – 11:05	<b>Conference open speech</b> <i>Liepaja Marine College, director V.Dreimanis</i>
11:05 – 11:35	<b>"Attraction of young people toward maritime industry"</b> Maritime administration of Latvia, Head of Convention Supervision Deivision Roberts Gailitis
11:35 – 11:50	<b>"Differences between Latvian and Chinese education system"</b> Confucius Institute in University of Latvia, (on behalf of Vice President of South China Normal University Professor Wu Jian) Anastasija Galkina, Tang Jing
11:50 – 12:05	<b>LIVE POLL</b>
11:00 – 11:05	<b>"The role of the teacher's personality in the educational process"</b> Liepaja Marine College, Aivars Buls
11:05 – 11:35	<b>"Ship officers' qualifications: approved education and occupational requirements"</b> National University "Odessa Maritime Academy", Vadym Zakharchenko (remotely)

# AGENDA

Time	Activity
13:00 – 13:30	<i>Brunch / Coffee break</i>
13:30 – 13:45	<b>"International collaboration learning: using instruments web 2.0 for organizing studying process in adverse conditions (COVID-19; the war in Ukraine)"</b> National Technical University "Kharkiv Polytechnic Institute", Pavlo Brin (remotely)
13:30 – 13:45	<b>"Challenges and Opportunities for Maritime Education and Training in the Fourth Industrial Revolution"</b> Maritime Industry Authority (MARINA) Philippines, World Maritime University, Herbert V. Nalupa (remotely)
14:15 – 14:45	<b>Presentation of abstracts, last minute/late registered participants' presentations</b>
14:45 – 15:00	<b>Closure, Questions and answers</b>

## CLOSURE OF THE JOIN EVENT

Date: 15/09/2022

Time format: GMT+3/

Virtual event

Time	Activity
1:00 – 11:30	<b>AWARD CEREMONY</b> LJK is inviting you to a scheduled Zoom meeting.  Topic: CLOSURE OF THE JOINT EVENT Time: Sep 16, 2022 11:00 AM Helsinki

*In the scope of ESF programme's "To ensure better governance in higher education institutions" project "Ensuring a better governance in Liepaja Marine College".*

# CHALLENGES AND OPPORTUNITIES FOR MARITIME EDUCATION AND TRAINING IN THE FOURTH INDUSTRIAL REVOLUTION

**Herbert de Vera Nalupa**

World Maritime University, MSc in Maritime Affairs, Philippines

It is very important to understand how Industry 4.0 technologies affect maritime professionals in order to establish an effective education and training program for the maritime sector. This study explored the challenges and opportunities for the MET in the 4th Industrial Revolution, specifically automation and digitalization, occurring both in the shipping industry and in the MET sector. The purpose of the study is to highlight vulnerabilities, uncertainties, complexities, and ambiguities brought about by the rapid advancement of technologies and contextualize them in the experience and foreseen future of maritime professionals. Three methods were employed: content analysis; survey and semi-structured interviews, which involved 127 survey respondents from 46 countries; and seven academics teaching at the World Maritime University in various specializations. Within the limiting framework of the Extended Leavitt's Model, results suggest that automation and digitalization affect (a) organizational culture in terms of changing leadership traditions and conventional practices; (b) people in terms of opportunities for employment; changes in competences and gender issues, including generation gap; (c) processes in terms of integration of modern tools and equipment, as well as inclusion of automated and digitalized procedures; (d) structures in terms of new management models; and (e) technology itself in terms of changing and transforming configuration and capabilities of devices and machineries. These findings imply a careful consideration of actions to be taken in addressing identified advantages and disadvantages because a particular change in any of the components of the MET system always affects the others. The dissertation hopes to open up pathways to understanding the complex adaptive nature of the MET system, an awareness that is essential for sustaining the existing maritime professionals through the challenges of the 4th Industrial Revolution and for taking advantage of developing a new generation of resilient and future-ready professionals for the ever-growing maritime industry.

## Keywords:

Maritime, Education, Training, Industry 4.0, Automation, Digitalization

## Themes:

Maritime education and training, Reforms in maritime education

## References

1. Alop, A. (2019, April). The challenges of the digital technology era for maritime education and training. 2019 European Navigation Conference. 1-5. IEEE.
2. Baldauf, M., Kitada, M., Mehdi, R., & Dalaklis, D. (2018, March). E-Navigation, digitalization and unmanned ships: challenges for future maritime education and training. Proceedings of the 12th INTED, Valencia, Spain (pp. 5-7).
3. Demirel, E. (2020). Maritime education and training in the digital era. *Universal Journal of Educational Research*, 8(9): 4129-4142.
4. IAMU. (2019). *Global Maritime Professional Body of Knowledge*. Tokyo: International Association of Maritime Universities.
5. Jo, S., D'agostini, E., & Kang, J. (2020). From seafarers to e-farers: maritime cadets' perceptions towards seafaring jobs in the Industry 4.0. *Sustainability* 2020, 12(19), 8077.
6. Koh, L. Y., Li, K., Chia, Y. Y., & Yuen, K. F. (2021). Quality design for maritime studies programme in the digital era. *Maritime Policy & Management*, 1-20.
7. Lutzkanova, S. (2019). Current trends in the maritime leadership training approaches. *Science. Business. Society*, 4(4), 139-141.
8. Manuel, M. E. (2017). Vocational and academic approaches to MET: Trends, challenges and opportunities. *WMU Journal of Maritime Affairs*, 16(3), 473-483.
9. Milić-Beran, I., Milošević, D., & Šekularac-Ivošević, S. (2021). Teacher of the future in maritime education and training. *Knowledge-International Journal*, 46(1), 119-125.

### Nataliia Konon

National University "Odesa Maritime Academy", Ukraine

This work highlights the problem of the current concepts of MET. The training of navigation officers is considered, including towing and escort operations with large tonnage vessels. Based on the analysis of the accidents associated with vessel-tug operations, critical factors in the manoeuvrability of tugs have been identified. Various methods used in MET are analysed and compared, including the features related to the use of modern technologies of virtual and augmented reality for maritime training.

As the base of the study, an analysis of 22 marine accidents was conducted within the period from 2012 to 2020 involving container vessels, as well as on the accidents involving tugs [3]. According to EMSA statistics for the period from 2014 to 2020, 55% of maritime accidents occurred in inland waters, especially in port areas. Based on the analysis conducted during the investigations, it was stated that during the same period, 89.5% of incidents were related to human erroneous actions. In terms of human factors, "safety recommendations" and "actions taken" were mainly addressed to the training, skills, and experience of all the parties involved (50.8%) [1].

According to 2010 Manila Amendments to STCW officers must be aware of BRM principles. This requirement can be met by completing an approved BRM training or approved simulator training and demonstrating competence in this area (STCW Code as amended, table A-11/1) [2]. Basic scenario of most BRM courses involves the interaction of the captain and crew on the bridge with the pilot. However, the course is mainly intended for crew members, not pilots. In terms of crew interaction, training can be considered effective for situations that do not involve external sources and facilities such as a pilot boat, pilot advice, interaction with tugs, and the mooring phase.

In conclusion, it was identified that more than half of maritime accidents in the last decade are of navigational nature. Furthermore, the majority of navigational incidents happen in inland waters. Recommendations arose as a result of the investigations of such incidents mainly addressed to training, skills, and experience of all the parties involved. One of the weak sides of modern maritime resource management training is a lack of realistic interaction between all parties involved in escort and towing operations. Latter is related both to physical interaction between vessels and communication between parties involved. As a way to improve the physical presence of the navigators in the towing process on one hand and reduce the total expense of the multi-vessel simulator on the other, it is suggested to utilize virtual and augmented reality technologies.

### Keywords:

Multi-vessel, MET, ASD, Simulator, Maritime Resource Management

### Themes:

Maritime Education and Innovations

### References

1. EMSA, Annual overview of marine casualties and incidents, 2021.
2. International convention on standards of training, certification and watchkeeping for seafarers (STCW), 2016.
3. N. Konon, O. Pipchenko Analysis of marine accidents involving container ships. Shipping & Navigation (ISSN 2306-5761 | 2618-0073) 2021, 32, pp. 46-55. DOI: 10.31653/2306-5761.32.2021.46-55.

## THE ROLE OF THE TEACHER'S PERSONALITY IN THE SEAFARERS EDUCATIONAL PROCESS

**Aivars Buls**

Liepāja Marine College, Latvia

The purpose of this qualitative research was to carry out a conceptual analysis of such rarely described psychological element among other human factor elements in seafarer's education process as teacher's personality, in particular, the activation of personality. The activation of teacher's personality is proposed to be evaluated in two models of practical activity: usual (ordinary) and unusual (extraordinary), besides, a teacher, as a socio-psychological and simultaneously biological phenomenon, regardless of the executive role, is analyzed as a specific, singular man in the crew who in his micro-environment is characterised as a purposeful, situationally temporal system. This means that for the first time in Latvia, research of teachers' personality's paradigm has been done and multimodal approach has been used. The analysis of the three elemental paradigms proposed in the study follows from the requirements of the STCW convention. The findings of this research are confirmed as correct and applicable in other IMO conventions and in the regulation of the national legislation of the Republic of Latvia, as well as in this context for the entire field of the maritime transport education, including in the military sphere.

### **Keywords:**

teacher's personality, routine and real activation of personality, activity, teacher's self-concept, motivation.

# THE CONTRIBUTION OF MARKETING TO THE SUSTAINABLE MARITIME BUSINES

**Senka Šekularac-Ivošević**

University of Montenegro/Faculty of Maritime Studies Kotor, Asst. Prof., Montenegro

Maritime organizations as modern business systems are intensively focused on a prominent interaction with the elements of the environment. Contemporary maritime companies strive not only to achieve commercial effects but also to fulfil a broader social mission.

## INTRODUCTION

Aiming to achieve the common good, maritime organizations should develop and apply social responsibility as one of their strategic options. This work on the conceptual level defines the principles and techniques of socially responsible marketing in the maritime business.

## BODY

Specifically, the paper examined primary and support business activities of Montenegrin marinas and related socially responsible marketing activities. The research methodology (interview technique) investigated the contribution of marketing to achieving better results in the domain of workplace, market place and environment-related activities of marinas.

## CONCLUSIONS

The paper highlighted examples of the best practice of applying socially responsible marketing in the operations of Montenegrin marinas. Intensive marketing actions and contributions to achieving proactive corporate („good“) citizenship, stakeholder orientation aimed at all stakeholders, specifically consumers, and environmental sustainability are described in detail. It is also confirmed that socially responsible marketing is incorporated in the business strategy of marinas investigated.

## Keywords:

socially responsible marketing, marina industry, business

## Themes:

(Marketing in Maritime Affairs)

## References

1. Lu, J., Ren, L., Yao, S., Qiao, J., Mikalauskiene, A. and Streimikis, J., Exploring the relationship between corporate social responsibility and firm competitiveness, *Economic Research-Ekonomska Istraživanja*, 2020, Vol. 33(1), pp.1621-1646.
2. Porter, M. and Kramer, M. *Strategy and Society: The Link between Competitive Advantage and Corporate Social Responsibility*, 2006, *Harvard Business Review*, Vol. 84(12), pp. 78–92.
3. Eisenhardt, K., and Graebner, M. E. Theory building from cases: Opportunities and challenges, *Academy of Management Journal*, 2007, Vol. 50(1), pp. 25-32.
4. Laczniak, G. and Shultz, C. Toward a Doctrine of Socially Responsible Marketing (SRM): A Macro and Normative-Ethical Perspective, *Journal of Macromarketing*, 2021, Vol. 41(2), pp. 201-231.



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## INTRODUCTION

The modern world is changing very quickly. Students are becoming more demanding to the learning process and need results that can only be provided by modern educational technologies, such as project-based learning, game-based learning, internationalization in the learning process, collaborative learning, etc. [1,2]. However, nowadays education must be not only effective and efficient, but also responsible and take care about all stakeholders of educational process [3].

## RESULTS AND DISCUSSION

In 2011 as one of the results of the Tempus project No 159327-TEMPUS-1-2009-1-AT-TEMPUS-SMGR "E-Internationalisation for collaborative learning" we managed to create the educational project for common teaching of two disciplines at NTU "KhPI" (Ukraine) and University of Maribor (Slovenia) [1]. The general idea of the project is that the Ukrainian students had to develop a business strategy for a real Ukrainian company, and Slovenian students had to craft a functional IT strategy on the basis of the given business strategy. The different forms of education were mixed and used during the project: case study, project approach, collaborative learning, e-learning 2.0. The obtained results show the strong impact of the used innovative educational technologies to the quality of learning outcomes [1].

The additional practical value of the project is connected with one of the outcomes of collaborative learning: it significantly promotes various aspects of personal and social responsibility for the participants.

When creating this project, we did not think about possible future challenges, such as COVID-19 pandemic and the Russian invasion to Ukraine in 2022. However, the developed model of collaborating became a standard of remote education in NTU "KhPI" during the pandemic and the war [3].

## CONCLUSIONS

Traditionally, distance learning, that came to our life as a result of COVID-19 pandemic and then after the Russian invasion, is associated with lower quality of educational results and lower students' satisfaction. However, usage of web 2.0 technologies can significantly increase the positive results of the educational process. The proposed approach can be implemented for successful organizing of distance learning in adverse conditions

## Keywords:

Responsible Education, Collaborative Learning, Distance Learning

## Themes:

Modern distance learning and e-learning

## References

1. Brin, P., Krasnokutskaya, N., Polančič, G., & Kous, K. Project-Based Intercultural Collaborative Learning for Social Responsibility: The Ukrainian-Slovenian Experience. In *Handbook of Research on Enhancing Innovation in Higher Education Institutions*, 2020, pp. 566-586. IGI Global.
2. Brin, P., & Shypilova, M. Project-Oriented Game-Based Learning: Managers From Fairytales. In *Handbook of Research on Acquiring 21st Century Literacy Skills Through Game-Based Learning*, 2022, pp. 927-945, IGI Global.
3. Brin, P., Polančič, G., & Prokhorenko, O. Digitalization of Education: An Urgent Need of Sustainable Teaching Process Caused by Covid 19. In *2021 IEEE International Conference on Modern Electrical and Energy Systems*, 2021, pp. 1-5.

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**INTRODUCTION** The need for sustainable solutions has become an indispensable moral and legal duty in the face of the world's current ecological challenges. The consequences of climate change, such as record temperatures, floods, droughts, and pollution, threaten all countries and societies. While governments have been hesitant to implement international agreements aimed at curbing recklessness and treating ecological pests, consumers are aware of this bitter reality. The green logistics activity is a modern term for assessing the environmental impact of different transportation strategies, it aims to reduce the production of greenhouse gases through various channels and means [3]. Accordingly, it is hard to achieve a sustainable progress without the comprehensive integrations of various stakeholders in the supply chain [4].

**MATERIALS AND METHODS** A green logistics strategy must engage environmental, social, and economic responsibilities, as well as rely on clean and environmentally friendly energy. To ensure that sustainable long-term goals are achieved through comprehensive cooperation and integration, all elements of the supply chain must commit and adhere to green logistical activities. This is because CSR requires meeting the wishes of all stakeholders and holding them responsible for their ecological and social responsibilities [1,2]. A rational method has been used to provide key evidence for the relation between green logistic operations and enhancing sustainability. Recent studies have revealed the significance of using modern techniques as reverse logistic in reaching zero waste. Another method considered more efficient in the green are the automate route optimization systems. Such digitalized systems are efficient to decrease the time and mileage spent for delivering the products with greater drop density and lower carbon foot print. Relying on electric vehicles and intelligent fleet management as hyperlocal deliveries could effectively cut costs for retailers by eliminating large shipping fees and warehouses costs. Technological applications facilitate managing and organizing logistic operations without need of paper trail for proof, invoices and other documents.

**CONCLUSIONS** The green logistic is considered as vital sustainable solutions that ensure best ecological responsible practices over all supply chain stakeholders. Initiating from main suppliers to production lines, to retailers, to distributors and warehouses, to logistic partners, to courier, to final consumers, back to recyclable centres, all must be awarded and integrated in the CSR approach. Going greener is not a simple approach, it requires updating the systems with modern and innovative digitalized applications. The green logistics promote environmental sustainability upon request of consumers and producers, for current and future generations.

## Keywords:

Corporate Social Responsibility, Sustainable Development, Green Logistics

## Themes:

Interdisciplinary research

## References

1. Brin, P., & Nehme, M. (2021). Sustainable Development in emerging Economy: using the Analytical Hierarchy Process for Corporate Social Responsibility Decision Making. *Journal of Information Technology Management, Special Issue*, 159-174. doi:10.22059/jitm.2021.80744
2. Brin, P., Lombardi, R., Nehme, M., & Tiscini, R. Corporate Social Responsibility, Competitiveness and Sustainability in Emerging Economies: The Case of Ukraine. *International Journal of Management and Decision Making*, 2022, doi:10.1504/IJMDM.2022.10046837
3. Serrano, C., Mtalaa, W., & Sauer, N. (2013). Dynamic Models for Green Logistic Networks Design. *IFAC Proceedings*, 46(9), pp. 736-741.
4. Srivastava, S. (2007). Green supply-chain management: A state-of-the-art literature review. *International Journal of Management Review*, 9(1), pp. 53-80.

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### INTRODUCTION

In the high-tech era, the traditional function of personnel control in the management relationships of the maritime sector is transforming into leadership, and the importance of a conscious and independent personality of a maritime business professional emerges. The Manila Amendments to the STCW Convention of the IMO have been regulating leadership and teamwork training and application in the maritime sector since 2010. It is a prominent political step towards a decade of democratization of management relationships to make the maritime sector more attractive, taking into account not only the extreme working conditions at sea and in port but also the history of maritime development, which witnessed the traditionally negative attitude of late medieval society towards the forcibly recruited seafarers, who were considered as dishonest people, "semi-animals" tortured in ships by cruel discipline. In the Early modern period and especially in the Contemporary period, the maritime mafia in the ports and the frequent negative testimonies of maritime workers towards employers and leading people in scientific and judicial research on a global scale have contributed to the aforementioned public attitude. All of it can be considered as traditional maritime anti-leadership, which the modern maritime leadership should change.

### BODY

Leadership can be progressively understood as the process affecting subordinates by moral and business-like authority of the leader that encourages their self-leadership, self-education and professional awareness. In order for maritime business professionals to educate themselves, such a leader is needed that not only unites the followers but also develops new leaders for the maritime sector, the essence of which is the expression of their personalities. Personality is the individuality of a human being, characterizing each individual by a distinctive mindset, way of feeling and mode of actions. Self-leadership is expressed through self-directed leadership or in the aspect of the leadership to oneself by self-education, professional awareness, independence, and patience. Self-leadership in the maritime sector is personalistic. The unique personal identity and its authentic and integrated expression are the decisive conditions for fostering self-leadership. Therefore, it is purposefully for educators, managers, and employers to consider that when making the decisions on board, in port companies, labour exchange courses, vocational schools, and maritime academies if maritime sector professionals are trained in higher education institutions.

### CONCLUSIONS

In the context of maritime self-leadership, a person basing his/her professionalism on the ontological levels of personality can psychologically liberate and fully commit to own adequate expression at work in the maritime sector. In extraordinary circumstances, in case of technical failure, psychological difficulties, a deeper and more socially responsible look at one's life encourages one not to be afraid to choose and cherish an adequate and constructive attitude and a distinctive approach at the same time that helps to respond authentically and appropriately in crisis situations with all his/her valuable and psychophysical powers.

**CONCLUSIONS** The green logistic is considered as vital sustainable solutions that ensure best ecological responsible practices over all supply chain stakeholders. Initiating from main suppliers to production lines, to retailers, to distributors and warehouses, to logistic partners, to courier, to final consumers, back to recyclable centres, all must be awarded and integrated in the CSR approach. Going greener is not a simple approach, it requires updating the systems with modern and innovative digitalized applications. The green logistics promote environmental sustainability upon request of consumers and producers, for current and future generations.

### Keywords:

leadership, self-leadership, extreme conditions, personality, psychology.

### Themes:

Multi-disciplinary study programmes, Reforms in maritime education.

### References

1. Lileikis S., Jūrų lyderystė: vertybės, psichologija, saviugda, Lietuvos aukštoji jūrėivystės mokykla, Klaipėda, 2018, 249 pp.
2. Sergi A., The Port-Crime Interface: A Report on Organised Crime & Corruption in Seaports, University of Essex, London, 2020, 170 pp.

# INVESTIGATION OF THE ECONOMIC AND ECOLOGICAL EFFECTS OF MERUS RING TECHNOLOGY USED IN THE OPERATION OF SHIP WATER-FILLED SYSTEMS

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If the formation of various sediments can be reduced in the various production processes, this would significantly increase the efficiency of the equipment used and reduce usage of chemicals. Based on these findings, the object of the research is integration of Merus ring technology into water-filled systems. Aim of the research is to investigate the feasibility of the application of the Merus ring technology by assessing the eco-economic effect of its integration and objectives are to analyse the principles of a water-filled systems; explore the feasibility of integrating the Merus ring technology into the operation of WFS; to assess the economic and ecological impact of the Merus technology over a fixed period of time; to formulate recommendations for the modernisation of the operation of water-filled systems in the context of the development of the idea of increasing sustainability.

The operation of water filled systems is subject to a wide range of damaging phenomena that reduce the service life and operational efficiency of these systems. Such phenomena include the formation of various deposits (lime, rust, bacterial sludge, etc.). Although limescale is a natural phenomenon, it causes significant damage to the equipment.

By assessing the eco-ecological effects of the Merus technology, it can be assumed that the installation of the Merus ring will reduce the consumption of chemicals. Maintenance costs would also be reduced as there would be no need to worry about limescale clogging pipes, shower heads or water heaters. Merus rings also prolong the life of the appliances in the WFS. Using Merus rings can reduce corrosion in water systems and increase the longevity of equipment. In order to develop Green Shipping, it is recommended that Merus ring technology is introduced in all WFS on board.

## **Keywords:**

Water treatment, Oscillations, Water-filled system, Rust, Eco-Economical effect.

## **Themes:**

Water purification.

## **References**

### References

1. Barati, K., Mostafazadeh-Fard, B., Sheikhabaei, A. A., Molecular oscillation technology: new phenomenon to reduce emitter clogging in trickle irrigation, *Journal of Irrigation and Drainage Engineering*, 2014, 140(11).
2. Jackuvienė, R., Litoš, A., Merus žiedų technologijos taikymo galimybių tyrimas, sprendžiant tvarumo ir ekologijos problemas, *Jūrų verslas žaliąja kryptimi*, 2022, 1, 16-27.
3. Kralj, P., Martinovič, D., Tudor, M., Analysis of thermodynamic and technological basics of the marine fresh water generator model, *Desalination and Water treatment*, 2017, 95, 180-185.
4. Merus documentation, The MERUS Ring – water treatment to fight scaling, corrosion, fouling and biofilm in cooling loops and heat exchangers: [http://www.telektron-india.com/home/gallery/pdf/files/a9947ab5-3533-4529-9ab3-cb36e54dc717\\_MERUS%20GMBH.pdf](http://www.telektron-india.com/home/gallery/pdf/files/a9947ab5-3533-4529-9ab3-cb36e54dc717_MERUS%20GMBH.pdf) (06.15.22).
5. Pezzin, A., Giansetti, M., Ferri, A., Influence of Limescale on heating elements, *Engineering*, 2013.

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#### INTRODUCTION

As part of research for NAMIRS project we had to recognise Slovenian stakeholders involved in oil spill response and define their activities and responsibilities in case of an incident. Only once we are able to understand the current situation of each involved country, will we be able to evaluate its organisational and structural strength and efficiency, which will be the basis for forming an international oil spill response system.

#### BODY

Stakeholder activities can be divided in four groups: PPM (prevention, preparedness, and monitoring), DA (detection and alerting), CCRA (cleaning and cleaning related activities) and PCO (post cleaning operations). Defining which group a stakeholder is involved in is necessary for knowing at what point in the oil spill response they will become involved, and when their work will be completed. Stakeholders are divided into governmental and non-governmental. There are nine total ministries which have stakeholders involved in an oil spill response in Slovenia, the main ones being Slovenian Maritime Administration, Administration for Civil Protection and Disaster Relief, Slovenian Police and Slovenian Navy. Non-governmental stakeholders are further divided into public (municipalities, research and education institutions, NGOs etc.) and private (Port of Koper, pilots, tugs, agencies etc.). During an intervention data must be efficiently exchanged between multiple stakeholders – some are only providing information, others are involved in cleaning operations, while a few are doing both. Most stakeholders involved in oil response are governmental, while non-governmental stakeholders are usually involved only if necessary.

#### CONCLUSIONS

While making this research we were able to recognise all Slovenian stakeholders involved in oil spill response, both governmental and non-governmental. After defining what activities each of them is engaged in, we investigated how data exchange between stakeholders works when pollution accident alert is set off. With this information we will be able to evaluate the current system and implement it into the international oil spill response system.

#### Keywords:

NAMIRS, oil spill, stakeholders, Slovenia, response

#### References

1. Suban V., Pegan U., NAMIRS Stakeholders, 2022, Faculty of Maritime Studies and Transport, University of Ljubljana, Portorož.
2. Suban, V., Kožman, M., Perkovič, M., Tuljak-Suban, D., Vidmar, V., Batič, U., Kirbiš, B., Grm, A., Škapin, A., Dimc, F., Felicjan, M., Mahne Kalin, A., Bajec, P., Mehlmauer, M., Steffe, A., Brcko Satler, T., Bordon, M., Luin, B., Rus, S., Brsa, R., Boštjan, Ž. in Vlahovič, V., Študija za prepoznavanje vrzeli pri izmenjavi podatkov na področju pomorskega nadzora in izboljšanje povezljivosti obstoječih informacijskih sistemov, ki bodo prispevali k celostnemu pomorskemu nadzoru, 2017, Faculty of Maritime Studies and Transport, University of Ljubljana, Portorož
3. Suban, V., Pegan, U., Petrovčič, B., Perkovič, M. in Čermelj, B., Slovenian MED-OSMoSIS final report, 2021, Faculty of Maritime Studies and Transport, University of Ljubljana, Portorož

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### INTRODUCTION

In the process of NAMIRS project's research, coastal sensitivity and vulnerability assessment needed to be made, namely on the Italian, Slovenian and Croatian beaches in the Northern Adriatic area (Northwards of an imaginary Zadar – Ancona line). The goal of the assessment process was to determine which coastal parts have the highest vulnerability to oil spills and should be protected first. Based on the goal, a research question, "Which coast in the Northern Adriatic are the most vulnerable?" was formed. Vulnerability must be assessed by all of the stakeholders who engage in socio-economic, environmental protection and oil spill clean-up activities, and local establishments who provide national budget. To gather the opinions of every stakeholder, the research team decided on forming a survey.

### BODY

To form a survey questionnaire, we first had to determine coastal vulnerability factors. Those were identified with the help of IPIECA's Sensitivity Mapping for Oil Spill Response guidelines which lists socio-economic factors and general environmental sensitivity parameters. Since there was no sufficient number of geomorphological coast types that would correspond to those that were identified in the Northern Adriatic, we consulted NOAA's Characteristic Coastal Habitats guide. NOAA beach types could be matched with EMODnet Geology online chart, which we used to identify local geomorphological coast types. Last vulnerability factor, coast cleaning difficulty and coast value by beach type proved difficult to assess, since there is no specific research on this topic yet. Consequentially we consulted articles from Cao and Etkin which list approximate costs of cleaning based on the type of oil, its quantity, and the length of affected coast. Among them, Etkin's article provided more relevant information, since it took more parameters into consideration.

### CONCLUSIONS

With all of the available references, resources and knowledge, we formed a questionnaire for coastal vulnerability assessment. While we had a lot of references available, those would be focused on the areas and coast of author's location. Since coast types, socio-economic activities and environmental sensitivity greatly varies around the globe, we had to apply local knowledge and rearrange some of the assessment standards. The survey is yet to take place, so I currently cannot talk about the quality of results, which will be available later this year.

### Keywords:

Sensitivity, Vulnerability, Assessment, Form, NAMIRS

### References

1. Cao T. T. T., Oil Spills and Clean-up Costs, Journal of Marine Science and Technology, Ha Noi, 2006, Vol. Phu truong 4, pp. 101-108.
2. Characteristic Coastal Habitats: [https://response.restoration.noaa.gov/sites/default/files/Characteristic\\_Coastal\\_Habitats.pdf](https://response.restoration.noaa.gov/sites/default/files/Characteristic_Coastal_Habitats.pdf) (2017).
3. EMODnet Geology Map Viewer <https://www.emodnet-geology.eu/map-viewer/> (2022)
4. Etkin D., Methodologies for Estimation Shoreline Clean-up Costs, Environment Canada Arctic and Marine Oil Spill Program Technical Seminar (AMOP) Proceedings, 2001, Vol. 24, pp. 647-70.
5. Sensitivity Mapping for Oil Spill Response, Good Practice Guidelines for Incident Management and Emergency Response Personnel <https://www.ipieca.org/resources/good-practice/sensitivity-mapping-for-oil-spill-response/> (2016).



# THE COMPARISON OF HIGHER EDUCATION IN CHINA AND LATVIA

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(Chinese partner of Confucius Institute at University of Latvia)

Presented by Confucius Institute at University of Latvia

This paper made a comparative analysis on Chinese and Latvian higher education from management system, school system, entrance examination system, teachers' education system, higher professional education, internationalization of higher education and several other important aspects. It aims to deepen the understanding on the higher education system of China and Latvia, so as to help educational and cultural exchange and mutual understanding between the two countries.

## I. Comparison on higher education system

### 1. The management system

#### (1). The management system in China

Chinese education system is mainly founded by the government, and assisted by all walks of life from the society. The elementary education is basically built by the local government. The higher education is mainly founded by central government and provincial government, and assisted by all walks of life from the society. For vocational education and adult education, the government plan as a whole management, the school is founded mainly rely on industry, enterprises, institutions and social various aspects.

Chinese Ministry of Education is the highest executive body of education management in China, which is responsible for implementing and formulating relevant laws, regulations and guidelines, policies, and specific policies of education, co - ordinate the entire development work of education, unified deployment and guide the reform of education system.

The requirements of the school which directly managed by the central government is resolved by the central government; the school managed by the local government is supported by the local finance; the school organized by the town, the village or other enterprises is mainly supported by the organizer, and the state will provide appropriate subsidies; for the school organized by social organization or leaders of parties, the organizer take full response for the necessary funds (including charge to all students, social donations and so on).

#### (2). The management system in Latvia

The educational system is administered on three levels – national, municipal and institutional. The Parliament, Cabinet of Ministers and Ministry of Education and Science are the main decision-making bodies on the national level. The Ministry as the leading public administration institution in the field of education and science implements a single national policy and development strategy in education, develops education, science, sport, youth and state language policies, organizes and coordinates their implementation, as well as drafts management act of department and planning files. Higher education institutions are autonomous bodies established under national legislation, each with their own independent governing body (senate). The Ministry of Education and Science is responsible for higher education which administers government funding, policy and programs, while higher education institutions are autonomous, they are accountable to the government via accreditation.

## 2.School system

### (1).School system in China

China's higher education system consists of General higher education and Adult education.

General higher education refer to the full-time universities, independently established colleges, higher vocational colleges and technical college, which held in accordance with setting standards of state regulation and approval procedures. Recruiting the high school graduates who pass the national college entrance exam. Ordinary institutions of higher education is divided into three stages, including specialty education ( two to three years), undergraduate education (four years , but the medical classes and the building class need five years), graduate education (including master's and doctorate degrees).

Adult education includes all types of education for adult, and the adult higher diploma education is developing rapidly. Adult higher schools refers to the school which is set in accordance with state regulations setting standards and approval procedures, which recruit ordinary high school or equivalent on-the-job personnel who passed the adult higher university entrance exam. Including Open University, Workers University, Amateur University, Worker Medical College, Management College, Education College, Adult (continued) Education College in ordinary institutions of higher education. Forms in school include full-time, part-time (evening university) and teach by correspondence. The shortest period of schooling for full-time student is: from junior college to regular college which needs two years, from high school to regular college which needs four years, and from high school to junior college which needs two years. The shortest period of schooling for amateur student is: from junior college to regular college which needs two and a half years, from high school to regular college which needs five years, and from high school to junior college which needs two and a half years.

### (2).School system in Latvia

Latvia's higher education has the characteristics of the "double track". The higher education in Latvia is divided into two types, providing academic higher education and professional higher education.

In academic higher education system, in order to get the bachelor's, master's or doctoral degree, students have to complete certain academic courses and finish the graduation thesis and graduation answering before graduation. Bachelor of academic courses last for three to four years, and a master's course should be one to two years. Students who want to get Ph.D. must obtain a master's degree and continue scientific research activities for three to four years.

Professional higher education system is divided into the level one , the Academy Program (college programs), and the level two . The level one is designed to train professionals for the labor market, learning for two to three years, and getting a grade 4 qualifications certificate after graduation. The level two will last for at least four years, the students will have a professional qualification certificate of grade 5 after graduation.

Academic education (bachelor's degree) should reach 120-160 credits (equivalent to 160-180 European Credit Conversion and accumulation units); the courses include compulsory courses, elective courses, papers and the free subject. Full-time students learning time is 6-8 semesters.

Academic education (master's degree) is required to achieve 80 credits (equivalent to 120 European Credit Conversion and accumulation units), the courses include paper, learning the theory of special field and learning how to solve a practical problem and so on. The study time for Full-time students is four semesters, but the total time should not less than 5years.

Professional education course (bachelor's degree), should get at least 160 credits (equivalent to 240 European credit conversion and accumulation units). Courses include: general class, specific domain theory, specialized courses, elective courses, internships, state exams, and papers. The learning period of a full-time student is 8 semesters.



Professional education course (master's degree), should get at least 40 credits (the equivalent of 60 European credit conversion and accumulation units). Course includes: related professional theory and the practice achievements, internships, state exams, papers, research training, design, management and psychology and so on. Full-time students study for a period of 2-4 semesters.

### 3.The entrance examination system

#### (1).The entrance examination system in China

Chinese higher education entrance examination system is mainly built by national unified examination, assisted by separate examination, and supplemented by recommended student and self-enrollment. The current higher education examination system include: undergraduate college entrance exams, postgraduate entrance examination, and doctor entrance examination.

Undergraduate admission test is known as Gaokao. The test is organized by the nation and the admission standard is the college entrance examination scores. The nation will allocate the number of admission to the province, and then enroll online by the step of early batch, the first batch, the second batch and the third batch.

In 2003, after the self-enrollment reform, some universities have the right to self-enrollment, also formed four famous Union - Tsinghua Union, Peking Union, Polytechnic Union and Beijing Union. School within the Union have a similar level, they jointly entrust a specialized examination institution to test, and the result is mutually recognized within the union school, and the characteristic test scores was referred each other within the union.

Postgraduate student entrance examination is divided into two stages, the first-round exam and the second-round exam. The first-round exam has four types: unified national examination, joint examinations, separate examination and recommended exemption. The second-round exam is organized by the admission unit according to the regulations of ministry of education.

The doctor entrance exam is mainly the same as the postgraduate entrance exam; the difference is that the doctor entrance exam is organized by the admission unit.

#### (2).The entrance examination system in Latvia

Institutions of higher education in Latvia do the enrollment independently. The secondary education is required for the admission to college. All holders have the certificates and diplomas of general secondary education or vocational secondary education meet the general admission requirements. However, the colleges are free to set specific admission requirements. They can organize one or more (usually no more than 4) admission exams, or just according to the related high school courses. In some cases, the admissions unit will interview applicants.

## II. Comparison on Teachers'education system

### 1. Higher normal education

#### (1).Higher normal education in China

After the founding of the People's Republic of China, all the higher normal school is set independently. In 1952, the ministry of education set that: normal college is mainly training secondary school teachers, and the schooling time is about 4 years; normal junior college is to cultivate junior secondary school teachers, and the schooling time is about 2 years. Now some universities also have set up a normal college and an adult education college.

Government education departments at all levels, respectively, set up special department for teacher education. There are 17 majors meet the need of high school course in all the majors that set by the higher normal college. Some normal colleges also set up some other majors, like library science and multimedia educational. And all majors have those five courses: Political class, including the Chinese Communist Party history , political economy , philosophy and communist moral education classes ; Foreign language classes; Education classes , including psychology , education , all subjects teaching pedagogy , education trainee and internship; Physical education ; Specialized courses , including professional basic courses and electives.

For carrying out scientific research, especially interdisciplinary research in education is an important task of the higher normal school. Some normal colleges have researching institutes (rooms), specialized in-depth study of certain subjects. In order to cultivate teachers and researchers, now some of the higher normal colleges and schools offer postgraduate department, recruit postgraduate students, and awarded the master's and doctoral degree.

Higher normal colleges also undertake the task of training high school teachers in a variety of forms. In addition, the education college or college education administration that specialized in training school teachers and education administrators is within the scope of higher normal education.

#### (2).Higher normal education in Latvia

Teachers in Latvia have two training routes.

The most common is professional bachelor's degree program lasting 4 years which provides a teaching qualification for a specific level of education (pre-school, primary, secondary). For secondary school teachers who have to be proficient in specific subject area, Pre-school and primary school teachers who have to be qualified to teach all subjects.

The second route requires two stages – a bachelor's degree (3 years) in Education Sciences, plus an additional two years of study in a second-level professional program of studies which make a qualified teacher in a specific level of education and/or subject area.

Vocational school teachers generally have a professional diploma in a vocational area with an additional qualification in vocational teaching.

### 2.The development of university teachers

#### (1).The development of university teachers in China

Chinese universities have formed three levels of training: basic training, education compensation and high-level training.

The basic training is to compensate for new teachers' teaching knowledge and improve their teaching ability in a short time, including branch education, teaching assistants course and pre-service training.

If you want to apply for lecturer positions, you must participate in the teaching assistants course.

Pre-service training examination results is one of the bases to get the qualification of teachers.

However, teacher training is not the same as teachers' development. Teacher training in China, with a certain mandatory, centralized resources and unified management, often lack of practicality and pertinence. Therefore teachers' development should emphasize on autonomy and spontaneity.

#### (2).The development of university teachers in Latvia

Latvia's university teacher development programs including teachers' induction training and professional development programs.

The induction training including: pedagogy academic courses, level two professional courses, and higher professional courses. All university teachers in Latvia should attend such project, and then they can get a corresponding qualification and have training according to the teaching subject.

Teachers' development project in Latvia is to promote the development of teachers, as well as improve teaching skills and scientific research results. It can be summed up in four levels: (1) Teaching development: to improve the design of the curriculum, teaching skills and student learning evaluation skills; (2) Professional development: to improve specialized skills and discipline research capacity; (3) Organizational development: improve organization and management skills, improve their working and organizational culture environment; (4) Personal development: deepen their understanding of themselves, promote their search for the meaning of life and the exertion of intrinsic value.

In Latvia, teacher development is an important component of "lifelong learning". These projects implemented by the university, should registered every year, and adjust the learning time according to the work experience of the university teachers.

### III.Comparison on higher professional education

#### 1.The higher professional education in China

At present, higher professional education system in China has three main types: the ordinary higher professional education; the counterpart professional education; the five-year higher professional education

Ordinary higher professional education recruit the students graduated from high school, period of schooling is three years. This is China's major college level vocational education. Counterpart professional education recruits the students graduated from secondary professional school. The study will last for 2-3 year, and the secondary professional school includes specialized secondary schools, technical schools, professional high schools, adult specialized secondary and professional secondary schools.

The five-year higher professional education recruit graduates from junior middle schools, five years' education, well-connected between secondary professional education and higher professional education.

## 2. The higher professional education in Latvia

Latvia's professional education begins from high school; Latvia's high school is divided into two categories: ordinary high school and vocational high school. Latvia provides academic and professional higher education institutions of higher education. University and other institutions of higher education have courses in academic and professional. A bachelor's degree in professional education can apply for a master's degree, and the one who get a master's degree can also apply for PhD.

The objectives of professional higher education are to provide in-depth knowledge in a particular field, preparing graduates for design or improvement of systems, products and technologies, as well as preparing them for creative, research and teaching activities in this field.

## VI. Comparison on internationalization of higher education

### 1. Internationalization of higher education in China

Chinese hundred years' higher education development history is a learning history, a history of the internationalization of higher education.

China's higher education internationalization mainly is: The exchange of students. The exchange of experts and teachers. Education and academic exchanges, Developing education cooperation project. Chinese-foreign cooperation in running schools. The internationalization of curriculum.

From 1978 to the end of 2009, China total have 1,620,700 students studying abroad, and accept about 1,690,000 foreign students. In 2012, the number of Chinese studying abroad reached 399,600, and have 328,300 foreign students.

### 2. Internationalization of higher education in Latvia

Latvia is located in the intersection of Eastern and Western culture, and is one of the most vibrant European countries.

From 21st century, Latvia has joined the European Union, the North Atlantic Treaty Organization and the Schengen State, which has strengthen the links with European countries, and free-flowing between these countries, it has a significant increase in internationalization. But Latvia's big step in the internationalization of higher education is from the "Bologna Process".

Latvia takes Asia, especially China as the main objects of international cooperation. As early as 1995, Chinese Department of Latvia University began to communicate with Peking University's academic staff and students. Every year, the Latvian students will come to China to study, and Chinese guest lecturer will give lectures to Latvia. In recent years, China and Latvia has achieved fruitful results in the field of education science.

In 2011, Confucius Institute at University of Latvia was jointly set up by University of Latvia and South China Normal University, which has further promoted the communication between two countries.

Vaiva Bučiūtė, dr Genutė Kalvaitienė

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Human resources are considered to be Europe's most important asset, one of the key determinants of competitiveness, economic growth and productivity. The relevance of the study of the problem of the attractiveness of the labor market of the maritime transport sector chosen based on the latest scientific research is also determined by the fact that a sufficiently developed scientific and law direction into the competences required for specialists in the maritime transport sector makes it possible to define the competence requirements for employees of the maritime transport sector and to shape the attractiveness of applicants for the proposed position.

The method used in the study was a qualitative survey of experts. 10 experts in the maritime transport sector were interviewed. Content analysis, logographic methods of data representation were used to analyse the results of the study. The following types of data collection were chosen: individual focused interview (semi-structured) and questionnaire method, using an open-ended questionnaire. The experts themselves chose how to participate in the study.

The labour market in the maritime transport sector, and in particular for maritime professionals, is not like most industries and is characterised by internationalisation, high qualification requirements and the continuous upgrading of professional's competences and professional skills. The top five countries in terms of shipping data are China, the Philippines and the Russian Federation, followed by Ukraine and India. Meanwhile, the Baltic countries have a different supply of seafarers. In Latvia the supply is 61.61% higher than in Lithuania and 44.39% higher than in Estonia. Despite the more difficult working conditions, incomes in the maritime sector are regular and high, and the situation on the global labour market is favourable, which means that the demand for seafarers in the maritime transport sector is growing steadily, especially for seafarers in management positions.

The results of the qualitative study confirmed the ever-growing demand for maritime professionals. The demand for maritime professionals in the national maritime transport labour market is also growing due to the expansion trends of Lithuanian shipping companies and the decrease in the number of young professionals trained. The qualitative study of the expert survey revealed the following characteristics of the maritime transport labour market: internationalisation of the labour market, high dependence on the national and global economy, a more contractual organisation of work, high requirements for the qualification of maritime professionals and its legal regulation, broader career opportunities and mobility of maritime professionals, competitive remuneration, and shorter careers of maritime professionals at sea.

## SHIP OFFICERS' QUALIFICATIONS: APPROVED EDUCATION AND OCCUPATIONAL REQUIREMENTS

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Qualifications of seafarers directly impact on safety and efficiency of the maritime sector. In its turn, the level and quality of seafarers' qualifications depend on completed maritime education and training. However, current edition of STCW Convention and STCW Code [1] do not contain clear requirements for approved education and training. The aim of the research is to define the approach and tools for clarification of STCW provisions through harmonization of the requirements for approved maritime education with occupational requirements.

The author has analyzed the levels of approved maritime education and training programmes in some countries and draws attention to the lack of clarity in the STCW provisions concerning approved education and the required level of related knowledge. To clarify the requirements for approved maritime education the relationship between the STCW standards of competencies, International Standard Classification of Occupations (ISCO), European Skills, Competences, Qualifications and Occupations (ESCO) and International Standard Classification of Education (ISCED) was analyzed. Qualification of ship officer including his level of knowledge depends on the completed programme and defines the ability to act in appropriate way in familiar and unpredictable situations, ability to solve problems etc. The key factor to be taken into account is the complexity of qualification, especially the level of responsibility and autonomy [2]. The level of approved maritime education programme must correspond to the complexity of officer's professional tasks and duties [3]. Qualifications frameworks describing requirements for qualifications of different levels can be applied as a tool to define the actual level of complexity of ship officers' competencies and relevant minimum requirements for approved maritime education and training programmes.

The STCW Convention and STCW Code have to be amended with clear provisions on approved education and training and the sufficient level of knowledge required for certification. Appropriate reference points based on the ship officers' professional duties complexity level and their responsibility are necessary for introducing a common approach for approval of maritime education and training programmes.

### **Keywords:**

Approved education and training, Complexity, Qualification, Responsibility.

### **Themes:**

Standards of Training and Certification for Seafarers, Qualifications Frameworks.

## **References**

### References

1. Mykhaylo Miyusov, Vadym Zakharchenko. STCW Manila Amendments implementation. // International Forum on Seafarers Education, Training & Crewing, April, 20-21, 2016, Odessa, Ukraine. – pp. 64-67.
2. Vadym Zakharchenko. MET programmes and seafarers' qualifications: complexity and harmonization. / The First Joint IMLA-IMEC-ICERS Conference. IMLA Book of Abstracts. – Bataan and Manila, Philippines, 22-25 October 2018. – P. 25.
3. Mykhaylo Miyusov, Vadym Zakharchenko. Approved Maritime Education: Harmonization of Requirements / The 20<sup>th</sup> Commemorative Annual General Assembly (AGA 20) of International Association of Maritime Universities 30 October – 1 November 2019 // The International Association of Maritime Universities (IAMU) Conference Book – Tokyo, Japan, 1 November 2019 - pp. 120-121.



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