

Newrletter Highlights

- Editorial message by NMU project leader and project dissemination group Page 1
- NMU meets Hanseatic Lloyd; Interview with Ulrike Zirwen, Head of Marketing Department Page 1
- NMU meets Norwegian Shipowners' Association; Interview with Tine Westerberg, Project Manager Page 3
- NMU Partners Portraits: The Maritime Development Center of Europe and the University of Hamburg Page 6

Editor says...

Dear Readers.

Welcome to the 6th edition of the NMU newsletter! The NMU extension phase started at the beginning of this year aiming at further developing specialised modules as well as enhancing and promoting the image of, and competency in, the maritime industry.

A couple of conversations with our stakeholders, namely Hanseatic Llyod Germany and the Norwegian Shipowners' Association, will highlight the importance of maritime education provision which can only be strengthened by integrated knowledge exchange across industrial, education and research institutes.

NMU partners are delighted to welcome our new Danish partner to the consortium, the Maritime Development Centre of Europe (MDCE), and the University of Hamburg. We also extend our welcome to our new stakeholders, the Norwegian Shipowners' Association and the University of the Basque Country, Spain, and thank them for their continuous support in the development of NMU modules and promoting the competitiveness of the maritime industry.

The development of new NMU modules is underway as is a plan for the pilot course in January 2012. Support, insights and comments on our existing and upcoming modules are highly appreciated. If you are interested in any of our modules, please contact us.

We hope you enjoy reading the newsletter!

Warm greetings,

GORDON WILMSMEIER, PROJECT LEADER, TRI, EDINBURGH NAPIER UNIVERSITY &

INDAH LENGKONG, DISSEMINATION GROUP,
JACOBS UNIVERSITY BREMEN



Photo courtesy of Indah Lengkong

NMU meets...

Hanseatic lloyd

INTERVIEW WITH **U**LRIKE **Z**IRWEN, **H**EAD OF **M**ARKETING **D**EPARTMENT, **H**ANSEATIC **L**LOYD

BY SUSANNE NEUMANN, NMU COORDINATOR OF
THE "MARITIME TRANSPORT & THE ENVIRONMENT"- MODULE,
BREMEN UNIVERSITY OF APPLIED SCIENCES

"The Northern Maritime University Network explains that thinking, working and trading globally, but learning locally is in itself a paradox if we consider the internationality, intercultural nature and diverse technical requirements of the sea transport economy."

ULRIKE **Z**IRWEN

Hanseatic Lloyd was one of the first NMU Stakeholders supporting the vision of the Northern Maritime University Network. This is because of the company's interest in the continuous improvement of education in maritime business in an international context. Therefore, the company voluntarily took part in the second test run of the module "Maritime Transport & the Environment", developed by the following NMU partners: Swedish Environmental Institute, Bremen University of Applied Sciences and Lübeck University of Applied Sciences.

The Hanseatic Lloyd Group is a group of companies with worldwide operations whose management has many years of experience in international shipping as well as in the development and financing of ships. The Group's management is a team of shipping and financial experts with vast experience in the tramp and liner shipping industries as well as financial markets.

SN: Hello Mrs. Zirwen. Thank you very much for taking part with your company's apprentices and your colleague in our course "Maritime Transport & the Environment" and providing us with your professional feedback.

Hanseatic Lloyd engages itself in a wide range of social activities; even environmental protection stays on top of the agenda and the idea of lifelong learning is practically implemented in your firm. Sustainable development is part of your corporate philosophy. At the moment, is your company running or planning any concrete projects in these areas?

UZ: We are convinced that long-term economic success can only be achieved and can only be assured if ecological and social aspects are equally considered in the business strategy. As a globally trading group of companies, we are aware of our responsibility towards humankind and the environment and therefore, it belongs to the manifested basic principles of Hanseatic Lloyd's values and corporate policy.

We administer our social responsibility to people with personal and financial commitment and we render contributions as well to sustainable development. Besides maritime institutions such as the "Haus Seefahrt", the German Maritime Search and Rescue Service (DGzRS) and the Seaman's Mission, we support mother-and-child houses in Bremen and in Weinfelden (Switzerland).

Furthermore, we support the international children's relief organisation, the World CHILDHOOD Foundation, in order to embrace the weakest members of society: single mothers and children in need. Donations totalling almost a million Euros have come together in the course of the Hanseatic Lloyd Dragon Grand Prix in the years 2005 to 2009 through this benefit regatta initiated by our deceased founder, Mr. Harro Kniffka, for the benefit of the World CHILDHOOD Foundation. Hanseatic Lloyd expresses a heartfelt gratitude to all the participants who made the initiative a success.

SN: In your opinion, why should sustainability play a significant role to a maritime company?

UZ: Let us imagine this from the point of view of shipping. Ships connect people and markets. Without the seaway, the worldwide and cross-border transport of goods would not have been possible. Over 90% of world trade is transported by sea, which makes shipping the backbone of globalisation. Fundamentals to shipping and world trade are the oceans and the seas on which we operate - which is also the biggest ecosystem on earth. Over 70% of earth's surface is covered by oceans. The seas and coastal regions have significant meaning for an intact environment and possess a meaningful potential for economic growth. According to the United Nations, 39% of the world population lives in coastal areas and this is supposed to be more than 50% in a few years. The shipping industry is aware of its tremendous global responsibility that results in this situation.

The idea that global efforts are required to protect the natural environment is meanwhile generally accepted. Shipping as a part of, and an essential link in, the global economy already has comparatively positive environmental balance as compared with other traffic carriers simply by virtue of its so-called economies of scale. However, ongoing technical advances offer sufficient starting points to make shipping even more environmentally friendly. To a growing extent, the shippers are endeavouring to reduce the "ecological footprint" of their global transport chains. A number of initiatives have therefore been started all over the world to promote the dialogue between shippers and shipping companies on topics affecting the environment and to provide common starting points for reducing shipping-related environmental burdens yet further. There are still possibilities for improvement in many areas and there remain countless themes for which shipping companies are offensively concerned. However, the perception of shipping companies in the public needs to be improved, in particular their efforts in the matter of environmental protection

For a long time, garbage on board is collected separately and disposed of professionally in ports. Ships are the most environmentally friendly modes of transport, without which a sustainable development of world trade would not be possible. This should be made transparent and public. We have to make the same efforts in public relations work as we do in the field of technologies.

SN: To what extent do you see the learning opportunity and exchange of ideas/knowledge of the Northern Maritime University Network providing adequate support possibilities to your corporate philosophy?

UZ: Hanseatic Lloyd offers its onboard and shore-based employees attractive employment conditions, embedded in a corporate culture that is embossed with trust, mutual respect, motivation, and competence orientation. The dialogue between the employees onboard and ashore is of high significant value to us. Among others, regular joint workshops for personnel and company management are organised. Basic and advanced training measures are regarded by Hanseatic Lloyd as an investment in the future and are also continued during times in which economic parameter conditions are not particularly positive.



Photo courtesy of Hanseatic Lloyd

The Northern Maritime University Network explains that "thinking, working and trading globally, but learning locally" is in itself a paradox if we consider the internationality, intercultural nature and diverse technical requirements of the sea transport economy. We see this in the same way and so we engage ourselves as stakeholders in this project, where universities and maritime institutions from five countries in the North Sea Region cooperate and share their joint competences in the maritime economy. Knowledge exchange and enhancement across industrial, educational and research institutions can be accelerated in this way.

SN: A number of your management trainees participated in the course module "Maritime Transport & the Environment". Were your expectations from this module satisfied and where do you see room for improvement?

UZ: The course programs of NMU are not only intended for students but they can also be successfully integrated in continuous education within the framework of lifelong learning. The course module imparts knowledge about the diverse environmental aspects in which the shipping industry plays a very important role.

For instance, an overview of complex regulations and of various technical as well as methodical approaches to minimise the negative effects of shipping to the environment was discussed. Along with actual developments, future methods to make ship operations as environmentally friendly as possible were picked as the central theme. As a result of this, we have critically discussed the possible effects of all these things to economic efficiency and to ship crew.

The modular structure of the course programme offers flexibility in the framework of general qualifications and therefore makes a significant contribution to the promotion of lifelong learning. Our expectations were more than satisfied.

SN: Thank you very much for your time and your engaged cooperation, Mrs. Zirwen.



Photo courtesy of Indah Lengkon

Norwegian Shipowners' Association

Interview with Tine Viveka Westerberg, Project Manager, Norwegian Shipowners' Association
By Harald Martin Hjelle, Molde University College

THEME: NSA'S SUPPORT FOR HIGHER MARITIME EDUCATION INITIATIVES AND HUMAN RESOURCE DEVELOPMENT TO MEET FUTURE DEMANDS IN THE MARITIME INDUSTRY

The Norwegian Shipowners' Association (NSA) has about 160 members from the tank and bulk transport sector, the

short sea sector and offshore activities. NSA aims at translating members' value-creation, ability to innovate, power and influence – and Norway's overall maritime status and reputation – into effective action in the industry's interests, both nationally and internationally.



Tine Viveka Westerberg

The goal of NSA is to be a driving force for debate on corporate social responsibility in the shipping industry business and to offer solutions for sustainable development. One of its main objectives is to ensure that members have access to sufficient numbers of highly qualified employees at sea and ashore. That perfectly matches the aim of NMU: providing a rounded education for future maritime professionals.

HH: The Norwegian fleet is one of the largest in the world. Is there a strong focus on human resource development among Norwegian shipowners?

TVW: Human resource development has been a focus among Norwegian ship owners for a long time. The increased complexity in both maritime operations, logistics, contracting,

engineering and other areas have made the focus necessary. The focus is both on board and on shore. On board the Norwegian ships the focus on competence has always been at the forefront of the development in international regulations. On shore human resource development has been increasing over time.

HH: What are the main challenges for the maritime industry with respect to human resources in the years to come?

TVW: The environmental challenges, the demands for more efficient shipping and the advanced maritime operations the industry is facing will increase the demand for specialised human resources, both on shore and on board the ships.

To meet the demands from a more specialised fleet, especially in the offshore industry, maritime education needs to be coordinated and educational institutions must build expertise within chosen fields to best be able to educate future seafarers. The complexity of our industry's operation also leads to a great demand for engineers.

HH: What kind of initiatives and actions related to higher maritime education does the NSA engage in?

TVW: The NSA supports several initiatives related to higher maritime education. We have a close relationship with several Norwegian universities and colleges to create activity with a focus on the maritime industry. We organise introductory lectures on the maritime industry, invite guest lecturers in specialised topics, and arrange seminars and conferences for students. In addition we offer students possibilities to write papers in cooperation with the industry. We also arrange visits to companies and ships. All this is organised within the framework of our project called "**Maritime Career**" for more information about this see www.maritimkarriere.no. We also have a close relationship with several institutions on projects, both within research and education.

We have a research initiative called the Global Maritime Know-ledge Hub (GMKH). Its main aim is to finance chairs at leading Norwegian academic environments, and through that contribute to research, development and education that will ensure Norway's position as a knowledge hub in the global maritime industry. Through this the Norwegian maritime industry will become more attractive as a host country. So far we have financed 21 professors at six Norwegian institutions, sponsored by 21 different companies in the maritime industry. The chairs are mainly technological, with green technology as a main focus, but other research areas are also included. We are now looking into several new areas of research, namely LNG, sustainability, law, insurance and business development. You can find more information about this at www.knowledgehub.no.

What makes the Norwegian maritime industry special is the close cooperation within the country's maritime cluster. To make sure that the newly educated professionals have a thorough understanding of the whole value chain we offer a trainee program called "Maritime Trainee". This is a program that combines work and an academic program over the first two years of a career. For more information about this please visit: www.maritimtrainee.no.

HH: Thank you very much!

NEW SPECIALISED MODULES UNDER DEVELOPMENT

BY GORDON WILMSMEIER, TRANSPORT RESEARCH INSTITUTE (TRI), EDINBURGH NAPIER UNIVERSITY

The extension of the NMU project focuses particularly on the development of five new specialised modules. This is the response from the intensive dialogue of the NMU network with industry stakeholders. The new multidisciplinary modules will further facilitate and promote the competitiveness of the maritime industry.

The new modules focus on emerging topics for the maritime and port industry and blend with

revealed new strategic needs regarding education specifically for the maritime sector in the North Sea region. Chiefly, the maritime industry demands educational content in the fields of maritime business related to offshore, renewables, bunkering and specific management issues.



Gordon Wilmsmeier

The modules now under development for piloting in January 2012 are:

- Offshore industry and shipping related to renewables
- Bunkering operations, management and technology
- Cruise shipping operations, management, strategy
- Ferries and MoS operations, management, strategy
- Intercultural Management and Corporate Social Responsibility, organisational behaviour
- Hinterland management related to port management (virtual ports, dry ports etc.)

These new modules are complementary to the existing and already developed NMU modules and comprise an initiative to deliver educational content to enhance the human factor in the maritime industry either by educating young professionals or under the concept of continuous professional development.

The new developments will help to promote the image of the maritime industry strengthening knowledge and skill sets to cope with emerging new markets, growing maritime traffic, port development, and rising environmental challenges, all within an intermodal environment.

NMU PILOT COURSE "MARITIMETRANSPORT AND THE ENVIRONMENT"

BY SUSANNE NEUMANN,
UNIVERSITY OF APPLIED SCIENCES BREMEN

A new NMU Pilot Course "Maritime Transport and the Environment" took place on 9 - 10 November.

The participants of the course from Hanseatic Lloyd Reederei, Unterweser Reederei and RF Forschungsschifffahrt had a chance to deepen their knowledge about environmental issues and to jointly discuss possibilities to reduce the negative effects of maritime transport. Lectures were held in English by Adjunct Professor Dr. Erik Fridell of the Swedish Environmental Research Institute, and Susanne Neumann of the University of Applied Sciences Bremen.



Susanne Neuman



Frik Fridell

An essential goal of this course

exchange of ideas and experiences with NMU lecturers and participants from other companies
 was successfully achieved through face-to-face tailor-made education sessions, as a small group of participants that could enjoy interactive further education with lecturers being able to respond to individual questions. For more information about this event please visit: www.nm-uni.eu.

NMU EVENTS GUIDE

19 - 20 April 2011 - Coastlink , Hamburg, Germany - www.coastlink.co.uk

10 – 13 May 2011 - Transport Logistics, Munich, Germany - www.transportlogistic.de

25 – 27 May 2011 - Logistics and Transport 2011, Gothenburg, Sweden - www.biztradeshows.com

27 – 28 May 2011 - 7th National Maritime Conference, Wilhemshaven, Germany - www.jadeweserport.de

12 – 15 June 2011 - IAMU , Gdynia, Poland - www.iamu-edu.org

22 - 24 June 2011 - Econship 2011 , Chios, Greece - www.stt.aegean.gr

14 – 15 September 2011 - Green Port Congress, Hamburg, Germany - www.greenport.com

For more details about the upcoming events, please visit: www.nm-uni.eu/events

NMU Telegram

11 March 2011: Successful seminar on Maritime Logistics in Molde

More than 40 students, scholars and representatives from the maritime industry participated in a one day seminar on maritime logistics in Molde, Norway. The seminar was hosted by the Norwegian Shipowners' Association (NSA) in co-operation with the Northern Maritime University (NMU) and Molde University College (HiMolde). The seminar included: presentation of the Norwegian maritime industry by NSA's project manager Westerberg, logistics challenges and innovative logistics solutions in this area by Wilson and Wilhelmsen of the Norwegian shipowners, environmental performance across the maritime logistic chains by deputy director Mørkve of Det Norske Veritas, and offshore logistics by professor Aas of HiMolde. The NMU project was presented by associate professor Hjelle. For more information about the event please visit: www.nmu-uni.eu

4 – 5 March 2011: Bremer Schifffahrtskongress 2011

The 5th Bremer Shipping Congress 2011 organised by the NMU partner University of Applied Sciences Bremen took a closer look at maritime personnel management and focused on the progress at land and at sea. This time again over 100 experts and leaders from the maritime industry, the administration and the universities came together to discuss current issues on the themes of maritime shipping education, training and personnel.

Within three workshops, participants discussed the opportunities of lifelong learning, employer branding and the benefit of personnel management. The conference offered an exchange of experts from different fields of maritime business with companies, educational institutes and employees. For more information about the event please visit: www.bremer-schifffahrtskongress.de.

2 March 2011: Forum on Maritime Transport Education and Training

Different parties with an interest in maritime transport and its wider impacts took part in this seminar, which was organised by the NMU lead partner Transport Research Institute (TRI), Edinburgh Napier University, and the Institute of Chartered Shipbrokers. Professor Kevin Cullinane and Dr. Gordon Wilmsmeier of the Transport Research Institute were among the keynote speakers, addressing maritime education approaches. For more information visit: www.nmu-uni.eu

2 - 3 December 2010: Blue Conference

The Blue Conference is an annual Danish bilingual conference on research in the maritime industry. Participants came from universities, nautical schools, the shipping and maritime industries and the maritime administration. NMU was represented by our Danish NMU partners Lisa Lolorna Froholdt, Jacob Kronbak, Elin Dorthea Kragesand Hansen of the University of Southern Denmark (SDU) and Thomas Pawlik of University of Applied Sciences Bremen. For more information please visit: www.maritimecenter.dk

18 – 19 November 2010: European Freight and Logistics Leaders Forum, General Meeting

The Annual General Meeting of the international non-profit association was organised by one of the NMU Partner Gavin Roser of Pantrak, who was also among the keynote speakers. The topic of the meeting was: "Modal Integration & Collaboration: An Imperative for a Competitive Europe". For more information about the event please visit: www.europeanfreightleaders.eu

21 - 22 October 2010: Dryport Conference

The Dryport Conference was organised by SEStran and the NMU lead partner - Transport Research Institute (TRI). The main topic of the conference was "Intermodal Strategies for Integrating Ports & Hinterlands". This innovative event focused on examining the critical role of inland terminals in their relation to ports, encompassing issues of integration, collaboration, competition and associated strategies of hinterland access. For more information about the event please visit: www.dryport-conference.tri-napier.org

18 - 19 October 2010: Transport & Logistics

NMU was represented at the one of the biggest Nor-

wegian fairs and conferences for transport and gistics. The conference gathered more than 600 delegates mostly representing the management of cargo-owners, public authorities, ports, shippers or roadhauliers. Harald Hjelle of Molde University College had the opportunity to



introduce and market the upcoming project extension and also to recruit new stakeholders for the project. For more information about the event please visit the website: www.konferanse.info

NMU Partner Portraits

THE UNIVERSITY OF HAMBURG

Universität Hamburg DER FORSCHUNG | DER LEHRE | DER BILDUNG

With about 38,000 students, the University of Hamburg is one of Germany's largest universities. Approximately 650 of the 4,100 academic staff are full professors. The University of Hamburg was founded on March 28, 1919. In spite of its relatively short history, the university is the largest and most diverse research institution in Northern Germany. Its research profile encompasses individual achievements as well as interdisciplinary areas of focus.

The Department of Informatics is part of the Faculty of Mathematics, Informatics and Natural Sciences. It is one of the larger Informatics facilities in Germany and has a broad and modern profile in both schooling and research. The working group Technische Informatik Systeme (TIS) belongs to this department. Its areas of research include Embedded Systems, Aeronautics and Air Transport Systems, Automotive Systems, Robotics, Computational Modeling and Simulation, eLearning, Medical Systems and Functional Nano Systems.

Computer Engineering (AB TIS), chaired by Prof. Dietmar Möller, has established strong cooperations

with high profile international industries, research centres, universities, engineering and management consulting groups in common R&D projects. Some of the current projects are: Cluster of Excellence in Aviation in the metropolitan Hamburg, funded by the German Federal Ministry of Education and ReDietmar P. F. Mölle search, the Research Training Group



Functional metal-semiconductor hybrid systems, funded by the German Research Foundation, the Special Research Field Micro Magnetism, funded by the German Research Foundation, the Computer Engineering Online Project, funded by the Government of the four Northern German States Hamburg, Lower Saxony, Mecklenburg Pomerania, and Schleswig-Holstein, the project STEM Education Initiative in Creative Educational Innovations for Electrical Engineering Students, funded by the National Science Foundation (NSF), USA, the Lifelong Learning Center as part of the Virtual African Campus together with UNESCO, and others.

One of the competencies the computer engineering experts from the TIS Workgroup will contribute to the NMU consortium during the project extension phase is a simulation model for determining container throughput at an expanding seaport.

THE MARITIME DEVELOPMENT CENTER EUROPE



Maritime Development Center of Europe

The Maritime Development Center of Europe (MDCE), situated in Copenhagen. The Center houses a team of 9 employees and is led by CEO Mr. Steen Sabinsky.

Denmark has a unified maritime cluster organisation and the work is divided between the three associations: the Maritime Development Center of Europe with 135 members, the Association for Promotion of Danish Shipping with 5500 members, and the Danish Society for Naval Architecture and Marine Engineering with 135 members. The strength of this structure is the voluntary commitment in each of the three associations, with the coordination of a common secretariat, MDCE.

"We are located right at the centre of the Danish Shipping Scene, adjacent to the Danish Shipowners' Association, neighbour to A.P. Møller Mærsk headquarters and close to other large Danish Maritime organisations such as Man Diesel and J. Lauritzen. Besides our member organisations, we have a close

collaboration with the Danish Maritime Authority and are supported by politicians, the industry, branch organisations, unions and Danish Maritime Universities and Academies", says Mr. Steen Sabinsky.



The objectives of MDCE are to:

- Promote growth, innovation, cooperation, information and knowledge sharing in the Danish Maritime Cluster.
- Represent Denmark in the EU as "Short Sea Promotion Denmark" and "Danish Maritime Clu-



- Coordinate the maritime knowledge and knowhow network groups.
- Organise maritime conferences, meetings and seminars.
- Promote and encourage maritime entrepreneurships.
- Promote shipping careers to young people.
- Get involved in EU, national and regional maritime/transport projects.
- Encourage promotion and innovation of related projects which can be commercialised.

"MDCE is actually a former EU project, which has continued after funding ended. We have navigated through stormy weather and have come out on the other side as a healthy organisation with a strong and committed Board. Today, we are visible on the maritime scene, both here in Denmark, but also in the EU through our participation in national and international projects. When you get to a stage where others begin to look over your shoulder, you have become an important and reliable collaborator, and we can only be pleased about this", says Mr. Sabinsky.

MDCE is always interested in adding to the existing project volume, but is especially attracted to the NMU project due to the fact that it lies close to the very bedrock of the Center, namely to facilitate knowledge and ensure the development of human capital. NMU is also appealing due to the fact that it has a direct output that can enhance knowledge. Also, it is becoming fashionable to create shorter education options which can provide opportunities for build-on learning modules, and the NMU project accommodates this perfectly. Mr. Sabinsky looks forward to working with the other partners in the consortium and sees them as strong contributors to the competence development of the maritime transport sector. He always finds it interesting to be an active part of a process where cultural differences are utilised in projects that can amplify trans-national efforts in promoting a sustainable and a competitive EU. As a development centre, MDCE aims to be an objective catalyst in creating synergies in the maritime industry, and "The products within NMU can be an inspiration for new projects and assist the maritime industry in addressing the many challenges that they are presented with on a day-to-day basis" adds Mr. Sabinsky.

Mr. Sabinsky enjoys cooperating with maritime academics and has found this very beneficial. In his opinion, there is a lot of relevant knowledge in the field of maritime academics that needs to be harvested and disseminated in the industry. "We have done a lot over the past years to shorten the distance between academics and the industry and assist in mutual benefits for both researchers and industry and the NMU project has similar interests that are appealing to MDCE". MDCE has employed employed senior researcher and Ph.D. Fellow Lisa L. Froholdt as NMU project responsible.

It is necessary to think differently in order to address future challenges and sustain a position in the global shipping economy. In order to do this, relevant tools and synergies within the EU are needed, in order to be competitive. "Everybody has something to contribute with and we need to address the challenges collaboratively" says Mr. Sabinsky.

MDCE entered the consortium as of 1st March and will be contributing in creating learning modules within human resources and cross-cultural management.

For more information please visit the website: www.maritimecenter.dk

NMU Partners

























Copyright © 2011 NMU/M. Zelmer. All rights reserved.

Contact

Lead Partner Project Office Transport Research Institute (TRI)

Contact Persons: Prof. Kevin Cullinane and Gordon Wilmsmeier

Edinburgh Napier University Merchiston Campus, Edinburgh EH10 5DT, UK

Tel.: +44 (0) 131 455-2951 Fax: +44 (0) 131 455-2953

E-mail: NMU@tri-napier.org

Dissemination Group

Workgroup Maritime Logistics School of Engineering and Science

Contact Persons: Prof. Jens Froese and Indah Lengkong

Jacobs University Bremen gGmbH Campus Ring 1, 28759 Bremen, Germany

Tel.: +49 (0) 421 200-3479 Fax: +49 (0) 421 200-3078

E-mail: Prof. Jens Froese – j.froese@jacobs-university.de Indah Lengkong – i.lengkong@jacobs-university.de

Please visit us at: www.nm-uni.eu





European Regional Development Fund (ERDF)

"Investing in the future by working together for
a sustainable and competitive region"

Imprint

Northern Maritime University (NMU) Project

Transport Research Institute (TRI) Edinburgh Napier University, Merchiston Campus, Edinburgh EH10 5DT United Kingdom

Project Leader: Gordon Wilmsmeier

Persons responsible for content: Indah Lengkong and Gordon Wilmsmeier