



**The Interreg IVB  
North Sea Region  
Programme**



## ***Northern Maritime University (NMU)***

### **MIEP REPORT REPORT ON MARITIME INDUSTRY EXPERT PANEL MEETINGS CONDUCTED BY SDU**

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<b>EXECUTIVE SUMMARY .....</b>	<b>3</b>
<b>1. INTRODUCTION.....</b>	<b>4</b>
1.1.OUTCOME .....	5
<b>2. MIEP SCOTLAND.....</b>	<b>6</b>
2.1.VENUE .....	6
<b>3. MIEP DENMARK.....</b>	<b>7</b>
3.1.VENUE .....	7
3.2.PARTICIPANTS .....	7
3.3.MEETING DESCRIPTION .....	8
<b>4. MIEP GERMANY.....</b>	<b>9</b>
4.1.VENUE .....	9
4.2.PARTICIPANTS .....	9
4.3.MEETING DESCRIPTION .....	10
<b>5. MIEP ANALYSIS.....</b>	<b>12</b>
5.1.ECONOMICAL .....	12
5.2.POLITICAL .....	13
5.3.TECHNOLOGICAL.....	14
5.4.ENVIRONMENTAL .....	14
5.5.EDUCATIONAL.....	14
<b>6. METHOD .....</b>	<b>16</b>
<b>7. NMU'S POTENTIAL CONTRIBUTION TO NSR'S MARITIME SECTOR DEVELOPMENT .....</b>	<b>20</b>
<b>8. LITERATURE LIST .....</b>	<b>23</b>



## EXECUTIVE SUMMARY

This report presents the data and data analysis of three trans-national maritime panel discussions that were conducted in Scotland, Denmark and Germany by The Northern Maritime University (NMU) consortium partners together with The University of Southern Denmark.

These panel discussions were conducted as part of a work package deliverable in the EU-INTEREG project, Northern Maritime University Network, in order to identify potential contribution areas for educational services by NMU in the North Sea Region.

The panels were called 'Maritime Industry Expert Panel' discussions, maritime experts being persons employed in the maritime industry who through their managerial position, had knowledge of education and competence needs in their field that are necessary in order to execute relevant tasks. The method used to conduct these panels, was the Foresight method, which is a scientific method used to create a development process of views and opinions about potential future scenarios, in the pursuit of creating possibilities of making decisions today that can enable participants to manage future challenges. Despite the criticism that the Foresight method merely produces subjective opinions of uncertain future scenarios, it is now possible for the NMU consortium partners to conduct further discussions of potential contribution services within NSR.

The MIEPs provided NMU with a variety of opinions within the areas of economy, politics, technology, environment and education. All participants advocate for an eminent and emergent need to operationalise how the North Sea Region can be innovative and create new and unique niche markets within the maritime industry and develop competencies in utilising new market possibilities, growth potentials and cultural diversity. Stable and standardised regulation nationally and across boundaries within Europe is also a prerequisite for business development. It was also explicated that there is a need to facilitate industry needs to build relations and knowledge sharing – relations are of paramount importance in the maritime industry. There were ideas that painted a future where the North Sea Region is benchmarked as a unique part of the global maritime industry, with development possibilities in the form of education, competence development and job rotation across national borders.

The Northern Maritime University network could be the catalyst of this development outlined in the above.



## 1. INTRODUCTION

This report is the work package deliverable in the Northern Maritime University (NMU) project D6.3.2.: *Report on results of foresight panel discussions*. This deliverable is a document that disseminates the data analysis collected in three trans-national panel discussions in the North Sea Region (NSR). These panel discussions are viewed as a succession of the SME and stakeholder study that has previously been conducted by University of Southern Denmark, in work package deliverable D6.1.. In this study it was concluded that panel discussions would enable a more lengthy and detailed discussion of education needs in the NSR.

The panel discussions were instantiated in order to gain access to opinions and views on future knowledge requirements and educational needs in the maritime industry in the NSR from respondents in the maritime industry with an individual, a national and a trans-national perspective. It was the intention that these views and opinions were to be analysed and used as discussion themes for the further planning of the development of education services within NMU. It was important that these views derived from people employed within the maritime industry with industrial knowledge of the needs for education and competence development in the industry, which is why the project sought to draw on the vast amounts of knowledge and expertise that already existed in the maritime industry by consulting a 'Maritime Industry Expert Panel' – 'MIEP'. The term 'maritime expert' was coined as a person employed in the maritime industry who through his or her managerial position, had knowledge of education and competence needs in his or her field that are necessary in order to execute relevant tasks.

The panel participants were specifically invited and given the opportunity to contribute with ideas and thoughts in relation to three focus areas:

- Identify key concepts for maritime transport which can contribute to economic competitiveness.
- Reflect and analyse challenges and possibilities for the maritime transport industry – both on a short and long termed basis.
- Define key concepts for future strategies within maritime research and education.

In order to obtain the views and opinions from the industry that were needed, the qualitative method was selected. The qualitative method was employed in the analysis due to the focus on an investigation that provides an in-depth understanding of how people perceive and make sense of their actions (Kruuse 2001). Within the qualitative method, the foresight method was found relevant to draw on in the panel discussions.

*'Foresight is the overall process of creating an understanding and appreciation of information generated by looking ahead. ...Foresight prepares us to meet the opportunities of the future...Foresight is therefore closely tied to planning. It is not planning – merely a step in planning'* (Coates 1985:30).

This method is further explicated in section 6, and the foresight panel discussions are planned according to van Groel (2005), which is also explicated in section 6.



Finally, the report provides descriptions of the MIEP discussions in sections 2, 3 and 4. Section 5 presents the analysis of the data corpus from all of the MIEP discussions. Section 7 provides suggestions for further discussion in the NMU, which are based on the data from the MIEPs.



*Image 1: Photo of MIEP participants taken in Copenhagen 18.03.2010.*

## **1.1. Outcome**

NMU is working towards establishing a European Area of Research and Innovation for the maritime industry, contributing towards the Lisbon strategy to make Europe “the most competitive and dynamic knowledge-based economy in the world”. The NMU is working on developing adequate qualification offerings which will reflect the underlying needs of the maritime industries. NMU hereby facilitates the maritime industry in the North Sea in utilising growth potentials within the maritime transport sector.

In this respect, the NMU supports also the “European Strategy for Marine and Maritime Research - A coherent European Research Area framework in support of a sustainable use of oceans and seas” as outlined by the European Commission, September 2008, in the field of maritime transport.

NMU formulated a response (“Enhancing the innovation capacity of the European transport industry”) as input to the European Commission’s communication on “A sustainable future for transport: Towards an integrated, technology-led and user friendly system”. Through this, NMU contributed to the update of the



White Paper of the European Commission issued in 2001 setting an agenda for the future European transport policy.

The findings of the current study would therefore inform NMU partners as to the competence needs that exist in the industry, and this knowledge could then be aligned to the resources within the NMU consortium. The study would serve as a platform for further discussion within the NMU consortium as to possible education/competence development paths to follow.

## 2. MIEP Scotland

### 2.1. Venue

Edinburgh, 6<sup>th</sup> October, 2009.

NMU participants; Sama Afroz Alam and Gordon Wilmsmeier

Due to the fact that several employees from SDU who participated in the work with the MIEPs no longer are employed at SDU, it is only the data that exists from the Scotland MIEP. A description of the discussion and participants was unfortunately not available.



*Image 2: Photo of MIEP participants taken in Copenhagen 18.03.2010.*



## 3. MIEP Denmark

### 3.1. Venue

The Danish Shipowners' Association, Copenhagen, 18<sup>th</sup> March, 2010.

Participants: Jacob Kronbak, Rene Taudal Poulsen, Lisa Loloma Froholdt and Director Steen Sabinsky.

### 3.2. Participants

Nordic Tankers, Clipper Group, Romø Harbour, Scandlines, DFDS, Torm, Norden, Lauritzen, Erria, Esvagt, Herning Shipping, Copenhagen-Malmø Port, Dannebrog, Blue Water Shipping, A.P. Møller Mærsk, Danish Shipowners' Association's EU representative, RAL, Mærsk Maritime Technology, Esbjerg Harbour, ID Shipping, Simonsen Shipping Company, University of Southern Denmark and EMUC.



*Image 3: Photo of MIEP participants taken in*

*Copenhagen on 18.03.2010.*





### *3.3.Meeting description*

The interest and turnout was positive. Panel participants responded swiftly to the invitation, some participants were unable to attend on the day of the panel meeting, but specifically requested to be a part of the panel, and there was also a request to participate by a business expert who had heard about the panel and was interested in participating.

22 men and women from small and larger companies in the maritime industry attended the panel meeting, which was held in Copenhagen, where the majority of panel participants have their workplace. The participants were business experts from the areas of Harbor, Crewing, Safety, Technical, Human Resource, Vetting, SQE, Fleet and Marketing Managers. The place of the venue was intended to minimize the amount of travel time for the panel participants and optimize attendance. Head of Centre Jacob Kronbak opened the meeting with a welcome and thanks to the participants for taking time out of their busy schedules to help with the research project. Assistant Professor Rene Taudal Poulsen then delivered a presentation called, "Old business models in the maritime industry are under pressure". Finally, Research Assistant Lisa Loloma Froholdt presented, "The foresight method" which was used to direct the panel meeting.



*Image 4: Photo of MIEP participants taken in Copenhagen 18.03.2010.*



The panel took their point of departure from two potentially possible scenarios for the maritime industry in 2020 which they selected from an array of four prepared scenarios. The first scenario was “Outsourcing” and the second scenario was called “Difference in EU and IMO regulation”. The “Outsourcing” scenario involved a scenario where outsourcing of shipping company activities had continued with an aggressive growth which resulted in vital business knowledge segments vanishing from Denmark. As a result of this, the maritime industry in Denmark becomes extinct as we know it today, and what is left is merely a consultant industry. The scenario called “Difference in EU and IMO regulation” contained a future where the EU establishes regulation that is different from IMO regulation hereby causing the global merchant fleet to divide significantly. The term ‘quality shipping’ becomes more notable and especially two new regulations support the divide.

- According to CO<sub>2</sub>, SOX, NOX and ballast water: Europe and USA implement higher environmental demands than IMO. Europe commences an Energy Efficiency Index (EEDI) which isn’t possible to do in IMO, due to resistance from some IMO countries.
- According to CSR: Europe and USA implement higher demands according to ‘transparency’ and ‘human rights’ as part of ISO 26000. Ships cannot call into certain ports if these demands are not met.

There was a lively debate at the meeting and the input from the participants provided a good base for the further work in the work package. The participants expressed an interest in participating as a panel in future discussions with the researchers from SDU, in order to discuss other relevant themes for the maritime industry in Denmark.

## 4. MIEP Germany

### 4.1. Venue

Bremen University of Applied Science, Centre for Maritime Studies, 1st October, 2010.

Participants: Lisa Loloma Froholdt and Elin Kragesand Hansen. NMU partners; Thomas Pawlik, Henning Jessen, Willi Wittig, Gavin Roser, Matthias Hahn, Susanne Neumann and Gordon Wilmsmeier.

### 4.2. Participants

NSB Niederelbe Schifffahrtsgesellschaft mbH & Co. KG (NSB-Academy), Dornier-Consulting GmbH, Bundesverband der See- und Hafenslotsen, BELUGA Shipping GMBH, Scandlines Deutschland GmbH, Deutsche Marine, GAUSS - Gesellschaft für Angewandten Umweltschutz und Sicherheit im Seeverkehr mbH, ZELLER Associates Group, Transport Research Institute at Napier University, Pantrak Transportation Limited, Center for Maritime Studies at Bremen Hochschule, University of Applied Sciences.



## 4.3. Meeting description

15 men and women from small and larger companies in the maritime industry attended the panel meeting, which was held in Bremen, at The Centre for Maritime Studies, where the majority of panel participants have their workplace. The participants were business experts from the areas of Harbor, Crewing, Safety, Technical, Human Resource, Vetting, SQE, Fleet and Marketing Managers. The place of the venue was intended to minimize the amount of travel time for the panel participants and optimize attendance. Head of Centre Professor Thomas Pawlik opened the meeting with a warm welcome and thanks to the participants for taking time out of their busy schedules to help with the research project, and Project Head of NMU, senior lecturer Gordon Wilmsmeier from TRi spoke about NMU. Finally, Research Assistant Lisa Loloma Froholdt presented, "The Foresight method" which was used to direct the panel meeting.



*Image 5: Photo of MEEP meeting room taken at Bremen Hochschule 1.10.2010.*

The panel took their point of departure from two potentially possible scenarios for the maritime industry in Germany 2020, which they selected from an array of four prepared scenarios. The first scenario was "Outsourcing" and the second scenario was called "Difference in EU and IMO regulation". The "Outsourcing" scenario involved a scenario where outsourcing of shipping company activities had continued with an aggressive growth which resulted in vital business knowledge segments vanishing from Germany. As a result of this, the maritime industry becomes extinct as we know it today, and what is left is merely a consultant industry. The scenario called "Difference in EU and IMO regulation" contained a future where the EU establishes regulation that is different from IMO regulation hereby causing the global merchant fleet to divide significantly. The term 'quality shipping' becomes more notable and especially two



new regulations support the divide. The MEEP participants chose to take their point of departure from the below mentioned scenarios.

- According to CO<sub>2</sub>, SO<sub>x</sub>, NO<sub>x</sub> and ballast water: Europe and USA implement higher environmental demands than IMO. Europe commences an Energy Efficiency Index (EEDI) which isn't possible to do in IMO, due to resistance from some IMO countries. According to CSR: Europe and USA implement higher demands according to 'transparency' and 'human rights' as part of ISO 26000. Ships cannot call into certain ports if these demands are not met.
- Special demarcated seaways in the Pacific Ocean and parts of Asia for unmanned ships have been agreed upon. This meaning that ships are unmanned and monitored from shore or ships are manned by one person only. Minimum requirement for manning no longer applies, and the new rule is 25% of the requirements of today.
- The production continues in Asia and in India. Shipping companies relocate their head offices, large parts of their activities such as Human Resources, technical management at a more aggressive pace and as a result of this, vital shipping industry knowledge fades out. The maritime industry in Germany is closed down becomes a consultant industry.

There was a lively debate at the meeting and the input from the participants provided a good base for the further work in the work package.



*Image 6: Photo of MEEP participants taken at Bremen Hochschule 1.10.2010.*



## 5. MIEP Analysis

The participants of the MIEP meetings in all three countries agreed on how they describe the maritime industry. They viewed the industry as 'unique', and an 'industry like no other', where history and tradition is of paramount importance.

However, participants also agree that there is a need for attitudinal change in the maritime industry, it is 'outdated' and there is a need to update the so-called 'industry manual, the blue bible' that refers to practices that no longer exist. The Maritime industry of today needs to create new niche markets and become 'better at adapting to new markets and development'. There is a need to acquire knowledge in how to utilise 'low hanging fruits' when embarking on new endeavours and upon approaching new markets. The industry needs to 'be better at utilising local opportunities in new communities'.

'How do we innovate tools and knowledge about the industry?' Before answering this question, it is necessary to put work into moulding the attitude of 'apathy until pain' that exists in the maritime industry. What are the roles of shipping companies in 2020? Will we see mergers or new business constructions? Is there a price to pay for the amount of outsourcing that has taken place over the last decade? What are the costs and the benefits of outsourcing activities in the long-term? How is it possible to sustain maritime competencies in The North Sea Region? These were just some of the questions discussed by three maritime expert panels in three different countries.

The MIEP participants expressed an explicit need for branding the maritime industry in the North Sea Region. One reason for shipping companies employing seafarers in other countries is the low wage, but it was also expressed that there is a lack of interest in the industry amongst young Europeans. In line with this, the current European workforce is aging significantly, which is why it is imperative that Europe activates a European or North Sea Regional campaign to promote the industry and attract young Europeans. It must be more attractive for young Europeans to take a maritime education and encourage them to find a maritime career desirable. It is also imperative to brand the environmental advantages of choosing the maritime industry as a transport form and achieve a public awareness of the services that the industry can provide.

A future scenario for the future could be that it is not merely a question of which country or countries take the lead in the maritime industry, but moreover how can Europe be a central driver in the shipping industry?

The further contributions of the participants are presented in the following five categories.

### ***5.1. Economical***

The Shipping Industry is a 'customer-driven market'. The MIEP panels agreed that the customer plays the most central role in shipping today. There are customer demands for specific nationalities on ships that sail with their goods, and NOx has also become a customer demand. Moreover, there are customers that



demand a 'clean supply chain'. It was stressed that if the amount of paperwork required for companies to attend to was reduced, or standardised in some way, just-in-time-supplying which is expensive in many ways, could be avoided.

If there were economical co-operations within EU, this would enhance cross-border opportunities for the industry. Shipping companies feel pressured by the EU and EMSA, and it was noted that EU has construed a task force to investigate maritime competition according to employment which will work towards a solution in 2011. Is this a time where regulation will be differentiated between EU and IMO, and what are the economical consequences for shipping companies?

Finally, Shipping economy is 'a global economy and companies who do not realise this fail'. It is an economy that is affected by fuel costs and carbon footprint and trade patterns. A standardisation of the global production would enhance the Shipping Industry's business possibilities.

## ***5.2.Political***

It was stressed in all MIEP panels that there must be a national backup towards the industry and a political framework that is stable in order to ensure a level of standardisation and a stable market framework to manoeuvre. Standardisation would also promote a faster market change. The increase in rules and regulations at sea make it necessary to comply with complex solutions. However, it was also questioned whether shipping is so complex after all.

For Scottish shipping companies, it is necessary to comply with UK policies in order to be able to attract larger ships to the country. Differences in wage and safety regulation make it difficult for shipping companies as this just amplifies the amount of rules and regulations that have to be taken into consideration. For example, there is a difference between safety manning rules in the UK and in Denmark. If these rules were more aligned, this could enhance possibilities for enhancing maritime competencies in The North Sea Region. If 'seamen's wages were reduced, this would enable companies to hire them again' was also an opinion that was aired.

Some participants saw it as a great advantage for Denmark, that the country had such a champion company as Mærsk. It was also aired, that 'there is a lot of shipping talent in Denmark' and that there is a magnitude of Danish and Dutch businesses in Germany. The German Shipping Industry could benefit from 'having a German champion like Mærsk in Denmark, 'a middlesized champion', or more importantly, having a German shipping company that is best at something rather than biggest'.

Another vital aspect of shipping is national law and regulation in local communities where new markets are being established. It was apparent amongst both the Danish and the German participators, that shipping companies 'need competencies in how to integrate businesses in local communities' and 'how to manage cultural diversity' and harvest from possible 'advantages from differences in cultural learning styles'.



Finally, there were discussions about who was responsible for maritime education in the NSR. Whether it was a national problem or a company problem, as it also was discussed who will take responsibility for the educational pipeline that is implicitly being outsourced together with HR, vetting and other activities.

### ***5.3. Technological***

In regards to discussions about technology, both the level of complexity and a need for standardisation was discussed at some length. The discussion was built around views that standardisation would make the industry less complex to navigate within, and easier to do business in, due to the current opinion that shipping is a very complex industry. One participant expressed that 'EU could be more innovative when it comes to technological innovation' than is the case.

### ***5.4. Environmental***

Oil availability is decreasing and the need for alternative solutions to energy solutions, environmental performance and transport chains was discussed. It was discussed how the new environmental demands can be viewed as competitive advantages for shipping companies. Participators aired the advantages for shipping companies if both national and EU environmental policies were aligned.

The new CO<sub>2</sub> regulation can be a potential advantage for harbours.

There were discussions as to what would be the new environmental requirements after SO<sub>x</sub> and NO<sub>x</sub>, and that it can sometimes seem somewhat exhausting, that when shipping companies achieve knowledge about one requirement, they are met with new demands.

Participators stated the necessity of education in CSR, not alone in regards to how the concept can be understood, in order to advance a more positive attitude towards the concept but also in how it can be used as a competitive advantage for a company. There will also be a need for education in the upcoming new NO<sub>x</sub> demands that Norway will propose in the near future.

### ***5.5. Educational***

In order to discuss education and competence needs, the participants tapped into a discussion about how knowledge is acquired today and how it flows between people in the maritime industry. 'Knowledge is connected to people and when they leave a position or a company, they take their knowledge and sometimes several other employees with them', hereby crippling a company. A way of avoiding this could be to create a range of job-rotation positions across companies, either nationally or within the NSR region. This would ensure both job enrichment for the employee and possibly contribute to employees staying in companies for a longer period of time. This could also ensure that knowledge stays within the NSR.



‘Knowledge is trade secrets’. When there is a situation where a knowledge need manifests, ‘the usual thing that happens is that you ring someone you know who has this knowledge’ and some problems are solved by ‘fitting several pieces of knowledge together from different people’. Another scenario is ‘where you get called up by a person in your network and updated with the latest developments’. This knowledge flow is seemingly what makes relations and network so important to people in the industry, ‘relations/network has sustained the industry for decades’. ‘Relations are paramount in the industry – you can do some business transactions together and save costs’.

All participants expressed both different and similar educational and competence needs in the maritime industry. There were also discussions where opinions were aired about current basic maritime education. It is however not the objective for NMU to play any role in national maritime education, as this is a national matter for the individual countries.

Many participants across the MIEP panels noted that the level of competence is dropping in the industry, and this is the case at sea and ashore. Some shipping companies had begun to employ academics, but in some cases the lack of knowledge about the maritime industry makes their contribution to the company somewhat minimal. There was a suggestion to make it ‘mandatory that shipping companies take an active part in maritime education’, but ‘how can we make Shipowners interested in investing in education?’. Is it possible to ‘pool knowledge’?

It was essential for participants that ‘maritime education matches the needs that exist in the industry’ and there is a need for a ‘broader scope of competencies than merely maritime themes’. ‘Competition demands education’, was one view.

The suggested areas for course development can be seen in the following unprioritised list.

- |  |   |
|--|---|
| 1. Maritime economics                                    | 9. Vetting                                  |
| 2. Project management                                    | 10. Windmill technology                     |
| 3. Commercial knowledge and commercial oriented modules  | 11. Cable technology                        |
| 4. Maritime history                                      | 12. Port state control                      |
| 5. Human Resource Management                             | 13. Innovation                              |
| 6. Technical administration                              | 14. Maritime law                            |
| 7. Dual competence course – technological and commercial | 15. Environment                             |
| 8. Competitiveness                                       | 16. CSR                                     |
|  | 17. Cross-cultural diversity and management |

There were many ideas to course structure, although all agreed that all courses should take place in English. ‘We don’t need more MBA’s, and seamen don’t have time for a HD or an education that takes longer than 6 months’. The answer is to ‘make short courses’, and ‘make them module built so that individual and/or company can decide which modules are relevant’. The following course structures were suggested.





- Trainer onboard
- ‘Coach teams’ that go onboard ships or go to shipping offices and teach.
- E-learning courses
- Blended; e-learning and face2face.
- Three hour-short fix courses which are mere knowledge upgrades, yet take place at a high level of comprehension. These courses could receive some kind of merit.
- Intro courses in HRM and technology are not enough – these must be of a longer time period.
- Combine modules at sea and ashore
- Education across borders within the North Sea Region

The challenge then from the participators is to create new educations, and structure them in a way that they go beyond national borders, between maritime educational institutions and between institutions and the industry. Is it possible to ‘pool knowledge and competence development’? Could NMU be the facilitator of this?

Finally, it was suggested that a ‘mentor –program for foreigners or youngsters’ be set up, which could help and possibly keep young Europeans in the industry and also help foreigners obtain a full utilisation of their time in the host country and possible create an incentive to stay.

## 6. METHOD

The method that was chosen in order to carry out the MIEP meetings was the Foresight method.

The Foresight method is a development process of a range of views, comments and opinions on how the future will develop. It is a participatory method, a future intelligence gathering and a middle- to long-term vision construction process (van Grol 2005). The process involved is all about mobilising collaborative actions and creating present-day decisions that can enable the management of the future challenges of tomorrow.

*‘Foresight is the overall process of creating an understanding and appreciation of information generated by looking ahead. ...Foresight prepares us to meet the opportunities of the future...Foresight is therefore closely tied to planning. It is not planning – merely a step in planning’ (Coates 1985:30).*

The Foresight method is used to meet the demands within socio-economical, political, institutional, environmental, scientific and technological changes and define adequate educational strategies for these changes, and relevant participants according to the objective of the foresight are chosen. Foresight is typically used at a national-political level, in research projects but is also used in larger companies with Research and Development departments. The foresight method has been coined as a study that merely structures opinion statements (Barre’ and David 2004: 117). The knowledge that is gathered is participants’ subjective descriptions and reflections of uncertain futures that can seem somewhat arbitrary, and can vary across the different experts (Tversky and Kahneman 1974). However, the Foresight method is an exercise that can promote several potential objectives (Cuhl 2003). The method provides NMU with an opportunity to:



- ascertain new needs, demands, possibilities and ideas
- define desirable and undesirable futures
- to 'spread out' the range of possibilities of education/competence needs
- to eventually narrow focus on education/competence development within technology, environmental and economic areas
- align maritime sector education/competence needs with available resources
- commence research studies within selected areas
- and finally, prospect maritime education/competence development in NMU and NSR.

The outcome of three trans-national MIEP meetings was planned to create a basis for a set of pragmatic guidelines for NMU on maritime education/competence development in the North Sea Region. The NMU consortium viewed the foresight method as a way of fulfilling both a process and an outcome perspective, in that the method creates an outcome where future education/competence scenarios can be identified while at the same time it also provides a platform for the development of a future trans-national network within the maritime sector.

According to van Grol (2005), there are ten principles of action when utilising the foresight method. These principles have been selected in the study. These principles described in the below, using descriptions of the way in which the principles have been utilised in the study.

1. Identify the right stakeholders
  - a. Here the task was to identify a selection strategy that would ensure results that would meet the objective of the study. The selected strategy was ensure that MIEP panels consisted of participants who had expertise within the different fields relevant to the foresight method, technology, economics, environment, crewing, vetting and Human Resources who were vertical and horizontal positions in small and large companies to ensure that the different competence challenges that must be met on a daily basis, be this in smaller or larger companies, for a Vice President or a manager, are represented in the MIEP panel. Such a representation would broaden the scope of opinions at the MIEP meetings and ensure that the invitation to participate got beyond 'the usual suspects'.
2. Involve the right stakeholders
  - a. In order to ensure involvement in the meeting, four different scenarios were created. They were created in order to provide the participants with a concrete platform which could serve as a point of departure for a discussion. All participants are busy business people who are used to tackle challenges pragmatically. It was therefore viewed that if the MIEP meeting was too vague with a high abstraction level, this could prevent participants from being involved in the discussions, although on the other hand, it was not a goal in itself that all participants were involved. Participants were also given the opportunity to choose several of the scenarios and also to create a scenario at the meeting. It was however important that there be optimal opportunity for involvement, which is why the scenarios were created within the areas of technology, environment, education and training, economy, national and international regulation.
3. Define the problem and identify specific objectives



- a. The study's methodological objective was to use the foresight method as a qualitative research method in order to map NMU's potential contribution to Maritime sector development in The North Sea Region. The thematic objective of the study was to attempt to create a context where Maritime experts could discuss and articulate future educational and competence needs in the maritime sector anno 2020. The main questions in the study were; What are the education/competence needs in the maritime sector in The North Sea Region anno 2020? and what would the structure of such education/competence development entail? and finally, how can NMU accommodate these needs?
4. Build political support
  - a. It was decided that political organisations and educational institutions would not be invited. It was viewed that participants from these institutions might tend to dominate the discussions and dominate the outcome of the MIEP meetings. This did not concur with the thematic objective of the study (see 2.a. above), which again could endanger a result according to the initial methodological objective of the study (see 2.a. above). It was imperative to allow maritime experts to define what kind of competencies lack in operations and daily challenges without having to consider the political implications of their contribution. These organisations and institutions were contacted so that they knew that the event would take place and that they were not invited and why. The response to this was positive.
5. Think in time
  - a. The participants that were invited to the MIEP meetings were all busy people, which is why the meeting was planned to take no longer than half of a work day. In order to ensure maximum participation, it was found important that the meeting be no longer than 4 hours, contain a refreshment break in between where there was time for the participants to network amongst themselves and with NMU partners, of which the latter was also a goal of the study. It was important for us to be able to provide refreshments both as a token of gratitude to the participants for taking time out of their busy schedules, but also to create a context for networking.
  - b. The meeting was planned to take place in the proximity of the majority of maritime workplaces, to avoid that the participants used time on travel and ensure maximum participation.
  - c. It was decided that the flow of discussion would decide whether or not there would be time to categorise the views into challenges or opportunities according to the foresight method.
  - d. An educated facilitator was engaged to moderate one of the MIEP meetings and in the other two meetings, NMU partners who had experience in moderating foresight meetings were appointed. The fact that experienced moderators were used for the MIEP meetings was to ensure that methodological objective, thematic objective and study questions be attended to, also, it was viewed that experienced moderators would ensure the timeliness of incorporating what and when moderation was necessary.
6. Involve dedicated professionals



- a. In order to discuss the subject areas of the Foresight method, experts within these areas were invited. There were some participants invited who were competent discussants at conferences and other network gatherings who were invited.
7. Select appropriate foresight techniques
  - a. As stated in 1.b., four concrete scenarios were created. They were created in order to ensure involvement from the participants, and also to provide adequate platforms from which participants could shed light on their expert knowledge. The scenarios could be viewed as a kind of role-playing, where participants were given the opportunity to discuss and reflect on future scenarios.
  - b. It was decided that there be a short 10 minute presentation of a research study by an appointed associate professor that targeted one of the scenarios that were created. This to provide facts, provocations and reflections that could be discussed further, but also to if possible prime the participants for the following event.
  - c. Moderators monitored the need for ‘triggers’, such as, references to relevant conferences, studies, current debates or news items that could enhance discussion flow and contribution or create reflection if such a technique was necessary. Moderators also monitored ‘signposts’, such as stages of the MIEP meetings where themes or areas of discussion are exhausted or unnecessarily time consuming or where themes or reflections have drawn to a result, which should be explicated and terminated.
8. Tailored outputs that lead to action
  - a. Moderators and participants provided insight into the consequences of presented courses of action.
9. Focus on disagreement as well as consensus
  - a. Moderators monitored a focus on both consensus and disagreement.
  - b. The scenarios that were created for the MIEP meetings were created in a way that they contained consensus and disagreement issues.
  - c. The presentation by the associate professor at the beginning of the meeting contained known controversial issues.
10. Evaluate
  - a. Feedback to the participants throughout the MIEP meeting was provided.
  - b. All participant comments and opinions from the MIEP meetings were written down on large posters. These comments and opinions were then written in their original form, without interpretation of any kind into a data base. The comments and opinions were then sorted into seven categories according to the ‘foresight’ method: Economical, political, environmental, social, technological, infrastructure and other aspects. The opinions under the various categories were then coded for themes they represented under the category.
  - c. Participants were asked if they would like to participate with company name in a PR article in a NMU letter or a following article in a newspaper if this could be accomplished.
  - d. It was agreed that participants have access to the final study report.
  - e. In one of the MIEP meetings, an interest arose in being invited again to a new MIEP meeting in order to discuss the outcome of the study and/or to discuss new and relevant themes.



- f. Each foresight was evaluated by the moderators and relevant NMU partners in order to ensure scientific quality and possible adjustment needs for the next MIEP meeting.

As Cuhl (2003) notes, the Foresight method often results in the emergence of multiple future contributions. This was also the case in the MIEPs and the contributions in the following section represent a selection of the most predominant. The Foresight method was a relevant choice and coherent with the NMU objective to obtain in depth knowledge of opinions in the industry as to future education needs. As previously stated in this report, the Foresight method generates subjective opinions from participants, which is not factual knowledge and therefore the method does invoke some uncertainty (Tversky and Kahneman 1974). However, in that the data is used to construe potential NMU contributions that will be exposed to further discussion within NMU, a certain stance to the level of subjectivity of the data is accomplished. These potential contributions can consist of a variety of themes that can then be validated through further research. Also, this study will be used together with the conclusions in the SME and stakeholder study.

In that the data is subjective opinions from participants, it is unlikely that it is possible to replicate the MIEP meetings. Had there been a fourth MIEP in a fourth country within the NSR, it is uncertain what the outcome had been. This invokes difficulty in regards to generalisation and reliability (Kvale 2001). However, the MIEPs provided NMU partners with the opportunity to have a dialogue about education needs in the maritime industry which was one of the objectives of the study and maintain and develop new network contacts, which was the other objective of the study.

## 7. NMU'S POTENTIAL CONTRIBUTION TO NSR'S MARITIME SECTOR DEVELOPMENT

The following un-prioritised six contributions represent a selection from the data collection. There are other contributions present in the data corpus, but the most predominant contributions across the MIEPs have been gathered. It is possible for the NMU partners to take up other contributions for discussion.

The participants in all MIEPs provided many ideas on how maritime education within NMU can be construed, and this section of the report will then concentrate on how these ideas can be used to create potential contributions to the NSR's maritime sector development for further discussion. MIEP participants in all countries speak of ways in which maritime knowledge can be localised in NSR/Europe and it is apparent that NMU can play a role and if chosen, play a very significant role in this.

1. NMU can be a driver in benchmarking the maritime industry in NSR, by the practical realisation of education/competence development. NSR can be marketed as a region of development which opens up for trans-national career development in the form of education/competence



development and trans-national job rotation management. This would be something that was distinctly unique for NSR and unobtainable in any other place in the world.

2. NMU could be the catalyst of maritime seminars or MIEPs where managers and CEOs continue the discussion on some of the topics that have arisen in the MIEPs, and develop new areas for discussion. NMU personnel can act as moderators of these seminars. These seminars could facilitate the continuing strive to align maritime education with the needs that exist in the industry. Seminars would enable NMU to maintain and develop maritime network groups and at the same time facilitate the importance of relations that exists in the maritime industry which has been amplified at the MIEP meetings.
3. NMU has already begun efforts in regards to providing scientific counselling services in a variety of scientific fields of competence. These experts could participate in a mentor service that NMU could provide together with interested participants from the MIEP meetings and if possible also other stakeholder groups within the NMU consortium. This could be marketed more aggressively and be part of NSR benchmarking.
4. NMU could participate actively in contributing to regulation standardisation by seeking participation within EU or IMO. It is also possible that NMU partners are actively involved in national or trans-national committees and/or organisations that work to promote standardisation in maritime regulation. News about this work can be published in the NMU newsletter.
5. It was distinctly stressed at all MIEP meetings that it is necessary to focus on developing maritime competences in the NSR due to:
  - a. The level of knowledge is declining at sea and ashore
  - b. A focus on maritime competences could promote a financial interest in maritime education/competence development from Shipowners in the NSR.

There were 17 different suggestions to relevant development areas and it is therefore necessary the NMU consortium discusses these suggestions in order to decide future focus development areas and how these areas can be aligned with existing resources within the consortium. Some of these areas are already implicit in the NMU modules that have been created, but it is possible that there is room for rework or fine tuning of these modules.

6. There were several suggestions to ways in which NMU could structure education/competence development contribution.
  - a. It was paramount for some MIEP participants that courses are offered trans-nationally. This should also be marketed.
  - b. Courses should be structured as e-learning and blended courses
  - c. Courses could be structured as a combination of being at sea and ashore



- d. Courses should be 'lego-moduled' – this meaning that courses are built to service both individual interest and company relevance and can be built together in various ways, and x amount of courses could render a certificate.

This concludes the report on the findings of the trans-national MIEP discussions conducted by SDU.



## 8. LITERATURE LIST

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