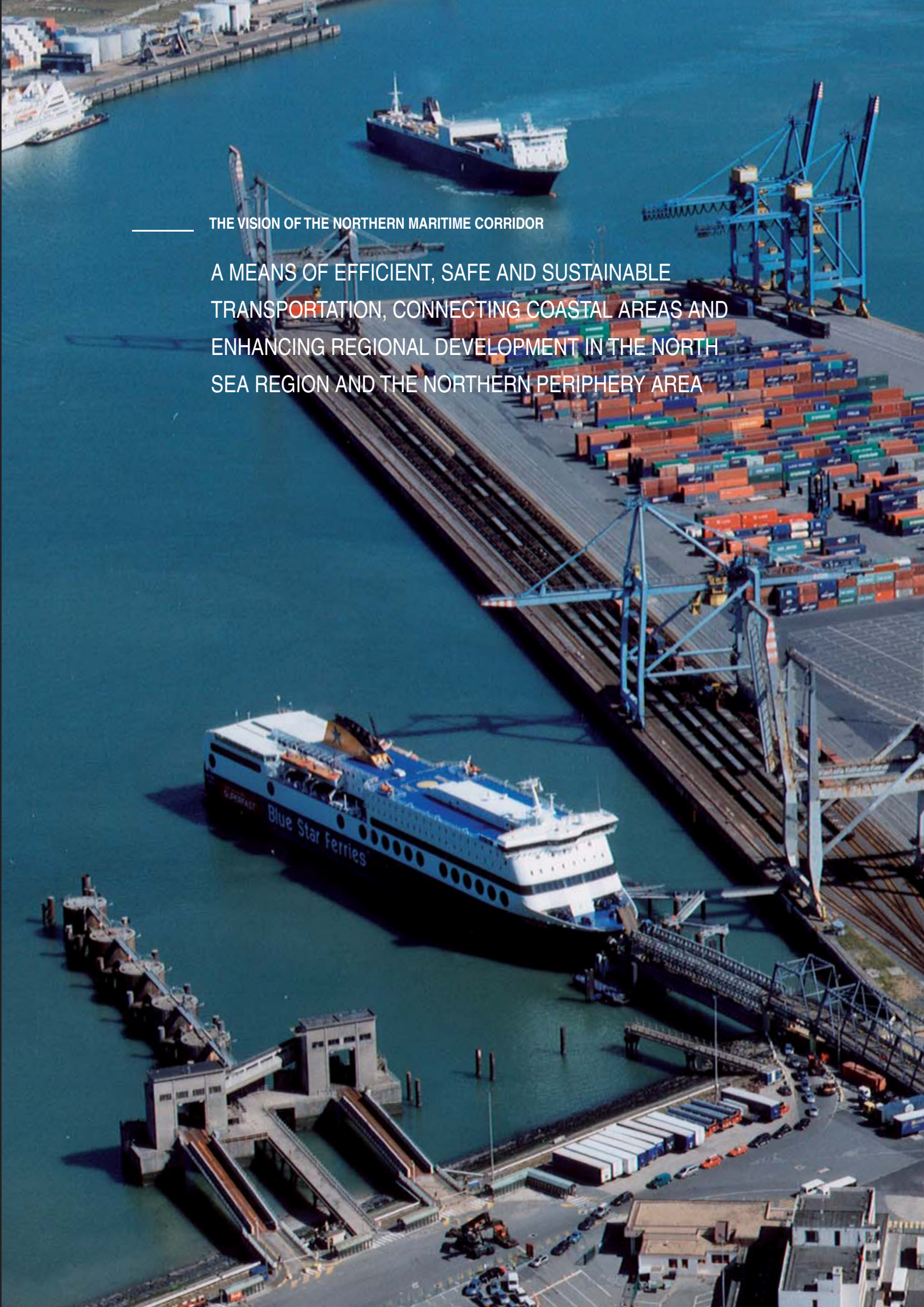
NORTHERN MARITIME CORRIDOR II

PROJECT SUMMARY REPORT 2005-2008

ACTIVITIES, RESULTS AND IMPACTS

NORTHERN MARITIME CORRIDOR


Greenland
Iceland
Faeroe Islands
Finnmark
Murmansk
Kirkenes
Troms
Alta
Tromsø
Harstad
Nordland
Narvik
Bodø
Mo i Rana
Mosjøen
Västerbotten
Nord-Trøndelag
Umea
Trondheim
Kristiansund
Ålesund
Sør-Trøndelag
Møre og
Romsdal
Sogn og Fjordane
Bergen
Hordaland
Shetland
Islands
Lerwick
Orkney
Islands
Kirkwall
Highland
and
Islands
Inverness
Aberdeen
Aberdeenshire
Stavanger
Rogaland
Kristiansand
Vest-Agder
FDT (Aalborg)
Esbjerg
Humber Trade Zone
Cuxhaven
Hamburg
Groningen
Amsterdam
WEST-VLAANDEREN
Zeebrugge
Dordrecht
Oostende
Antwerpen
Gent
OOST-VLAANDEREN
Brussels
Vlaanderen



THE VISION OF THE NORTHERN MARITIME CORRIDOR

A MEANS OF EFFICIENT, SAFE AND SUSTAINABLE TRANSPORTATION, CONNECTING COASTAL AREAS AND ENHANCING REGIONAL DEVELOPMENT IN THE NORTH SEA REGION AND THE NORTHERN PERIPHERY AREA


BLUE WATER

PREAMBLE

The Northern Maritime Corridor (NMC) project is an Interreg IIIB financed project. There have been two phases of this project, the first phase from June 2002 till December 2005, and the second phase, the NMC II, from June 2005 till June 2008.

This Project Summary Report covers the NMC II project. This report as well as the individual reports referred to in the Summary Report can be downloaded from the NMC website www.northernmaritimecorridor.no. There is also a Project Summary Report for the first NMC phase, and this report can also be found on the NMC website.

The main objective of the project has been to contribute to shifting cargo from road to sea as well as improving sea services to peripheral regions.

Rogaland County Council has been the Lead Partner in the project. The other partners have been:

- Vest-Agder, Hordaland, Sogn og Fjordane, Møre og Romsdal, Sør-Trøndelag, Troms and Finnmark County Councils and the Norwegian Barents Secretariat as sub-partners to Rogaland County Council
- Port of Amsterdam with City of Dordrecht as sub-partner
- FDT - The Association of Danish Transport and Logistical Centres
- Port of Esbjerg
- Groningen Seaports
- The Flemish Ministry of Mobility and Public Works with the provinces of East and West Flanders, Port of Antwerp, Port of Zeebrugge, Port of Ghent, and Port of Oostende as sub-partners
- Aberdeenshire Council with Aberdeen Harbour Board, Highlands and Islands Enterprise, Nestrans and Orkney Islands Council as sub-partners
- The Hamburg State Ministry for Economic and Labour Affairs with the Institute for Transport Planning and Logistics at the Hamburg University of Technology (TUHH)
- Humber Economic Partnership

The individual chapters of this report have been written by the respective workpackage leaders and main project partners listed above.

The Project Summary Report was collated and edited by Karin Rix Holländer, Port of Esbjerg, and Philip Smart, Aberdeenshire Council, and printed courtesy of the Port of Esbjerg and Rogaland County Council.

Stavanger, 30 June 2008

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Chair of NMC/Head of Transportation Department
Rogaland County Council

Olav Hauge
Project Manager for NMC

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NORTHERN MARITIME CORRIDOR - THE MOTORWAY OF THE NORTHERN SEAS

1.1 Background

Europe faces a great challenge in coping with the steadily increasing traffic. Freight transport on roads is increasing more than any other mode of transport, which for long haulage transport is not environmentally friendly and poses a problem of sustainability.

Because of this, the EU has developed the concept of "Motorways of the Sea" (MoS) with the main objective of shifting cargo from road to sea as part of an intermodal transport chain. The MoS concept is part of the TEN-T network, and funds are made available to develop services and infrastructure that will contribute to this shift from road to sea. In addition the MoS also has a clearly defined objective to improve the sea services to peripheral areas in Europe. In this sense Norway and Scotland are peripheral.

1.2 Vision and aim of the NMC project

The vision of NMC II has been the same as in the first phase of NMC:

The Northern Maritime Corridor:

- a means of efficient, safe and sustainable transportation,
- connecting coastal areas and
- enhancing regional development in the North Sea Region and the Northern Periphery Region.

The objective has been:

- to facilitate the establishment of new and improved sea services, shifting cargo from road to sea, and
- to serve and to strengthen the development in the regions involved.

The core approach has been to cooperate with the private sector, to assist and to give a "push" to the private sector actors to implement new services, remembering they are the key actors.

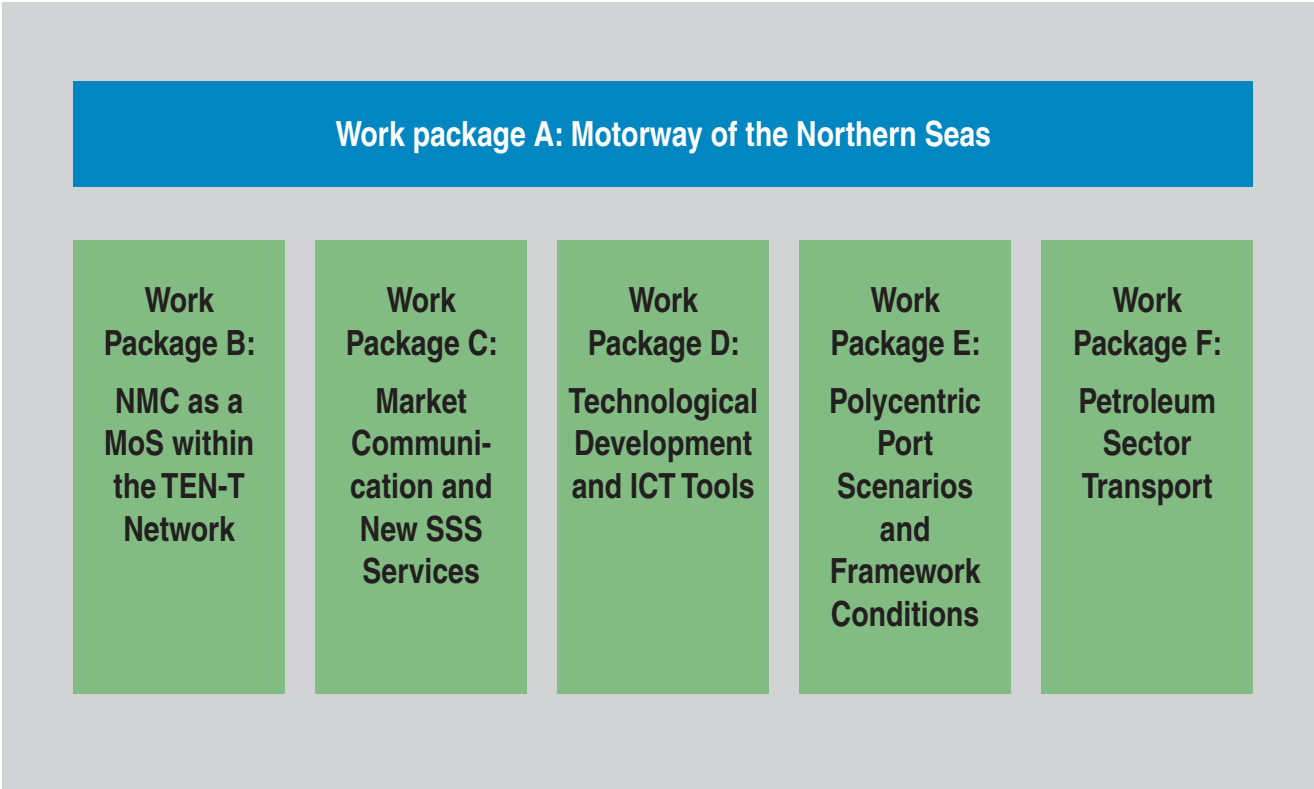
1.3 Project structure

The structure of the work packages are illustrated in the diagram on the following page.

Work package A is the overall coordination work package, giving guidance to the thematic work packages and linking the work packages together. The other thematic work packages are either policy-orientated or implementation-orientated, i.e. geared to concrete and tangible results.

1.4 Work package profiles and achievements

Work package B "NMC as a MoS within the TEN-T network" and work package E "Polycentric Port Scenarios and Framework Conditions" have been particularly policy-orientated. NMC II has contributed to the ministerial



Task Force on Motorways of the Sea for the North Sea, promoting MoS applications. The project has promoted NMC as an additional Motorway of the Sea in Europe, and the European Commission has now extended the MoS towards the Barents region, in line with the NMC. WP B has contributed with an overview of measures for initiating and funding short sea shipping (SSS) services.

WP E has provided an overview of port facilities and hinterland connections in the partner regions. In Hamburg a pilot cargo survey has been conducted, which has been modified for use in other regions. Port scenarios and framework conditions have been studied to guide partners in further SSS initiatives.

Work package C "Market Communication and New SSS Services" and work package D "Technological Development and ICT Tools" have been geared at initiating SSS services and tools to improve intermodal transport. WP C has together with another Interreg project (SUTRANET) pursued a new service between Mid-Norway and Scotland with a link to the Continent (the NORSHUKON project). A separate group of private and public entities has called for a proposal to establish such a new service, and a company is to be selected in spring 2008. WP C has pursued the Norway - Benelux Intermodal Service for Seafood that comprises a train service from Bodø to Kristiansand in Norway and a sea service from Kristiansand to Eemshaven in the Netherlands. A number of region-to-region meetings have been held, discussing potential new and improved SSS services.

WP D has been focused on ICT as an instrument for simplifying communication and security in the intermodal transport chain, using mode-independent electronic messages. A focus has also been on Radio Frequency Identification (RFID).

Work package F "Petroleum Sector Transport" has expanded and enhanced the networking between Russian and European private and public entities related to petroleum development in the Barents Sea and transport in that connection. A separate working group comprising shipping companies, forwarders, ports and public authorities has been established. The purpose is to cooperate and coordinate their services in order to be more regular and more frequent. A pilot consignment has been planned to test the intermodal transport chain all the way from the Continent to Russia via Amsterdam and Arkhangelsk.

1.5 NMC II partners

On the following pages the partners of NMC II present themselves and state their achievements in the NMC II project.

ROGALAND/NORWEGIAN CONSORTIUM

Norway has an enormous long coastline and is logistically very much dependent on efficient sea transportation. The Northern Maritime Corridor, stretching from the far south to the far north and east of Norway, is a most important answer to the transport need of the coastal regions.

The partnership of the Norwegian consortium comprises counties from Vest-Agder in the south to Finnmark in the north-east.

Rogaland County Council
Rogaland County Council is the lead partner in the Norwegian consortium as well as in the project as a whole. Rogaland is located in the south-west corner of Norway and has 400,000 inhabitants. The petroleum industry is the major industry, Stavanger city being the "Oil Capital". Along with that, the maritime industry is important as it has been for centuries. In the Stavanger region a new port is being developed, the Port of Risavika, becoming an international logistic hub in Norway. The food production industry is also a major industry in Rogaland.

Vest-Agder County Council
Vest-Agder County is located at the very southern end of Norway, with well developed ferry connections from Kristiansand to the northern tip of Denmark. The port is now being expanded with two new port sections outside the core city centre. The county has 160,000 inhabitants and the main industries are petroleum related mechanical industries and ferro-cilisium industries.

Vest-Agder has been responsible for work package B on NMC as a MoS within the TEN-T Network. The County Council has also been active in pursuing the Norway - Benelux Intermodal Service for Seafood project.

Hordaland County Council
Hordaland County is located in the middle of the west coast of Norway, with Bergen as the main city. Hordaland has 440,000 inhabitants. Bergen is the main gateway for tourists to the Norwegian fjords, and the number of cruiseship calls are above 200 every year. The fishing industry, both pelagic and fish farming, is extensive. The

region has a well developed maritime industry, including the naval headquarters. The Port of Bergen is developing and assessing a new location outside the city centre.

Sogn og Fjordane County Council
Sogn og Fjordane County is located on the west coast of Norway, penetrated by a number of fjords. The County has 110,000 inhabitants. Fishing as well as agricultural industries are the most important industries. In the town of Florø a petroleum supply base and a helicopter base are located. The town of Måløy is important for fish landing and exporting.

Møre og Romsdal County Council
Møre og Romsdal County is located on the northern part of the west coast of Norway and has 250,000 inhabitants. The county has two main ports: Ålesund for fishing industry and export and Kristiansund for petroleum activities, i.e. operation offices, supply bases and helicopter base. The county is also famous for the fjords and mountains. Møre og Romsdal has in particular pursued a new SSS service between Mid-Norway and Scotland, now termed NORSHUKON. A call for tender was announced in 2007, and an operator was selected in spring 2008. A Marco Polo application was submitted in spring 2008.

Sør-Trøndelag County Council
Sør-Trøndelag County is located in Mid-Norway on the cross-road between the southern and northern parts of Norway and with a connection to Sweden by road and rail. The port of Trondheim is developing into a fully-fledged intermodal hub. The county has 275,000 inhabitants and the timber and paper industry is a major industry in addition to agriculture, including fishfarming.

Troms County Council
Troms County is located in the north of Norway, strategically located as a gateway to the Arctic. Arctic research and expeditions have a long history in Tromsø, the major city in Troms. The county has 270,000 inhabitants. The fishing industry is traditionally the major industry. Nowadays the petroleum industry is also using the services of Troms. Troms has been heading WP F on Petroleum Sector Transport.

Finnmark County Council
Finnmark County is located to the far north-east of Norway, bordering Russia. The county has 70,000 inhabitants. Traditionally the main industry in Finnmark has been the fishing industry. During the last decade, the petroleum industry has moved its activities to the Barents Sea creating a number of jobs in Finnmark related to development of the LNG plant and supply bases in Hammerfest. The town of Kirkenes, close to the border with Russia, is a hub for services and communication with North-West Russia.

The Norwegian Barents Secretariat
The Norwegian Barents Secretariat has its main office in Finnmark in Kirkenes and has branch offices in Murmansk, Arkhangelsk and Naryan Mar. The Barents Secretariat is owned by the three northern most counties in Norway, but also coordinates national aims with regional priorities in the Barents region. Within the NMC the Barents Secretariat has been responsible for contact with the Russian authorities in Murmansk, Arkhangelsk and Nenets as well as for getting Russian participation at NMC events in Russia and in Europe.

The Norwegian partners have gained wide experience with short sea shipping and the MoS concept and have developed relations with Russian counterparts
The Norwegian partners together with the other project partners have been active in pursuing the Northern Maritime Corridor as Motorway of the Sea within the TEN-T network. They have taken initiatives to comment on several EU communication documents, inter alia the High Level Group on Transport Axes to Neighbouring Countries. Through this they have contributed to extending the Motorway of the Sea in Western Europe towards the Barents Sea.

The Norwegian partners have also been active in commenting on and influencing the revision of the National Transport Plan in Norway. The emphasis has been on international corridors linking Norway to the rest of Europe and to Russia. One important comment has been that the Norwegian government should apply similar rules as the EU has settled for the MoS regime and Marco Polo programme. Several SSS initiatives have been pursued between Norway and the Continent/UK.

Particular focus has been on pursuing the Barents Sea Intermodal Service (BASIS) project. A working group with members from the private and public sectors from both Russia and European countries have been established.

Already some ship calls in Murmansk have been monitored in order to gain knowledge about the services, and pilot consignments of containers are being prepared to be sent from the Continent to Arkhangelsk.

Furhermore, the NMC has provided an arena for networking between Russia and Europe which has developed tremendously through the years of the project, with the Norwegian partners in a key role.

As Lead Partner and responsible for two work packages, the Norwegian partners have developed a wide network and knowledge in European cooperation as well as experience in running such projects.

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PORT OF AMSTERDAM

NMC II and the innovative Port of Amsterdam
The Port of Amsterdam, the fourth largest European port, has outstanding hinterland connections which make it one of the most important logistic hubs in Europe handling 87 million metric tons of cargo annually. Amsterdam is the world's busiest cocoa port, Europe's biggest port for fuel exports, Europe's second-biggest port for coal imports and a very fast growing container port. On top of that, over 120 sea cruise vessels call at the Port of Amsterdam each year.

The Port of Amsterdam is part of the unique seaport-airport-city tripod. Just a 20-minute drive away is Amsterdam Airport Schiphol, one of Europe's largest intercontinental airports, and the city of Amsterdam, a renowned centre of culture, entertainment and history.

Innovative projects
The Port of Amsterdam has terminals that make use of the latest innovations for handling liquid and dry bulk as well as general cargo and containers. A good example is the port's all-weather terminal that was the first in Europe to provide covered transshipment between short-sea, inland navigation, road and rail transport systems.
The Ceres Paragon container terminal is another good example. This terminal is internationally recognized for its innovations, particularly for its unique double-sided loading and discharging facilities. Developing AMSbarge (Amsterdam Shuttle Barge) has meant an increase in the range and flexibility of shipping general cargo and containers on inland waterways. This inland navigation shuttle even has its own crane on board so that loading and discharging can be accomplished without having to rely on a wharf-based crane.

The Port of Amsterdam uses the latest technology to track and trace cargo flows. Computers are used to monitor ship movements in the port. WiFi regulates communication with ships. And Portnet, the area's extranet system, enables digital communication between terminals, ship agents, cargo owners, customs and the port authority. Together with local industry a RFID test pilot project has started.

In the last three years the intermodal network to and from the Port of Amsterdam has grown:
- short sea, for instance new liners to the Baltic states and Russia, strengthening of existing liner services to Norway,
- inland waterways, new barge shuttles to Duisburg and other Rhine ports in Germany,
- rail, new rail shuttle to the Northern parts of the Netherlands, Duisburg and Prague.

Participation in NMC II (partly) helped to strengthen our intermodal network.

The Port of Amsterdam participated in NMC II for three reasons:
- development of an extensive network with port regions (port authorities, logistics service providers and industries) in several countries surrounding the North Sea,
- development of knowledge concerning MoS, intermodal transport, ICT and RFID,
- strengthening of existing intermodal network (short sea, inland barge and rail).

We are very satisfied with the results from NMC II.

Port of Amsterdam

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FDT - ASSOCIATION OF DANISH TRANSPORT AND LOGISTICS CENTRES

FDT is a public non-profit organisation approved by the Danish Ministry of Transport. The organization comprises seven Transport and Logistics Centres located in Denmark and has its headquarters at the Nordic Transport Centre in Aalborg in the North of Jutland.

FDT has almost 20 years of experience in working with Transport and Logistics Centres and related logistics solutions and networks. FDT is the Danish member of EUROPLATFORMS, the European association of freight villages.

FDT has experience from several EU regional development projects both in the NSR and the BSR as well as in EU R&D activities and has advised several European ministries and authorities on development of (frameworks for) Transport and Logistics Centres.

Through participation in the NMC II project, FDT has aimed at developing and implementing the newest sustainable logistics solutions to facilitate the increased globalisation of freight flows. Our experience has shown that well-managed and coordinated projects are very good tools to develop sustainable transport solutions on a transnational level.

Project achievements

Through participation in the NMC II project, FDT has achieved fine results and has i.a. been deeply involved in:

- planning and establishing of the North Sea Motorways of the Sea Task Force,
- reporting on logistics in the Barents Sea region as part of the BASIS project,
- supplying an overview of funding opportunities relevant for Russia,
- conducting business-to-business and region-to-region meetings in relation to project planning and dissemination,
- reporting about polycentric development and transportation in the North Sea region,
- coordination and participation in international meetings, ministerial conferences, etc. which has resulted in significant dissemination of NMC II ideas and results.

These, plus additional achievements, have resulted in considerable findings related to the development of MoS solutions just as it has increased cooperation along the Northern Maritime Corridor and across the border to North-West Russia. The NMC II project has focused on the need for sustainable maritime and co-modal transport that can benefit the environment while decreasing the amount of road-only transports.

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PORT OF ESBJERG

Port of Esbjerg
Located on the west coast of Denmark facing the UK, Norway, the Faroe Islands, Iceland and Greenland as well as the Western part of continental Europe, the Port of Esbjerg is the international port of Western Denmark. Due to the port's efficient hinterland connections also Sweden and the Baltic countries are within easy reach of the Port of Esbjerg.

Over the years, the Port of Esbjerg has demonstrated its firm determination to further develop the port's infrastructure as well as its capability of attracting new liner services. All in all, this makes the Port of Esbjerg a dynamic hub for cargo flows between the Nordic countries, the Baltic area and Europe.

In addition to being Denmark's number one ro-ro port, the Port of Esbjerg also serves the oil and gas industry as well as the ever-growing offshore wind farm industry in the North Sea. Since the start of the Danish offshore activities in the North Sea, the Port of Esbjerg has - thanks to both the port's excellent infrastructure and the constantly developing local business community - established a unique position as one of the world's leading ports for the provision of offshore services and support. Currently, 80% of the Danish offshore industry is based in Esbjerg.

The development into a multimodal transport centre makes the Port of Esbjerg an ideal short sea shipping alternative to road transport on Europe's congested and expensive highways. On the whole, the Port of Esbjerg regards itself as being well prepared for the challenges of the future, and we invite you to come and see for yourself.

Project results

- The participation in NMC II provided the Port of Esbjerg with an opportunity to expand its European network within the maritime sectors.
- Through its involvement in the project, the Port of Esbjerg has obtained additional knowledge of MoS and related project issues - and the port has contributed to disseminating this knowledge.
- In addition, the Port of Esbjerg has gained increased awareness of its own potential with regard to shifting cargo from road to sea in order to solve the increasing problems of congestion on the highways of Europe.

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GRONINGEN SEAPORTS

Groningen Seaports
Groningen Seaports is the port authority for the seaports of Delfzijl and Eemshaven and two inland harbours: Farmsumerhaven and Oosterhorn. Groningen Seaports is located at the river Eems and is multimodally connected to its hinterland (Ruhr area, Scandinavia and the Baltic).

Hinterland connections
One of Groningen Seaports' strengths is its excellent accessibility, by water, by rail, by road as well as by inland waterway connections. Both the ports are strategically located within North West Europe. The attainability of the ports is outstanding with a considerable depth and hardly any waiting time. It is expected that when the improvement of the auto way N33 (Eemshaven-Assen) has finished that freight traffic can approach Groningen

Seaports unrestricted. In addition, because of the connection with the Eemskanaal, Groningen Seaports has a good connection to the inland waterways. The Eemskanaal connects Delfzijl port with the route Groningen-Lemmer and the further inland waterway system.

Since 2005, Eemshaven is connected to the double rail connection from Emden to the Ruhr area.

Lately, the development of Eemshaven has taken a major turn with the establishment of a multi-fuel power plant of Nuon, an expected LNG terminal by Gasunie, Vopak and Essent and the establishment of a pulverized coal power plant by RWE. These new establishments will have a major impact on the cargo throughput in Eemshaven.

NMC II
The reasons for participating in NMC II were twofold. On the one hand - being an active partner of NMC I - we wanted to continue the positive results and to expand

the networking effect of NMC I. On the other hand, we wanted to further explore the possibilities of the establishment of new SSS routes to and from Eemshaven.

The key achievements of NMC II in short

- Establishment of a regional maritime cluster. The network will continue beyond the project period as an important arena for discussions on maritime and intermodal transport in the region.
- More knowledge of goods flows for the North Sea region.
- Increased awareness of the role and potential of Eemshaven as a hub for seafood exports and as a strategically located port for routes between the North Sea and the Baltic Sea, and the role of Eemshaven in the Norway - Benelux Intermodal Service for Seafood project.
- Business experiences related to setting up a liner service.
- Increased understanding of the market and its actors.

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THE FLEMISH MINISTRY OF MOBILITY AND PUBLIC WORKS, HEADING A FLEMISH CONSORTIUM

Photo: Henderyckx

Flemish Government - Department of Mobility and Public Works - Ports and Water Policy Division
Flanders borders onto the North Sea and is situated between the Netherlands and France. It is the northern state of the federal Kingdom of Belgium. Its main competences include mobility, public works, energy, welfare, health, equal opportunities, culture, youth, urban policy, housing, education, training, employment, tourism, environment, agriculture, home affairs, sports, economics, town and country planning, media and export.

The Ports and Water Policy Division, which is a part of the Department of Mobility and Public Works, plans the port policy and the long-term vision for the river Scheldt and works on the integrated water policy and shipping policy, both in a regional and in an international context.

Results/experiences from the project
The Ports and Water Policy Division was active in the project on policy issues related to ports and Motorways of the Sea. Networking and keeping track of European developments on these issues were a substantial task for this partner, and the outcomes of this work benefited both the Flemish consortium and the project consortium.

The Ports and Water Policy Division was also coordinating the Flemish consortium in the Northern Maritime Corridor II project.

Province of East Flanders
The Province of East Flanders represents a regional level of government and is the intermediate level in between the Flemish Community and Region and the 65 local communities in the Province. East Flanders covers about 3,000 km^2 and has 1.4 million inhabitants. The Province of East Flanders is active in the following key sectors: local governments, patrimony (buildings, roads, waterways, spatial planning), safety issues, welfare and health care, education, environment, culture and heritage, economy, agriculture and rural development, international relations, sports and recreation, tourism, etc.

Results/experiences from the project
- Exchange of information and experiences about port-related and maritime issues,
- facilitating and supporting the partnership of the port of Ghent in the project,
- active participation in work package C,
- R2R and B2B meetings were made possible thanks to the NMC II network.

Province of West Flanders
As a local government the Province of West Flanders is competent for socio-economic regional development. As a knowledge partner the Province of West Flanders offers thematic support and brings added value in a methodical, logistical and infrastructural way to other governments and policy makers.

As a region West Flanders covers an area of 3,144 km^2 and, as Belgium's only coastal province, it has a coastline stretching 67 km. The region has a population of approx. 1,140,000 inhabitants.

West Flanders' economy is built on firm foundations: industrial development, an elaborate economic and logistical infrastructure (two seaports and two airports), strong SME's, thriving tourism, and an important presence of agriculture and fishing. West Flanders' strong industries, which have a long history, are the industries of textile, metal and machine building, frozen vegetables, laminate, etc. These industries have all grown thanks to the presence of West Flemish agriculture.

The people of West Flanders are known for their entrepreneurship, and the region is making significant investments in innovation and knowledge, which are both keys to a growing economy.

Results/experiences from the project
- Exchange of knowledge and experience about port-related and maritime issues,
- facilitating and supporting the partnerships of the ports of Zeebrugge and Oostende in the project,
- active participation in work package C, i.a. R2R cooperation and B2B meetings.

Port of Antwerp
Antwerp Port Authority is an independent, municipally owned company. It is responsible for the planning, development, modernisation and maintenance of the port infrastructure. In addition to this, it also offers a number of ancillary services such as tugging, dredging and the renting out of both dock and floating cranes. The Port Authority is also responsible for maritime traffic safety, the smooth movement of shipping within the dock complex and the running of the bridges and locks within the port. The Port Authority aims to play a pioneering role in sustainable port development.

Results/experiences from the project
Port of Antwerp was project leader for work package D "Technological Development and ICT tools".

Main outcomes of the work package
- Assessment of ICT instruments that support the success of MoS,
- analysis and description of an ICT instrument for marketing and usability of MoS services,
- analysis and description of an ICT instrument for simplifying electronic port clearance,
- analysis and description of an ICT instrument to support customs, security and visibility,
- description of the use of standard transport services to enhance transparency in MoS services,
- description of the use of mode-independent electronic messages based on Freightwise,
- description of a deployment model for putting the identified ICT instruments to use.

Port of Zeebrugge
The seaport of Zeebrugge is a prominent port for intra-European roll-on/roll-off traffics, Great Britain being the main trading partner. In addition, the number of short sea services to Scandinavia, the Baltic region and southern Europe is growing steadily. In this respect Zeebrugge has evolved into a major platform for ro-ro freight in Europe. In the automotive sector Zeebrugge is the absolute world leader. The Zeebrugge container traffic has gained substantial momentum. The port belongs to the limited number of ports that can offer sufficient water depth in the access channel and the outer port in order to handle efficiently the largest and future container carriers. These recent developments have pinned our port definitively on the world map!

Results/experiences from the project
NMC II offered the possibility to develop further an interesting network of persons whose aim is to realise a modal shift from road to sea in the NMC area. The Port Authority participated in several meetings (Orkneys, Gothenburg).

The Shortsea Conference 2007 was held in Bruges in November 2007. Initial contacts from NMC I resulted in a closer cooperation between partners and the submission of several EU-funded projects (Marco Polo, Motorways of the Seas).

Port of Ghent

Ghent is one of Europe's few inland situated ports. In fact, from the sea, the port areas can be accessed only via a 32 km long canal that is reached through a lock system at the Dutch city of Terneuzen.

The Port of Ghent is one of Europe's most versatile ports, handling about 40 million tonnes a year of dry and liquid bulks, metal products, cars and trucks, wood and paper products and containers.

Located at the centre of Europe's industrial heartland, the Port of Ghent has established itself as a multimodal hub dealing with a range of niche cargoes. It has also become a centre for processing and value-added activities and a hub for logistics and distribution.

Results/experiences from the project

- Exchange of information and experiences with other ports,
- active participation in work package C,
- R2R and B2B meetings were made possible with Norwegian ports and Scottish ports.

Port of Oostende

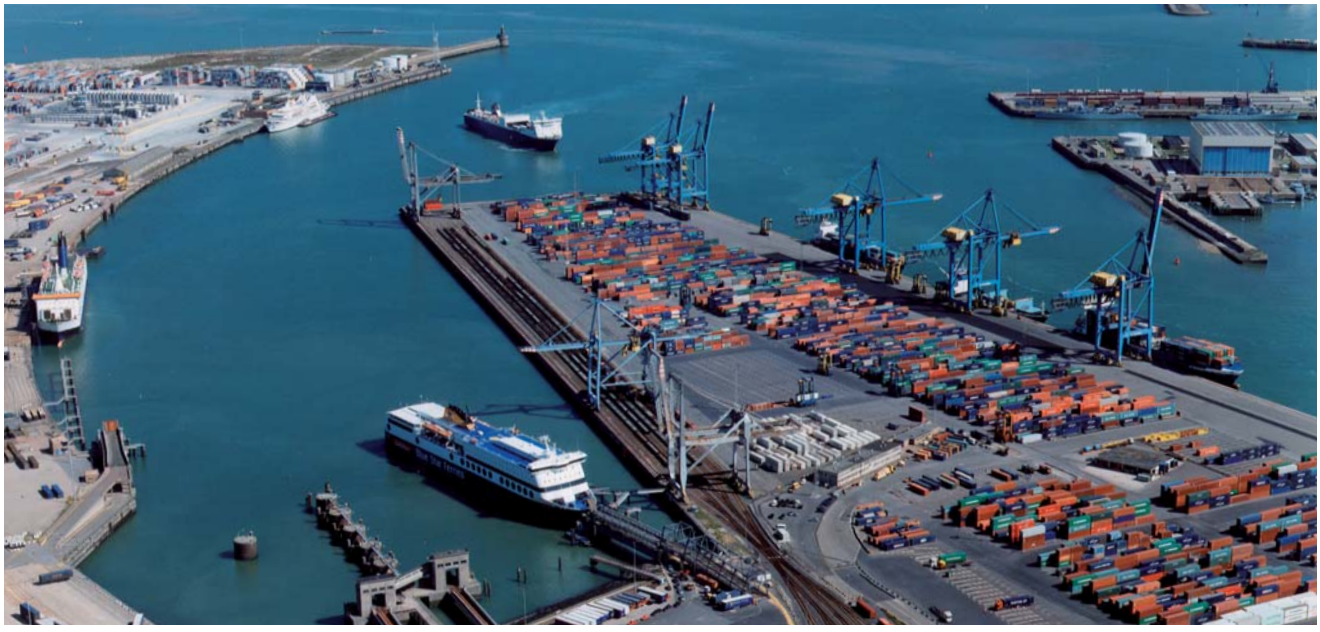
AG Port Oostende runs the commercial Port of Oostende, consisting of the outer port, the trade docks, the inner port and all the accommodations within that area.
The Port of Oostende is particularly experienced in the business of ro-ro.

The Port of Oostende also manages the newly created industrial and logistics sites in the inner port.

Results/experiences from the project

- Investigation for setting up new lines from Scandinavia and the Baltic area to the Port of Oostende,
- investigation of possible traffic flows,
- promotion of SSS,
- investigation of setting up Motorways of the Sea between Scandinavia/the Baltic area and Oostende.

Photo: Henderyckx



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ABERDEENSHIRE COUNCIL

Aberdeenshire Council

Aberdeenshire Council is the regional authority covering the larger part of the north-east of Scotland with a landscape that varies from the mountainous Cairngorms through rich agricultural lowlands to rugged coastline. Aberdeenshire is a predominantly rural area with extensive coastal access through over twenty harbours. These harbours comprise a range of fish landing ports responsible for almost half the total Scottish catch, major specialist oilfield supply and service centres, and small leisure quays.

Traditionally dependent upon agriculture, fishing, forestry and related processing industries Aberdeenshire has, with the emergence of the oil and gas industry, become a world leading energy centre. Service sector growth and tourism have further broadened Aberdeenshire's vibrant economic base leading to a rapid ongoing population growth and the lowest unemployment rate in Scotland.

Reasons for taking part

The NMC II project supports the aims and objectives of the Council's Local Transport Strategy and Sustainability Charter, by seeking to develop more sustainable options for freight movement. The region recognised that there were potential benefits to be gained from a change in attitude nationally and at European level to the extended use of coastal shipping. Therefore Aberdeenshire Council has, with its partners, consistently sought to influence European legislation and funding mechanisms to recognise, and encourage, the huge potential of sea freight.

The region appreciated that the opportunity to strengthen oil and gas related links with the Barents Sea region, and share our world leading subsea technologies, was a tangible benefit from the formal establishment of the Northern Maritime Corridor.

Finally Aberdeenshire sought to encourage the development of facilities to improve the efficiency of inter-modal transfer, and investigate the benefits that can be derived from supporting port facility development to cater for freight.

NMC II offered the opportunity to effect change from within a framework of partners working across Europe to create conditions that promote a potential increase in short sea shipping and coastal freight.

The Council was supported in the NMC II project by sub-partners: Aberdeen Harbour Board, Highlands and Islands Enterprise, the regional transport partnership - Nestrans, and Orkney Islands Council.

Project results

This project has produced a better understanding of present and future market conditions especially as regards potential trade with the regions in the Barents Sea. The project has also refined ideas for addressing the barriers to polycentric port development and has proved a successful vehicle for facilitating stakeholder groups on both a regional and interregional basis.

Aberdeen Harbour Board

Aberdeen Harbour Board is an independent statutory authority responsible for the administration, maintenance and development of Aberdeen Harbour. This port annually handles around 5 million tonnes of cargo, valued at approximately £1.5 billion, for a wide range of industries. It serves Scotland's third city and an extensive hinterland and is a centre of activity for the offshore oil and gas industry's marine support operations in North-West Europe.

Highlands and Islands Enterprise (HIE)
HIE is the Scottish Government's economic development agency for the Highlands and Islands of Scotland. It works with private businesses and enterprising public and third sector organisations to build sustainable economic growth across a diverse region which covers more than half of Scotland.

Nestrans
Nestrans is the Transport Partnership for Aberdeen City and Shire whose purpose is to develop and deliver a long-term regional transport strategy and take forward strategic transport improvements that support and improve the economy, environment and quality of life across Aberdeen City and Shire.

Orkney Islands Council
Orkney Islands Council's Department of Harbours is responsible for the safe and efficient operation of the various piers and harbours located throughout the Orkney Islands. Port facilities vary from those at the Oil Port of Scapa Flow with anchorage locations for multiple ship to ship transfer operations and vessels serving the Flotta Oil Terminal to the remote island facilities with their life line ferry services. Scottish mainland ro-ro ferry and container services operate from the principle ports of Stromness and Kirkwall which also have connections to Aberdeen and Shetland.

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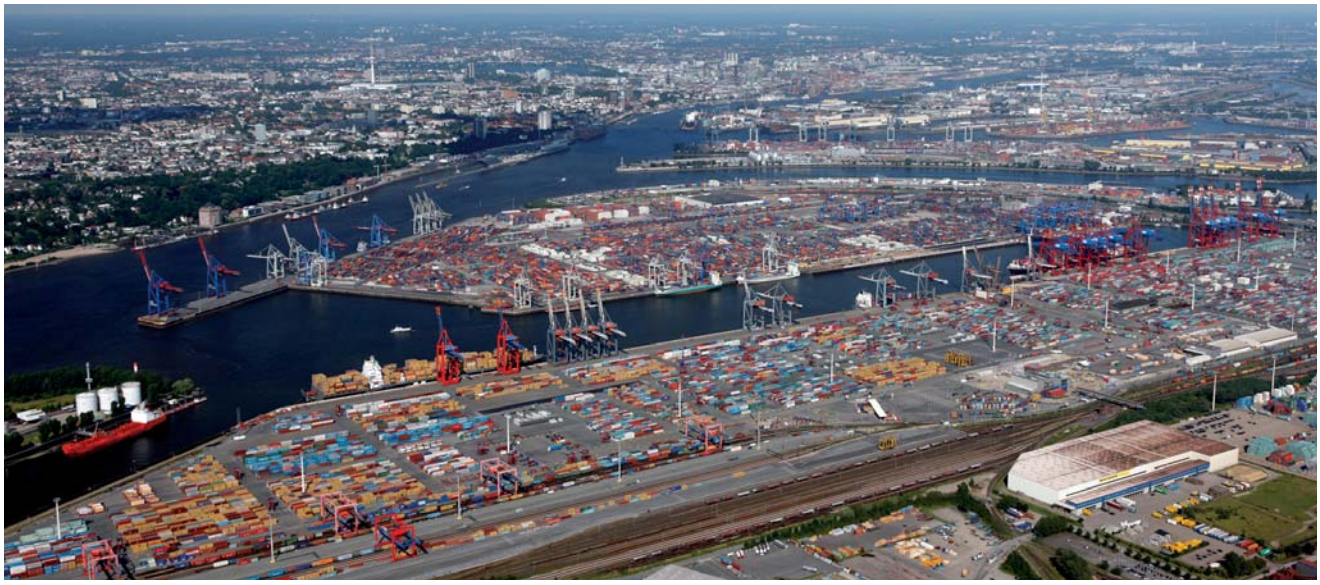
HAMBURG STATE MINISTRY FOR ECONOMIC AND LABOUR AFFAIRS



Presentation
The merging and restructuring of the economies in Central and Eastern Europe brought a new geo-economic situation for Hamburg. Today its port is one of the turntables for goods transported between Central, Eastern and South Eastern Europe and an important hub in these directions. Hamburg's strong advantage lies in the role as a feeder and railway port where more than 50 per-cent of the landwards forwarded containers are carried by rail. Growth rates in container traffic of 11 per cent in recent years pose a strong challenge to the existing port infrastructure and the hinterland connections. The maintenance and development of a smooth cargo flow in an environmentally friendly way is one of the main future challenges. Therefore new, innovative and ecologically friendly concepts are needed. Motorways of the Sea is seen in Hamburg as one mosaic stone for the future growth of seaborne transport.

Reasons for taking part in the project
The Hamburg State Ministry for Economic and Labour Affairs as well as the Institute for Transport Planning and Logistics at the Hamburg University of Technology (TUHH) joined the NMC project in October 2005. The ministry's main interest lay in the general topic of Motorways of the Sea and its promotion. The project was considered a good opportunity to raise awareness for the topic within the port community and other relevant parties.

Results/experience from the project
The project offered a chance for public bodies to network with public and private institutions in other regions around the North Sea in order to work for the common goal of enhancing sea transport. The Ministry therefore hosted an international conference on MoS held in Hamburg in 2007. It was attended by more than 100 participants from 13 European countries. Speakers from public administration, as well as private companies and research institutes elaborated the topic of MoS from different angles. Further research results in Hamburg are describet in this summary report.

Hamburg

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TUHH HAMBURG UNIVERSITY OF TECHNOLOGY

Presentation
The Institute for Transport Planning and Logistics at the Hamburg University of Technology (TUHH) has for ten years been conducting research relating to the expression of economic activities and logistical decisions in transport demand. A major part of the institute's work is also analysing and designing regional and international intermodal logistics concepts with a focus on improving sustainability at all levels.

Reason for taking part in the project
The continuously increasing demand for mobility of people and goods in and around Hamburg as well as on major parts of the European transport network presents challenges on several different levels. One of these is finding more economically and environmentally efficient ways of transporting goods. In many contexts this means looking at alternatives or at least effective supplements to road transport.

However, mode choice and thus modal split in the logistics sector are still largely determined by market mechanisms - primarily cost and time - and modal shift cannot simply be achieved through an administrative expression of will - neither at EU nor at regional or local level. Knowing the actual structures of goods flows - in this case relating to the Port of Hamburg - in terms of mode, cargo types, origins and destinations is one important step towards well targeted activities in terms of subsidies and information activities. It is also a necessary basis for the identification and removal of potential obstacles to desired developments.

A primary goal for the NMC II activities in Hamburg was
- collating such information at the Hamburg level,
- identifying knowledge gaps and
- filling these through a targeted study.

Results/experience from the project
Conducting a major survey of port oriented logistics companies in Hamburg has helped to fill some of the gaps in the data required for well targeted MoS related activities. It has also served to identify current obstacles and information gaps relating to such activities at the local level. Such knowledge will be of use to MoS actors elsewhere too, since many of the issues identified are not exclusively specific to the local situation but also relate to sectoral structures in general, which particularly in international goods transport are often mirrored elsewhere. The findings from Hamburg and their reflections through the experiences of other NMC project partners will thus also bring wider benefits for future efforts of finding goods transport solutions, which are both economically and environmentally viable.

Photo: www.mediaserver.hamburg.de

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HUMBER ECONOMIC PARTNERSHIP

The University of Hull Logistics Institute (UHLI)
UHLI commenced operations in January 2006 and was officially opened by Richard Lambert, Director-General of the Confederation of British Industry, on 5 March 2008. The Institute is the only facility of its kind in the North of England and has a vision to be a world-class centre of excellence in global logistics, supply chain management and related technologies, connecting people and creating prosperity.

Today's businesses have to compete globally and face increasing market volatility and complexity. Globalisation is lengthening the supply chain and is creating greater vulnerability to interruptions and delays. Effective logistics and supply chain management has now become the core competence of many organisations. The mission of UHLI is to provide facilities and expertise to equip businesses to meet these demands.

UHLI is supported by our regional development agency (Yorkshire Forward) and the European Regional Development Fund. It brings together and enhances the University's strengths in business logistics and communication technologies and incorporates state-of-the-art facilities which include

- incubator space for start-up companies,
- technology showcase and demonstration areas,
- flexible meeting facilities,
- dedicated resource centre.

In addition, the institute's staff has specialist expertise across a number of areas including

- logistics modelling and simulation,
- food and retail logistics,
- port logistics,
- emerging logistics technologies such as Automatic Identification and Data Capture (AIDC), item attendant data and Radio Frequency Identification (RFID).

Having already been awarded both Customer First and the ISO 9001:2000 quality standard for its high level of customer care, the institute is dedicated to providing support for industry and offers a range of logistics BSc, MSc, MBA and PhD degrees, alongside an innovative and industry-related research programme, consultancy, training and management courses.

UHLI joined the NMC II programme quite late, as a sub partner to assist the Humber Economic Partnership. Our interest in NMC II was to determine the extent to which modern technologies for Identification, Location

and Communication (ILC) were both in use and correctly integrated into port and short sea shipping and multi-modal operations. Being involved with NMC brought invaluable contacts with representatives of key ports throughout the North Sea region, including a number of port visits. As a result of contacts made during NMC II, UHLI has been able to take a more prominent role, as the partner for the Humber Region, in the follow-on SratMos programme.

The main activity undertaken by UHLI within the NMC II programme was to undertake an audit of operations at various terminals in the Humber Port and make suggestions as to appropriate technologies which might be implemented to bring business benefits. We were pleased to have received considerable support from ABP Ltd in this respect.

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2

FINAL SUMMARIES OF WORK PACKAGES

Compliance of short sea shipping (SSS) services, related hubs and hinterland connections with Motorway of the Sea (MoS) criteria

In 2005 the Motorways of the Sea Vademecum was issued. It explains the requirements for applying for funding for Motorways of the Sea (MoS) projects within the meaning of Art. 12a TEN-T Guidelines. It also describes the necessary information to be submitted, which allows the Commission to evaluate such projects.

All NMC partners were requested to consider how these MoS criteria apply to the current situation and the master plans ahead. Based on this, the report describes to what extent the NMC partners can comply with the MoS criteria within the TEN-T network and is an input into the identification of EU measures. The participating partners assessed in the study are: Rogaland, Aberdeenshire, Amsterdam, Dordrecht, Groningen Seaports, Humber, Esbjerg, Flanders and Hamburg.

Initially a short description of the local context for each port is given with reference to the document "port information" from WP E of NMC II. This gives a description of port facilities, transportation possibilities to hinterland, cargo information, type of goods, existing liner services, bottlenecks and solutions. Following this is a description of the present and future services and infrastructure of the port. This is split into three elements: the SSS services describing the main existing sea routes to/from the ports as well as the expected change in future cargo flow, the logistical hub describing the main logistic hubs including infrastructure elements and the hinterland connections for each of the ports. Given all this information, an assessment is made of compliance with the MoS criteria based on the existing and potential services and infrastructure. The criteria which are used for the assessment of the ports are divided into: potential for modal shift, the cohesion aspect, the implementation and expanding of information systems, effects on competition of potential MoS routes, existence of relevant partnership and commitment of potential users, contribution of investments to achievement of MoS objective and environmental effects.

The overall assessment of the compliance with the MoS criteria for the ports of Rogaland, Aberdeenshire, Humber and Esbjerg shows that the envisaged MoS investments and SSS services should comply fairly well with the overall objectives of modal shift and cohesion as well as the more detailed MoS criteria. There are however common exceptions, the main issues being to what extent the investments are not open to being utilised by all actors, and whether the investment may distort the competition between new/expanded and existing shipping services. Also the fact that it is common for the information flow and ICT tools to not be at the desirable level, however this should absolutely be achievable. Based on the overall assessment a list of indications of potential MoS proposals for work and investments which applies to the individual port is stated.

The overall assessment of compliance with the MoS criteria is made into a table which quantifies the information by topic. This shows that, except for Rogaland, no

other ports comply with MoS criteria but only because every criterion for which no information is available has been evaluated as a non-compliance. However, an overall finding as such is difficult to assess because the input is based on biased and incomplete information.

Input and recommendations for EU transport policies on Motorways of the Sea and short sea shipping and related issues

The very aim and the activities of the NMC II project call for an active involvement in EU transport policies concerning the MoS instrument as well as in issues related to TEN-T and SSS.

The NMC II project has therefore responded to several consultations organised by the European Commission within the mentioned fields. Furthermore, the project has also taken part in the North Sea MoS Task Force as an observer, together with other European stakeholders within ports and shipping. The NMC project has provided input to the draft working plan of the Task Force and input to draft texts and working procedures for the two joint calls for MoS proposals in the North Sea in 2007 - 2008.

Summary of main arguments and policy positions
The NMC II project has called for:

- an extension of the MoS network all the way up to the Barents region and to North-West Russia, and that the Northern Maritime Corridor is defined as the Motorway of the Northern Seas,
- removal of limitations on the involvement of ports in non-EU countries in MoS projects,
- change of eligibility rules under TEN-T MoS allowing for projects with only one EU member state and one EEA or neighbouring state as under the Marco Polo II Programme,
- recognition of ships as eligible for EU funding under TEN-T MoS,
- establishment of a regime whereby the short sea shipping waters within the EU and the EEA areas are recognised as one internal area in line with what already applies for road and rail (cf. proposal for a Common Maritime Space without borders),
- stronger emphasis to be put on the cohesion objective for MoS, relaxing modal shift requirements to MoS proposals mainly motivated out of cohesion concerns,
- relaxation of the Category A requirement under MoS TEN-T, opening for interaction/cooperation with small and medium-sized ports, within the framework of a polycentric port structure,
- the acknowledgement of transport routes via Murmansk/Arkhangelsk as a good alternative for serving central parts of Russia, avoiding constraints and congestion in the Baltic Sea,
- the use of the "BASIS service" (running from the Continent via the UK and Norway up to the Barents region) as a concrete test case for a MoS project in relation to Russia, addressing the challenges of developing intermodal transport solutions in long corridors,
- the establishment of incentive mechanisms to stimulate the industry to produce cleaner fuels, cf. the "Clean Ship Award", and
- harmonisation of procedures and time schedules for the TEN-T MoS and the Marco Polo II Programmes.

Promotion of the NMC II project towards external stakeholder groups
The NMC II project has on several occasions been presented and promoted to external stakeholders within politics, industry and research, including EU Commission officials, the Northern Dimension, the CPMR, other Interreg projects, ESPON, as well as various networks in the Baltic Sea area and in Russia.

Advice on how to profit from Motorways of the Sea-related funding in the Northern Maritime Corridor

The NMC project is focussing on the development of new intermodal short sea services between the partners in the corridor or by improvement of existing services. The purpose of this report is to explore how such services with related hubs and hinterland connections in the NMC area could profit from MoS-related funding instruments such as TEN-T, Marco Polo II, Cohesion and Structural funds etc. As part of work package B, a guideline for applying, building up and financing MoS-related projects is outlined in a step-by-step overview.

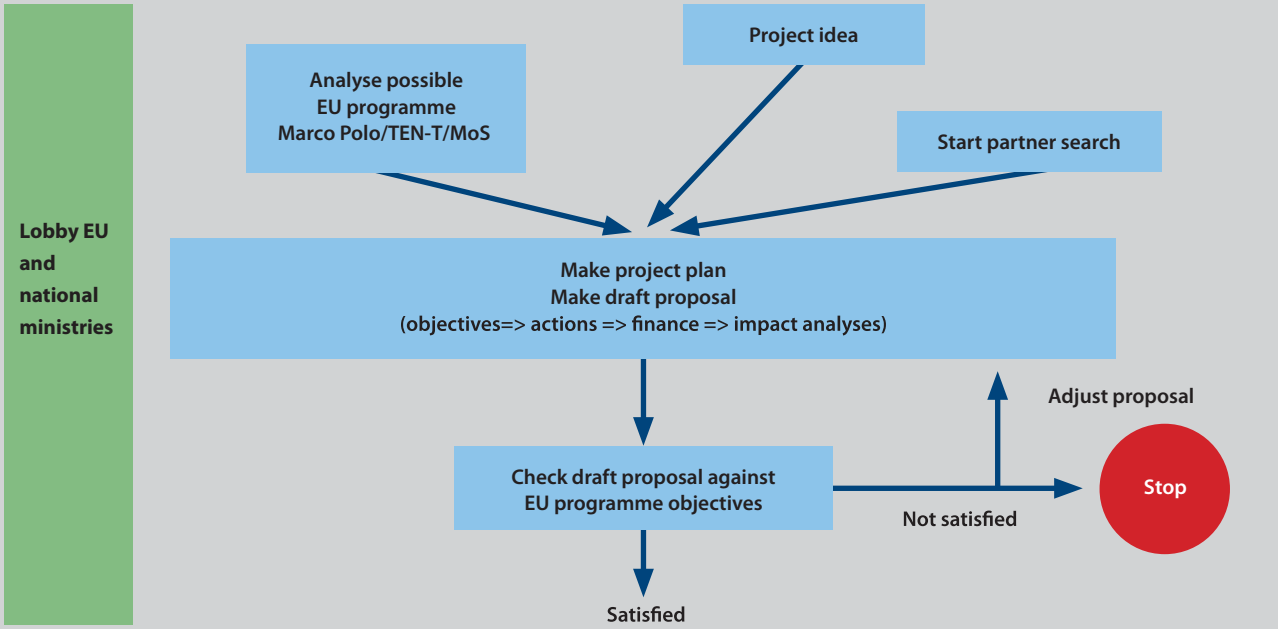
The report has developed some important tools that can be of practical assistance when developing new applications for MoS-related projects and thereby provide answers within the following areas:

- methods for writing project applications, including a project plan and selection of core project group members,
- planning of actions and defining of responsibilities (who writes which part of the application, who does the lobbying for national governments and the EU etc.), and
- financial issues (which financial resources are needed to make the application).

The report is divided into parts as shown in the flow charts on the following page.

Project plan
The starting point of the project will include the making of a project plan for the writing of an application. This includes formulation of the objectives of the project, making a list of relevant partners, identifying an appro-

Flow chart for new project (1)



priate EU programme and clarifying how the activities will contribute to solving the problem. Furthermore it is stated that the process of drafting a proposal sometimes is started without sufficient planning, therefore it is suggested that basic elements of project management are used from the beginning.

Possible ideas for MoS projects

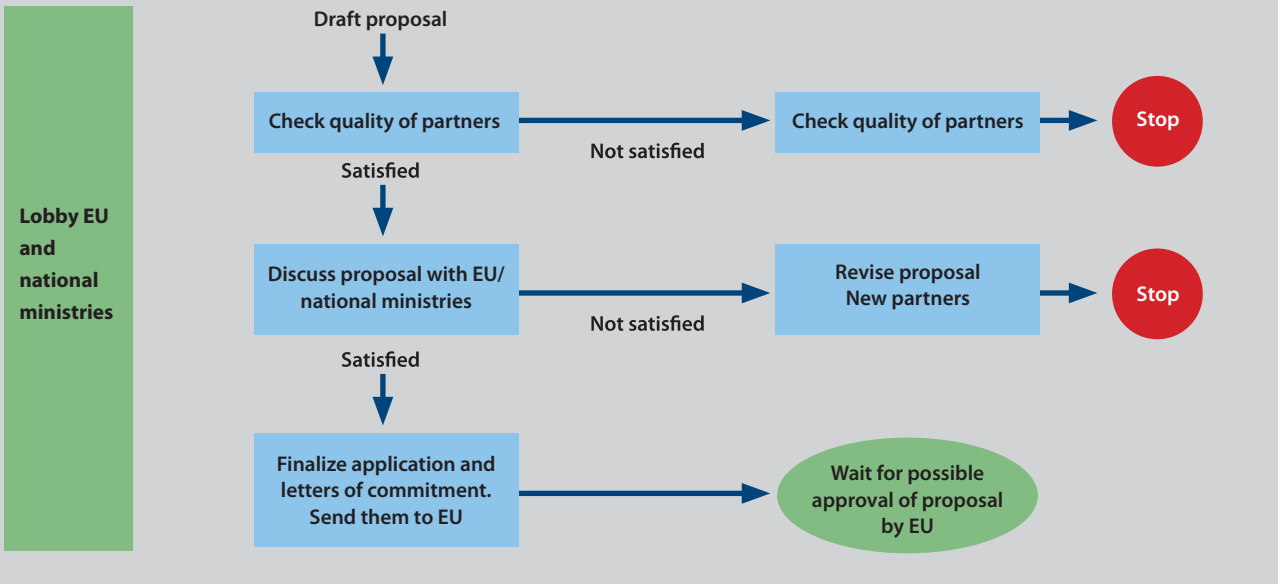
The report mentions some areas that can be of interest when generating a new project, such as: services, investigating missing links, infrastructure and facilities.

A new idea could also demand further networking or regional contact, therefore in order to get started with the development of an idea Interreg programme approval could be applied for in the preparation phase. The investigation form created can be useful to get an overview of possible new projects.

Partner selection

In MoS projects under the TEN-T, partners from at least two EU countries are required, whereas it is sufficient to have partners from one member state and Norway in the Marco Polo II Programme. All other circumstances being equal, it can probably be useful to include part-

Flow chart for new project (2)



ners from new EU countries or neighbouring countries in the project. Applicants should also make sure that the partnership is relevant for the project, and that there is a good balance between public and private partners, for instance: regional authorities, port authorities, cargo owners, industries, terminals, short sea shipping and logistic service providers. When starting to draft a proposal it is wise to start with a small core group of project partners. In later phases more partners can be added.

Advice and guidelines
The intention of this report is to provide practical advice and guidelines on how to develop successful MoS proposals on the basis of the experience gained from the project. Also included in the report is a list of minimum requirements and motivators, combined with the advice, experience and lessons learned form MoS and Marco Polo.

European measures on Motorways of the Sea and short sea shipping

The document aims to give a concise overview of relevant EU information related to Motorways of the Sea and short sea shipping. It contains direct links to websites where the reader can find useful information on each topic, especially when considering submitting a MoS project proposal under one of the European programmes. The main focus of this document is the financial support for Motorways of the Sea.

The recommendations are divided into the areas:

- **Financial support**
  In the report five of the most commonly used funding instruments are described. These are: Marco Polo II, TEN-T, Cohesion and Structural funds, European Investment Bank funds and state aid. The European Commission encourages the use of a combination of two or more funding instruments for a project proposal. Different funding instruments can be used for different phases (preliminary studies, exploitation) or different aspects (service, infrastructure) of the project. The most commonly used combination of funding instruments so far is a Marco Polo II application for the operational aspects of a MoS service and a TEN-T application for the infrastructural aspects of the MoS service. Also included are a range of fact sheets which can be of use in the funding process.

- **Legal and administrative support**
  With respect to the legal and administrative support a bottleneck exercise was initiated in 1999, which reduced the total number of bottlenecks from 161 to 39. This exercise has been relaunched in 2007-2008. In 2002 the European Parliament and the Council adopted the directive on reporting formalities for ships arriving in and/or departing from ports of the Member States of the Community (Directive 2002/6/EC), also called the IMO-FAL Directive. This directive aims at simplifying maritime transport by standardizing certain basic reporting formalities that ships have to fulfil when arriving in and/or departing from ports in the EU Member States.

- **Policy initiatives**
  Short sea shipping is high on the European agenda. The European Commission has published several policy documents on SSS. In 1999 and 2004 EC communications on short sea shipping were published. In 2003, a programme for the promotion of short sea shipping was launched. The programme called for joint targeted action on 14 issues which could contribute to the further development of short sea shipping. This programme for the promotion of short sea shipping was reviewed in 2006, and a new communication presents the progress achieved since 2003 and has retargeted certain original actions.

- **Promotion**
  Since 1997 Short Sea Shipping Promotion Centres (SPCs) have been set up in several countries. The SPCs provide information on short sea shipping to ports, operators, logistical parties, transport organizers, etc. in a neutral way. They also identify bottlenecks for SSS and act as contact points for the industry and public authorities. In December 2000, the existing SPCs set up the European Shortsea Network (ESN). As of today, ESN has members in 17 EU Members States, Norway and Croatia. The national SPCs can be instrumental in finding interested partners when setting up a MoS project.

Region-to-region meetings and communication with the market

Regional meetings
All partners have put effort into communication and into the guidelines, participating and conducting region-to-region and business-to-business meetings, attending and using short sea conferences as well as the excellent support in the NMC focussed on the Russian partners. We have therefore been able to establish and maintain the necessary network to influence and work further on three projects as well as continuously exploring new opportunities and knowledge and then transferring this into sensible business plans.

The following region-to-region meetings have taken place:

- Zeebrugge & Oostende - Humber
- Ghent - Kristiansand
- Flanders - Tromsø

- Humber - Aberdeenshire
- Aberdeenshire - Ghent
- Rogaland - Humber
- Amsterdam - Humber
- Flanders - Baltic mission
- Aberdeenshire - Rogaland

Many of the business-to-business meetings have taken place within the projects as well as some on a more confidential one-to-one basis. Also continuous contact with the Short Sea Promotion Centres has resulted in a lot of support during the project. Although many regions have had the ambition to have more regional exchange meetings, the generic character of these meetings have made it difficult to organize the meetings and to attract the right people. Some meetings have been very successful in getting the people and the businesses together that provide spin-off. The key, of course, lies in the follow-up.

Short sea conferences and trade shows

The importance of more generic conferences and trade shows have proven interesting for several reasons:

- On the informational side, e.g. in relation to the Barents Sea developments in Russia and other market developments, the information is scattered and the quality of information varies. By using multiple sources information can be benchmarked.
- There are many levels of actual knowledge about the possibilities of short sea, both on how it works, but also - and more important for the NMC partners - there seems to be a lack of knowledge about the possibilities in one's own region. There is a shift in the demand for information and in thinking. In the past the question was: Is there a connection between two ports? Nowadays more often than not this refers to: "can I fit short sea into my logistics chain; these are my requirements!"
- Promotion of the Northern Maritime Corridor to attract parties in projects as well as providing easy access to an arena of actors, where the questions and requirements around short sea can be answered.

Examples are the Aberdeen All Energy event, the Intermodal Conference, and the Short Sea and RoPax conference.

All reports, presentations, meeting notes, overviews of short sea conferences etc. mentioned above can be found on the NMC website under work package C in the file "6 Reports".

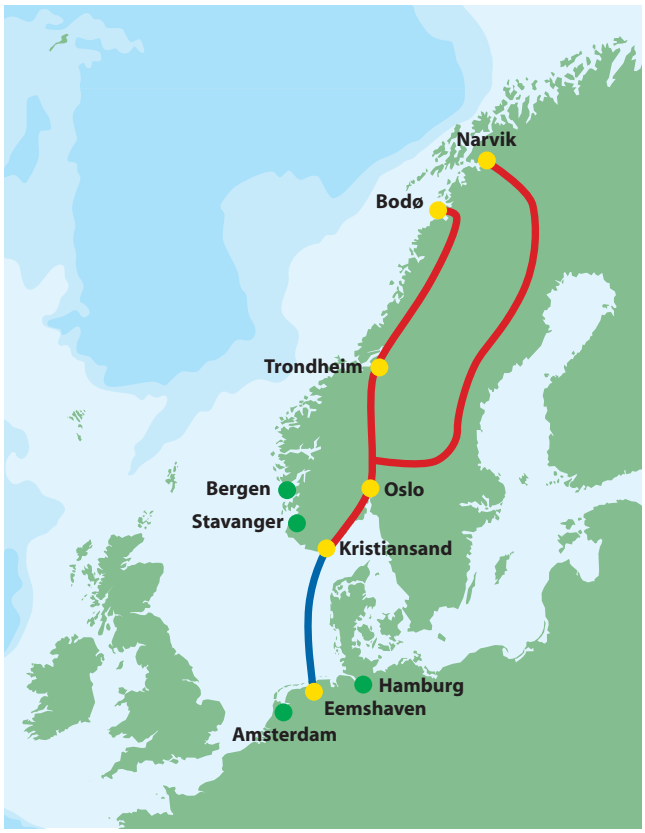
Short sea shipping initiatives

The representatives from the private sector, i.e. transporters, shipping lines and key cargo owners in each partner region, are essential stakeholders in the implementation of this work package, together with port authorities and other relevant institutions. This is clearly reflected in the current projects Norshukon, BASIS and NBISS, where a number of private partners play a key role, and where offering the right service at the right time is the key to the implementation and success of such services.

NBISS

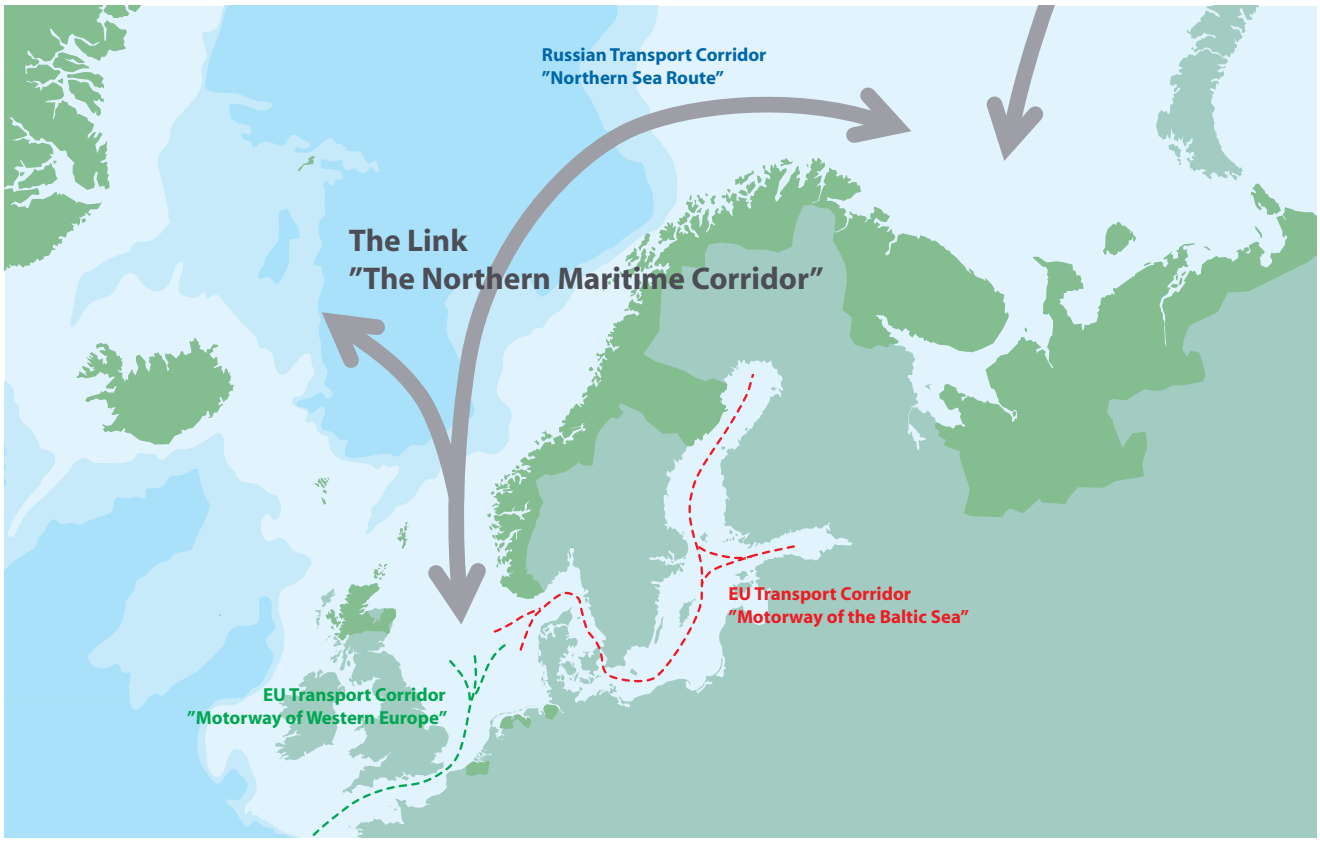
The Norway-Benelux Intermodal Service for Seafood is based on the idea of establishing connections beneficial for the specific requirements of the seafood industry. The intermodal connection with rail and sea legs is not only time efficient but also allows schedules that give good connections between key fish markets.

A change of shipping line partner during the setting up of the sea leg of this project has delayed the project. However a new potential partner is very interested in the opportunity that coincides with their strategic vision.



BASIS

Barents Intermodal Service is a connection between the UK/Amsterdam and Norway/North-West Russia based on two potential flows. One is the development of oil and gas fields in the Russian part of the Barents Sea. The other is the development and provision of alternatives for access routes into the Russian consumer markets. The partners have actively and successfully sought cooperation with Russian partners. This has resulted in keen interest from commercial Russian parties as well as politicians. The latter are indispensable to solving some of the current administrative and



procedural issues, and they have proved that they are willing to increase cooperation. Nor-Cargo UK, Eimskip CTG and Silver Star have been cooperating intensively to improve the volumes of current sailings and for this purpose are setting up a return trial shipment until the volume of cargo flows demands a dedicated service. Currently a potential trial shipment is being developed, including formal cooperation of the Russian authorities.

Norshukon

This Norway-Shetland-UK and Continent project has gone through a lot of development over time, starting with the idea of working with several shipping lines to optimise schedules in order to get a better coverage timewise and better connectivity to the Continent. In the meantime this has become the Sea RoPax Ferry Service between Norway - Shetland - the UK and the Continent. Thorough market research combined with new insights, full cooperation with Møregruppen AS (made up of county and business interests in Mid-Norway), Shetland Development Trust and ZetTrans (a Shetland Transport Partnership) has resulted in a professional tender and selection of a shipping line. Involving the market has also led to a slightly different service than originally envisaged, which will none the less meet the essential requirements, and a Marco Polo application is in preparation.

MOTORWAY OF THE SEA
NORSHUKON LINK
NORWAY–SHETLAND–UK–CONTINENT

Focus on short sea as part of the intermodal connection

Increased focus on short sea and attempts to communicate with the transportation market and facilitating business networks have not always resulted in an immediate actual service. This also, in part, results from the focus on one "leg" of the total chain. However there are some spin-off effects with some new services that have emerged in the NMC area with connections to NMC partners:

- Goole - Amsterdam - Stockholm (Södertälje & Västeras): A container feeder service by operator Transatlantic European Services (TES).
- Bergen - Tananger - Esbjerg: A short sea service with a multi-purpose ship by operator Sea-Cargo.
- Immingham - Oslo - Rotterdam: A container service by operator Tschudi Shipping.

Synthesis of previous ICT projects

The document contains reviews of earlier and current projects as well as conclusions for each of these. The projects included are: ETC, TransportXML, ShortSeaXML, D2D, Remarcc and Freightwise.

This is followed by an assessment of commonalities and differences in the characteristics of D2D/Remarcc/Freightwise and ETC as well as the commonalities and differences between D2D/Remarcc/Freightwise and TransportXML.

Concerning standards the following conclusions are made:

- TransportXML is the only comprehensive initiative providing message standards for the transport community.
- When applying to intermodal transport, there are some issues which have to be resolved: a uniform approach for all transport modalities, schedules, dealing with intermodal chains, and maybe others.
- Freightwise is the arena that will (further) develop or endorse a standard for intermodal transportation.
- As a result Freightwise will normally link up with TransportXML during these activities.
- The message standardisation activity in Freightwise will follow an architectural activity which will normally link up with the information service architecture developed in Remarcc.
- Linking up to ebXML and compatibility with UN EDIFACT will be important, especially for seaborne intermodal transport.

Concerning technological solutions the following conclusions are made:

- The ETC project organised a tendering process to select software that addressed the requirements of regular shipping lines.
- The Norwegian Short Sea Promotion Centre implemented a public portal (the "Short Sea Door-to-Door Guide") to support the utilisation of mostly short sea services - alone, or in combination with pre-/on-carriage, or when shipping services were combined with other (e.g. rail) services in a fixed combined schedule. The implementation also includes sea/sea and sea/river transhipments.
- The availability of descriptions for short sea shipping services in an electronic format is a strong point.
- Improvements can be made in the area of using data for planning intermodal connections. Here solutions from D2D (which will be further developed in Freightwise) seem to be suitable to support intermodal promotion centres.
- The D2D project resulted in software that can be used to implement solutions for transport chain managers (such as freight integrators or freight forwarders) or intermodal communities - as such it is able to support intermodal promotion centres in which all modalities are combined very flexibly - both during the transport planning phase and during the transport execution phase.

ICT instruments supporting MoS

This report describes the Information and Communication Technology (ICT) instruments that have been identified and analysed in order to support MoS implementations. As such it is linked to WP B in that ICT requirements have to be considered when creating an environment that fosters the development and use of Motorways of the Seas. The analysis is carried out in order to achieve an insight into the important instruments that can enhance the quality and effectiveness of intermodal corridors (running over MoS links or not). It has been made in cooperation with the Interbaltic project in the Baltic Sea area. The foundation of the analysis is that, in order to be successful and attract traffic, MoS needs to support the requirements of its end-users: cargo owners, shippers and logistics integrators. The relevant instruments have been clustered in groups. The aim of this clustering was to make it easier to discuss the nature and deployment of instruments within a cluster because they served a common purpose. The clusters are: "Marketing and usability", "Electronic port clearance integration" and "Customs, security and visibility".

The following recommendations are made:

- The "Marketing and usability" instrument should cover both planning and operational functionality, the latter dealing with booking transport services and monitoring the execution of intermodal transport chains. This will attract a larger user base.
- Use a corridor based approach for deploying the identified instruments. This will select an environment where transport users and operators are already engaged together in existing business cases. This will create the opportunity to attract a critical mass of users.
- Simplify the method to populate the "Marketing & usability" instrument with content (i.e. information on available transport services). This can be facilitated by the Freightwise "Transport Service Description" (TSD) concept. This allows transport operators to publish and update their own transport service offering in a structured way, thereby putting the requirement for data entry and update with the operator himself who is also motivated to keep his information complete.
- Use the potential of the EURIFT platform to service as a transport service register that can be a pointer to locations where more detailed information on a particular transport service can be found. This promotes the easy population of the "Marketing and usability" instrument with data.
- Populate the "Marketing and usability" instrument with a central register of locations, distances, and unit types, in order to avoid users having to enter that information themselves. It also guarantees that services will be defined based on the same reference data.

Report on current situation in ports

WP D focuses on how ICT tools may enhance and improve intermodal transport chains. The objective of this exercise was to check the current status on port hub efficiency. This was pursued by mapping how cargo owners and transport providers currently work together in the hub ports.

A questionnaire was prepared with 11 questions related to port hub efficiency. The NMC ports that participated were: Hamburg, Stavanger, Esbjerg, and Florø.

The questions covered:

1. Transport options: Visibility of transport options for cargo owners.
2. Evaluation of options: Simplicity of evaluating and choosing transport options.
3. Transport opportunities: Visibility of transport opportunities for transport providers.
4. Owner collaboration: Collaboration between cargo owners.
5. Planning: Efficiency and flexibility of transport planning.
6. Booking: Efficiency of booking and distribution of transport instructions.
7. Cargo information: Efficient sharing of cargo information.
8. Status: Access to transport status and estimated time of arrival.
9. Deviations: Deviation reporting and flexible rearrangement.
10. Payments: Efficiency of payment processes.
11. Security: Safety and security.

Suggested improvements:

- More EDI for cargo info and booking
- Better cross-border payments
- Better cooperation in transport chain
- Offer door-to-door in one package
- Improve intermodal shipments
- Combined pricing in transport chain
- Better tracking with GPS
- Access to authority data
- Up-to-date sailing schedules on the web
- Internet cargo planning
- More electronic invoicing

Conclusions drawn:

- High/medium priority on efficiency
- Large ports are more efficient
- Considerable room for improvement
- More efficient intermodal collaboration

ICT concept for smaller ports

The Norwegian partnership has made contact with the Norwegian Port Association (NPA) and has received information about their ideas and plans for improved ICT systems.

The Norwegian Port Association has 53 member ports. The ports use an ICT system called "Portwin". Portwin is developed by Pragma Maritim. Main specifications of "Portwin" are:

- administer vessel calls, port services and handling of goods,
- register and maintain necessary data (customers, vessels, services),
- invoices, statistics and reports (EUROSTAT).

NPA is in the process of setting up specifications for a new ICT system. The consultant Marintek has delivered a report (HD-2008).

HD-2008 is a specification based on modules that can be integrated. HD-2008 covers and improves the specifications of Portwin. Compared to Portwin HD-2008 allows the possibility of better communication between ports, vessels, agents, public maritime authorities. The vision is to see HD-2008 as a one-stop-shop, a system that can operate all the services needed for a port call. HD-2008 focuses on maritime services, but Marintek points out the need for focusing on the intermodal transport chain.

HD-2008 presents three possible options:

1) Portwin with some minor changes in its specifications,
2) a new ICT system from an external supplier, or
3) the Norwegian Port Association develops a new system in cooperation with a supplier.

Marintek regards alternative 3 to be the most future orientated alternative. Based on an evaluation of current systems and suppliers (ex PortNet Amsterdam, PortNet Finland, PortInfoLink Rotterdam), Marintek points out three potential suppliers that can be interesting for the Norwegian Port Association:

- Pragma Maritime (Portwin)
- InPort (PortIt)
- WM-Data/Logica (FlexPort)

The Norwegian Port Association is expected to take a decision during autumn 2008.

Humber Ports ILC technology review

The report contains information arising from visits to the Humber Ports of Immingham and Hull in May and June 2006. It also contains initial work on the identification of key points in a supply chain where technologies for Identification, Location and Communication (ILC) may be applied to improve business efficiency. The latter work will be carried forward within the scope of the StratMos project.

An initial two-day visit to ABP at Immingham Docks was followed up by a one-day visit to particular activities, including the Steel Terminal at Hull Docks. The purpose of the visits was to enable the visitors to gain an appreciation of the scope of activities carried out at ABP Docks around the Humber, with a view to identifying areas of activity which might benefit from the implementation of appropriate Identification, Location and Communication technology.

There are four main ports in the Humber Estuary: Hull, Goole, Grimsby and Immingham. Although the scale of activity differs from port to port, the type of activity is similar in outline. Immingham is the largest complex, handling around five eighths of the total estuary tonnage, and was chosen for the initial two-day visit on the basis of convenience. It is understood that any conclusions from the study would apply equally to Hull and to a lesser extent to the other two ports.

After visiting the terminals and analysing the way operations were carried out, it was concluded that there is a wide variety of possibilities for efficiency improvements to be gained in the operation of the port by the appropriate adoption of ILC technologies and in particular RFID (Radio-Frequency Identification):

- **Truck movements (including trains).** Improved truck management within the port could be facilitated by adoption of low-frequency RFID technology.
- **Stores and maintenance.** There might be a case for application of RFID tags to crane wires, grabs and other machinery both for identification and maintenance purposes, but there are very robust manual paper-based systems already in operation.
- **Bulk/bagged product identification.** RFID tags could be used to identify product and to track its movement by forklift trucks equipped with RFID readers and appropriate radio technology.
- **Steel reels (Hull).** The steel terminal appears to offer good scope for implementation of a pilot RFID system based on LF RFID. The main benefit from such a system would be accurate and reliable positioning and identification of the very diverse type of reels within the storage area.
- **Timber.** The existing use of barcode labels for identifying timber clearly has drawbacks due to damage which can occur to the labels. RFID tags would prove to be far more robust than barcode labels in this environment. However, several disadvantages are immediately apparent: the read range is fairly short (up to 1.5m) and there would have to be a visible mark to indicate where the tag is.
- **Paper rolls (Hull and Immingham).** This is a potential application where the manufacturer has already made some progress in AIDC standardisation, albeit in the context of barcoding.
- **Sensors for bulk condition monitoring.** Sensors may be introduced into bulk stacks. The challenges relate to recovery of the data, separation of the sensors from the bulk product and ensuring an appropriate distribution of sensors within the stack.

In October 2006 the following recommendation was appropriate: "Overall, whilst further discussion with interested parties is required following release of this report, the author's recommendation is that a stand alone RFID project could be developed further, based on either bulk product bagging with its associated supply chain or steel reel handling with a further prospect of paper reel handling if the manufacture is willing to cooperate. An additional project should also be carried out as a possible enhancement to the current thinking on truck movement control". Some of these ideas are currently being pursued by UHLI.

A further strand of on-going activity relates to the Generic Supply Chain mapping and modelling described in the previous section. It is felt that such a model may be of value in helping to identify points in the supply chain where efficiency improvements may be gained from implementation of appropriate ILC technologies.

Facilities, transportation possibilities to hinterland, type of goods and existing liner services

As part of work package E, three Quick Scan Reports have been made, each containing descriptions of five to eight ports divided into three geographical areas. The three reports can be seen as a common reference work containing individual information about the following ports: Aberdeen, Amsterdam, Ghent, Oostende, Zeebrugge, Groningen, Esbjerg, Stavanger, Kristiansand, Bergen, Trondheim, Hamburg, Antwerp, Le Havre, St. Petersburg, Felixstowe, Gothenburg, Rotterdam and Southampton.

The reports are purely fact-based papers with the purpose of giving a common overview of all the ports. The information stated in the reports is divided into four main areas:

- **Facilities.** This section points out some general facts about the ports and the facilities that they offer i.e. ro-ro, cranes, terminals, docks etc.
- **Transportation possibilities to hinterland.** This section includes a description of the different hinterland options of these ports, i.e. road and rail connections, airports and inland waterways. The main focus is to point out the advantages of each port and the possibilities when using the port as a hub.
- **Types of goods**. This section describes the different types of goods.
- **Existing liner services.** This section gives an overview of the liner services at the ports. Most liner services are described with regard to destinations, type of goods, time schedules etc.

Comparison of various European ports from governing, service and financing aspects

This document contains the compiled information of certain ports located in Belgium, Denmark, France, Germany, the Netherlands, Norway, Russia, Sweden and the United Kingdom; large ports as well as small ports are considered.

The report provides some general information about the ports and more specific information in order to point out bottlenecks, possible solutions and trends. The areas on which comparisons are made are:

- **The framework governing port management** including: names and types of ports, overall legislative framework and dynamics or future changes in the port sector, the responsibility of the port authority and the investment decision-making procedure.
- **The organisation of port services** including: the organisation of cargo handling, technical and passenger services, organisation of policing operations, organisation of ancillary port services, self-handling, access to the market for potential service providers, port services and the normal durations of contracts, concessions, authorisations, etc.
- **Financing and charging** including: charging, specific financial questions, the degree of financial autonomy of the port authority, the undertaking in the ports regarding the 1000/52 Transparency Directive and the largest ongoing port development project.

The aim of the report is to provide a framework of data which can be used as input to the scenarios of WP E and to evaluate the feasibility of a polycentric network.

Reference is made to the European Commission's descriptions of the bottlenecks facing European ports and possible solutions. Most bottlenecks apply to all ports; some are more specific to one port or ports in a specific country.

The remaining part of the report consists of port information by country, in the first part of each chapter, the specific country is described by means of governing, service and financing aspects. The remaining information consists of specifics about some of the most influential ports in each country.

Pilot study in Hamburg on cargo flows

This report presents the findings of an internet based questionnaire study conducted among port-oriented logistics companies in the Free and Hanseatic City of Hamburg, Germany. This was supplemented by personal interviews in particular cases - for example for companies that generated or handled a known high share of the cargo movements in Hamburg.

The study investigated the potential for freight transport via Hamburg on Motorways of the Sea-type connections as well as the characteristics of goods flows in the Hamburg region and its hinterland.

The original objectives of the study had been defined as follows:

- collating more detailed information on port and hinterland related goods flows (cargo types and quantities, modal split, origins and destinations) at the Hamburg level,
- collecting information about potential obstacles to MoS related activities, and
- appraising the interest in MoS-type activities in the Hamburg logistics community as well as the potential for modal shift.

The freight volumes identified in the study as well as other statistics available show clearly that a lot of the freight movements in Hamburg are not related to port activities but to other business and trade in the city and its metropolitan region. The findings also indicate that the modal split differs for different cargo types - which tallies with expectations, certainly when considering bulk cargo versus container traffic, for example.

The results of this study do indicate that while there is an acute awareness of transport related bottlenecks in and around the port, companies are not so strongly affected that their business is jeopardised. Firstly, there seems to be potential for remedial action within the companies themselves. This is also an area, where the City of Hamburg together with the HPA might be able to help companies by actively providing advice to both the larger and the smaller players. Secondly, some of the measures proposed to solve the problems perceived - certainly inside the port - relate to organisational and operational issues, which though still often complex, could theoretically be implemented more quickly than extending the infrastructure. Such extensions or adaptations do form the majority of measures proposed, though mostly they cannot be implemented within the relatively short time span that would be appropriate to solving today's problems and in some cases, it might not be possible to finance them, even in the long term - at least not to the extent that is suggested by the wish lists. Other solutions must therefore be found - even while the long term perspective is maintained.

Gaps and inconsistencies in the data also make any reliable forecasts of the development of freight traffic more difficult than they would normally be in such a complex system. The study has shown, for example, that respondents, responsible for a considerable amount of bulk and non-containerised general cargo as well as about a third of the containerised cargo turned over in the port, forecast much slower growth rates in turnover - at least for a two year period - than are generally assumed for and by the port. Thus the magnitude of traffic growth on different modes and any resulting

bottlenecks - or aggravation of existing problems - can really merely be guessed at.

The obstacles, which respondents saw to the implementation of MoS (relating in many ways also to current and future short sea shipping activities in general) related largely to fiscal or operational issues. Measures proposed for improvement in Hamburg did relate to the infrastructure, but these had in part to do more with cargo handling than with freight traffic. Also, the majority of measures proposed were again of a fiscal or operational nature.

Thus, MoS - and the resulting modal shift of freight transport away from mainly road based transport chains - should certainly be seen as part of the package of solutions available to address the problems identified today in capacity as well as environmental and quality of life issues. They have the added advantage of being less reliant on far reaching extensions of infrastructural elements of the system and could thus be implemented more quickly. However, they do depend on market mechanisms, so from a public point of view implementation would rely on information provision, and also possibly the creation of fiscal arguments - either by providing incentives or by creating higher costs for road transport. The options for this at the Hamburg level are limited - if not non-existent. However, further exploring of the potential MoS supply and demand identified in this study - along with the question of why existing services are seemingly not considered sufficient - would be a good starting point.

Cargo analysis in the Stavanger region

This is a preliminary summing-up of the questionnaire on cargo flows to/from the Stavanger region. So far seven personal interviews have been conducted. The respondents comprised leading transport companies, operator on rail, ship transport and trucking companies.

The immediate impressions are:

- There is a major concentration in the central area of the Stavanger region of incoming cargo, while there is a wider spreading as to where the outgoing cargo originates from.
- All the companies that have a real possibility of using the railway show a strong will to use it. However, the available capacity is at the moment a major constraint for increasing the volumes in the short term, despite the new rail cargo terminal at Ganddal.
- The bottlenecks on the railway service are: generally too little capacity for cargo, lack of crossings that would increase capacity, and there is a need for a railway to Risavika Port in order to make the port a real intermodal port.
- Bottlenecks on the highway system are: several legs on the main highway, the E39, are mentioned, the highway link between the Risavika Port and the main highway system, rush hour traffic in the city centre.
- Ideas for new shipping lines were:
  - Hamburg/Bremerhaven, and
  - a substitute for the ferry service to Newcastle that will be stopped in September 2008.

Polycentric development and transportation - A study of framework conditions for transportation in the North Sea region

The report on Polycentric Development and Transportation has been based on the following research question: In which way can polycentric urban structures contribute to strengthening the development of efficient transport corridors and networks?

The report considers the theoretical definition of polycentric urban development and how transport plays a crucial role in the sustainability of these development patterns.

The report considers - through observation of current developments at EU and national levels - how the concept of polycentric urban development has already been adopted. The report finally considers the role which polycentric port development can play in servicing these spatial development patterns in a sustainable manner. Currently most western economies are based on Urban Sprawl, locating commercial and social activities in the urban centre while residential development is on the periphery. The arrangement is not transport efficient and leads to significant commuting demands, particularly by private car.

Alternatively a corridor, which "must enable the free and easy flow or transmission of people, goods or information" (Chapman et al., 2003), can provide a focus for development. Commercial entities are attracted to such corridors, giving access to high quality transport options. Transport corridors enable the development of networked cities and demonstrate the concept of polycentricity.

The report also looks into the European Spatial Development Perspective (ESDP), the Interreg III ESPON Programme and the EU Territorial Agenda to explain the advantages and drawbacks of the polycentric approach.

Following the theoretical work the report considers the approaches taken by three Case Study areas around the North Sea region, in order to analyse how the ideas of polycentricity are implemented in spatial planning on a national level.

In Norway, Troms County is an example of centre strategy aiming to create an area attractive to business by strengthening the connections between centres and

their hinterlands. In Scotland, the Aberdeen City and Shire region demonstrates polycentric development aspirations by linking strong cores to the specialist role of different areas with high quality transport options. The Benelux area demonstrates the concept of polycentricity on a wider scale, achieving competitive advantage through employing transport corridors to cooperate with neighbouring regions.

Finally the report considers the extent to which differing polycentric port networks can be developed to support future logistics demands. A bottom-up approach was employed involving industry actors and associated stakeholder groups in the development and evaluation of options. In addition evaluation of supporting research from NMC I and NMC II was undertaken.

The selected polycentric port networks were tested against three future freight tonnage scenarios:

- in excess of current trends,
- in line with current trends,
- well below current trends.

This process led to the development and assessment of six polycentric port network options. Through an iterative process the options were distilled to one network option. Based on these findings a polycentric port network should have the following key attributes:

- eligibility for MoS programme support,
- cluster of ports - reaching MoS Category A status,
- inclusive port cluster marketing - one face to the market,
- port congestion relief through cluster flexibility,
- aggregation/disaggregation services for "part load" customers,
- reconfigure logistics chains by exploiting opportunities afforded by imbalanced hinterland flows,
- positive management of empty units,
- reduce market peripherality.

Polycentric ports are a powerful tool for addressing cohesion issues, but they require support on a different basis to the current modal shift criteria. Urban planning theories can play an important role in identifying the most suitable framework conditions.

Strategic analysis of the future upstream cargo volumes for offshore development

The objective of this report is to perform a strategic analysis of reserves and resources, prospective production rates, technological equipment, suppliers, infrastructure and cargo flows that are necessary for the development of oil and gas on the Arctic and Baltic shelf of Russia.

In the first chapter of the report the volumes of oil and gas reserves and resources of the Arctic and Baltic shelf of the North-West region of Russia are evaluated. Features of technologies for offshore prospecting and production works necessary for the severe climate and ice conditions are considered. Possible variants of field facility construction are estimated. The basic categories of cargo and the equipment for offshore field development are determined. Capital and operational costs for offshore oil and gas field development are defined taking into account the sea depth, climatic conditions and the technical and technological equipment to be used.

In the second chapter the domestic and foreign suppliers for offshore development are considered. The design organisations servicing offshore oil and gas fields are described. An analysis of existing ports and terminals and their cargo turnover is carried out. The means of cargo transportation and the existing needs for upstream cargo flows to the Arctic shelf are defined.

In the third chapter the production potential and prospective levels of production are presented. The demand for offshore platforms and maintenance fleets are predicted. Promising directions for the development of port infrastructure are identified. A forecast is made of cargo flows via maritime ports and rail.

Extract of the conclusions and recommendations:

- Offshore areas of the West-Arctic shelf of Russia hold the largest reserves of hydrocarbon resources for supplying the energy needs of the country and also providing oil and gas exports.
- Only two offshore fields (Kravtsovskoye in the Baltic Sea and Yurkharovskoye in the Kara Sea) are currently at production stage (2007). In this connection, logistical schemes and volumes of regular "upstream" cargo flows on the Arctic shelf are poorly structured at the present time and will be formed only with the beginning of large-scale development of offshore fields.
- The oil and gas reserves and resources of the Arctic shelf of the Russian Federation have relatively low investment attraction which is explained by the following factors: low level of geological study of the continental shelf and the consequently high investment risk; the unfavourable geographic location of the majority of the fields and prospective areas significantly raise the cost of study and development; poorly developed industrial infrastructure of the region; unattractive and unstable fiscal regime; high bureaucratisation of the system of government regulation and granting of rights in the fields; insufficiently developed standards base which is not adapted for the specifics of offshore development.
- Production drilling will be carried out by means of floating platforms of various types and/or subsea well injection equipment.
- At the present time Russia does not possess technology for the creation of the equipment for working in Arctic conditions. There has not yet been sufficient investment in the construction of a port infrastructure or the creation of specialised fleet with navigation and icebreaking support.
- Russian industry lacks some types of seismic prospecting and technological petroleum complexes.
- The main problems of offshore oil and gas installation completion by using only domestic equipment are related to the lack of knowledge by manufacturers of the equipment requirements and their ability to meet technical parameters.
- Real offshore oil and gas production will be below the potential for the following reasons:
  - an insufficient extent of exploration and, as consequence, low reliability of the estimates of possible levels of production obtained;
  - severe environmental conditions and presence of unresolved problems of technological maintenance of oil and gas projects;
  - almost complete absence of the necessary industrial and transportation infrastructure (or its limited capacity being insufficient to increase production);
  - absence of necessary material and financial resources to organise and increase production.
- Realisation of offhore production potential depends on economic, political, and legislative conditions.
- Forecasted cargo turnover by maritime ports and rail is defined in accordance with the State programme of oil and gas resources development for the period until 2020 and the forecasts for offshore field development of the Western Arctic regions and the Baltic Sea.

Ports of North-West Russia

The three main ports of the Northern Basin in North-West Russia are situated in Murmansk, Kandalaksha and Arkhangelsk. In addition there are a lot of small civilian ports serving smaller communities in North-West Russia. In 2006 the total cargo turnover via the ports of the Northern Basin was 32.2 million tons divided between Murmansk with 26.7 million tons (83%); Arkhangelsk with 5.3 million tons (16%) and Kandalaksha with 0.2 million tons (1%). Further information regarding each of these ports including cargo turnover and management details is available in the main report.

As a result of economical reforms in Russia most seaports (that used to be state-owned) were privatised and became joint-stock companies that were soon reorganised into rival commercial structures such as stevedore and transport companies, agencies etc. All port property was divided into two types: that eligible for privatisation and that not eligible for privatisation.

The property **eligible for privatisation** was given to joint-stock companies. This property includes: transport-technological transhipment complexes, loading equipment, buildings, depots, repair shops, port fleet, automobile transport etc.

The property **not eligible for privatisation** was given to Goskomimuschestvo (Committee of Federal Property). It includes: water areas, terrestrial harbour areas, port hydro-technical facilities, icebreakers, buildings and facilities that serve to ensure the safety of sailing, special

purpose fleet for rescue operations and liquidating oil spills; building and facilities belonging to engineering infrastructure; railways, motorways etc.

At present most of the Russian ports are not competitive because their facilities and services do not meet global standards. Besides, the port dues are too high because they include additional costs like for example federal property tax (2.2%), dredging costs etc. Consequently, ship owners prefer to use the port services abroad.

The development of port infrastructure is dependent on the government and on the private companies that work in the port territory. While private companies are interested in making investments in modernisation in order to make profits, the finance from the federal budget is not sufficient. This is true for the ports of the Northern Basin as well. The Analytical Department of the Murmansk Commercial Seaport has estimated that state financing covers only 5-10% of all the needs for port infrastructure. Until now most of the modernisation and development projects have been financed by stevedore companies and other commercial organisations.

In May 2007 President Putin stressed the importance of quick action in port developments, especially in Murmansk, a key site for the planned oil and gas developments in the Barents Sea. The initiatives of the government to improve the transport system of Russia include the following measures:

- adopting the "Law on the Seaports",
- establishing free port zones (special economic zones) with preferential tax treatment,
- establishing management companies in the ports that will regulate port activities together with the local administrations,
- reservation of new territories for port infrastructure.

The Federal Target Programme "The modernisation of the Russian transport system" for 2010-2015 presupposes investing around RUR 150 billion into the development of Russian maritime and river transport. Much of the costs will be paid by the Investment Fund - a special financing tool that presupposes joint financing and Public Private Partnership.

The bill of the "Law on the Seaports" was introduced in spring 2007 and has already been approved by the Government. It is supposed to solve the majority of urgent problems and contradictions in the port organisation and the port management. The document clearly states the division of responsibility in port management. The bill contains the norms and regulations for the port establishment, building, functioning, reconstruction, liquidation and setting land and water boundaries. According to this law all ports will be subdivided into municipal ports, ports of Federal subjects and federal ports.

It is expected that because of the Law on free economic zones favourable conditions will be created in the ports that will attract customers from abroad. The export of the port services will possibly increase by 50% - 100%, thus cargo transportation by sea and air may double. Free economic zones presuppose simplified customs procedures and significant tax advantages for companies registered within the zones.

Case study development and market analysis leading towards establishing a Barents Sea Intermodal Service (BASIS)

This report describes and examines the practical approach followed during a particular stage of the BASIS project, during the first half of 2007, involving the support and promotion of three private sector companies in efforts to establish interest in a Barents Sea Intermodal (BASIS) service. Joint workshops and joint presentations to Russian audiences aimed at identifying and stimulating interest among shippers and receivers and clarifying a joint service specification have taken place in Amsterdam, Arkhangelsk and Murmansk.

The question raised, for which an answer was sought through this study, was whether suitable cooperation could be achieved, perhaps by sharing cargo and vessels to deliver economies that would provide a commercially attractive joint service to the market. This could, in turn, attract more freight and handle market growth, provided such a market exists. Compared to existing supply chains, could a BASIS service appeal to the market on grounds of improved frequency, lower costs, faster transit, multimodal capability and additional port coverage?

A scientific, theoretical approach to market evaluation was undertaken by Ocean Shipping Consultants culminating in a report published in August 2006, and the relevant findings from the report are examined. This stage of the project sought to develop a practical service solution to serve perceived development in demand, as outlined in the Ocean Shipping report. The report proceeds to outline the existing services provided by the Case Study partners, examines the cost and service barriers, puts forward a potential service schedule and highlights the conclusions made by the commercial partners during the study.

Conclusions and recommendations

Freight transport demand in the Russian Barents Sea region is already satisfied by existing services but there is reason to believe that development and demand is being held back by the high cost of shipping and transport. Such a chicken and egg situation can be averted in part through cooperation between the Case Study partners (and other operators), by sharing freight and by increasing general vessel utilisation. A solution that is easy to propose but far more difficult to accommodate between competing commercial enterprises.

It is interesting to note that breakeven feeder rates quoted for an identical container feeder vessel operating

into either St Petersburg or Murmansk are only tens of Euros apart, assuming both services are operating at the same levels of utilisation. However, while a break-even calculation produced a breakeven feeder rate of just $186 per TEU for a container feeder service operating between Rotterdam and Murmansk (500 TEU vessel operating at 90% utilisation) indications of market rates are much higher. In fact a rate indication for the movement of a 20' container from Manchester to Murmansk from Euro Container Transport was £2,167, partly probably inflated by the need to cover the cost of returning an empty container, but implying a feeder cost element of at least £1,000 per TEU ($2,000 per TEU at current exchange rates). At feeder rates of $2,000 per TEU a 500 TEU vessel would only need to operate at 8.3% utilisation (16.6% carrying empty returns) to generate breakeven income!

The drivers for growth in traffic through Murmansk and Arkhangelsk are oil and gas, seafood, timber and forest products, with perhaps containerisation of bulk minerals and commodities. Any development in these areas will stimulate general economic growth leading to additional demand for consumer related imports and raw materials to support processing. Greater insight is required into each of these trade sectors in terms of companies and organisations involved and ongoing development, insight that has not yet evolved from this stage of the BASIS project, but could be developed further with each of the Case Study partners (Oil and Gas - Nor-Cargo, Seafood - Eimskip-CTG, Timber and paper - Northern Shipping Company), perhaps enlisting the support of Murmansk port management.

Transport concept for the Barents Sea region

The BASIS project is a sub-project within work package F in the NMC II project. BASIS is an independent working group and functions as WP F's practical and concrete component. While WP F as a whole is concerned with transportation concept development, BASIS has the main aim of establishing a regular and frequent sailing between Continental Europe/the UK and Northern Norway/North-West Russia thus achieving the goal of increasing maritime transport. The commercial justification for the project is expected to be found in the shifting of cargo flows going to/from Europe/Russia from the ports of the Baltic Basin to ports in the Barents region.

A secondary aim of BASIS is to carry out three case studies of existing maritime services between Europe and North-West Russia. Investigations of the established and regular container services will give the insight required to address the relevant challenges and obstacles.

The potential for improved services is in exploiting the directional imbalance that several operations have today and by cooperation create a win-win situation. Another opportunity is for the Barents Sea ports to function as supplementary gateways to Central and North-West Russia, as the capacity in the Baltic ports is likely to have constraints in the future.

In the short term a regular service can be offered by bundling a number of cargo flows, therefore offering an efficient, economical and reliable regular service on the

mainland. Secondly exchange of business contacts in the regions of the partners can support increasing cargo flow to/from the Barents region.

In the long term we expect demand in specialised offshore equipment, supporting the development in the Barents region, for which a, by then, reliable service with Russian transport partners can be offered. Also knowledge of a wide range of transportation of oil and oil products including ship - ship and ship - shore can be offered, including knowledge of European regulations and safety standards.

The Russian partnerships were asked for their knowledge of the Russian market. Eventually Russian partners in the liner service would use their contacts to secure regular throughput to fit the liners schedule and commercial participation in mutual cargo flows.

BASIS meetings comprising public authorities, oil companies, and transport companies from North-West Russia particularly in the Murmansk and Arkhangelsk and Nenets oblasts have been held on a regular basis with representatives from Amsterdam, North-East Scotland and the Norwegian counties. The BASIS meetings and presentations have been made to a wide range of audiences across the key target regions for the service of North-West Russia, Norway, the Netherlands and Scotland and also as an integral part of Russia's own Northern Sea Route Initiative. Consultancy reports have been commissioned by the project covering the potentials for cooperation, existing routes, costs, drivers for growth, and port infrastructure.

- Future BASIS work requires a more strategic and market adapted approach to reach cargo owners.
- In this phase much work has been concentrated on the ship and port issues. It is crucial to look at the whole logistic chain. A transport concept analysis must be produced for strategic documentation of the test sailing.
- One of the activities crucial for commercial maritime logistic and hub function is the development of hinterland connections. All ports in the region should have secured hinterland connections to avoid bottlenecks on the Barents Sea transport corridors. Hinterland development should be prioritised both because it takes time to realise the investment in hinterland connections and because it is one of the preconditions for the fast and efficient supply chain/ transport corridor via the Barents Sea.
- The conclusions from the case study report may be summarised as follows:
  - Cooperation between case study partners by sharing cargo and increasing vessel utilisation has potential for a win-win situation.
  - The service will provide direct maritime connections to the local markets bordering the Barents Sea.
  - The Baltic Sea is conceived by the market as the main "route of choice" to central Russia.
  - However, breakeven costs for a northern service are far below market rates experienced through St. Petersburg.
  - Drivers for growth: Petroleum, seafood, timber and forest products and the containerisation of bulk minerals.
- There is broad interest in all partner regions to continue working with BASIS. The associated private partners are the driving factors in the work.
- Basis and NMC have successfully drawn a lot of attention to the corridor and the transport concept, especially in Russia.
- At this stage, research was conducted supporting the initiative's commercial sustainability. It is still important to attract necessary Russian partners and to provide funding/support for a test route.
- The BASIS project group is currently working on scenarios within the Northern Dimension and EU's TEN-T and Marco Polo frameworks. It is recommended that initiatives for implementing Northern Maritime Corridor/BASIS into Northern Dimension be pursued.
- It is recommended that initiatives for implementing NMC-BASIS as a corridor within EU's TEN-T be pursued.

Logistics in the Barents Sea region

The aim of the WP F report is, on the basis of the most important findings of the studies relevant to the transport of petroleum and freight in the Barents Sea region, to give recommendations on how intermodal projects, including investments, can be pursued. Transport and logistics in the Barents Sea region is affected by economic activities, trade flows and infrastructural and administrative conditions. Developments that have the greatest impact on transport and logistics in the Barents Sea region include:

- planned development of oil and gas activities in the on- and offshore fields in the Barents Sea region and Northern Russia,
- extraction and export of other natural resources from Russia,
- limited capacity, congestion and high handling charges in the Baltic Sea ports,
- emergence of the South-East Asian economies and intensification of trade between them, Europe and the USA,
- growing demand in the North-West Russian market
- increased shift of transportation from inland to sea and connected with this development of inter- and co-modality in the transport corridors.

The development of gas fields in the Barents Sea and oil fields in Northern Russia will cause growth in the transportation of equipment needed for the development of the fields. The equipment will be transported from

western countries, which possess necessary know-how for field development in difficult environmental conditions. The gas and oil extracted will be transported to customers mainly in Western Europe and the USA.

The emergence of the Asian markets and the increased trade exchange with these markets bring about the search for the most efficient, in terms of time and costs, transport connections to these countries. One of the alternatives is the Northern Sea Route through the Barents Sea.

The increased market demand in North-West Russia, and especially in Moscow, together with the development of industries in the region, implies that additional port capacity will be needed for growing transportation volumes. So far most of the transport volumes were handled by the Baltic Sea ports, which are experiencing increasing capacity problems. Therefore new transportation routes like those through the Barents Sea have potential for development. Transportation routes via the Barents Sea have a huge potential for development which at the moment is hindered by the following bottlenecks:

- underdeveloped transport infrastructure, especially: lack of reloading and multimodal facilities, insufficient port hinterland development, lack of rail links to the ports,
- high costs of transportation through the Barents Sea due to high inland transportation costs on the Murmansk-Moscow route, high rates for using the Northern Sea Route, too high port duties in ports of North-West Russia,
- high dependence on political decisions regarding allocation of funds for the development of the ports in the Russian part of the Barents Sea, and insufficient funding,
- unequal conditions for the Russian and foreign companies in relation to carrying out petroleum activities and acquiring port areas, and
- limited containerisation of transport volumes and lack of container terminals.

In order to contribute to the elimination of these bottlenecks it is recommended to:

- promote cooperation between ports in the area and other ports on the transport corridors,
- invest in intermodal infrastructure,
- reduce administrative bottlenecks, especially customs clearance,
- enhance engagement of foreign companies in activities in the Barents Sea region with the aim to boost investments,
- continue the networking activities initiated by the NMC II project partners,
- lower the transport costs or provide more added value to the transported commodities by developing innovative logistics solutions such as the logistics centre concept.

The overall aim of the investments in the Barents Sea region should be the sustainable growth of transport activities in the whole region. Therefore investments and other initiatives undertaken should aim at enhancing cooperation.

The analysis of ports and transport corridors through the Barents Sea region led to the conclusion that Murmansk Port has the greatest potential for becoming a transport hub in the Barents Sea due to the following advantages: ice-free, natural depth, good geographical location, connection to railways and proximity to gas and oil fields. At the moment the port lacks facilities for container and petroleum handling and has an underdeveloped intermodal infrastructure. Investments are recommended in order to eliminate these bottlenecks. Furthermore the establishment of a logistics centre in the Murmansk area should be considered.

The following actions should precede the establishment of a logistics centre:

- awareness-raising activities,
- analysis of infrastructure condition, environmental impact assessment, future need for storage facilities,
- engagement of all stakeholders in the planning phase of the establishment of a logistics centre, and
- development of hinterland connections.

Petroleum strategy workshops

The main objective of work package F is to maintain and develop an arena for networking between the public sector and the private sector in the Barents Sea and North Sea countries. The objective is also to develop concepts for efficient and sustainable logistics services for petroleum developments and operations in the North Sea and Barents Sea regions.

The focus of work package F has been on transport for the petroleum sector, i.e. efficient up- and downstream petroleum logistics. WP F aims also to develop concepts for a transport system that are relevant to petroleum developments and operations.

WP F focuses especially on maritime logistics related to the Barents region and Russia. Some 25% of the world's remaining hydrocarbon resources are found in the Russian Arctic. The Arctic poses special challenges to safe and efficient petroleum activities: underdeveloped infrastructure, long distances from centres of production and severe climatic conditions. These are some of the issues being scrutinized in WP F where European and Russian specialists are coming together to find sustainable solutions through cooperation.

Following on from the first project period, WP F started in early 2006 by organising the first Petroleum Strategy Workshop in Aberdeen, hosted by Aberdeenshire Council. Since then Aberdeenshire Council, Orkney Council, Humber Economic Partnership, Troms County

and the Norwegian Barents Secretariat, which is responsible for coordinating the Russian Dimension, have been active partners in WP F. Finnmark County joined the WP F team in early 2007. From the Russian side, regional authorities from Murmansk, Arkhangelsk and Nenets and also representatives of central government have been regular participants at WP events and contributors to the work of the NMC.

In the wake of the developments in the Barents region we can expect a growing role for the Russian maritime ports situated in the region (Murmansk, Arkhangelsk and Vitino). Currently the biggest port is the port of Murmansk, which has a huge potential for development. Due to its location it can play the role of a hub between the Northern East-West Freight Corridor on the east, the Northern Maritime Corridor on the west, the Connection to the Baltic Sea through the Northern Transport Corridor and connection to the interior of Russia, avoiding the busy port of St. Petersburg or other ports in the Baltic Sea area with a problem of low capacity of border crossing points.

Due to the fact that the resources for investments in the Barents Sea area are scarce, it is important to strive for investments that to the highest possible degree will stimulate the development and enhance the attractiveness of all transportation routes through the region. The identified bottlenecks that are common for all transport routes are:

- lack of facilities in ports,
- complicated procedures (especially customs clearance), and
- low percentage of containerized transport volumes.

Further work would be to contribute to the development of logistic infrastructure in the port of Murmansk, through a structural approach of analysing the core elements and conditions for the development of the Logistic Centre environment/hub function in Murmansk.

Only two offshore fields (Kravtsovskoye in the Baltic Sea and Yurkharovskoye in the Kara Sea) are currently in the production stage now (2007). In this connection logistical schemes and volumes of regular "upstream" cargo flows on the Arctic shelf are poorly structured at the present time and will be formed only with the beginning of large-scale development of offshore fields.

Developments of the offshore industry in the Barents Sea area is still hampered by several challenges: low level of geological study of the continental shelf and the consequently high risks of investment; the unfavourable geographic location of the majority of the fields and prospective areas significantly raise the cost of study and development; poorly developed industrial infrastructure of the region; unattractive and unstable fiscal regime; high bureaucratisation of the system of government regulation and granting of the rights in the fields; insufficiently developed standards base which is not adapted for the specifics of offshore development. The main problems for offshore oil and gas complex completion by using domestic equipment are associated with its low competitivity as regards technical parameters and the manufacturer's insufficient knowledge about the requirements for the equipment. The major problem that is an obstacle for the development of Russian oil and gas equipment production is the absence of unified technical standards base. This can lead to the manufacturing of obsolete equipment which is inconsistent with the modern technologies needed for the oil and gas industry and international technical requirements.

There is a political debate regarding regional development related to the establishment of offshore industry in the Barents Sea region. The experience from the WP F workshops and the BASIS work shows that regional focus on maritime logistics will give opportunity for growth and regional development. The need for transport, logistic and shipyard services will be considerable.

Overview of the funding opportunities related to Russia

This report gives an overview of the relevant funding opportunities related to North-West Russia. The report gives suggestions on how investments in new transport initiatives and projects can be pursued. In total eight different funding programmes and investment funds are described and analysed.

The Kolarctic ENPI
The Kolarctic ENPI (European Neighbourhood & Partnership Instrument) CBC Programme is one of EU's financing instruments which is going to be implemented on EU's external borders during the programme period 2007 - 2013. The Kolarctic ENPI CBC Programme area includes the northern parts of Finland, Sweden and Norway, and a large area of North-West Russia. Its aim is to promote cross-border cooperation by providing funding for actions on either side of the EU external border, which contribute to common benefits. The EU funding for the Kolarctic ENPI CBC Programme comes from two sources: financial allocations for the ENPI itself and the European Regional Development Fund. The aim of the ENPI Programme is to provide grants for local development projects that support relations with EU's European Neighbourhood partners and the Russian Federation.

ENPI national allocation to Russia
Funding under the national allocation to Russia is limited to € 30 million per annum over the period 2007-2010. Funds are designated to support sustainable development and approximate to EU policies and standards supporting the priorities of the Strategic Partnership with Russia.

Marco Polo II
The Marco Polo II programme for the period 2007-2013 is a continuation of the Marco Polo programme which ended in 2006. It supports actions to reduce congestion, to improve the environmental performance of the transport system and to enhance intermodal transport, thereby contributing to a more efficient and sustainable transport system. The Marco Polo II programme includes new actions such as Motorways of the Sea and traffic avoidance measures. The programme has a total budget of € 400 million.

Motorways of the Sea
Motorways of the Sea is a programme supporting the development of links between and within the Baltic, the Barents, the Atlantic, the Mediterranean, the Black and the Caspian Seas. The programme has a budget of € 310 million for the period 2007-2013.

Neighbourhood Investment Fund
For the period 2007-2013 € 700 million will be available for borrowing for investments in ENP partner countries, in priority sectors as identified in their ENP Action Plans. The Neighbourhood Investment Fund is proposed by the European Commission as part of the EU's European neighbourhood policy.

European Investment Bank
For the period 2007-2013 the European Investment Bank is allocating € 3700 million for Russia and Eastern Europe as well as the Southern Caucasus. This amount aims to support projects of significant interest to the EU in transport, energy, telecommunications and environmental infrastructure.

European Bank for Regional Development
The EBRD provides loan and equity finance, guarantees, leasing facilities and trade finance. The objectives of the

European Bank for Regional Development as regards Russia include the reduction of Russia's dependence on its natural resources, strengthening of the micro-economic foundations of the growth process, improvement of the business and corporate governance standards of the Russian companies, modernisation of the infrastructure and promotion of financial intermediation to the real economy. The amounts available for investments range from € 5 million to € 230 million.

Russian national resources

The Russian Transport Ministry is obtaining funding through the Federal Target Programme "The Modernisation of the Transport System of Russia" (2002- 2010). This programme aims for transport infrastructure development including the development of international transport corridors that cross the territory of Russia. The funding in 2007 is planned to be an amount of RUR 223.7 billion (approx. € 33.5 million).

The funding opportunities shown above are described in detail in the full paper. Funding from EU neighbourhood instruments such as ENPI are the most relevant. The resources from these funds available for Russia are precisely defined and allocated to concrete initiatives, which is in accordance with WP F objectives. Due to the maritime character of the BASIS project it is also recommended to pursue funding from the Motorways of the Sea programme. The Russian national funding sources can be complementary to the EU funding.

The North-East Passage - The Northern Sea Route

Climate change has been debated a lot in recent times. The focus is mainly on all the damage that the global warming may create, especially in relation to the environment, such as the melting of the ice at the poles. Thus, climate change is viewed in a negative context. However, recent studies show that the melting of the ice on the North Pole gives birth to new opportunities for transportation between Europe and North East Asia. Instead of using the traditional route through the Suez Canal the retraction of the ice in the arctic areas gives the potential for developing a Northern Sea Route through the North-East Passage. Thus, this paper is relevant for the study of transport and logistics in the Barents Sea region as ports in North-West Russia can play a vital role as transport hubs along a transport route following the North Russian coast.

The discussion/idea regarding an alternative shipping route between Europe and North East Asia came to light from the idea that global warming had caused huge melting on the North Pole, which cautiously makes it possible for container ships, which are strengthened, to cross the North-East Passage between the north of Siberia and the North Pole, without any help from ice breakers.

Advantages

- The Northern Sea Route makes it possible to reduce the shipping distance by 40% between Europe and North East Asia, which will in turn result in a reduction in fuel consumption and thus also CO_2 emissions.
- In total the alternative route will give the possibility of reducing the travel time by 12 days.
- The increasing oil prices make it even more attractive for the shipping companies to consider alternative routes, like the North East Passage, even though it will be necessary for the companies to invest in new ships which would be able to cross ice covered waters and which cost 10-20% more than ordinary ships.
- The shorter distance and thus the faster travel route between Europe and North East Asia will entail less need for ships and employees.

Problems to be solved

- The Northern Sea Route is mainly part of Russian waters which means that Russia possesses the power to decide on the size of taxes which should be collected when using Russian ports and waters.
- The infrastructure is at present stage underdeveloped, mainly because of the few ports where loading and reloading is possible but also due to the lack of container terminals in the Barents Sea region, which makes the transportation less flexible.
- The Northern Sea Route requires transportation across partly ice covered waters making it difficult to maintain a high speed and will therefore probably lead to very small time savings in the end. In addition this alternative route is not significantly shorter if the port of departure or arrival is located in Thailand or Hong Kong.
- The Northern Sea Route will require new investments and could cause problems. Therefore the current route will probably be preferred by many shipping lines departing from central Europe.

The melting of the ice on the North Pole does not only give rise to discussions regarding alternative routes. It has also opened the discussion regarding territories and oil resources. Geological investigations have shown that the subterranean Arctic areas contain up to a fourth part of the remaining oil reserves in the world. The melting of the ice makes it possible to use the resources such as oil and natural gasses in the area in the future and this makes these areas very valuable. This means that the seas which surround the North Pole will play a more vital role for the transportation of natural resources. In this relation the development of ports and hinterland infrastructure and logistics facilities is of large importance. Thus, the NMC II project is of great relevance as the project has identified the bottlenecks and made recommendations on how to minimize or break down these bottlenecks. Hopefully both economical and environmental values can be in focus in the Arctic areas.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3

ACHIEVEMENTS AND PERSPECTIVES

3.1 Achievements and learning

The Northern Maritime Corridor has in reality become a Motorway of the Sea in the TEN-T system
The ambition of the NMC has been to ensure that the Northern Maritime Corridor becomes the fifth MoS in Europe. The initial MoS map from the EU showed the MoS network ending somewhere in the North Sea, leaving the northern part and the Barents region outside the spheres of MoS.

The NMC has had meetings with DG TREN and commented on a series of EU documents. The High Level Group working on transport axes to neighbouring countries eventually drew up a map where the MoS of Western Europe was extended towards the Barents region. The next stage in this process was that the European Commission accepted the proposal from the High Level Group.

This implies that the Northern Maritime Corridor in reality has become a Motorway of the Sea. But the Barents Sea area is still not on their map of MoS, and some people may interpret the map as limiting. Therefore, there is still a need for pursuing this matter together with the Russian NMC partners.

The NMC partnership has influenced the new National Transport Plan in Norway
The knowledge that the Norwegian consortium has gained from the NMC work and network has been used in providing input to the new National Transport Plan in Norway. Firstly, we have given input on main corridors linking Norway to the Continent and the UK, stressing that the Northern Maritime Corridor is an important part of the European transportation network that is serving Norway. Secondly, the consortium has strongly recommended that the MoS and Marco Polo instruments are adopted fully by the Norwegian government in order to avoid distortion of competition between Norwegian ports/companies and EU ports/companies. In addition, the Ministry for Municipalities and Regional Development has established a reference group for the NMC project with representatives from seven different ministries.

The NMC has contributed to the work of the ministerial Task Force for a Master Plan for MoS for the North Sea Region
The NMC has had meetings with DG TREN, and in one of them the idea of a Master Plan for MoS for the North Sea region was discussed. One of the NMC partners, the Flemish Ministry of Mobility and Public Works, pursued this idea at ministerial level, and eventually a Task Force was established. The NMC project was invited to participate as an observer and has contributed with input to the discussions in the meetings. One concern has been to emphasise the importance of MoS, pursuing the EU objective of cohesion by MoS serving peripheral regions, and to include the Russian connections.

Close cooperation with the private sector in pursuing SSS initiatives
The key actor in establishing new SSS service is the private sector. The public sector is facilitating with road and rail infrastructure and various financial support

mechanisms like Marco Polo and MoS. However, the private companies are the ones taking the overall economic risks, and therefore the NMC project has deliberately cooperated with the private sector.

The NMC project has arranged several region-to-region meetings with the main objective of expanding the network between the logistics players to create new initiatives. Furthermore, the NMC project has pursued the Norway - Benelux Intermodal Service for Seafood project that intends to bring fresh fish from northern Norway (Bodø, Narvik) by rail to southern Norway (Kristiansand) and by sea to Eemshaven in the Netherlands. It has also, together with the Interreg project SUTRANET, pursued the NORSHUKON project that will link Mid-Norway to the UK with connections to the Continent. In addition, new SSS services have been established by shipping companies where NMC ports have been involved, i.e. a new route Goole (the UK) - Amsterdam - Stockholm; a new route from Bergen/ Stavanger in Norway to Esbjerg in Denmark, and expanded sailings between Esbjerg and Immingham in the UK.

ICT as tools for MoS has been explored

Intermodal transport is dependent on a smooth and cost efficient transfer of cargo between transport modes. Therefore the efficiency of logistic hubs becomes important, and an important means of improving efficiency is to apply ICT tools. The NMC project has therefore put emphasis on developing a concept of mode independent ICT structure.

One element of this is using Radio Frequency Identification for tracking cargo, and the NMC project has provided concepts for this.

The network between NMC partners and Russian partners has been strengthened

The NMC has arranged a series of workshops, alternating between an NMC country and Russia, around three every year. The workshops have focused not only on the petroleum development in the Barents region and the logistical challenges this poses, but also on how to improve the sea services in general. The workshops have gathered participants both from the private and the public sectors from both Russia and NMC countries. On average 50-100 persons have participated in the workshops.

A separate transnational working group has been established to pursue the "Barents Sea Intermodal Service" (BASIS) project

The objective of the BASIS project is to establish co-operation between existing shipping companies, forwarders and ports involved in sea transport between the Continent/UK and Northern Norway/North Russia. Thereby a win-win situation may be created that makes the service more regular and more frequent. Already, ship calls by European shipping companies calling Murmansk have been monitored in order to draw experience on the processes of taking cargo in and out of North Russia. Pilot consignments with containers sent from Amsterdam and Arkhangelsk are planned to be monitored.

3.2 Motorways of the Sea Strategic Project - StratMoS

The NMC partnership has taken initiative to apply for a new Interreg IV project. The application for the StratMoS project was submitted autumn 2007, and the project was approved in December 2007. The project officially started in April 2008.

The partnership has been expanded, comprising a number of private companies in addition to public entities and ports. The map below shows the wide-spread location of the partners. The Lead Partner is Rogaland County Council as in the NMC project. The partnership represents 6 countries around the North Sea and includes North Russia with associated partners in Murmansk, Arkhangelsk and Nenets.

The vision of the StratMoS project is basically the same as for the NMC project:

- efficient, safe and sustainable transportation, connecting coastal areas and enhancing regional development in the North Sea region, extending to the Barents Sea region.

The aim of the project is:

- to promote and facilitate a shift of cargo from road to sea-based intermodal transport and
- to improve accessibility within the North Sea region, extended to the Barents region,
- by supporting the implementation of MoS and related transport networks
- in integrated logistical chains.

The content of the project has both a strategic dimension and a concrete and tangible dimension. The diagram below illustrates that the strategic dimension is particularly compounded in the work packages while the concrete and tangible dimension is pursued through the demo projects.

The diagram illustrates the interdependency between the work packages and the demo projects. The work packages will prepare guidelines, methods etc. that the demo projects will use, and then the experience with these can be fed back into the work packages and generate recommendation on a strategic level.

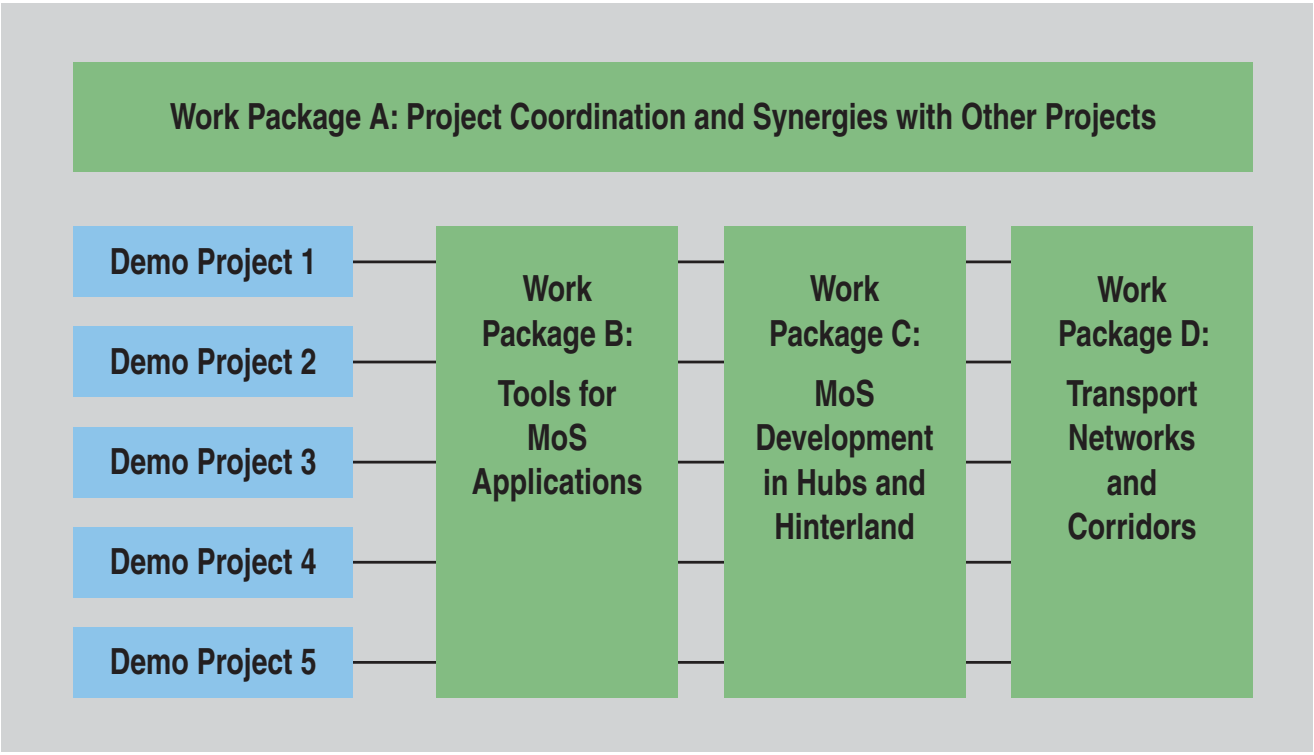
The demo projects are:

- DP1: Northern Maritime Corridor - Barents Sea Intermodal Service
- DP2: NORSHUKON (Norway-Shetland-UK and Continent RoPax MoS)
- DP3: Development of the Port into an Intermodal Hub
- DP4: Secured Trade Lanes in the North Continent - Russia Corridor
- DP5: Offshore Hubs and MoS Linkages

The objectives of the work packages and the demo projects are describes as follows:

- WP A: To coordinate the project activities and outputs, to identify and create synergies with other projects and to disseminate the results of the project.
- WP B: To provide a toolkit that can assist public and private entities in preparing successful MoS-applications for the TEN-T Programme, the Marco Polo Programme and other funding mechanisms.
- WP C: To strengthen the role of ports and hinterland facilities in door-to-door transport chains with a view to improving the effectiveness of the intermodal transport chain.
- WP D: To develop a systems model for MoS and intermodal transport chains, supporting and improving decision making, planning and implementation of MoS projects, and to develop strategies for connecting transport networks and develop multimodal transnational transport corridors.
- DP 1: To enhance the network with North-West Russia entities and to pursue the Barents Sea Intermodal Service with test sailings and a Marco Polo application.
- DP 2: To contribute to and to learn from the planning, tendering and implementation of a new short sea shipping service (NORSHUKON) between Mid-Norway, Shetland and England, with links to the Continent.
- DP 3: Looking at current/ future intermodal hub design in various port regions from strategic and operational aspects of port/hinterland connections.
- DP 4: To integrate an end-to-end transport chain management platform and demonstrate a proof-of-concept implementation.
- DP 5: To contribute to and to learn from the development of concepts for offshore hubs and the MoS linkages, with the Scapa Flow Container Terminal in Orkney as a case.

The StratMoS project is determined not to work in isolation, but will be actively seeking for cooperation with other projects. The objective is in particular to search for synergy effects between similar projects.



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Greenland
Iceland
Faeroe Islands
Finnmark
Murmansk
Kirkenes
Troms
Alta
Tromsø
Harstad
Nordland
Narvik
Bodø
Mo i Rana
Mosjøen
Västerbotten
Nord-Trøndelag
Umea
Trondheim
Kristiansund
Ålesund
Sør-Trøndelag
Møre og
Romsdal
Sogn og Fjordane
Bergen
Hordaland
Shetland
Islands
Lerwick
Orkney
Islands
Kirkwall
Highland
and
Islands
Inverness
Aberdeen
Aberdeenshire
Stavanger
Rogaland
Kristiansand
Vest-Agder
FDT (Aalborg)
Esbjerg
Humber Trade Zone
Cuxhaven
Hamburg
Groningen
Amsterdam
WEST-VLAANDEREN
Zeebrugge
Oostende
Dordrecht
Antwerpen
Gent
OOST-VLAANDEREN
Brussels
Vlaanderen

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