

# Stakeholder views on transport corridors and intermodal transport solutions

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## Abstract

This paper presents empirical findings and results from a study conducted as a part of an INTERREG IIIB project on intermodal transport solutions and corridors in the North Sea Region (SUTRANET – Sustainable Transport Research & Development Network in the North Sea Region, [www.sutranet.org](http://www.sutranet.org)).

The aim of the study has been to explore possibilities and barriers for the development of intermodal transport solutions in selected corridors in the North Sea Region. The North Sea Region is one among several regions appointed by the EU-Commission to exemplify the operationalisation of the concept Motorways of the Sea (European Commission, 2004). The policies of promoting Motorways of the Sea is aiming at revitalise the short-sea-shipping within Europe as a transport industry, but also to relieve the heavily congested road network in central regions (European Commission, 2001). However, the success of Motorways of the Sea relies not only on the implementation of shipping lines between specific ports, but also the hinterland connections of these ports and the logistical decision-making among co-ordinators of transport flows (European Commission, 2003).

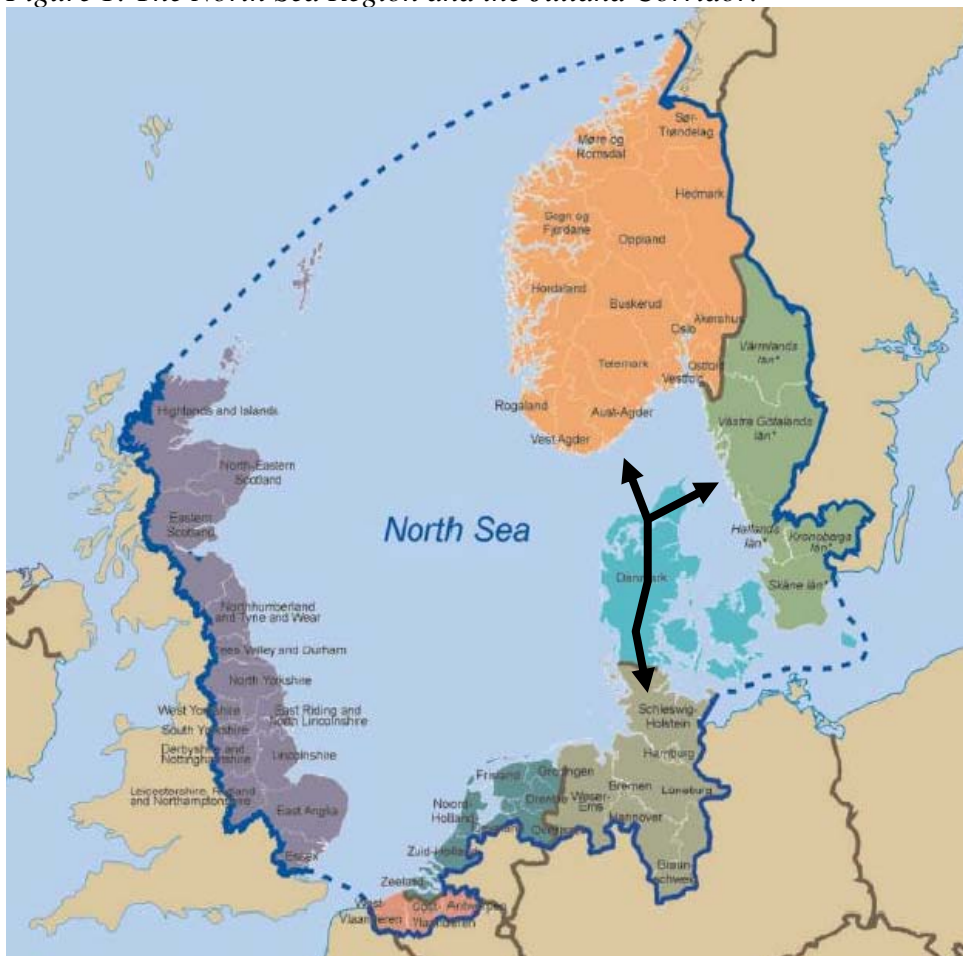
The traditional role of forwarding firms as freight integrators is being challenged by other actors within the transport system, e.g. ferry and shipping lines, ports and train operators. The rationale for this development has been the increased focus by the transport sectors stakeholders on the control of guiding transport flows through specific transport networks of own interest. Most transport firms are mobile in their activities by nature, but are in reality confined in their day-to-day operations to different forms of relative fixed network structure – e.g. railway lines, ferry routes and ports, cost-efficient choice of road routes, etc. This represents potentials and barriers for promotion of intermodal transport solutions, since it points to the importance of governance of transport networks by different transport stakeholders as “gate-keepers” for what kind of transport modes and routes are selected.

In this study stakeholders from Danish and Norwegian ports, ferry operators, train operators, forwarding and road haulage firms has been interviewed in order to analyse how logistical decision-making affect the organisational and physical configuration of intermodal transport solutions in the transport corridor between Scandinavia and the European Continent.

## 1. Introduction

In this working paper results from a case study conducted during 2006 within the research project SUTRANET<sup>1</sup> are presented (Hansen, Johansen & Kristiansen, 2007). The study has contributed with knowledge on how transport logistical decisions made by ports, ferry operators, railway companies, and forwarding and road haulage companies affect the capabilities for developing intermodal transport solutions via the peninsula of Jutland in Denmark – the so called Jutland corridor. The corridor consists of transport connections and traffic lines between ports and transport terminals in the northern part of Jutland and to the southern part at the Danish-German border – see Figure 1 below. The corridor is part of a larger network of infrastructure lines and transport connections between the southern part of Norway and western part of Sweden in the north and the European Continent in the south.

Figure 1: The North Sea Region and the Jutland Corridor.



Although the infrastructure lines and nodes in the form of roads, rail lines, ports, transport centres etc. are present, and together form a manifest transport corridor, it is however also important to consider how regional stakeholders related to freight transport organise the transport flows through these infrastructure lines and nodes. The transit flows through the corridor between the Northern Scandinavia and the Continent are dependent upon the frictionless cooperation across different transport modes – mainly road and ferry transport. The organisation of transport in the corridor is therefore bound to be multimodal and the

<sup>1</sup> SUTRANET – Sustainable Transport Research & Development Network in the North Sea Region. A research project funded by EU's Interreg IIIB Program ([www.sutranet.org](http://www.sutranet.org)).

frictionless flow is therefore also a matter of development and improvement of intermodal transport solutions.

Intermodal transport is in a national and European context seen as a vital element in the current and future policies for traffic, transport and mobility (European Commission, 2001). Due to the immense growth of traffic on the European traffic infrastructure network, congestion is becoming a growing and severe problem, which causes delays, costs and environmental negative externalities. Especially the road network in urban areas and around central traffic nodes in certain regions of Europe has experienced an overload of traffic. Intermodal transport solutions are seen as parts of a solution as far as they can transfer traffic volumes from the roads to the sea and railways.

Intermodal transport can be defined as “(...) the movement of goods whereby at least two different modes (road, rail, water, air) are used in a door-to-door transport chain” (European Commission, 1997). Here the door-to-door formulation (meaning from the seller of certain goods to the buyer of these goods) seems to be central, which indicates the emphasis on the competition with the single modal road alternative also offering door-to-door solutions. More restricted definitions however are also common, especially emphasising the principle of unitisation. “The movement of goods in one and the same loading unit or vehicle which uses successively several modes of transport without handling of the goods themselves changing mode” (ECMT, 2001). Here a transport chain is only regarded as intermodal if the unit (container, swap body etc) is unbroken over the change of modes.

It is argued, that intermodal transport solutions require high volumes of freight flows in order to gain efficiency at the transfer points and in the lines of sea, road and rail. As a consequence the EU Commission seems to promote the appointment and development of specific “transport corridors” at land and on sea, where efforts are concentrated to develop and consolidate physical and organisational facilities as well as transported volumes. It is in this context that this study has focused on barriers and potentials for promoting intermodal transport solutions within the Jutland Corridor. The study has aimed at answering the following research question:

- *How do logistical decisions of stakeholders from the transport sector affect the organisational and physical configuration of intermodal transport solutions in the Jutland Corridor and how do these configurations feed-back on the logistical decisions?*

## 2. Design and methodology

In order to investigate this research question decision makers from 14 companies and regional organisations were interviewed as exemplifying representatives from different stakeholders related to freight transport and transport planning activities. The stakeholders from the transport sector represented different orientations towards transport solutions in terms of road, rail and shipping. In addition the interviewed stakeholders represented different levels of embeddedness within the Jutland Corridor in terms of their place-specific location or a more mobile location of activities, as illustrated in Figure 2 below.

*Figure 2: The orientation of the interviewed stakeholders towards place-specific activities versus mobile activities within the Jutland Corridor.*



In the interviews the analytical focus was on how the companies organized their transport and logistics, and in this connection to what extent there had been major changes within the last 5–10 years. In relation to this, we asked the interviewed what kind of circumstances – including developments of intermodal transport solutions or the lack of it – had caused these organisational changes.

Seen from the individual company's point of view, decisions concerning actions relating to transport and logistics can take place on many organizational levels – from the management's decision to open or close a firm's activities to the driver who makes the route decisions concerning the deliveries. On this basis, Allan McKinnon (1998) developed a hierarchy of logistical decision levels that reflects important spaces where decision making affecting the transport and logistics of companies take place. These are:

- *Logistical structures*: for example, number and location of factories, warehouses, administration and terminals.
- *Pattern of trading relations*: location of suppliers and customers that constitute a manifest network of material and transport flows.
- *Scheduling of product and transport flow*: planning and implementation of production and distribution activities, which are transformed to specific material and transport flows to and from a firm.
- *Management of transport resources*: for example, the use of own or external transport modes, route choice, transshipment via terminals and capacity utilization.

These four levels formed the basis for the themes investigated through the interviews, and the four levels also structured the findings, which were collected from the six case studies of selected companies and organisations.

### **3. The analysis**

The results of the analysis is based upon information from interviews with selected representatives from ports, a railway company, ferry operators, forwarding and road haulage companies with activities and facilities within or in relation to the Jutland Corridor. The information is extracted from the transcribed interviews, which were structured according to the analytical themes of logistical structures, pattern of trading relations, scheduling of product and transport flow, and management of transport resources.

#### *Ports*

The ports in Jutland look differently on their interests and capabilities to promote intermodal transport solutions. These differences are partly related to the individual status of the ports as either municipality governed or privately owned and run companies. The publicly managed ports are jurisdictionally limited in their abilities to run logistical activities related to the ports, such as stevedoring, storage, logistical value adding, etc. The private port companies have on the contrary potentials for running logistical activities on commercial terms.

The ports in Jutland and south of Norway, also viewed their roles in the transport and logistical chains differently. Some ports wanted to maintain their role as primarily infrastructure providers of quays, ramps and terminals, while other ports defined their role as active in organising transport and logistical chains of freight flows via their ports. This active role included examples of ports that pro-actively were involved in establishing contacts between different transport companies and potential costumers or were active in developing railway infrastructures in order to facilitate sea-rail based intermodality.

Among several of the interviewed ports there was a strong interest in developing synergies among their existing ferry connections and new Ro-Ro or feeder ship connections to ports around the North Sea and the Baltic Sea. The intention of these ports was to develop a hub-function, where consignments from one shipping route could be transhipped to another route, without entering the hinterland of the ports.

Only a couple of the ports of Jutland seem to have the capabilities to affect the configuration of the physical and organisational configuration of intermodal transport solutions in the Jutland Corridor by their specialisation into specific geographical markets or by their volumes in terms of throughput of containers and semi trailers – namely the ports of Aarhus and Esbjerg. The reminder of the ports seem to serve as mainly gateways for road based freight transport and has – despite examples of new investments in facilities for intermodal sea-rail transport solutions – not been able to improve a frictionless transport chain based on sea and rail transport through the corridor.

#### *Rail operators*

Freight transport on trains in the northern and western parts of Jutland has since 2006 been gradually reduced to a few weekly block trains with fish products running southwards and glue products running northwards. These block trains are exclusively dedicated for specific costumers and do therefore not represent services open for other potential costumers.

Until 2004 several attempts have been done to establish block trains aimed at the intermodal transport service market in the north of Jutland with intermodal handling facilities in Aalborg and Hirtshals. These block trains were organised by large international forwarding companies specialised in organising intermodal transport based on containers, semi trailers and swap bodies. The intention behind these attempts was to establish direct transit transport between

the southern parts of Norway and the Continent via the Jutland Corridor. However, due to lack of sufficient commitment from potential costumers the block trains were underutilised and the services were discontinued and terminated in 2004. In 2006 the main freight train operator in Denmark, Railion Denmark, also withdrew their services from the ports and cities of Aalborg and Esbjerg in order to concentrate activities along the main transport corridor in Denmark between the Oresund region and the Danish-German border. A major barriers for establishing new block trains as part of a wider networks of intermodal transport chains within the Jutland Corridor seems to be difficulties of coordination among the potentially involved stakeholders in terms of commitment and investment of economic and organisational resources.

#### *Ferry operators*

Five different ferry companies run services between ports in the north of Jutland and ports in Norway and Sweden. The ferry operations in the region are dominated by the companies Stena Line and Color Line in terms of transported volumes, frequency and number of routes. Minor ferry companies as Kystlink, Fjordline and Masterferries also operate services, but with fewer routes, lower frequency and mainly in the summer period.

The ferry companies follow different business strategies in terms of cost level, passenger and freight transport. The passenger traffic is closely related to holyday and leisure trips, which creates large fluctuations in traffic volumes during summer and winter seasons. Freight traffic has, on the contrary, more stable levels of volumes during both winter and summer. Some of the ferry companies primarily focus their operations on holyday and leisure trips, that makes it possible to operate services with a relative low frequency, which in some cases translates to operations being discontinued during the winter season. The larger ferry companies aim at both the passenger and freight traffic in order to get a more stable traffic volume during both summer and winter. This strategy requires a relative high frequency as well as the investment in terminal facilities that can handle the deployment of especially semi trailers and services related to transport and logistics.

The two largest ferry companies do therefore see a strategic role in being able to offer frequent and fast ferry connections in order to become vital parts of the transport chains of primarily road based freight flows. These ferry operators are often closely involved, when forwarding and road haulage firms negotiate long term contracts and transport solutions with major costumers, which involve the transshipment of semi trailers or containers. From only being a ferry operator offering transport services from port A to port B, the major ferry operators are likely to define their future roles as more oriented towards organising whole transport chains and possibly including logistics services such as storage, distribution etc. This potential is further enhanced by the stricter control on drivers resting conditions, which put a limit on the drivers daily driving hours. This development has created a potential market for long-distance ferry routes, which either provide the drivers with the necessary rest on the ferries or makes it possible for the haulage companies to just drop a semi trailer at the ports, which then is transported unaccompanied to another port for further transport with a new driver and truck. This enables the ferry companies to play a crucial role in overcoming the time and distance barriers experienced in the road based transport industry.

#### *Forwarding and road haulage companies*

The role of forwarding and road haulage companies in the organisation of freight transport within the Jutland Corridor is vital even though the firms are not necessarily located in the region or Denmark. Large forwarding and road haulage companies especially play an

essential role in the potential for developing and promoting intermodal transport solutions in the Jutland Corridor.

These transport companies are often the mediators between transport costumers and the specific transports, which can consist of a combination of different transport modes. The road based transit traffic between Norway/Sweden and the Continent via the Jutland Corridor is primarily organised by forwarding and road haulage companies located outside the corridor – typically in Norway, Sweden or the Continent. It is thereby mostly interregional traffic between Denmark and respectively Norway, Sweden or the Continent, that forwarding and road haulage companies located within the corridor organise.

Intermodal transport solutions in the freight traffic between Norway and Sweden from the North of Jutland is only realised through the ferry connections across Kattegat and Skagerak. For the freight traffic between locations in the corridor and the Continent intermodal transport solutions only play a minor role. For some road based transports – especially for the Italian market – intermodal road-rail solutions are used via the intermodal terminal in Taulov (Mid-Jutland).

The development and promotion of intermodal transport solutions via forwarding and road haulage companies is restricted by these companies own well-functioning transport networks based on long-term cooperation with other transport companies, well-established routes and transport terminals. These transport solutions are mostly road based and are supporting logistical setups tuned to road based transport systems.

#### **4. Conclusions**

The study indicates that development and promotion of intermodal transport solutions in the Jutland Corridor is facing a number of challenges related to organisational as well as spatial structures. The current intermodal setup of the freight transport in the corridor is organised according to the requirements imposed by road based transport systems. The only prevailing intermodal transport solutions in the corridor is the necessary combination of road-ferry transport between Norway/Sweden and Denmark/Continent. In the largest ferry ports the operation of the ferries has been tuned to fit the unbroken transport chain of road based transport by high frequencies and relatively fast ferries. In this context the railways play an insignificant role as providers of intermodal services, which partly is due to lack of local customer contact, dominance of one major operator concentrating its services in specific corridors and also the continued orientation towards road based logistics and transport from ports, ferry and forwarding companies which further has led to under-investment in terminals and supporting railway infrastructure at the ports and terminals in the Jutland Corridor.

Based on the interviews, the study points towards the fact, that the greatest challenge for further development of intermodal transport solutions in the Jutland corridor, is the dedication of each single transport stakeholder towards the companies own transport network and systems. As a consequence the corridor-concept plays only a minor role for the different transport stakeholders' perception of their own roles and capabilities. This also applies even though and in spite of the fact, that the transport systems of the different stakeholders often run parallel to each other and therefore also represent a potential for more and better coordination or even integration.

This raises the potential need for new types of stakeholder or a redefinition of the roles of the existing ones in terms of a role as neutral coordinators of intermodal transport solutions – also called “freight integrators” or Intermodal Development Centres (EU, 2003; Landes & Bossche, 2005). These freight integrators or IDC's could potentially create a better coherence between the different stakeholders own transport networks and thus incorporate the aims of national and European transport policies concerning more efficient and environmentally sustainable transport solutions through specific transport corridors and nodes.



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## Appendix – Interviewed companies and organisations

- Blue Water Shipping
- Nordjyllands Jernbaner
- Color Line
- Stena Line
- Anonymous forwarding and road haulage firm
- Port of Aarhus
- Port of Esbjerg
- Port of Aalborg
- Port of Frederikshavn
- Port of Hirtshals
- Port of Risavika
- Port of Kristiansand
- Rogaland Fylkekommune
- Vest Agder Fylkekommune