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NETWORKING LOGISTICS CENTRES IN THE BALTIC SEA REGION

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Ports and Logistics Centres in Finland

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1. Introduction

This study is a part of the Work Package 2 ("Networking Logistics Centres") in the Networking Logistics Centres in the Baltic Sea Region (NeLoC) project. The study was conducted at the Centre for Maritime Studies (MKK) at the University of Turku, Finland, during the first half of the year 2003.

Finnish logistics centres have strong connections with ports. All of the Finnish logistics centres analysed in NeLoC - namely Bothnia Logistic Centre (BLC), Logisforum, Turku Logistics Centre/Pilot Turku, Logistics Turku Region, Straightway Southeast Finland and Aviapolis - are situated in coastal areas. One aim of the logistics centres is to link sea and land transport efficiently. Ports offer a wide range of services, but they are also dependent on other transport connections and the logistics services of the region.

This study aims at describing firstly the role of a port in a transport chain in general, secondly the role of a port in the region in which they are situated and lastly the needs and advantages for their co-operation with logistics centres. Examples are drawn from the Finnish experiences in port and logistics centre co-operation.

Ports and logistics centres co-operate in different ways in Finland. Some ports are members or partners in logistics centres, others just benefit from being situated near logistics centres. The density of co-operation varies, as well.

2. Characteristics of Ports

2.1. The Role of a Port in Transport Chain

The port is basically an interface between different transport modes. It links sea transport with land transport and the region served by a port is essential for its existence. It is necessary to understand the way that ports are organised. The activities of a port can be divided into the following groups:

- provision of infrastructure, navigational aid, fairways
- cargo handling services (loading, discharging) including sometimes warehousing and logistics services
- regulations control.

The port must have a management responsible for controlling property rights, for planning the development of port facilities, for providing public goods like navigational aids, breakwaters and dredged entrance channels, for controlling external factors like pollution and congestion and for promoting the general efficiency of the port in the interest of its users. The same management may provide all or almost all of the port services including cargo handling. It may also engage other organisations under competitive conditions to carry out some of the tasks thereby promoting efficiency for the benefits of its users.

The owner of the port is normally not integrated in a wider network of carriers or shippers. Hence, the port has little possibilities to formulate conditions for the cargo to be handled. In contrast, a terminal for combined transport handling containers, swab bodies or semi-trailers between road and rail, or a distribution terminal as interface between long distance road transport city distribution are well integrated in a transport system operated by the same owner.

The attraction of a port is strongly related to the services it produces. There is however an equally strong interdependency with services/terminals outside the port which act as interfaces to the local market, or between the port and its hinterland (stuffing and stripping of containers, consolidation of cargo, distribution). Connections between a port and such terminals are in most cases carried out by road and often create heavy traffic flows on the access roads to the port. The attraction of a port is also strongly related to land transport connections. Logistics centres situated near port areas can play an important role in providing efficient land transport links. Without good land transport links the port would not be successful.

2.2. Port Ownership and Administration

There are a number of alternative forms of port ownership, organisation and administration. Basically two types of ports can be distinguished even if any investigation will reveal that there are many ports which are organised as a mix of the two. The first type is the landlord port, where the port owner provides the infrastructure (dredging, quays and terminal paving) whilst part or all of the superstructure is owned and financed by private companies which are also employing the stevedoring labour. The second type is the service port, where the port owner also provides all the commercial services normally prohibiting competition between the services within the port.

The port can be publicly or privately owned. A public body (typically a municipality) can also be the owner of the private company owning the port. Irrespective of the ownership the port has at least three functions to fulfil. A port manages and develops the port area (land owner function). This covers managing and developing port estate, conceiving and implementing port policies and developing strategies, supervising major civil engineering works, co-ordinating port marketing and promotional activities, providing and maintaining fairways, quays etc. and providing or arranging road and rail access to the port facilities. The second function covers transferring goods and passengers between land and sea. Port regulatory function covers maintaining the control function, providing vessel traffic management, enforcing applicable laws and regulations, licensing port works, safeguarding port users' interest against the risk of monopoly formation and controlling of natural monopolies.

It is obvious that the port regulatory function is a public responsibility, while a public or private body might carry out the other two. The transferring of goods and passengers may involve a private company or even companies in creating a certain degree of competition between different terminals within the port.

2.3. Port Typology

The following table presents one way (of many) to structure different types of ports. Many ports are a mix of the types described, but any discussion about a port must be related to the type of cargo or the passengers served. The primary role of the port is to serve as an interface between land and sea transport modes.

Table 1. Characteristics of different types of ports.

	Services	Port function	Location characteristics
Ports for high value unitised cargo	Import/export of high value goods (finished and semi-finished industrial products).	The port is a hub in a complex network of terminals and related land and waterborne services consolidating and distributing the goods.	Dependency on good access by road and rail and on nearby terminals and markets which normally means locations in or close to densely populated areas and conflicts with urban development and environmental requirements.
Passenger ports	Ferry or cruise passengers.	The port must provide close links to urban centres and local passenger markets.	Demand for city centre location and good access by car and public transport. Conflicts with urban development and environmental requirements.
Industrial port and bulk ports	Export or import of low/medium value goods directly from /to ship.	The port is a part of the plant complex or closely related to such a site through a dedicated road, rail or pipeline.	Little dependency on services and markets apart from the fact the industrial site as such has to be served by road and rail. Mainly environmental problems.
Sea transhipment ports	Transfer of containers between overseas and feeder services.	The port must be strategically situated in relation to the over-sea shipping routes.	Little relation to land transport network. Mainly environmental problems.

2.4. Port Policy Challenges

The call for reliable transport services along well functioning transportation chains is likely to result in an increased focus on corridors and terminals as links and nodes in networks. There is a growing need to see to the total transport network and not single parts of it. Planners will have to develop a systems approach in spite of administrative and natural borders aiming at lowering barriers and friction of the system as such.

Export ports are to be seen in relation to the industry they serve. As long as the industry is working the port has a task to fulfil. Planning should assure access and secure that environmental requirements are met. International co-operation is especially important here to ensure that commonly adopted environmental standards for shipping

are being met. Spatial policies for import ports have to consider how the port is integrated in the region, how it is linked to related services and how the conflicts between the port's needs and the urban and environmental requirements should be addressed. This type of port has a rather captive market and reasonable changes in location, price and service will normally not have a drastic impact on passenger and cargo volumes.

Transshipment ports must be seen as part of a transport chain between markets, where the sea transport only is one of several links. Normally there are competing transport chains between any two markets, which make the specific transshipment port much more vulnerable than the import port. Changes in the port's own competitive advantages or somewhere along the chain might result in a change of the transport chain to another combination of nodes and links. Therefore, in contrast to the import port, policies for the transshipment port must address not only the situation in the port but the whole chain up- and downstream the port. This means that policies for a transshipment port must consider the development of the hinterland infrastructure, the transport services on that infrastructure, the related information services and the administrative regulations and procedures (e.g. customs). However, the port must also look at the corresponding infrastructure and services for the port at the other end of the waterborne link. A continuous development of the competitiveness of the complete chain is necessary to ensure the position of the port.

2.5. Ports and Economic Policy

Ports and the related trade and service activities are important centres of economic activity. Jobs are created by the direct activities of handling vessels, vehicles, cargo, crew and passengers, but even more through the surrounding services for warehousing, third part logistics, tourism services, vessel services and repairs, information support, brokering, insurance and financing. Many actors provide services in ports and terminals. All parties concerned make big interdependent investments and are tied together by handling and information systems. Ports should be seen as knowledge intense service centres. Access to competent staff and advanced logistics services is becoming an important competitive aspect. Local and regional authorities should support this in order to be able to offer an environment which can keep up with technical and organisational development for their region.

The regional/local authorities can contribute to this by focusing investments in relation to port's needs, both in the port and on connecting sea and land transport links. Old parts of the port might be closed, new areas incorporated, fairways dredged etc. They should also provide a long-term framework for port expansion/reorganisation to guide public as well as private investments reducing frictions and uncertainties. It is the task of the management of the port to guide the development according to the objectives of the owner. Strategic alliances might be sought with some of the key customers to secure services and investments on both sides. Local public authorities own many ports around the Baltic Sea. The political situation is often immediately reflected in the composition of the port's Board and political differences have a tendency to guide the Board's work, which does not necessarily promote the prosperity of the port nor the confidence in its long-term strategies.

It is important to look at port issues from a wider perspective. What role does the port play in the network of production facilities, trade patterns and transportation services? Co-ordinated planning policies facilitate efficient and smooth transport services. Firm and co-ordinated spatial policy in port cities connected with a joint sea transport network may strengthen the region's position in relation to the other actors. This also helps building a climate of confidence and credibility, encouraging private investments and industrial development in the region.

2.6. Port Development Plans

Political port boards often represent a complex mix of objectives with risk for inconsistent behaviour. The owner/the municipality wants to promote the activities of the port in order to support the economic development of the city. The landlord organisation in the port acts to fulfil this objective with the support of the organisations responsible for the terminals and their clients. At the same time other agencies responsible for city development and supported by neighbours of the port try to develop the port areas to meet their objectives. Especially in ports with a Board selected on political merits and reflecting the parliamentary situation, as in many municipally owned ports, the situation can become confused. The Board members may sometimes face a conflict in thinking whether they should promote the interest of the port or their own line in the local parliament. There is a difference between ownership control and the management of port operations and the two tasks should be kept apart.

Given the fact that a port must be seen as a business unit, regardless of who the owner is, the port management must position the port in relation to the potential customers by providing an attractive services. In addition to providing cost-efficient internal services (as described above), this also means positioning the port in relation to the hinterland services and the in the regional context. The port must develop transport connections inside the port area and negotiate an acceptance for its development with the regional and sometimes national or even European authorities responsible for guiding the overall development. Investments in fairways and road and rail access routes are in most cases parts of the public infrastructure and therefore financed by the State.

The table below (table 2) proposes a structure for the planning tasks related to what is happening in the port with the plans made for the port. A division is made between planning of the operations (the business plan), planning of the infrastructure needed and other planning activities (spatial, transport and economic) where the port is a part. The table is based on the concept described above, where the port is seen as a combination of three functions: landowner, stevedoring/operations and regulatory. The last function is regarded as a framework governing the daily and the future activities.

Internal port planning is focused on using available space and resources in the most effective way. The focus is on the operation and on what can be done internally by the way of investments in equipment and infrastructure, securing the best conditions for present and future operation. The key issue is to correctly assess the future traffic demands and how these affect the port in terms of space and services and to translate the result of the analysis into a demand for investment and financing. The planning tasks illustrated also indicate that port planning require a clear perception of the roles to be played. In practice, the same person may have several roles as for example land owner and stevedore manager or as owner (representative) and politically responsible for the regional development.

The local political and commercial actors together create the preconditions that determine the level of service that is so crucial for successful business – efficiency, competence, sustainability, stability and predictability. The public sector's responsibility is to see to the investments in relation to port's needs, long term framework for port expansion/reorganisation guiding public and private investments including the location of new multimodal transportation centres, access to information, competent staff and advanced logistic services, especially in the field of information technology and defining the long term conditions for the port infrastructure

investments, the spatial framework and creating an environment of confidence and predictability. There are also possibilities for local/regional political initiatives to co-operate with other municipalities and regional bodies and to provide arenas for exchange of knowledge and experiences. These type of initiatives allows various actors to get in contact with each other, to learn and to discover new business opportunities.

The local/regional actors also have an important role when it comes to promoting co-operation between various actors representing other hubs and links in the wider transportation network (for example logistics centres). It is a political obligation to develop policies and to influence other public bodies involved in strategic decision making related to sea transport development, on various levels in the city/region or on the national/European level. Co-ordinated actions from several partners are more likely to have an influence on spatial policy issues, related to the development of multimodal transport including sea transports and port issues, than if the same actors try to achieve the same result by themselves.

Table 2. Plans made for the port.

	Business plans	Infrastructure plans	The port in other plans
Objective	To develop the Transfer of goods and passengers between land and sea i.e. to promoting cost-efficient handling and service functions	To develop the "landowner function" i.e. to provide the port with a good infrastructure (land and sea-side) to ensure efficient and safe operations	To define the port in relation to other related activities (rail, road terminals) to other planning objectives regarding land use and environment and the role of the port in a wider regional and transnational network
Planning issues (examples)	Bringing together the demand (from the shipping lines) for frequent hinterland connections to attractive areas with the land side demand for frequent waterborne connections to interesting destinations. Providing special facilities for certain types of cargo: refrigerated, hazardous, space consuming (cars) etc. Optimisation of the trade off between space, work organisation and handling equipment. Organisation of space utilisation and traffic flow within the area available. Developing electronic communication with all parties involved.	Land use planning within the limits of the port. Forecasts for area requirements from forecasts for traffic development Based thereupon: plans for breakwaters and fairways, port basins and quays, paved land surfaces, warehouses and offices. Development of access routes to the port by sea, road and rail Positioning of the port in the sea traffic management systems Developing information systems to support the port's clients.	Port space requirements in relation to competing needs for housing industry, leisure etc. Port activity requirements in relation to plans for neighbouring activities (traffic, noise, pollution, safety) The port in relation to its supporting activities (terminals, service centres) and the impact on traffic and land use planning. The port as a hub in a regional and transnational transport network
Planning horizon	2-5 years	5-10 years	10-30 years
Responsible	The manager(s) of the port. Could be the port director (in a small port) or specialised terminal operator(s).	The port owner	The region where the port is situated including those in co-operating regions
Participants	The clients of the port (the shipping lines) and their clients (shippers, forwarders, road and rail carriers)	The clients of the port, national and regional infrastructure and spatial authorities.	The port owner together with the other stakeholders.

3. Port and Logistics Centre Co-Operation in Finland

3.1. Finnish Ports and Logistics Centres

The Finnish transportation network consists of road, rail, water (sea and inland waterways) and air networks. The main part of the routes belongs to the Trans European Transport Network (TEN) (Figure 1). It connects all modes of transport. In Finland, 17 sea ports and the ports of the Saimaa region belong to the TEN system. Finland's advantage in transit traffic to/from Russia is that the Finnish rail gauge is the same as in Russia.

Three quarters of the Finnish foreign trade transportation is marine transport and ports are important nodes of transportation. 70 per cent of import and 90 per cent of export is transported by sea. The port network is dense in Finland. Although there are over 60 ports in the country, most of the cargo transported by sea (75 %) goes through ten largest ports. However, ports are relatively small and the streams of goods are dispersed. Maintenance of the routes is very important for the fluency of transportations. It is essential that some ports are in use in the winter as well. There are 23 winter ports in Finland and icebreakers assist cargo and passenger traffic to get these ports in the winter months. Depending on the location, ports need icebreaker aid for about 3–6 months a year.

Finnish ports can be grouped into public and private ports. Public ports are open to any traffic fulfilling the regulations. Most of the Finnish ports are municipal ports owned and managed by the municipalities. Most of the private ports are owned by industrial companies and they serve the owners' needs. The role of the port owner is to build and maintain the port. This includes the maintenance of quays, warehouses, cranes, roads and railroads inside the port area, detachment and mooring of ships, towage and icebreaking services inside the port area, providing services needed by ships, etc. Private stevedoring and forwarding companies take care of cargo handling and other operations. There are also some authorities operating in the ports, e.g. Customs and pilotage.

A logistics centre is, on the other hand, a link between different modes of transport. It provides value added services and transmits the scale advantage to the customer. The scale advantage comes from co-operation and reduces costs. Because of co-operation, the supply of services and their efficiency increase and information management develops. The companies' logistical demands change as well. Nowadays, there are usually no stocks of products in the

warehouses of companies. They order a product when a customer wants to buy it. In order for this to work, the logistics system has to be efficient.

Logistics centres can be divided into groups either by geographical operating region or by uniformity of operation. A geographical operating region may be local, national, international or global. When logistics centres are grouped by the functional point of view, they may be for example virtual, network or concrete.

The Finnish logistics centres operate in close co-operation with the public and private sectors. All six logistics centres have a strong regional dimension in terms of their functions and services, operational area and strategies. Therefore most of them are widely expected to have a role in promoting regional strengths and boosting local and regional development. This naturally links regional and local authorities to the logistics centres because the public sector has active role in the regional development in Finland.

The Finnish logistics centres analysed in NeLoC (Bothnia Logistic Centre, Logisforum, Turku Logistics Centre, Logistics Turku Region, Straightway Southeast Finland and Aviapolis) all have some kind of connections with ports. This is natural because of the importance and potential of sea transport in Finland and also because both ports and logistics centres are seen as essential for the regions economic development.

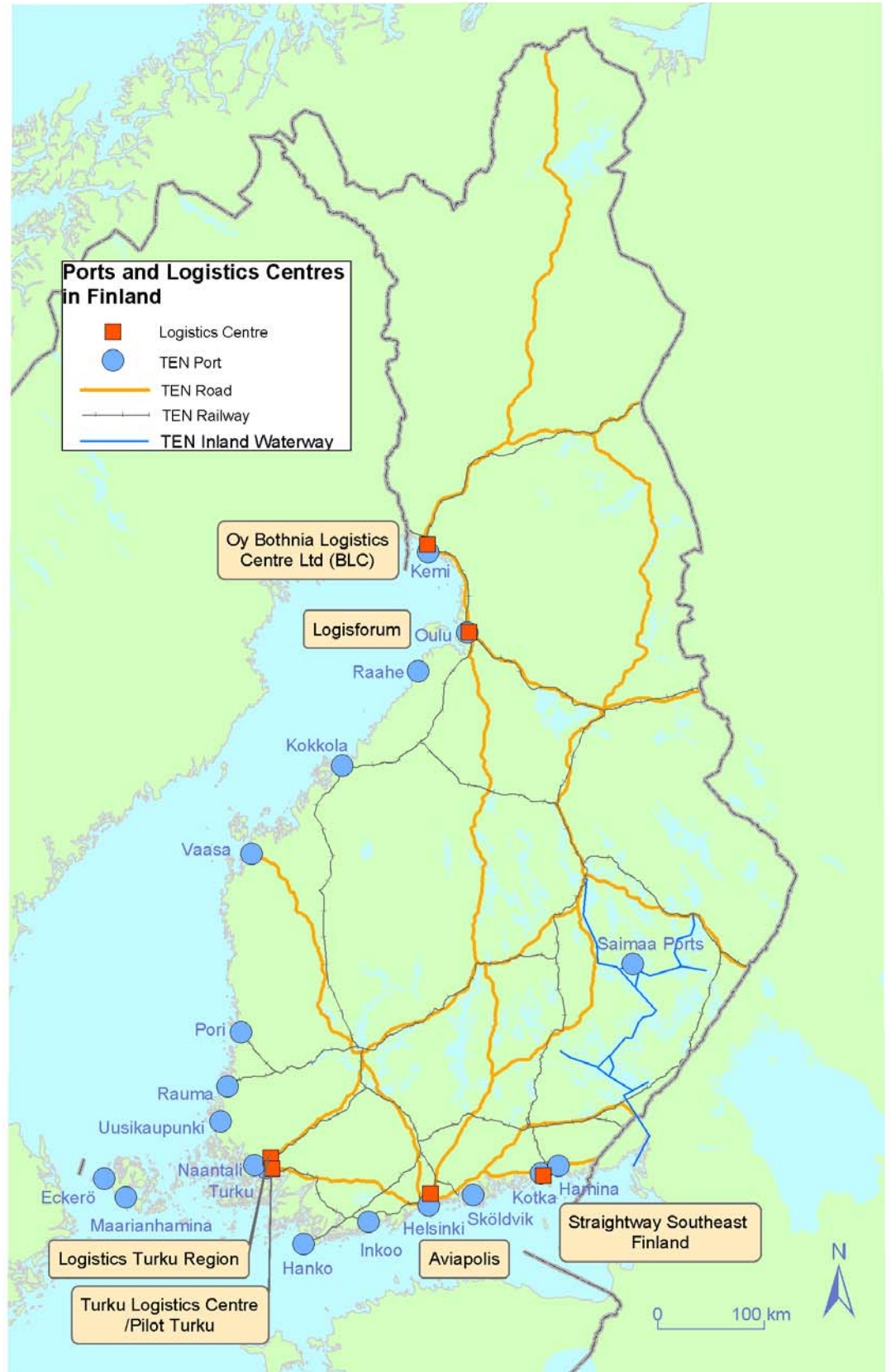


Figure 1. Ports and Logistics Centres in Finland.

3.2. Ports of Kemi and Tornio – Bothnia Logistic Centre

Ports of Kemi and Tornio are situated in the northernmost area of the Gulf of Bothnia. Cargo streams of these two ports are weak compared with the areas in Western Europe. Ports of Kemi and Tornio handle annually 3,6 million tons of cargo in total.

Region's international transport flows rely on the port situated in Ajos in Kemi. There are regular weekly connections from Kemi to Luebeck, Antwerp and London and twice a month to Spain. The port of Kemi has regular weekly container feeder connections to Hamburg, Bremerhaven and Stockholm and ro-ro services to Luebeck, Antwerp and Felixstowe (UK). All parts of the port of Kemi are owned and managed by the City of Kemi.

The Kemi region is situated along the south-north E75. E4 connects the region with Sweden. The electrified railway network connects Kemi with Southern Finland. At present network is under extension towards north (Rovaniemi). Unelectrified railway continues from Kemi to Tornio and Sweden via Haparanda, to Kolari in the north, to Rovaniemi and from there onwards to Kemijärvi.

Port of Tornio serves almost solely the largest European stainless steel company Avesta Polarit (Outokumpu). Company's investment programme of more than one billion euros will double the production and increase the tons up to 2,6 millions with 700 vessels berthing the port of Tornio. The Tornio-Terneuzen (the Netherlands) is operated by two vessels at the moment. Within two years this route will double its volume up to four ships a week. There are also liner services from Tornio to Hamburg, Bremerhaven and Stockholm.

The City of Tornio has rented the port to Avesta Polarit Ltd, which is responsible for the management of the port. The port of Tornio is still a public port and open to anyone, not just for the transports of Avesta Polarit.

The idea behind the Bothnia Logistic Centre (BLC) lies mainly in exploiting the geographical location of the Kemi-Tornio region as a crosspoint between Europe and the Barents region. Region's ports play an important role in this transport link, especially the port of Kemi. The City of Kemi is participating in the Bothnia Logistic Centre through the port, and the office of the BLC is situated in the Ajos port unit in Kemi. The Bothnia Logistic Centre and the port of Kemi co-operate e.g. in trying to attract more container traffic to the port of Kemi. In the same time they market other logistics services of the region.

3.3. Port of Oulu – Logisforum

The Port of Oulu has connections to many European ports. There are regular container feeder services to Hamburg, Bremerhaven and Stockholm. Ro-ro services operate on weekly basis to Luebeck, Antwerp and Felixstowe guarantee services for industry and wholesale trade. The total foreign cargo volume was 1,6 million tons in 2001.

The main port of Oulu is situated in Oritkari. A new intermodal terminal will be built in the same area. Oritkari area is developing a logistics hub, uniting all transport modes and housing all the services which are needed. There are over 66 000 square meters of covered storage area in the port area and the draft of the Oritkari and Vihreäsaari sea channels is 10 meters.

The Oulu region is situated along the south-north E75. Oulu is also an important junction in the country's rail network. South-, east- and north-bound tracks meet there. Oulu has one of Finland's leading terminals for combined transportation modes. The new terminal will be completed right next door to Oulu's main harbour. The new transverse (east-west) rail track in Russian Karelia opens up Russia's rail network.

Logisforum is an Internet based marketing service in the Oulu region. Also in the Oulu region, the port plays an important role among the transport opportunities. Development of logistics has a significant meaning in the strategy of the City of Oulu and it has included a logistics program in the city's growth agreement. The port of Oulu is managed by the City of Oulu. Logisforum's role is an activator in the development of logistics operations in the Oulu region. One of the aims is at building a "logistics village" in the Oritkari port area. This stresses the importance of the port for Logisforum and for other logistics actors in the region.

3.4. Ports of Turku and Naantali – Logistics Centres in the Turku region

The port of Turku handles mainly unitised cargo. The total foreign cargo volume handled in the port of Turku was almost four million tons in 2001. The port has inexpensive land side storage and free zone on-site as well as some under-utilised land available. The berth draft of the port is relatively deep and supports feeder operations.

The port has four units: passenger harbour, Linnanaukko, West Harbour and Pansio. It has connections to many European destinations. Most of the connections are to Scandinavian countries. There are also connections to the ports of Belgium, Estonia, France, Germany, United Kingdom and the Åland Islands from the region. In addition to the European ports, there are connections e.g. to Far East. The region has the only Finnish train ferry connection daily from Turku to Stockholm and Travemünde.

The port of Turku offers a wide range of services to its customers. Turku Container Terminal (TCT) provides container loading and unloading services in its own facilities, instead of having to do it at the customer's place. It will serve e.g. the increasing volumes of paper and forestry product exports through the port. Turku Eastern Landbridge concept links Scandinavia and Russia, and it has become topical now that the trade between east and west has recovered and large amounts of goods are transported between different countries. The route via Turku competes of Sweden's eastward foreign trade with routes via the Baltic States or Poland. In addition, the port of Turku has been developed to be ideal for reception, storage, handling and moving of cars.

Highway 1 (E18) leads from Turku to the east (to Helsinki), highway 10 to the City of Hämeenlinna, highway 9 to Tampere and highway 8 to Pori via Rauma. The port of Turku has railway connections to Helsinki and Tampere, and there are tracks from Turku to Naantali and Uusikaupunki.

The Port of Naantali is the third largest municipal port in Finland. Naantali is situated 17 kilometres west of Turku. There are good sea channels and liner services from the Port of Naantali for example to Sweden and the Åland Islands. Road connections are also good, because there is direct access from port to the highway. Connections will improve further, when the Helsinki–Turku motorway will be completed.

Naantali has developed into a significant centre for bulk goods, thanks to good storage facilities and all-round value-added services. For example, a repackaging is available for bulk cargo operations in the port storage area. Most of the transports are oil for the refinery of the Fortum Corporation, coal and grain. These three commodities account for more than 70 per cent of total volume. Two-thirds of the total volume is imports and one-third exports. Other bulk traffic, which is transported through the main port, consists mainly of salt, stone and scrap metal. There is also an open storage space and covered warehousing for bulk cargo as well as storage tanks for vegetable oils at Luonnonmaa harbour, which is a part of the Port of Naantali and is situated on the opposite shore.

The port of Turku is an essential part of the services being promoted by Pilot – Promoting Intermodal Logistics Operations in Turku (Turku Logistics Centre). Pilot aims at concentrating logistics operations to two specific areas: the airport and the port. The port of Turku and Pilot project work in close co-operation and support each other. When the limited company will be established to replace the Pilot Turku project, it will continue marketing the services of the port of Turku and other logistics services of the Turku region. The port of Naantali complements the services of the port of Turku. Pilot Turku also aims at fostering co-operation between these two neighbour ports.

One important provider of logistics services in the Turku region will be the centre for road transportation, which is being constructed in Raisio (north of Turku). Recently in the end of the July 2003, Pilot Turku and the City of Raisio have agreed on co-operation and joining the centre for road transportation to the Turku Logistics Centre project. The aim is to promote co-operation between logistics service providers, ports and the airport in the Turku region. The centre for road transportation is 12 kilometres away from the Port of Turku, and 15 kilometres from the Port of Naantali. The centre for road transportation is being developed independently, without co-operation with the ports. However, the development of the centre for road transportation is dependent on the ports' customers, because it can be expected that most of the traffic passing the centre for road transportation will come to/from the ports. Because the ports are situated near the centre for road transportation and cargo is often transported from the ports to the centre or from the centre to the port, customers can contract out region's ports. The contracting-out of the Port of Naantali and the Port of Turku may produce significant competitive advantages for the clients of the centre for road transportation in Raisio in the future.

In addition to the Turku Logistics Centre, the services of the port of Turku and the port of Naantali are being marketed by another logistics centre, a virtual logistics centre Logistics Turku Region. This centre also has a third port as a member: the port of Uusikaupunki, situated 70 kilometres north from Turku.

3.5. Ports of Kotka and Hamina – Straightway Southeast Finland

The ports of Kotka and Hamina serve the wood-processing industry of Southeast Finland. The port of Kotka also exports chemicals, fertilisers and sawn timber. Import through the port of Kotka consists of general cargo, raw wood and raw minerals. The port of Hamina exports mainly paper and cardboard as well as sawn timber and plywood. The port of Hamina is specialised in forest industry related imports, containers and liquid bulk. The ports of Kotka and Hamina handle nearly 90 % of the transit goods carried to/from Russia via Finland. The total foreign cargo volume handled in these ports was more than 12 million tons in 2001 (Kotka 8,0 million tons, Hamina 4,2 million tons). In the port of Kotka 31 % and in the port of Hamina 20 % of the total cargo volume was transit traffic.

The port of Kotka consists of the Main Harbour, Mussalo and Hietanen. The Main Harbour is multifunctional, the port of Hietanen is specialised in ro-ro and container traffic and the port of Mussalo handles containers as well as dry and liquid bulk. The port of Kotka will invest in the extension of the port of Hietanen and the extension of the container terminal in Mussalo. The port of Hamina also aims at extending its container terminal in the near future and the 10 meters deep sea channel needs to be deepened to 12 meters in order to develop the port operations and to guarantee the fluency of liquid bulk transportations. Sea channel is 15,3 metres deep to the port of Kotka. There are regular connections from Kotka for example to Germany, Spain, United Kingdom, Poland, Turkey, the Netherlands, Belgium, Cameroon, Denmark, Estonia, Egypt, Greece, Iceland, Iran, Ireland, Ivory Coast, Marocco, Taiwan, Tunisia and United States. And there are liner services from Hamina to Germany, France, Belgium, Spain and United Kingdom, as well.

The ports of Kotka and Hamina form the biggest export hub of Finland and enable shipping lines to integrate their incoming and outgoing flow of containers. Land transportation is carried out in containers and trailers by road and rail. The ports have good road and rail connections especially to Eastern Finland and Russia. They are situated along the E18 road (highway 7) connecting Helsinki with Russia via border crossing at Vaalimaa. Highway 15 leads north from

Kotka and Hamina (to Kouvola) and highway 26 to Luumäki. The ports are connected to Kouvola also with railway.

Both ports are public ports and they are owned by a limited company. The City of Kotka owns 100 % of the Port of Kotka Ltd. The port of Hamina followed the example made in Kotka and the port was incorporated in 2001. The company stock is presently fully owned by the City of Hamina. The port of Hamina has recently purchased 100 % of the stocks of a container terminal company HMT (Hamina Multimodal Terminals). The City of Hamina has also a share in bonded warehouse company the Hamina Freeport Ltd.

The ports of Kotka and Hamina are participating in Straightway Southeast Finland logistics centre. They joined Straightway right after its foundation in 1997 after realising that common marketing is essential for their survival in competition among ports. Straightway had been established to promote the route via Southeast Finland between Russia and Western Europe. Straightway's office is situated in Kotka.

The idea behind Straightway lies mainly in exploiting the geographical location of Southeast Finland between Western Europe and Russia. Straightway promotes the transit route through Southeast Finland between Russia and other states of former Soviet Union and Western Europe. Region's ports play an essential role in the transit transport chain. Straightway fosters transit traffic through the ports of Southeast Finland, not solely land transport via Southeast Finland. In this sense, Straightway's marketing services are important for the ports of Kotka and Hamina. They pay the biggest membership fees to Straightway, but likely they also get most use of the services provided by Straightway. Straightway offers e.g. advertising and network marketing and possibilities to participate in international meetings and trade forums with future customers. Straightway's main target areas are all major European hub ports, Asian countries (especially Japan and South Korea) and Russia.

3.6. Port of Helsinki – Aviapolis

The parts of the Port of Helsinki are the South Harbour, the West Harbour and the North harbour. Running the port and providing services together with port operators belong to the responsibilities of the Port of Helsinki. The Port of Helsinki is primarily a general cargo port serving Finland's foreign trade. One third of the value of Finland's foreign trade passes through it. It has direct, scheduled connections for example to Germany, the Netherlands, Belgium, Denmark, Sweden and the British Isles. The West Harbour is for container traffic and the North harbour for ro-ro service. The Port of Helsinki is also Finland's most important passenger port. There are connections to Stockholm, Tallinn, Luebeck, Mariehamn and Rostock. The South Harbour is reserved completely and the West Harbour partly for passenger traffic.

The Port of Helsinki is building a new port area to Vuosaari. When the Vuosaari harbour project will be finalised in 2008, cargo traffic will be transferred from the West and North harbours to Vuosaari. The Vuosaari harbour will serve both ro-ro and lo-lo ships. Passenger traffic will continue in the South and West harbours. The West and the North harbours would not have enough capacity to handle increasing volumes of cargo in the future. So, the new harbour will assure the operations of the Port of Helsinki far into the future. It also will promote growth in foreign trade. The Vuosaari harbour project is being planned in co-ordination with the Port of Helsinki, the Finnish Maritime Administration, the Finnish Rail Administration and the Finnish Road Administration. The Vuosaari harbour will combine two harbours, which results in more efficient use of machines and equipment and competition between companies providing port and logistics services. However, many of the largest cargo terminals and distribution centres in the Helsinki metropolitan area are situated along Ring Road III and close to the Helsinki-Vantaa International airport nowadays.

The logistics centre Aviapolis is situated in the City of Vantaa next to the City of Helsinki. Aviapolis has been created to the area surrounding the Helsinki-Vantaa airport. The Helsinki city centre is 10 kilometres away from Aviapolis and the E18-road passes through the area. Passenger and cargo ports are also situated nearby Aviapolis in Helsinki.

Aviapolis is a marketing concept made for drawing new businesses to the area. It is closely linked to the hi-tech strategy of the City of Vantaa. The City of Vantaa manages this long-term development project together with the Finnish Civil Aviation Administration and 14 producers of corporate facilities and services are in charge of the

execution of the Aviapolis project. Aviapolis offers competitive locations for companies that consider logistical efficiency as an important advantage. In addition, the shared goal of the partners is to remove all obstacles in the way of companies looking to locate their operations at Aviapolis. The main marketing target are international competence-intensive companies that need to have efficient transportation connections especially in air traffic.

Although Aviapolis is situated about ten kilometres from the coast of the Baltic Sea and both passenger and cargo ports are situated close by, the Port of Helsinki does not belong to the Aviapolis development group. On the other hand, the services provided by the port of Helsinki are important for the Helsinki metropolitan area, and also for Aviapolis. Companies providing logistics services search for locations with several transport options. Therefore the close location of the port of Helsinki is important for Aviapolis. Accessibility between Aviapolis and the port of Helsinki will improve when the construction of a new Vuosaari harbour is completed. Vuosaari harbour will be situated at the end of the ring road that passes through Aviapolis.

Large export companies are planning a shared logistics centre outside Helsinki. Forestry companies UPM-Kymmene and M-real as well as the port operator Finnsteve participate in the project. If the project moves on, the aim is to get large import companies to participate. The shipping company Finnlines and Finnsteve take part in the Vuosaari harbour project actively, as well. Container traffic and its increase would be the main reasons for establishing this logistics centre. The part of the Finnish imports and exports are transported in containers. A logistics centre is needed so that containers and the streams of goods would move across better. There are few possible places where the logistics centre would be located. However, a good location for the logistics centre is at a rail and road network crossing. For example Vuosaari area is one possible location for such a logistics centre.

4. Ports as a Part of the Logistics Centres' Operations

As Finland is situated at the northern shore of the Baltic Sea and its main trade destinations on the other sides, marine transport has an essential position in Finnish international transports. Because ports are important nodes of transportation, the surroundings of ports have been natural sites for logistics centres. The optimal site for a logistics centre is near an intersection of different modes of transport. Usually there are both road and rail connections from the port to its hinterland. Most of the Finnish logistics centres depend on ports and sea transport: Bothnia Logistic Centre and Logisforum on the coast of the Gulf of Bothnia, the logistics centres in the Turku Region and Straightway Southeast Finland on the southern coast of Finland. Aviapolis is an exception; it relies mainly on an airport instead of a sea port.

All Finnish logistics centres have been initiated by public sector organisations, like municipalities or regional councils. The public sector has also been responsible for the financing of logistics centres in their initial phases. As the public ports are also in most cases managed and owned by municipalities, the co-operation between ports and logistics centres has been natural. Finnish logistics centres are situated near public ports, which owned by municipalities. Bothnia Logistic Centre has the industrial port of Tornio in its vicinity, and the port of Naantali is partly serving the oil refinery, but mainly the BLC and Turku Logistics Centre rely on public ports.

The role of a port is different in each logistics centre. Some ports play a remarkable role in the logistics centres (table 3). Below are some examples: The ports of Kotka and Hamina pay the most membership fees for Straightway Southeast Finland, so relatively they finance the operations of the logistics centre for the most part. Likewise, they also get most use of the services provided by the logistics centre. The ports of Kemi and Tornio play an important role in the Bothnia Logistic Centre. The Port of Kemi is a member and the Port of Tornio is a partner in the BLC. The port of Oulu has an important stand in Logisforum. The port is a member in the logistics centre, and the port manager is also the chairman of Logisforum's logistics working group. This group also supervises Logisforum's operations in general. The ports of Turku and Naantali were involved in the establishment of the Turku Logistics Centre project. The City of Turku and the construction company Hartela Ltd finance the project and the ports of Turku and Naantali act as partners and logistics services providers. However, as the Port of Turku belongs under the administration of the City of Turku, its role in the planning of the Turku Logistics Centre (Pilot Turku) project is more important than the role of the port of Naantali. The ports of Turku and Naantali

are also members of the Logistics Turku Region (virtual logistics centre) as well. None of the ports participate in Aviapolis.

Table 3. Basic information on ports and Finnish logistics centres.

PORT	Logistics Centre in the region	Total cargo volume (tons) in 2002	Liner services	Passenger ferry routes	The position of the port in the logistics centre
Tornio	Bothnia Logistic Centre	773 824	GE, SE	-	Partner
Kemi	Bothnia Logistic Centre	2 943 851	GE, SE	-	Member
Oulu	Logisforum	2 276 048	GE, SE, UK	-	Partner, chair in logistics working group
Naantali	Turku Logistics Centre, Logistics Turku Region	7 233 827	Åland Islands, SE	Kapellskär	Turku Logistics Centre: Partner, Logistics Turku Region: Member
Turku	Turku Logistics Centre, Logistics Turku Region	3 768 035	SE, GE, EE, ES, BE, PO, NO, UK, FR, Åland, Korea, TW, JP	Åland, Stockholm	Turku Logistics Centre: Partner, Logistics Turku Region: Member
Helsinki	Aviapolis	11 473 700	BE, CY, DE, EE, GE, UK, GR, IL, LA, TU, NL, NO, PO, RU, SP, SE	Åland, Tallinn, Stockholm, Travemunde, Rostock	-
Kotka	Straightway	8 475 031	GE, SP, GR, PO, TU, NE, BE, CM, CY, DE, EG, EE, UK, IS, IR, IE, IL, IT, CI, MA, PT, SY, TW, TN, US	-	Member
Hamina	Straightway	4 834 463	GE, FR, BE, SP, UK	-	Member

Co-operation between a port and a logistics centre can bring many benefits for both actors. Logistics centres aim at uniting different transport modes efficiently. In Finland, the logistics centres also have a wider task to fulfil. They are often created with public funding and for this reason the aim at promoting the whole region in order to boost economic activities. After all, good transport connections, for example from subcontractors and to customers, are one reason for companies to locate their functions in a certain place.

On the other hand, ports depend on the land transport connections and can make use of the marketing and other services provided by logistics centres. A port can concentrate more on developing its own services, if it out-sources some of the tasks a logistics centre could handle more effectively. Access to different services plays an important role in competition between ports. Customers choose a port by comparing the facilities and services provided by a port, but possibilities to efficient land transport are equally important. This applies especially for public ports – private industrial ports serving a single company seldom need the services provided by a logistics centre.

As both logistics centres and ports situated in their environment have been or still are at least partly managed by public sector, the co-ordination of planning is easier. Logistics centres and ports are taken into account in land use planning and their interests are being listened to. Co-operation enables joint efforts in developing both the port and other logistics services.

Most Finnish logistics centres and ports are highly dependent on each other. Ports provide traffic and customers to the members of a logistics centre. Logistics centres provide a wide range of services, and in most of the Finnish logistics centres services are related to sea transportation and port operations play a major role. In this way, a logistics centre can support the development and operation of a port and vice versa.

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Aviapolis	(www.aviapolis.fi)
Ministry of Transport and Communications	(www.mintc.fi)
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