NSB CoRe KVARKEN - Making NSB more attractive, enlarging labour pool, better connected, wealthier

Case B: PASSENGER TRAFFIC FROM ROADS TO RAIL AND FERRY IN TAMPERE-SEINÄJOKI-VAASA-UMEÅ GROWTH CORRIDOR

Final Report
21 May 2018

INTRODUCTION - Kvarken and NSB CoRe

NSB CoRe project has started in spring 2016 as part of the Interreg VB Baltic Sea Region Programme. Objective of the project is to enhance regional development by improving internal and external accessibility in the Eastern-Baltic Sea Region to freight and passenger transport. This study is focusing on Kvarken region, ie. on three Ostrobothnian regions in Finland (Ostrobohnia, South Ostrobothnia and Central Ostrobothnia) and Västerbotten and Örnsköldvik regions in Sweden, the main urban nodes being Vaasa and Umeå. Total population of the region is a bit over 750 000 inhabitants, of which about ⅔ is on Finnish side and ⅓ on Swedish side.

Main goal of the whole NSB CoRe project is to influence on EU TEN-T policy and to link North Sea-Baltic Core Network Corridor with regional transport networks and urban nodes in northernmost part of this corridor. In addition to EU-policy, there are number of national regional development, and transport decisions that should be taken into account.

This study support building the Vision of the NSB CoRe corridor, which is being elaborated by the VASAB Secretariat. The main aims of the Vision are: identifying the existing or possible discrepancies in national, regional or local spatial plans of the North Sea–Baltic corridor bordering states, to seek for the needs of improvements of the North Sea–Baltic corridor connections with the 2nd level transport networks and assessing the impact of the NSB CoRe corridor upon regional development processes in the territory of the corridor.

The most important linkages in the Kvarken region studied in this work are, first of all, internal sea routes through the Midway Alignment, which is a shortcut (A-line) within the Bothnian Corridor and a trunk line E12 to Mo i Rana in Norway. In Finland, the most important link is attachment to the city of Seinäjoki, and even forming of the twin city of Vaasa-Seinäjoki. Through Seinäjoki, Kvarken is linked to the Growth Corridor Finland, which currently reaches from Helsinki to Seinäjoki via Tampere. The northern direction of the Bothnia Corridor, whereupon Vaasa connects closely to Kokkola should also be remembered. Seinäjoki-Vaasa-Kokkola forms a growth triangle in Ostrobothnia. On a larger scale, the Kvarken could become a crossroad for two European corridors. On the one hand, it connects via Finland's growth path to NSB and SCANMED in Sweden. On the Swedish side, this also highlights the importance of North-South direction, namely Umeå connections to the south of Sundsvall and north to Luleå (Picture 1, population forecast to 2030 in Picture 2). Furthermore, the Swedish government now wants the EU Commission to include the Botnian corridor in the core corridor network and thereby coordination within the EU.

The NSB CoRe corridor supports the strengthening of the competitiveness of its regions and nations as well as competitiveness of whole wider corridor. Better competitiveness requires functional logistics chains, especially on long-haul. Competitiveness improves only through a more efficient transport system. Growth between the major urban areas will allow for better long-term employment, expansive travel-to-work-areas and labour mobility. The role of railways in long-distance traffic flows is increasing.

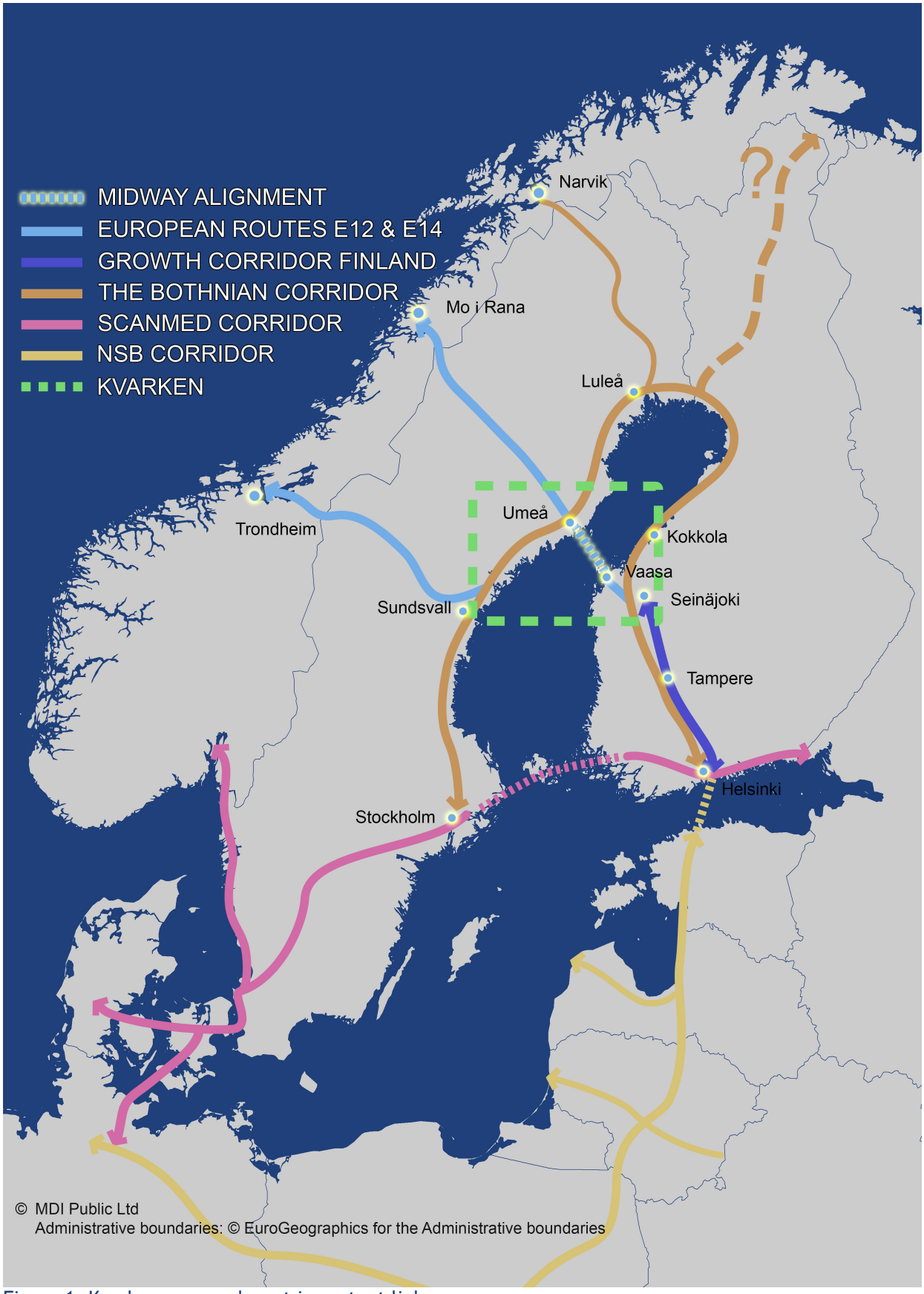


Figure 1. Kvarken area and most important linkages

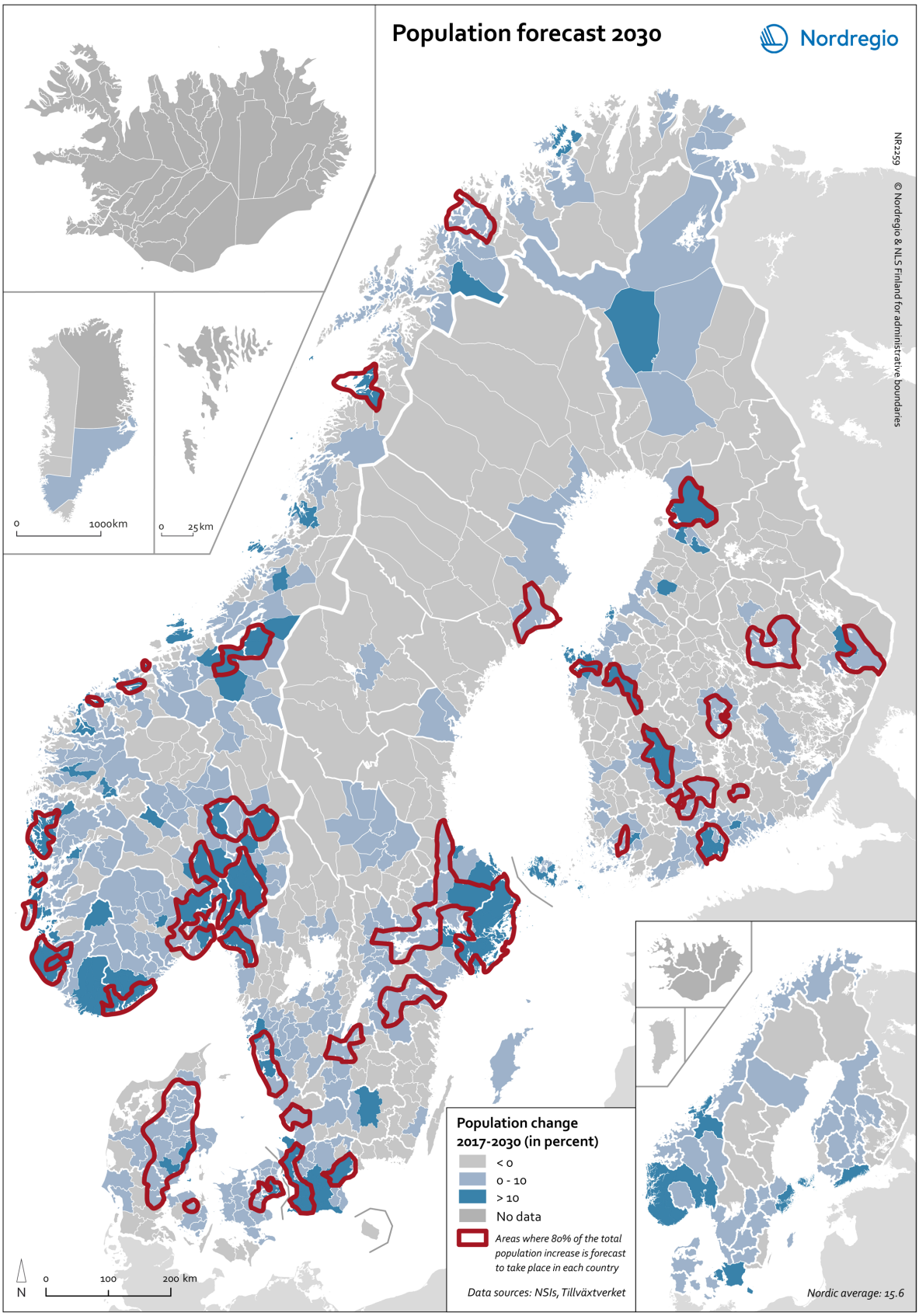


Figure 2. Population forecast to 2030. Source: Nordregio, the State of the Nordic Region.

Investing in infrastructure - investing in future

Development corridors consist of networked centers and functional areas where increased regional interaction supports the development of a broad and diverse labour market and cooperation area. The interaction is based on a functioning transport system that allows a fairly long daily commuting within the zone. Developing the growth corridor can make the use of transport systems and related services more efficient. Growth corridors are also of special importance as part of international cooperation areas. Territorial interaction and growth corridors are shaped by big trends, such as the increase of people's mobility and polycentrism, and the increasingly globalized operational environment, the changing nature of work, digitalisation and urbanization. Growth corridors have become increasingly important concept and dimension in regional development and planning.

Transport is an important and growing sector in the economy. Technological development, digitalization, urbanization changes traffic. The transformation of the industry can solve the accessibility of people, goods and services in a new way, and at the same time create an internationally competitive new business. It is estimated that the global transport market will provide growth potential of hundreds of billions of euros. NSB CoRe also plays an important role in this development. Regions can serve as test platforms and development laboratories for developing services.

Accessibility to key markets is the whole idea of the NSB CoRe, and along the corridor, it is important to consider which investments will make the most of the competitiveness. The goal for future transportation infrastructure should be fast and reliable connections into EU markets, Norway and also to Russia/China. In east-west direction it is important to link with Kouvola's direction. Eastern direction is no longer just about Russia but also China, as it has invested in the Silk RailRoad - a connection where the container fleet operates every few weeks between Kouvola and Xi'an in China, which creates possibilities also for intermodal logistics links from Kvarken to Kouvola.

In Finland, six Western regional councils commissioned an initiative "Päärata Plus / Main Rail Line Plus", which is the objective of developing Western Finland railways serving Finland as a whole. Speeding up the NSB CoRe Northern part requires additional investment in the railways. Investments made or planned in Western Finland require good rail freight capacity. Enhanced connections between passenger traffic also allow for increased tourism and the growth of the so-called experience economy.

In addition to boosting economic factor of viable transport there is also a need for sustainable development and climate objectives. Transport infrastructure should also be sustainable, and sustainability could also be basis for marketing. While sustainable, network should also showcase high-end technological advantages. This requires real solutions to current aged structures and bottlenecks. Finland and Sweden are committed to the EU's 2030 and 2050 emission targets, which requires clearer climate and energy policy solutions from around the world. Transport has a key role in reducing transport emissions - for example, Finland has pledged to halve emissions by 2030. For Sweden, the EU has set even stricter targets.

Building European competitiveness

The competitiveness of Europe is closely dependent to the development of transport links, in particular the trans-European transport networks, operation of the TEN-T transport network. The European Union has identified the nine most strategically important Core Network Corridors (TEN-T Core Corridors, Picture 3). Finland and Sweden are merging into mainland Europe through two corridors; The North Sea-Baltic (NSB) corridor connects the Baltic ports to the North Sea ports and the Scandinavian-Mediterranean (Scan-Med) corridor extending from Finland to Sweden towards the Mediterranean Sea. These core corridors extend to the southern parts of Finland and Sweden but leave geographically most

parts of the two countries outside the transport network. Kvarken is building bridge to connect these two corridors.

TEN-T network has a dual-layer structure comprising of a core network, which is scheduled for completion by the end of 2030, and comprehensive network that is scheduled for completion by the end of 2050. Finland and Sweden are committed to the TEN-T measures, since the TEN-regulation is mandatory and contains quality criteria. In the current funding period, TEN-T support is in practice directed to core network corridors. Finland will prepare an investment plan for the implementation of the TEN-T network and report on the progress and funding of projects to the Commission. TEN-T aims to establish and develop the key links and interconnections needed to eliminate existing bottlenecks of mobility and to fill missing sections and complete the main routes.

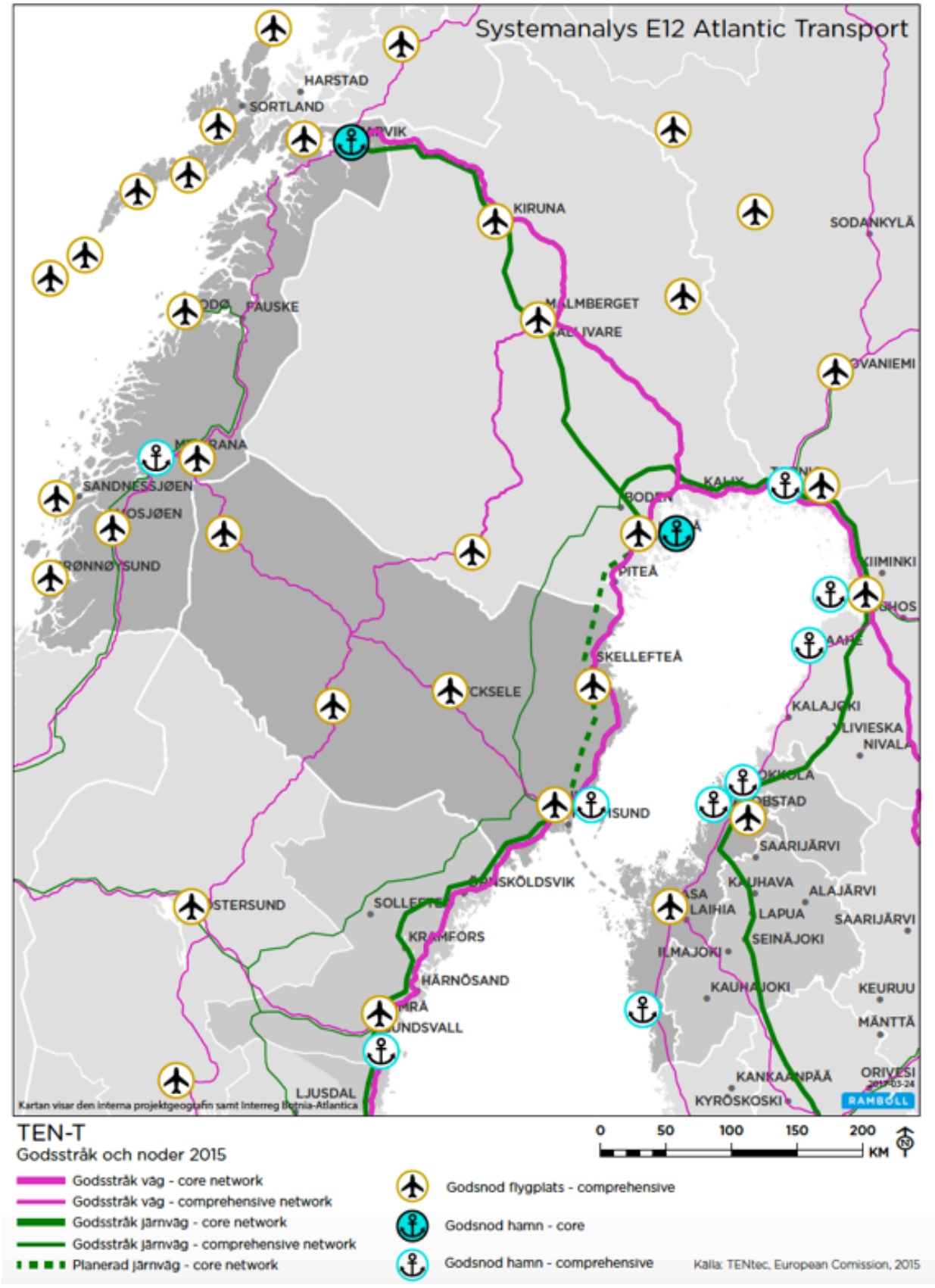


Figure 2. TEN-T network in Kvarken and surrounding areas. Source: Ramboll.

Connection between Vaasa and Umeå

There has been more or less frequent traffic over the Kvarken strait since 1837 when Swedish steamship made its maiden voyage between Umeå and Vaasa. There was regular traffic during the summer season after first world war, but it was discontinued after second world war. Commute traffic started again in 1947 and the first ferry boat started to operate. The first proper drive-on ferry, WasaExpress, started to operate in 1964. Since 1960 number of passengers grew steadily and in the end of the 20th century there were over one million passengers using the route. After the brief peak the number of passengers started to decrease. One of the reasons for decrease was the end of tax-free sales in 1999. In 2000 the route was suspended completely until 2011 RG Line Casino Express and Botnia Link Transparaden started to operate again. Botnia Link was conducting cargo traffic between Vaasa and Härnösand since 2000 and between Vaasa and Umeå since 2001. After the Botnia Link quit, RG line continued to operate. At the end of 2001 RG-Line declared bankruptcy. Temporarily passenger and cargo traffic was operated by RG-line bankruptcy estate.

In 2012 city of Vaasa and municipality of Umeå decided to establish common shipping company called NLC Ferry, which started to operate the traffic in the area. NLC Ferry bought a ferry boat called MS Wasa Express, which has formerly operated between Vaasa and Umeå. New ship arrived to Vaasa in November 2012 and it was overhauled. Kvarken regions traffic transferred to NLC Ferry 1.1.2013 and marketing name was chosen to be Wasaline. Wasaline operates cargo and passenger traffic in Kvarken Area at the moment. In 2017 Wasaline transported 184 144 passengers (Picture 4).

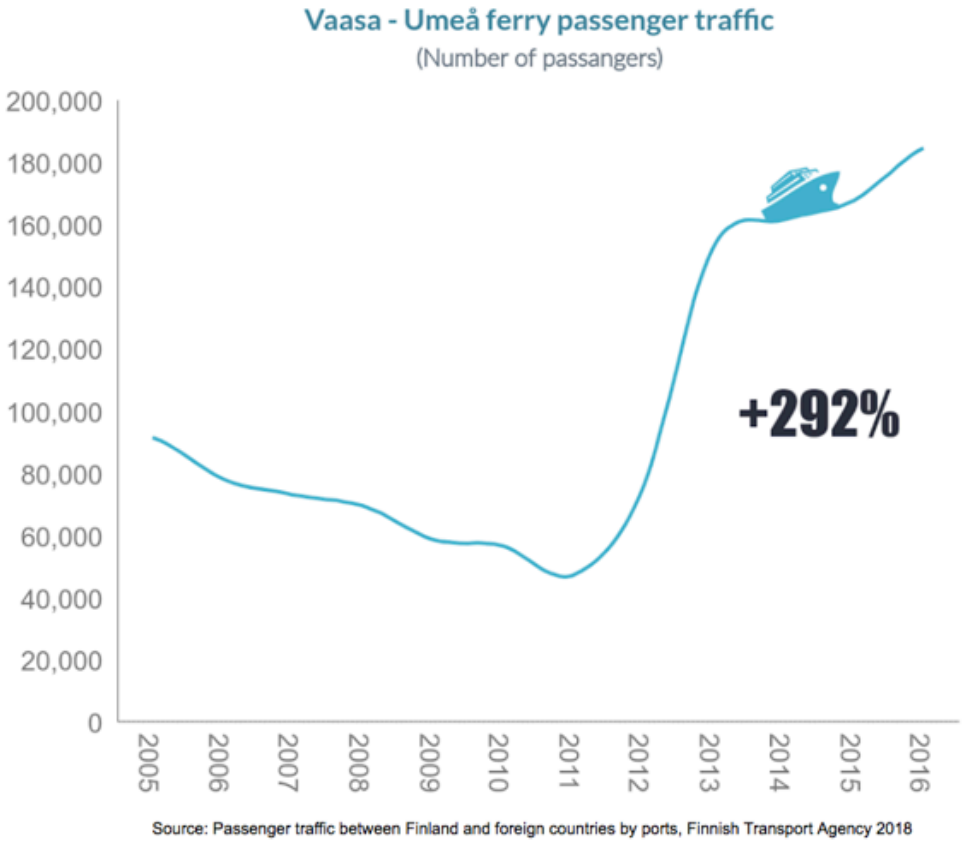


Figure 3. Passengers in Vaasa-Umeå ferry line

Good transport infrastructure has to be the basis for transnational corridor and ensuring its growth and advantage. Currently both cargo and passenger volumes are rising. Along the Midway Alignment project new passenger/cargo ship service is planned to supplement existing connections. The whole corridor needs better land infrastructure, but shipping might turn into a bottleneck without real investments.

During the last twenty years, several projects have been invested in the development of the Kvarken region, as well as well-researched and extensive surveys of the potential, uncertainty, development and need for co-operation. At this time, several projects are underway to develop the area. Further, the continuation and development of the Kvarken has been part of the government program in Finland.

The Midway Alignment of the Bothnian Corridor, which is also known as the Kvarken Multimodal Link, runs through the Baltic Sea in Gulf of Bothnia. Sea route connects the strategically important highways E12, E4 and E8 and the recently launched Bothnian core network. On January 2018, Kvarken Link Ltd has sent a Request for Information (RFI), to a total of 17 shipyards around the world. The survey will give a better picture of both the price level of the future ship and the know-how of the shipyards and the opportunities to build a vessel for the Kvarken traffic. This survey is the first step in the public procurement process. The next step is to make a shorter list of docks that have both a timely opportunity to complete the project and the required level of know-how. After that starts preparation of public procurement documents. Aim is to have vessel operating in 2021.

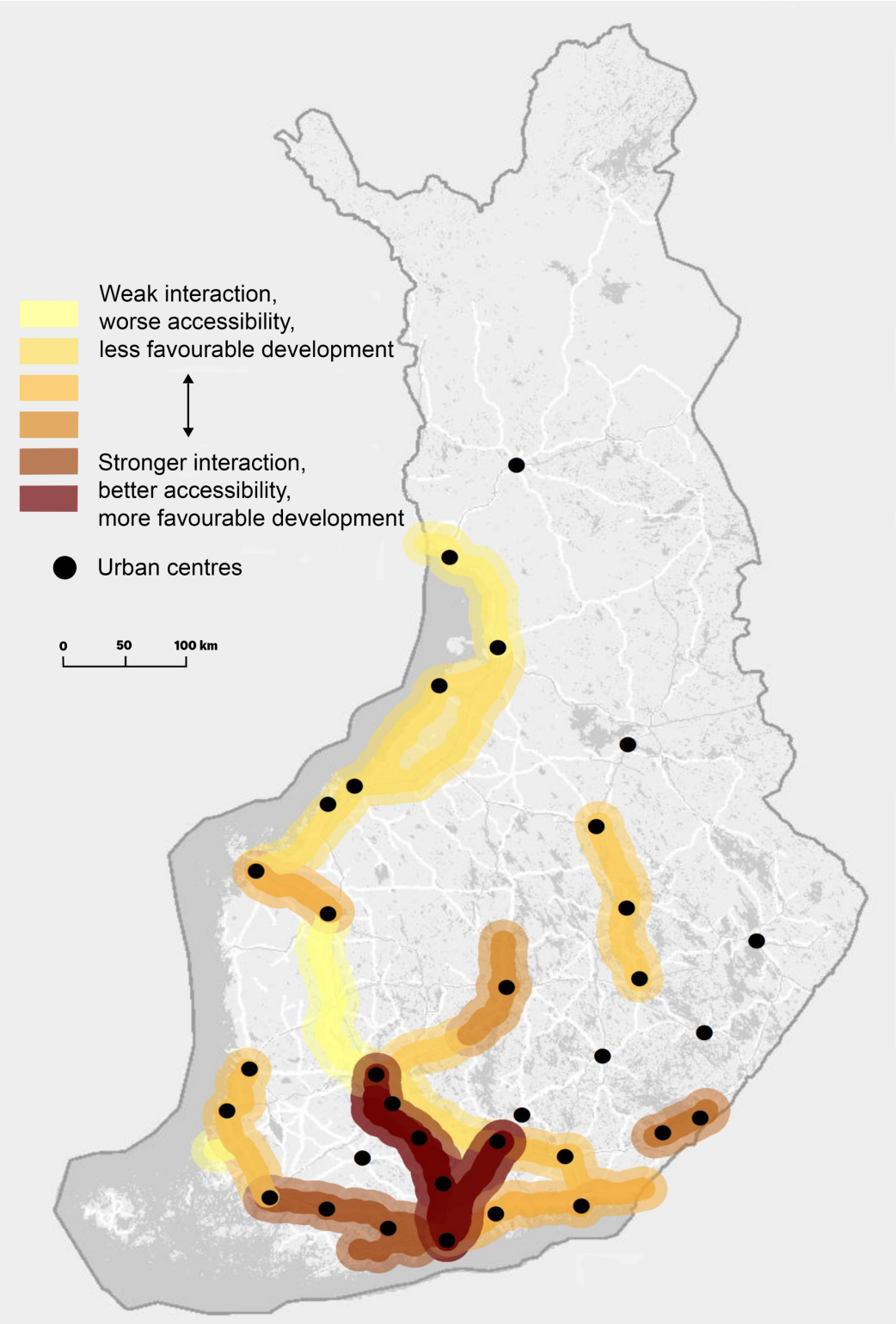
Development corridors in Finland

Government's analysis, assessment and research activities Report 50/2017 "On Functional Areas and Growth Corridors in Finland" the corridors were analysed from the point of view of mobility, disregarding administrative boundaries. Corridor development includes the strengthening of the competence basis, reinforcing the planning, the development of impact assessments, the enhancement of interaction, regional development of growth zones and the promotion of sustainable mobility.

The study highlights the links between the major urban centers in the movement of people and goods. There is a need for both active rail and road connections. The development must rely heavily on the development of the transport system, which should take into account growth and the economic importance of accessibility. The survey identifies Growth Corridor Finland (from Helsinki to Tampere) as the strongest growth corridor. Smaller national and transnational growth corridors include Vaasa-Umeå connection as well. However the link between Tampere and Seinäjoki was considered rather weak. Main challenge of NSB CoRe is to build not only tight link between Vaasa and Seinäjoki but to reach also Tampere. According to that study, proposals for action under the plan include a need to make bold and visionary coordinated solutions including land use, housing, transport, education and service solutions. Co-operation between the provinces is needed in order to promote sustainable patterns of growth from the perspective of larger labour areas. In the end this co-operation is very dependent on the capability to prioritize transport investments and in commitment from different actors to these.

It is critical that the Seinäjoki and Tampere are more linked to each other. Earlier study estimates that the potential for this link is still rather small. There is only minor city of Parkano between the two cities, but more important is the quick connection from Tampere to Seinäjoki (Picture 5).

In terms of the internal progress of the regions, corridor development means development of agglomerations, that is, the strengthening of urban growth. This development supports the further development of larger mergers. If this arouses questions about fostering territorial cohesion, then it should be considered whether it is better to have a few successful nodes in the area or more drifting and passing points.



Corridor	Development potential
Helsinki-Tampere	3,7 (highest score)
Helsinki-Lahti	3,5
Helsinki-Turku	3
Seinäjoki-Vaasa	2,5 (7th highest in Finland)
Tampere-Seinäjoki	1,6 (lowest of 16 studied corridors)

Figure 4. Points for corridor development potential in Finland (scale from 1 – 4).

Source: Prime Ministry's Office, Publications of the Government's analysis, assessment and research activities 50/2017

Connecting to growth corridors in Sweden

Umeå is – compared to other medium-sized cities in Sweden - developing better than average. In recent years increase in growth of exports in Västerbottenslän has been among best ones among Swedish regions. Northern Sweden is generally considered to be outside reach of national growth centres or corridors. The nearest major growth centre of national importance is Uppsala (65 km north of Stockholm). Gävle, being 90 km north of Uppsala and 160 km North of Stockholm) is the only Northern town that realistically can link up with the Uppsala – Arlanda – Stockholm region in the short run. Sundsvall is just short of 300 km north of Uppsala. Of importance for Sundsvall is the train link to Gävle – Uppsala – Arlanda – Stockholm.

Investments are underway on parts of the line Sundsvall – Gävle where standards partly are poor. Regional critique is that investments on this line are not fast enough as expressed in the National Plan. Travel time to Stockholm from Sundsvall is still well over 3 hours, but hopes are that investments will bring travel time down to 2, 5 hours or less connecting Sundsvall to the Uppsala – Stockholm Growth corridor. However, with current speed of investments on the Ostkustbanan this will take years. Although being closer to national growth corridors, in terms of actual growth Gävle and Sundsvall display the lowest growth rates of the larger towns of Northern Sweden. This is more related to industrial structures both cities being primarily manufacturing oriented. The real growth centre in the North is Umeå showing a forty years of growth trend. However, this is an exception in the North. Other towns are either in decline or stagnation, except maybe for the last one or two years. If compared to the south of Sweden however the growth even of Umeå is too slow to compete.

For other cities Uppsala – Stockholm remain distant, at least for regular commuting by train. Travel times from Umeå are approximately 6 hours and from Östersund just under 5 hours. The upgrading of the Ådalsbanan north of Sundsvall and the Ostkustbanan south of Sundsvall are important for linking Umeå closer to national growth centres in central Sweden. Air traffic is also intense between Stockholm and Umeå (with 1 million passengers), indicating rail is not yet an alternative for business communications.

For the Umeå region a high priority is also given to linking Umeå to towns further north through a proposed new rail link named Norr Botniabanan, connecting Skellefteå and Luleå to Umeå with a new coastal railway instead of the current inland connection. Such an investment will put Umeå at the centre in a North Bothnian Coast (Growth) corridor connecting cities from Luleå – Sundsvall with modern high-speed railway. Several studies has pointed out that this will bring together a number of local labour markets into a larger common (or at least more common) labour market with high growth potentials. Concerns from a national perspective are the high investment costs and the relatively low population of the corridor compared to projects in southern Sweden. Concerns are that local labour markets are too small and too weak to provide a real growth at the corridor. Norr Botniabanan also means a risk of shifting attention from the Broader corridor perspective.

A lot has been studied – what have we learned?

Existing projects related to the development of Kvarken in addition to NSB Core:

- *E12 Atlantica Transport*
- *Spotlight High-Low Cost*
- *Midway Alignment of the Bothnian Corridor*
- *MABA II*
- *E12 Atlantica BA3NET*

Finalised projects and studies:

- *NECL I and NECL II -project*
- *Nordic Logistic Corridor – the most important eastern and western route in the region*
- *MABA I*
- *NOSTRA*
- *Botnia Marketing*
- *NDPTL -project*
- *World Heritage Sites in Partnership with 63 ° North - World Heritage Ambassarors,*
- *The potential for a new economy and wealth creation in the Kvarken region Godsflödesstudie,*
- *Kvarken – short cut system,*
- *Unizon Kvarken 2001-2007,*
- *Kvarken Ferry - importance for the economy and people*
- *SELLING – Regional growth from culture*
- Wind energy in Kvarken

The E12 Atlantica Transport (Botnia Atlantica) project (2016-2018) is based on cooperation between Finnish, Swedish and Norwegian partners operating on the E12. The purpose of the project is to lower border barriers and to continue the development of the E12 from Finland to Sweden and Norway. The project will develop strategies and guidelines for cross-border route development and transport planning. In addition, it carries out pilot activities among companies in the region to identify shortages and opportunities for transport systems. In addition, the project aims to strengthen cooperation between the Kvarken Council, Blå Vägen and Midtskandia. *Project budget: 2 579 191 €.*

The Spotlight High-Low Cost project (2015-2018) is cross-border and is oriented towards tourism and business. The project is also designed to produce product packages and marketing materials that can attract tourists to the Kvarken Archipelago and the Highland World Heritage Site. The aim of the project is to increase the number of tourists in the region and at the same time complement the achievements of Vaasa and Umeå in the Midway Alignment project. *Project budget: 750 000 €.*

The Midway Alignment of the Bothnia Corridor (2012-2018) aims to design and build a new, environmentally friendly ferry for the Kvarken Sea Transport. In addition, the objectives are to improve the environmental and economic efficiency of the port and logistics system, to develop and promote innovative solutions (environment, safety, technology, operational), combine northern areas with other Europe, improve the attractiveness of the region and ensure long-term operational stability. The project combines many different modes of transport. The aim is to create a secure link between Finland and Sweden, which in turn creates new connections with other EU countries. *Project budget: 20 700 000 €.*

The goal of MABA II - Midway Alignment II (Botnia Atlantica) (2015-2018) is to help infrastructure investments across the future boundaries of the Bothnia-Atlantica by providing background material for them. The project produces well-prepared surveys, backgrounds and analyzes that can be used to advance the development of a traffic route in the east-west direction, which will allow further action to be taken. The project provides a study of the TEN-T status and the Core connections of the Kvarken ports, as well as a case analysis and mapping of current resources, including the development of cross-border port statistics, the monitoring and strengthening of stronger regional and national developments in the Kvarken area and the development of new ship planning documents and procurement documents. *Project budget: 827 500 €.*

The E12 Atlantica BA3NET (Botnia Atlantica) project (2016-2019) strengthens the East-West TEN-T E12 by developing methods, evaluation tools and know-how for a common strategic planning of the border area transport sector. Through the project, the region aims to create capacity to reduce various technical, administrative and other obstacles in the future, to develop the region's innovation and competitiveness, and to achieve sustainable regional growth. *Project budget: 1 017 657 €.*

SELLING - Regional Growth Through Culture (2011-2014) developed the Cultural Entrepreneurship of the Kvarken Region and the conditions for the exercise of culture. The aim of the project was to create a regional growth factor for Kvarken. Other objectives include raising awareness and visibility of creative sectors, strengthening the wellbeing and development potential of the region by enhancing the cultural profile, increasing entrepreneurial interest in creative industries, and developing and raising the playing field for creative industries in the Kvarken region to a more profitable level.

The Nordic Logistic Corridor (NLC) - area's most important eastern-western route (2011-2014) project was to develop an economical, environmentally friendly and efficient route alternative from the NLC corridor. The NLC corridor is an east-west transport route extending from the Atlantic coast from Helgeland to Norway, via Västerbotten in Sweden, across the Kvarken and across Finland. The route is important for business development. The route consists of the E12 road, which has been part of the EU's priority for the European transport network since 2013. The project has led to cross-border decisive political action and increased responsibility for co-operation between the responsible authorities in different countries. Thanks to the project, the NLC is better known, the image given in communications and marketing is clearer, and the information on the NLC is more uniform. However, according to the final report of the project, the NLC's awareness could still be increased. The desire to cooperate between countries has increased and cooperation has continued. The project has resulted in improved port infrastructure in Vaasa and Umeå. The project has created a strong Nordic Logistic Corridor company, such as NLC Ferry and Kvarken Ports Ltd. *Project budget: 4 100 000 €.*

World Heritage Sites in partnership with the 63 ° North - World Heritage Ambassadors (Botnia-Atlantica) (2012-2014) have been designed to increase understanding of the impact and consequences of the World Heritage Site and to develop cooperation between countries. The Finnish Kvarken Archipelago was awarded the World Heritage Site in 2006 and the Swedish Highland Coast in 2000. According to the report, the project has achieved the objectives set in the project plan. The project initiated many forms of co-operation between entrepreneurs and aroused interest in politicians and civil servants to raise world heritage status in the work of public authorities and municipalities. The project also involved educating teachers so that an increasing number of pupils could get information on the cross-border world heritage. The project yielded material that is used and implemented in the project after cross-administration of the world heritage of the teaching work of the material further. These include films, the High Coast website and a common portal for both countries' websites. According to the final report of the project, the project has gained deep knowledge of the cross-border world heritage.

The Visionary Analysis of the Kvarken Region (2015) is based on the Kvarken Council and examines the economic potential of the Kvarken and new ways of thinking to achieve the full potential of the Kvarken region. A successful economic ecosystem in the Kvarken area is based on three issues: 1) The region needs a new and more active life-cycle model (private-public partnership) where the focus is on inventing the means of promoting wealth, as opposed to relying solely on the privatization of public services. In addition, PPP should focus on a holistic economic analysis of how private and public interests interact. 2) It is important to look across borders at all levels. This is a mental, practical and partly legal issue. 3) Must be open to the subjective aspects of the situation. Territorial politics, both economic and social, are always subject to the subjective influence of voters, public and private leaders and users.

The North East Cargo Link (NECL) I & II (2003-2006, 2010-2013) projects were extensive projects for the development of the Mid-Throat Transport Corridor including several different studies. The transport corridor originates in the west of Trondheim and runs through central Sweden to the Gulf of Bothnia, from where it continues by sea to the west coast of Finland. The route from the west coast of Finland continues through central Finland to the eastern border of Finland to South Karelia and continues to Russia.

Originally, The North East Cargo Link co-operation started in 1996 and was initiated by private companies, but cooperation with regional and local bodies grew rapidly. The first part of the project started in 2003 with funding for three years from ITERREG III B from BSR. In the first part, the possibilities and development conditions of transport and logistics and freight transport from Norway to Sweden via Finland and further into the central area of the Midlands. The continuation project continued to develop the transport corridor and sought to improve the shortcomings found in the first phase of the project.

Project development measures focused on:

- Intermodal solutions
- Improvement of roads and railways
- To develop the ICT system to optimize goods transport in the corridor
- Creating a green transport pipeline in accordance with sustainable development and environmentally friendly

NECL's studies and sub projects include:

- Mid-Bothnia Transport Report (2013)
- NCL Seinäjoki (Nordic Logistics of Seinäjoki) (2013
- Improvement of Highway 18 between Ähtäri-Multia and improvement of road 621 between Liesjärvi-Keuruu
- Specialization of ports in Ostrobothnia (2012)
- Special Transportation in Ostrobothnia (2012)
- All Pieces in Place (2012)

Kvarken - short cut system project (2012) In the project aim was to develop the Kvarken route as a European transport route. In addition, the intention was to establish a transport network that creates the conditions for border-regional and regional development. Access to the Kvarken is a prerequisite for cross-cutting cooperation and an effective "Kvarken - short cut system" from the Norwegian coast to Europe and Russia. *Project budget 1 100 000 €.*

MABA I (2015-2016) The purpose was to improve the linkage of the Kvarken, to strengthen the region's competitiveness and to plan a new car ferry to Umeå-Vaasa, to develop ports and logistics throughout the region, to ensure their environmental friendliness and to secure all-year passenger and freight traffic in the Kvarken. In addition, the project included the creation of a base material for the TEN-T network. At present, the MABA project is undergoing an extension project MABA II and the project is complementary to the ongoing Midway Alignment project. *Project budget: 235 000 €.*

The **Freight Flow Study** (Godsflödesstudie) (2012) deals with Kvarken freight traffic. According to the survey, the traffic of the Kvarken region has been positive in recent years. Effective traffic in the area is an important factor in the development of the region in the long term, while also affecting the competitiveness of the region. Exploring the flow of goods in the area creates a good frame for a better understanding of the situation in the Kvarken and traffic needs for the local business community. Improving transport in the region will help bigger metal and forest industry companies as well as smaller companies to maintain their competitiveness and growth. In addition, improving traffic can create new streams outside the region, for example from Norway and Russia. The survey is based on a survey conducted in the Kvarken area both in Finland and in Sweden.

the Unizon Kvarken project (2001-2007). The purpose was to deepen and expand the cooperation between universities and universities in the Kvarken area. The project facilitated and promoted student exchanges between universities and higher education institutions as project years.

The preparation of the **strategy for securing the ferry traffic of Kvarken** (2012) examines the need to see shipping traffic between Vaasa and Umeå as part of a wider E12 infrastructure. In January 2012, the Ministry of Transport and Communications set up a working group to draft a proposal for measures to safeguard all-year passenger and freight traffic in the Kvarken. The working group suggested that the Vaasa-Umeå connection would be considered as part of the transport infrastructure (Europe road 12) and that part of this transport infrastructure would form a tailor-made, environmentally friendly and ice-well craft based on customer needs. As a long-term goal, the working group presented a new vessel designed for the Kvarken traffic.

The NOSTRA project (2012-2014) mapped the good practice of European marshland areas for functioning transport links, smooth traffic and interregional joint management.

The aim of the **Botnia Marketing project** (2013-2014) was to make Ostrobothnia and Västerbotten tourism more popular and at the same time increase the number of tourists crossing the Kvarken. The aim of the project was to establish relationships between the various actors and to create the conditions for the continuity of the products developed and the relationships created during the project, even after the end of the project.

The purpose of **The Northern Dimension Partnership for Transportation and Logistics** (NDPTL) project, 2014-2015) was to develop more efficient ports in ports and to plan and analyze the additional capacity required for the flow of goods and port areas in the demolition and loading phase. In addition, a review of the efficiency of the use of the port of Vaasa was made. *Project budget 320 000 €.*

The **significance of ferry traffic for the economy and residents of the region** study (2012) surveyed the development of Kvarken's freight and passenger volumes in the region. The survey also examines the problems of ferry traffic and their impact on residents and businesses. In addition, the study presents development strategies and measures to improve the traffic of the Kvarken area.

The **Study on the Vaasa-Seinäjoki development corridor** (2015) was drawn up on the basis of the needs identified in the transport system plans and mapped the current service level of passenger transport on the development corridor and defined the targets for the future service level. In addition, an operational strategy was drawn up on the basis of objectives and current state of affairs.

Strengths:	Weaknesses:
• Long and successful history in cross-border development and governance, cultural assimilation • Collaborative and coordinated transport development both in Vaasa and Umeå • Electrified railway and direct connection from Helsinki to Vaasa	• TEN-T core networks bypass Vaasa • Slow and only once or twice a day each direction ferry link between Vaasa - Umea • Poor rail linkage from Umeå to Norway
Opportunities:	**Threats:**
• Arctic issues and Northern Dimension is Interesting again for EU, transportation of goods, sustainability (low carbon) • Growing interest of building twin city between Seinäjoki and Vaasa - eg. Vaasa airport services also Seinäjoki • Knowledge and competence hub, exchanging students and experts create common pool of expertise across the border and along NSB • Increased integration between Vaasa/Seinäjoki and Umeå • Prolonging of the corridors creates additional opportunities	• New ferry (midway alignment) will be severely delayed • Nordic countries thinly represented on TEN-T maps, losing position on money allocation • Non-urban areas in Kvarken do not benefit from NSB CoRe (only benefits major cities)

Summarising SWOT of KVARKEN in NSB-Core

PASSENGER TRAFFIC FROM ROADS TO RAIL AND FERRY IN TAMPERE-SEINÄJOKI-VAASA-UMEÅ GROWTH CORRIDOR

This case study is more strongly based on Finland, where the growth corridor is mainly located. The other end of the corridor is in Umeå, but there is not as clear-cut development corridor as is the case on Finnish side. At the beginning, maps of population potential, labour market development and know-how are presented (Pictures 6-11).

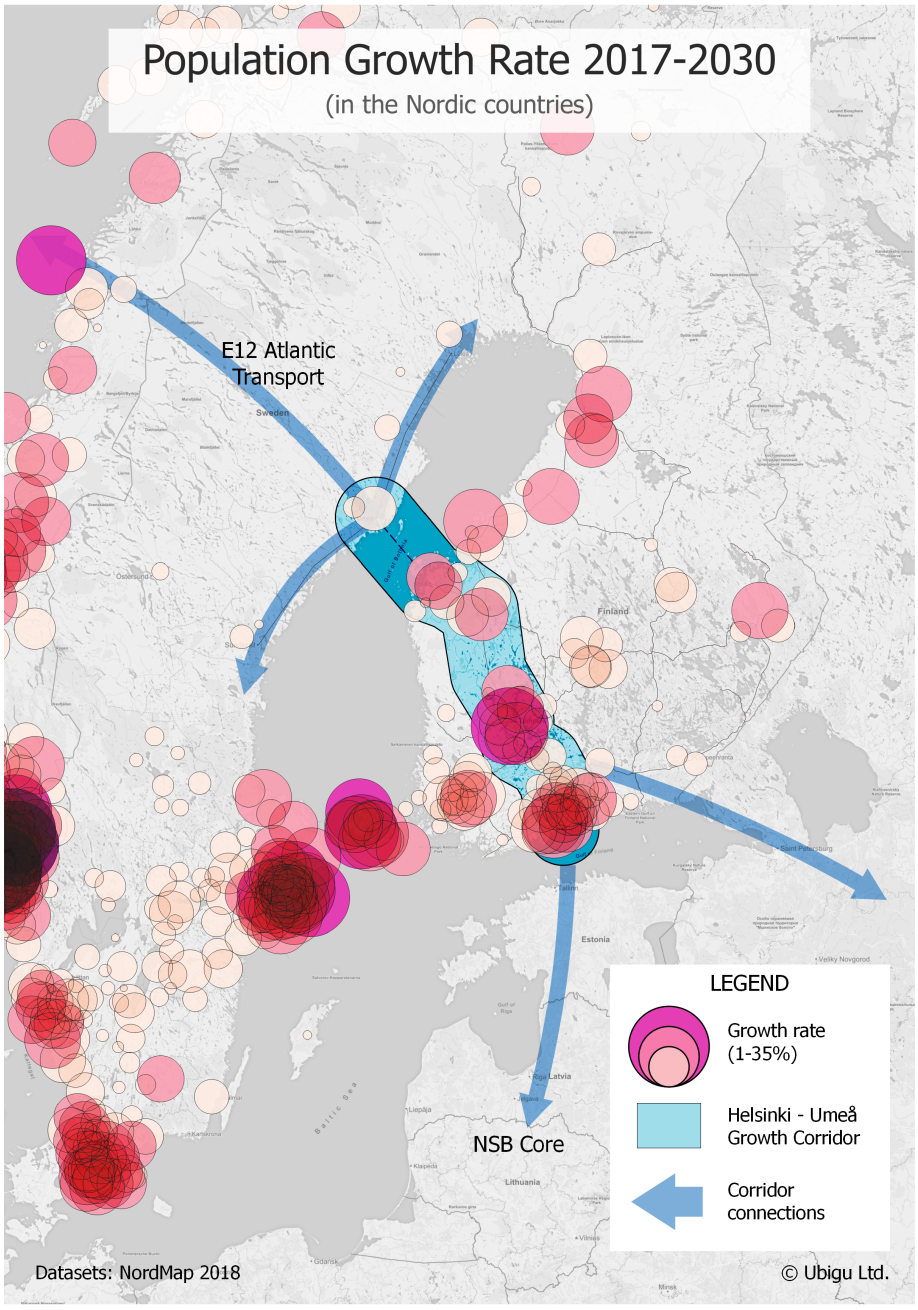


Figure 5. Prognosis for population growth rate 2017-2030.

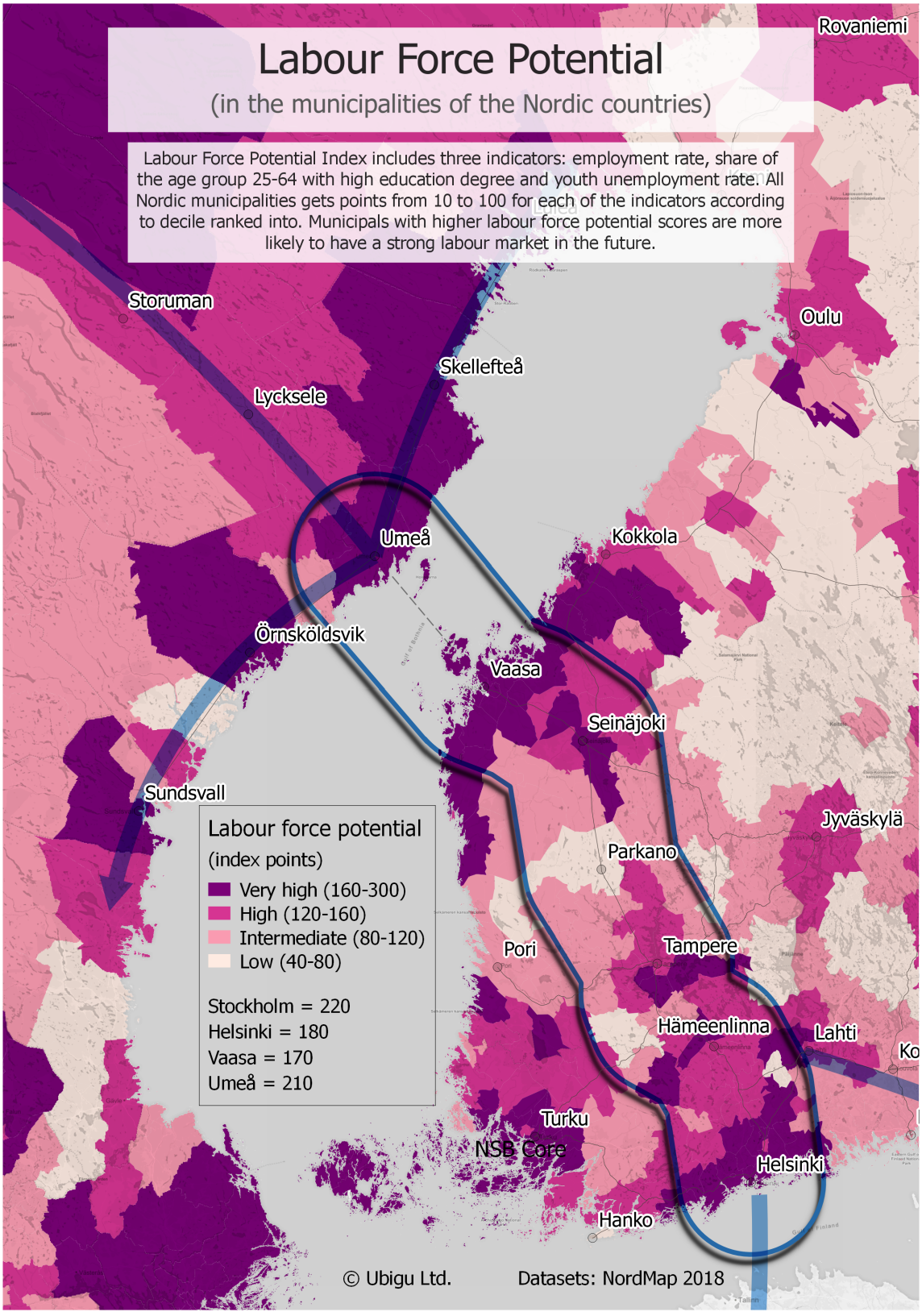


Figure 6. Labour force potential.



Figure 7. Commuting patterns in Finnish side on Kvarken.

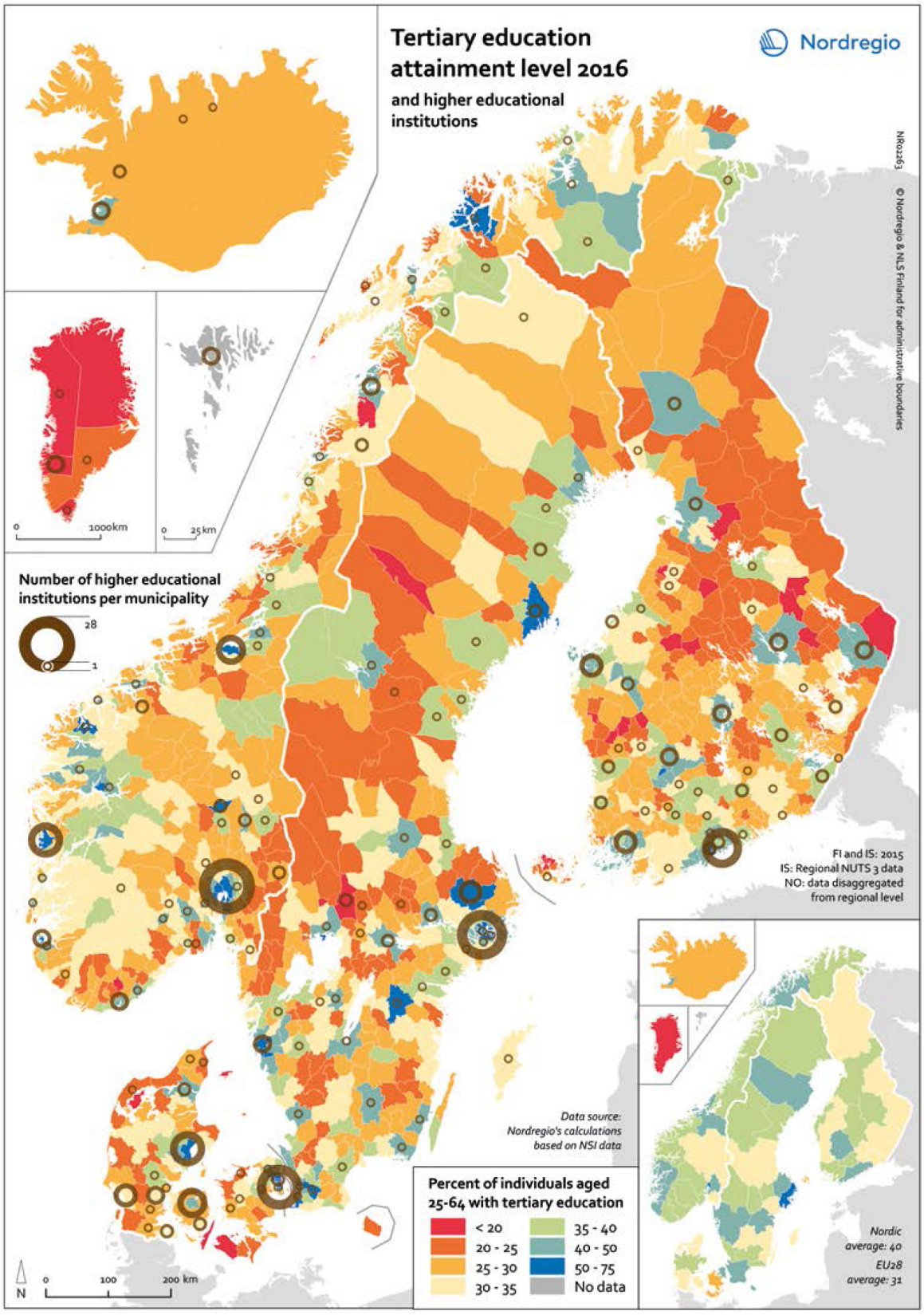
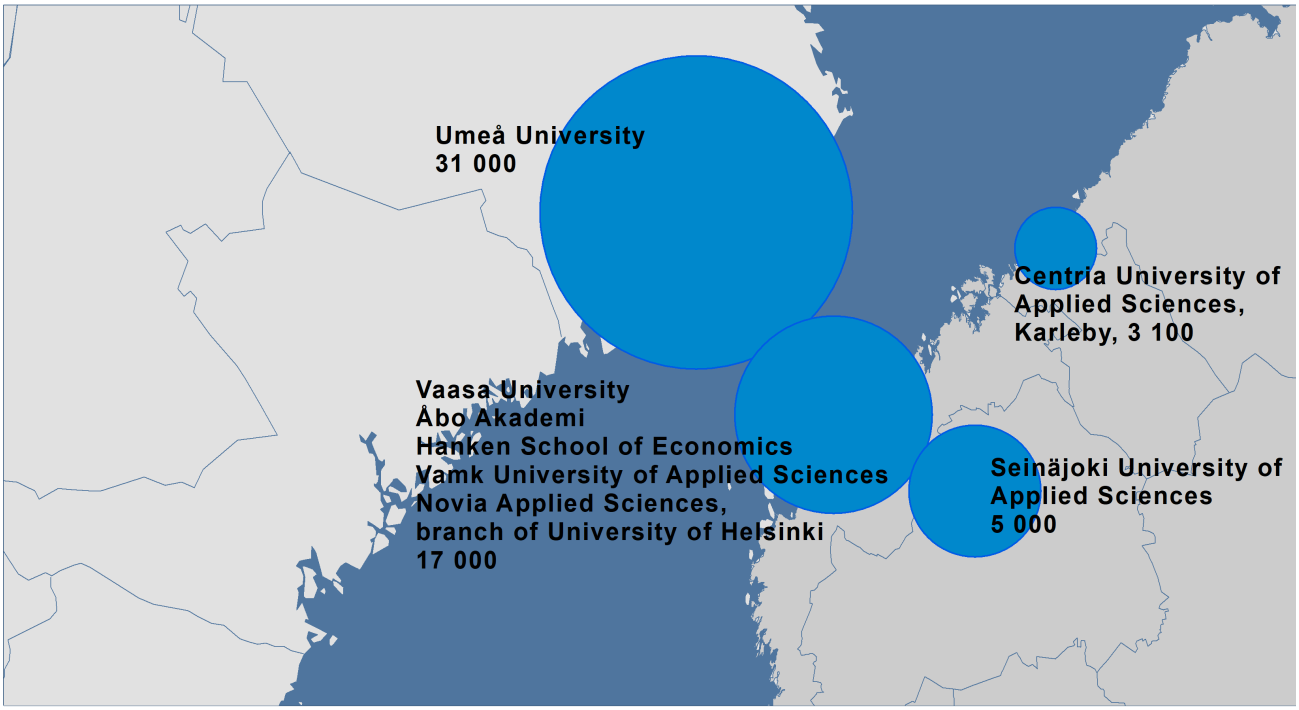


Figure 8. Tertiary education attainment level. Source: Nordregio, the State the State of the Nordic Region.



Umeå University has a few branches, for example in Skellefte
Source:
Sweden: SCB, 2014 and Umeå Universitet, 2016
Norway: SSB, 2015
Finland: Vipunen.fi, 2015 and Vasaregionen, 2016

Figure 9. Students in higher education institutions

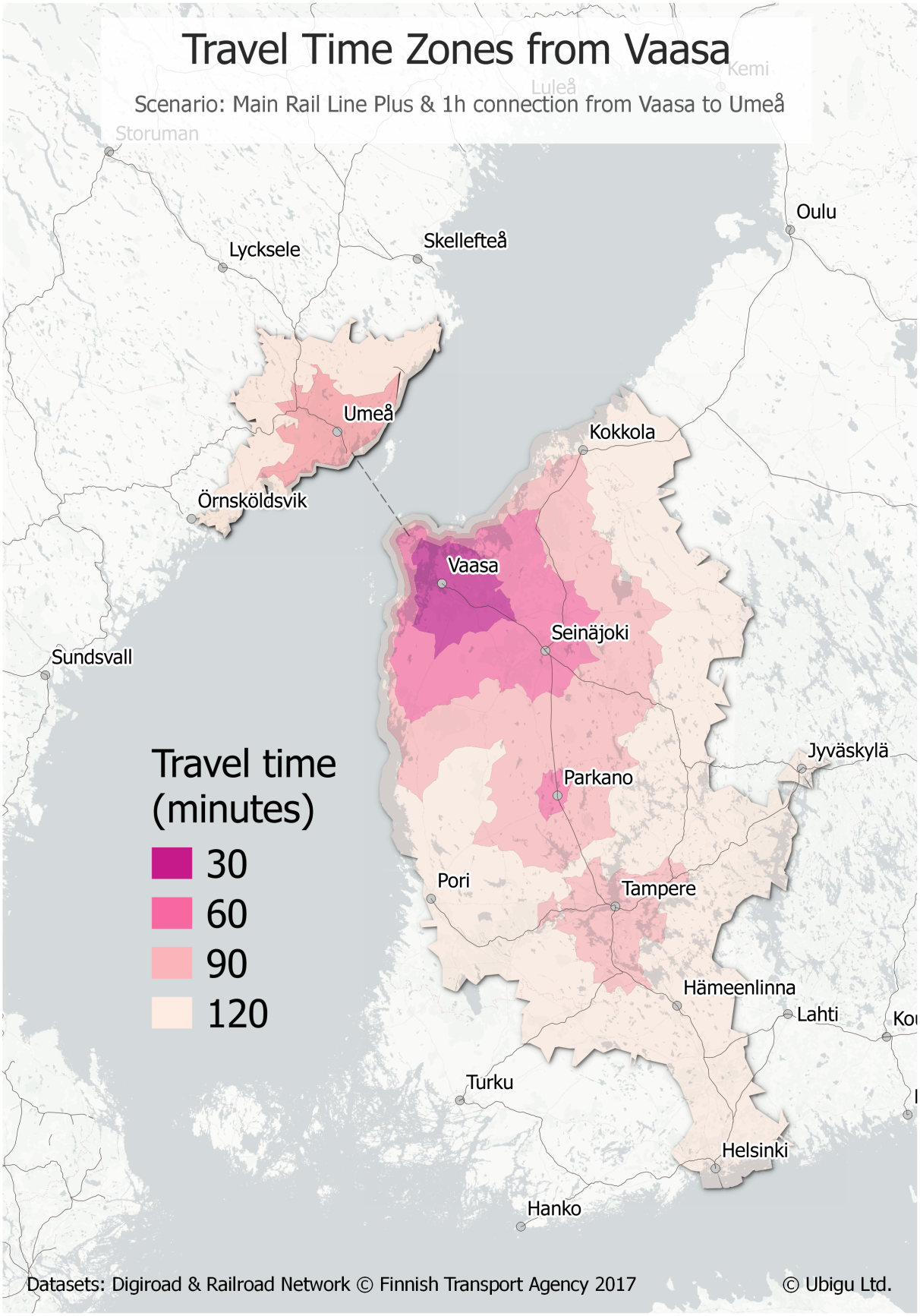


Figure 10. Distribution of highly educated labour force

Regional and strategic planning – rising awareness

The goal of developing the northern part of the NSB CoRe is to improve attractiveness and image of the whole corridor. This is done by improving the operating conditions of companies, the smooth running of workforce and the development of public transport, which also restrains the growth of passenger car traffic.

On the Finnish side the traffic road route between Seinäjoki and Vaasa runs through six municipalities: Vaasa, Mustasaari, Laihia, Isokyrö, Ilmajoki and Seinäjoki. Altogether they have about 160 000 inhabitants, which is about ⅓ of inhabitants of Kvarken's Finnish side. There are six stations along the trail rack: Vaasa, Laihia, Tervajoki, Isokyrö, Ylistaro and Seinäjoki. The stations of Vaasa and Seinäjoki are near the city centers, but smaller stations are located outside municipal centers as housing follows the road highway.

The Vaasa-Seinäjoki area is a corridor which is projected to continue to grow in the future. Positive developments are also reflected in the growth of workforce traffic along the corridor to larger cities both in the corridor and in the larger cities along the NSB CoRe. It is estimated in previous studies that measures that shorten travel time within 20 to 45 minutes have the greatest impact on the travel-to-work-area. Another threshold is 60 minutes: after that daily commuting is rather rare.

According to the Sito Growth Corridor Analysis (*Development Corridor between Vaasa-Seinäjoki, Preliminary Study*), 150-200 million journeys annually are currently made at the Vaasa-Seinäjoki Development Corridor, most of which within urban regions. By 2040, the number of such journeys is projected to increase by about 30 percent. In the direction of the development corridor, tens of millions of trips are made annually. Approximately 75% to 80% of these trips are made by a car, about 20% by train and about 5% by bus. Approximately 300,000 journeys are made annually at Vaasa airport and approximately 200,000 ferry journeys in Vaasa.

The passenger car has the best service level compared to other modes of transport. With the growing population, the need for mobility becomes evident. A large part of this mobility growth should be directed to public transport by improving its service level. With better public transport, non-car-households (ie. over one fifth of households) and all age groups can move better than ever. However, it should be noted that most of the traffic will still be carried on by passenger cars, so the development and safety of car traffic cannot be forgotten either. Proposals for road transport measures concern the improvement of road safety, ensuring the smooth running of road transport at the interconnection terminals, improving the conditions and attractiveness of walking and cycling in agglomerations, and improving road transport security. Road improvement targets are presented to highway 3 and 18. It is recommended to improve condition and serviceability of the safety of roads and streets leading to railways and bus stations. Furthermore, the development of passenger traffic does not undermine the operation and efficiency of freight transport by different means of transport.

So, the main issue identified is the development of public transport, which means both bus and train links. Public bodies (state, provinces, municipalities) are actively involved in the development of a wide range of measures, both public transport services and infrastructure.

In the case of rail transport, the most important development issues are the provision of services and time tables. In the form of track measures, it is recommended to construct an electrified enclosure track and to improve the platform construction of stations. The needs of freight transport should be taken into

account in the planning of the track crossings. In addition, parking facilities in railway stations and storage facilities for vehicles as well as escorting travel arrangements should be improved.

In the intermediate stations, the placement of services to the proximity of the stations and the walking and cycling paths leading to the stations are important. In the longer term, it is about developing station areas, ie. developing neighbourhoods and services near the stations.

Recommendations for bus traffic are the clarification of the division of work on rail and bus traffic, the development of travel chains, the reduction of travel times, ticket sales development, development of service offering and individual public transport solutions development (shuttle service, on-demand-services, village bus, workplace bus, etc.). In addition, wider public development measures for public transport would be a nationwide transport ticketing as well as general image marketing of public transport.

South Ostrobothnia's 2nd phased land use plan includes city center functionalities, trade and transport themes. The regional plan gives clear guidelines for the rail network development. For the main rail line double track between Seinäjoki and Tampere for increasing capacity and throughput is needed. Seinäjoki-Vaasa railway section is prepared for the construction of passing loops, decreasing level crossings, basic track improvement and speed upgrading.

Ostrobothnia's provincial plan 2040 is in drafting phase as comprehensive regional plan that addresses all community structures and land-use areas. It will replace the regional plan 2030 with phased land use plans. The goal is to have the plan approved by early 2019. Ostrobothnia's transport system plan 2040 highlights the increasing the speed of trains between Vaasa and Helsinki, increasing the number of passing loops on Vaasa track trains and reducing the amount of the level crossings as the main objectives.

Connecting to other regional or transport plans

There is no contradiction between the Ostrobothnia Provincial Plan 2040 and South Ostrobothnia’s planning, as the Vaasa-Seinäjoki development corridor has been noted in both. According to Ostrobothnia's Transport Systems Plan 2014, infrastructure needs to be developed especially in the main road network and in the parts of the lower tier network which is important for business transport. The aim should be to develop fast and convenient passenger and freight train connections and to invest in the year-round traffic across the Kvarken. The bus traffic is not mentioned in the plan.

The objectives set out in the transport system plan include co-operation between the cities of Vaasa and Seinäjoki, which is facilitated by improving the functioning of transportation and transport chains between cities; acceleration and improvement of the service levels on train connections between Ostrobothnia and the Helsinki Metropolitan; Safeguarding people's mobility by developing new public transport models based on on-demand-services and journey combining; development of Ostrobothnia's main routes and traffic services in such a way that mobility and transportation are safe and transport schedules are predictable. The Ostrobothnia transport system plan mentions the Vaasa-Seinäjoki track as a means of improving the service provision of the trains and improving the serviceability of the timetable. The effects of measures include improving the attractiveness of public transport in commuter traffic and improving the flow of traffic on Highway 18. This can have a negative effect on peak congestion, which means that the need for investment on Highway 18 will be reduced or delayed.

The transport system plan states that in order to make the public transport an attractive alternative to a passenger car, the range of services offered by the Vaasa-Seinäjoki passageway and the timetables must

be developed to serve commuter traffic. This may mean increasing the track capacity by adding rail passing loops. Reducing the level crossings between Vaasa-Seinäjoki and improving the track for damage and carrying capacity makes it possible to increase train speeds and improve road safety.

The development of the rail link also creates opportunities for increased transportation on the track section. Land use planning should include new housing and key services in the city centers or in the vicinity of public transport lanes, major public transport hubs, rail stations or bus stops.

Vaasa urban area structural model 2040 (from 2014) mentions the development of the railway stations as one of the key themes of land use and construction. The model report mentions the development of transport connections according to Ostrobothnia's transport system work as key transport measures. In addition, the following measures are mentioned: identify the possibilities and conditions for urban and / or express light rail link in the region; development of an ecological, logistical and growing tourism link between Vaasa and Umeå and the related port logistics and business development.

In South Ostrobothnia Transport System Plan (2017), the importance of Vaasa airport is emphasized more profoundly than earlier. The regional government, health and social services reform will increase the recognition of the Seinäjoki-Vaasa twin city. The promotion of transport services as well as other services and cooperation and development of the transport network are justified on this development corridor. There are bottlenecks especially in the main rail line from Helsinki and on the Vaasa track and the removal of these would increase the possibilities for speeding up connections and developing the roundtrip.

There has been a need for a change in the operating concept of Seinäjoki Airport. There is also a need to ensure effective connections to the nearest Vaasa and Tampere-Pirkkala airports from Seinäjoki. In particular, because of the shorter distance the importance of connections to Vaasa has increased.

The importance of the Vaasa-Seinäjoki connections is underlined by the increase in the commuting between Seinäjoki and Vaasa as well as the development of the connective links of the Vaasa airport. In 2016, a direct bus service experiment was started from Seinäjoki to Vaasa Airport and back and 2017 as a new morning train from Seinäjoki to Vaasa.

South Ostrobothnia's transport system plan has set service standards for long transurban public journeys and transports, which include among others: fast work trips and smooth travel routes are secured to Helsinki, Tampere and Vaasa as well as for international connections; public transport is competitive compared to car; long-distance travel chains and services for students are functioning; transport through the region can be handled cost-effectively, safely and without distraction; connections abroad via the ports of Ostrobothnia are competitive compared to connections to the ports of South and Southwest Finland. In addition, Roves logistical area is mentioned as development target. New commute ticket products should also be introduced in connection with the Vaasa direction, possibly as part of the new mobility services to be developed.

Transport needs according to the plans

Some main roads to the direction of Vaasa from Seinäjoki are of poor quality (highway 18). Vaasa's shipping services have been developed but the acquisition of a ship designed for freight and passenger traffic is just proceeding. Connections to ports are partially inadequate (Kaskinen track / track is weak, Vaasa track / passing loop is missing, which would contribute to improved public transport and freight traffic).

In the main rail line, new passing loops must be built for those parts of Seinäjoki and Tampere, where most of the train encounters take place. On the Vaasa track, the construction of a Tervajoki passing loop must be completed in the first place. These measures will speed up the connections and enable the development of roundtrips. After passing loops are completed, it is possible to offer neighbouring Seinäjoki and Vaasa provincial centers good business commuting on both directions.

Along with the development of the traffic on the train service, joint ticket and information services for train and bus traffic should be developed, taking into account the development of national plans and new MaaS services. Concomitant use between Seinäjoki and Vaasa would improve the attractiveness of public transport even before building a passing loop. Different profiling of the train and bus traffic could increase the number of total passengers.

Main development projects

The main projects in wider Ostrobothnia region in need for investments should be prioritized. These include development of the Seinäjoki-Tampere connection as part of the Bothnia corridor as well as highway 18 between Seinäjoki and Vaasa and also the development and coordination of traffic and land use in the dual city.

The vision is seen as the realization of a real dual/twin city and, for example, a common labor market. The primary aim is to draw up the highway 18 Vaasa-Seinäjoki Development Plan (ongoing) and the general plan as well as promoting the measures defined in the preliminary study of the development corridor. In the Vaasa-Seinäjoki survey (2015) of the development corridor and in the distance chain survey (2016) non-phased measures for the following areas are presented:

- Upgrading the Free Access (vt 16 / vt 18) in Ylistaro and other necessary destinations
- Bypass lanes (2+2) Between the Seinäjoki-Vaasa
- Coordination of transport and land use (common master plans and strategies for municipalities)
- Reduction of level crossings and semi-precipitation arrangements, crossing point (Tervajoki), pier structures
- Development of rail and station areas and development of public transport
- Access road connections, light traffic connections
- Development of buses, air and maritime transport and land use

The design criteria for further planning must be taken into account in addition to the guidelines of long distance and transport service level objectives, descriptions of previous model studies on service levels and development opportunities, conditions for freight transport and development needs as well as inter-city interaction needs. Also, new mobility services must be taken into account.

Public transport issues

In the *public service standard definition for 2013*, the division of work on rail and bus services between Vaasa and Seinäjoki is pointed as in need for clarification. From the transport system perspective, public transport provision of the linkage should be seen as a whole. The principle is that rail transport carries out most of the public transport connections between the Vaasa-Seinäjoki terminals. This is supported, for example, by the much faster driving time of a train compared with bus transport. Bus services complement train connections due to the lack of passengers.

According to *Tampere-Vaasa - Step 1 of the Development Corridor* (2015) The train is the fastest way to travel on both work and leisure trips. The public transport service level is good between 7-22. Heavy traffic journey times are guaranteed around the clock and through the year. Transport safety is good and centralize transport to the highway.

National targets and trends that are provided in *The transport system's long-term plan (Transport conditions 2035)* are: long-haul passenger services include links between the provincial centers and major tourist centers in Helsinki and the regional centers that are needed to combine workplaces and support economic viability. The focus of the development of the urban transport system is to support the creation of functioning travel chains and the battling of sprawling land use in functional urban areas. The transport system should be developed in cooperation with urban areas, improving the conditions for public transport, cycling and walking. As far as transportation is concerned, in Western Finland emphasis is placed on the functionality of transport chains at key traffic hubs and ports, including in the west-east connections. Development overview of the regional structure and traffic system 2050 is fully parallel with the development directions of the Kvarken NSB CoRe (Picture 12).

Rising theme - station areas and other test beds for travel chains, services and coordination of transport modes

In recent years, the role of station areas in urban development has increased substantially. Second level cities and especially their station areas have become attractive to commercial services. There is more interest in the stations in the cities because of the general urbanism trends and inward urban growth, which means that both migration and services are moving towards the city center.

Big volumes of travellers and consumers are the basis for demand. In addition to the travellers, the stations are relevant and potential service concentrations for urban residents as well. Stations have often been built up in the commercial centers of cities or in their immediate vicinity, where stations is or may become a natural part of a city commercial center.

One of the growing trends in business decisions has been investing in accessibility. Therefore, the aim should be to form compact urban structures. On the other hand, the aim is to reduce the number of greenhouse gases in transport by increasing the attractiveness of public transport and, in particular, rail transport. Station areas are seen as a significant potential for urban development and the improvement of their competitiveness. At best, the stations of the city are gathering buzz and action, which again creates opportunities for new mobility and other services.

The most problematic phase of travel chain operations is most often the so-called "last mile", which means moving from a functioning public transport network to the final destination of one's journey. As the transport system is now undergoing a dramatic renewal of the service concept, the role of the stations is increasing as the supply of transport services can be concentrated where there is enough demand. NSB CoRe could link major urban cores to one another in one hour. Future transport projects emphasize housing and the impact of its growth on the hubs of the corridors. Main players in this field are municipalities, regional state authorities and national operators like national railroad company VR.

At the same time, the stations are a difficult development platform due to the multitude of actors with conflicting interests and expectations regarding the development of stations. In many cities, especially the problems associated with decentralized land ownership have hampered the overall development of the stations. Over the last few years, however, Finland has built up a number of versatile stations, with many types of services flourishing. Along with NSB CoRe, there are big visions for example to develop the

Pasila station, the Tampere area, and there are ambitious plans also for the Seinäjoki station. In Vaasa there hasn't been large scale plans for the station itself, but only to extend central city over the rail.

The best stations include mixed activities. Stations do not only serve as a hub for mobility, but to exploit their potential requires a diverse and intertwined service offering that combines, for example, housing, jobs and tourism (eg. hotels), as well as various private and public services. It is essential that the potential of the stations can be harnessed as a resource for cities and often as centers of development. Dwelling areas allow a wide range of development activities. At the same time there may be several different processes in which the use of the drive zone is planned, different modes of space and new construction as well as ancillary traffic and parking. In addition, different kinds of idea competitions are typically running or pending. However, to achieve significant development trends, comprehensive multi-stakeholder planning, concrete solutions for land ownership, joint targeting, visions, experiments and development projects are needed.

Vision

Main bottleneck in Ostrobothnia and Kvarken's passenger traffic is connection between Seinäjoki and Vaasa. This measures the developing interests of Finnish cities and regions to really connect Kvarken area as part of NSB CoRe. Fast ship of fixed connection (1 hr) between Vaasa and Umeå is needed in long term (in mid-range more environmental friendly vessel is required). Internal integration, ie. connecting smaller settlements to corridor is needed.

Duration	Vision
Short	Developing MaaS and development of station areas
Mid-term	Reliable, innovative, environmental friendly 3h ferry connection
Long	2hr connection from Vaasa to Helsinki (3hrs from Umeå)

Table 1. Vision of passenger transport

Piloting MaaS should take place in 2018. Some experimental cases are taking place in Seinäjoki region, but wider pilot should be launched between Seinäjoki-Vaasa-Umeå. MaaS services should focus on one hand on services between main nodes, and, on the other, on countryside between Seinäjoki and Vaasa, in order to boost accessibility along corridor. Development of station and stop areas is linked to service infrastructure.

In mid-term vision ferry connection should be speeded up. New vessel should be in traffic in 2021. Along with new vessel travel time should be 3 hrs (some speed improvement would be possible also with current boat, but operator prefers slower pace in order to maximize service consuming in the boat). In long term there should be super-fast boat connection or fixed link. This would take place in about 30 years' time.

Broadening growth corridor

The interaction potential of the growth zone is good when several centers are well reachable. The most important is the accessibility of large urban centers, but also the integration of smaller agglomerations into the zone increases the number of interactions and alternatives in the corridor. Versatile mobility opportunities substantially support accessibility. Accessibility is at its best when the connections are smooth both by car and train or by bus. Fast trains connect large centers closely to each other, but often mean fewer stops along the way, so smaller centers in the corridor will miss the potential of high-speed connections. Dense bus traffic can provide a reasonable level of service for those non-line access points.

Corridor development is, therefore, at one level combining strong points along corridor, but to ensure regional cohesion. Therefore, attention has to be paid to the accessibility of second-tier and third-tier centers. This is done by developing road and light traffic connections, bus connections and innovative on-demand solutions.

Border crossing vision – international linkages

NSB CoRe could connect to north so that it is quicker to take rail than flight to from Tallin to Umeå. Umeå and Vaasa will bring life and energy to NSB CoRe, and 750 000 people. In future it will take 1 hr train from Tampere to Vaasa, and 2 hrs to Helsinki. This will also bring Sweden closer to the Baltic States.

There is need to develop connections from 2nd level urban nodes to minor urban nodes in order to develop intermodal passenger transport nodes and ensure easy way to change mode of transportation, and to be open test site for MaaS and transport Pilot.

THOUGHTS, CONCLUTIONS AND ACTION PLAN

General Vision:

Kvarken is the Northern Dimension of NSN CoRe – Kvarken connects the extensions of ScanMed and NSB – Doorstep to arctic areas.

Key target: from Vaasa to Tampere in an hour, and another hour to Helsinki

In vision, the journey from Vaasa via Seinäjoki to Tampere will be done in an hour, like a trip from Tampere to Helsinki. The Growth Corridor Finland has most potential growth potential in Finland, Kvarken region can boost it. Kvarken connects the extensions of ScanMed and NSB and function as a doorstep to Arctic areas and into Barents region in total.

Kvarken regions future success lies in combining existing strengths and forming new potentials for growth. Transportation, education and migration come together when visioning routes for even better tomorrow.

Cooperation among the corridor is and always will be based on reliable infrastructure. Links across the Kvarken are reasonable and evolving, and thus main questions consider land connections. Ostrobothnia in Finland needs to be connected with the other growing regions and to the Finnish growth corridor with faster, more capable roads and rail lines. Also, connections within Ostrobothnia itself needs to be boosted to make full use of regional potentials.

Umeå is rather well connected to east-west and well connected to north-south transport systems. Internal railroads and highways in Västerbotten should be developed and existing bottlenecks fixed. Connections between Swedish coast and Norway should be faster and Västerbotten has exactly the same problem as Ostrobothnia across the Kvarken, it lacks quality connections to southern growth centers and corridors.

Västerbotten and other northern regions are seen as too sparsely populated to gain broader support for infrastructure projects and investments. Västerbotten is quite near the national wealth averages, but there is great internal divergence between municipalities. Regional economy is slightly growing and number of yearly new enterprises established has stayed unchanged. Västerbottens economy is rather agriculture-based, but still versatile, and for example tourism volumes are rising. Therefore, region needs stronger cooperation.

If Kvarken region is not able to gain attention for these transport/infrastructure issues it might face problems. Internal connections should also be on the agenda. Regions need to form vital and vigorous units and reveal hidden potentials. By forming stronger spatial coalitions regions grow as more prominent destinations for investments and their stronger message are perhaps noticed easier by governmental entities. Infrastructure needs must be tied into wider context in order for them to gain attention and approval. Better transport connections would have major influence on Kvarken's attractiveness for businesses, possible inhabitants and naturally for its role as freight route.

Region has strong technological base. This needs to be fostered and developed. For wealth creation and growth Kvarken region has to consolidate its place in national, transnational and global production networks. If region wants to be on the top of value-chain hierarchies, focus on research, development, innovation and concentrating on high-end products is needed. Similarly it is essential to gain competitiveness and strength from cooperation. Quality transportation networks ensure regions role in value adding and helps to make attractive partnerships with businesses and actors more broadly.

The aim is to have companies in global positions, and to have best national figures in well-being and growth. In knowledge based economy this requires clean links between private businesses and research institutes and universities. Innovation environments has to be developed and flexible testing must be encouraged. Digitalization and automatization will change societies and value-adding dynamics sharply. Therefore, key to success lies in anticipation.

Identifying functional areas and growth corridors, tracking changes, understanding the chains of influence and anticipating future development is a necessary basis when preparing and implementing corridor development. The development of functional areas and growth corridors requires more detailed information on how different activities link areas together, how far the influence of centers and corridors extends and how changes in activities affect regions and corridors. As functional areas and growth corridors consist of different urban and rural areas, it is also important to understand how the various areas are integrated into the whole. The most important thing is to identify the right ways to target policy. Clearly visualized and easy-to-understand descriptions of functional areas and growth corridors are also needed for decision-making.

Kvarken Region and its possibilities isn't well known enough yet, but good building blocks for the future exist. Attractiveness and joint message (brand / story) is needed for investments and government attention. Region must use and exploit its strengths and make itself indispensable. Kvarken needs to develop its economic base towards more versatile and future oriented innovative entrepreneurial system. Kvarken needs to consolidate its place in regional and global value chains. Forerunner economy needs flexibility and support to evolve and grow.

Kvarken Region has good education opportunities and many international students. Problem is to commit students and internationals to stay, and to convince emigrants to return. Education must serve business's needs. What kind of education is needed? How to attract professionals? Future trends must be keep in mind while planning education. Kvarken's expert pool needs both quantities and qualities, new inhabitants and workforce but also quality professionals.

Sea connections between Vaasa and Umeå has somewhat recovered – which enables future possibilities. Internal connections have to be developed to make use of regions full potential and to create more attractive destination for investments and development. Region needs to be connected to greater growth regions by faster railroads and better roads.

As identified in NSB CoRE WP4, common issues for all territorial areas include needs to: develop interoperability with 2nd level networks**;** reduce urban sprawl negative effects around main urban nodes as larger population will concentrate around agglomeration**;** serve local interests and create value of NSB CoRe for territories and small settlements in between main nodal points e.g. regional stations, frequent intersections, good accessibility also to depopulated areas**;** Combine the strengths in business, labour market, education, tourism between all NSB countries – enhance social, economic and cultural cooperation.

In general, there is need to (as identified also in WP4) develop information exchange between institutions and sectors (at expert level) and develop stakeholders' network; improve coordination and cooperation of relevant stakeholders involved in cross-border planning; exchange know-how between cities to improve governance; activate cross-border cooperation on political decision-making level regarding the corridor. It is important to set common goals and have political will to do thing together; introduce a common management for further promotion and development of NSB CoRe and define organization that will take the leading role in the process, carry out communication etc.; circulate information about the NSB CoRe to encourage more public discussions and support for related projects (e.g. Rail Baltica); consider cross-border perspective in national transportation plans (currently the cooperation in transport planning is poor or non-existent); harmonize standards, unified cargo planning, unified rail controlling system; create an "overall NSB corridor related thinking"; develop integrated passenger travel solutions e.g. joint ticketing system and route planning, and to achieve modal shifts, in particular from road to rail thus making mobility more environment friendly.

Steps to reach the vision

Governance is nowadays horizontally defined, characterised by cooperation and constant negotiation procedure between stakeholders. Public sector and political institutions have become more dependent on other societal actors (private sector, interest organisations) and international organisations. The policy arena has become ever more complex and fragmented. The preparation and decision-making processes themselves have become crucial for the implementation of development initiatives. Multi-level governance is a way to improve the quality of preparation and understanding of decision-making concerning initiative. Multi-level governance is networked and open by nature: a tolerant and inviting attitude characterises a multi-level governance culture.

However, networks – more than hierarchies – require new capability for co-operation and also new form of leadership: who is characteristic and powerful enough to gain respect from other participants in the network, is the one who will lead the swarm.

After studying number of governance models for corridors mainly in Europe, following 10 rules for good governance model of corridor development could be summarised:

1) Form network (alliance/ community) of actors, both public and private
2) Create dialogue forums for stakeholders, 'Clubs'
3) Set up clear vision, communicate and market clearly
4) Design platform, ie. formal structure (a membership agreement, cooperation contract, formal executive positions (board, commission, secretary, director etc.)) for those sharing the vision
5) Get strong personalized leadership, 'one carrying flag'
6) Gain impact in advocacy, get political support, remember access routes & points
7) Make clear action plan / strategy
8) Operationalize task forces, secure resources
9) Form solid information basis, study regional economic benefits, monitor development
10) Use best practice examples - praise power of piers

And when analysing state of the art in the Kvarken and NSB CoRe step by step, following remarks could be made:

1) Vaasa and Umeå are intertwined, but Vaasa is not yet part of network alliance in Finland – aim should be in Growth Corridor Finland. Connection to Seinäjoki should be closer among different actors (long history of challenging attitude).
2) Again there is intense dialogue between Vaasa and Umeå, but less to the direction of Seinäjoki. There should be club which joins business, education institutions, developers and official sector as well as people. Language affects.
3) There is not yet been clear vision that could be communicated.
4) Platform would be Growth Corridor Finland.
5) Kvarkenrådet has role as coordinator, but its leadership role should be strengthened.
6) Advocating impact is dependent on governments. Current governmental period has been challenging. Access routes and points (ie. 2nd and 3rd tier urban nodes) have been spotted, but more solutions are needed to keep them as part of the corridor.
7) No comprehensive action plan or strategy drafted yet
8) Operationalisation of development has been based on projects (although there has been good continuation in relevant themes), stronger institutional basis is required.
9) Information has been produced, but in order to promote growth, more studies in economic and regional development benefits should be done.
10) Cities are actively communicating, but no systematic exchange of information and experiences between Vaasa and Seinäjoki.

It all comes together while planning for the better future for Kvarken region. Reliable, efficient and sustainable transportation network is the premise for transnational cooperation and for consolidating Kvarkens role as connector area. Internal transportation needs developing for strengthening regions' competitive advantage, and external routes need to unite Västerbotten and Ostrobothnia more intensely into greater growth regions and into global networks.

The goal for future transportation infrastructure should be fast and reliable connections into EU markets, and also to Russia/China. Transport infrastructure should also be sustainable, and sustainability could also be basis for marketing. While sustainable, network should also showcase high-end technological advantages. This requires real solutions to current aged structures and bottlenecks.

For development projects Kvarken needs its message delivered and understood. Kvarken needs to be seen as attractive and indispensable. Attractiveness is also needed for maintaining and fostering positive net migration. Kvarkens message must be unitary and clear. Greater cooperation between municipalities and regions is needed as well in respective countries as between the two sides of the gulf.

Kvarken region must formulate common strategy for communications. Kvarken needs to develop a brand, story and visual image to deliver its message which should be based on statistical evidence. Kvarken should underline the wider importance of developing transport connections.

What measures are needed?

Firstly political decision on increasing planning preparedness; making the plans (EIA, Master Plan, Roadmap for Rail Plan), where main goal is to increase Tampere-Helsinki capacity, double track between Seinäjoki and Tampere, lifting carrying capacity (axle loads); adding passing loops on the Vaasa-Seinäjoki

development corridor and reduction of level crossings and to decrease the susceptibility to interference in general. Furhermore, development and improvement actions for station areas, creating ecosystems and testbeds for innovative solutions in MaaS are needed.

On the longer run (2030) it is important to monitor implementation of identified investments and plans by 2030. In addition, planning of new objects must be started. For even longer span Kvarken needs *plan 2050*. In that process, it is important to link national and regional transport system plans. Decisions are currently made on land use and planning on that 30 years span. These plans should take into account the possibilities autonomous traffic solutions, rail transport, housing solutions, work and business trips, leisure travel, the good flows (the transport of dangerous goods and services, the transport of recyclable materials etc) on national, regional and local level.

Benefits for business and development

Transport investments generate growth, wealth to the area. Effective traffic solutions will increase regional competitiveness. Benefits cross borders, and especially in Kvarken case they would be witnessed mostly in Finland and Sweden, but also in Norway. NSB CoRe enables the diversified development of freight transport in addition to passenger transport. Effective connections provide business opportunities with competitive investment alternatives and better opportunities for export transportation. Logistical connections and costs have a major impact on corporate growth and decisions-making of their location.

For the economy as a whole, it is important to eliminate the bottlenecks of transport and to improve the capacity, fluency and the functionality of the transport network. As accessibility improves, business competitiveness improves and the mobility of citizens is facilitated and accelerated, leading to expansion of workplaces and better access to workforce. Passenger services are expected to reduce travel times, dense traffic times and likely future cost savings through opening the competition. Freight traffic, on the other hand, seeks to secure track lineage, upgrades the railway yards up to date, and raises the axle weight of the trains. The development of rail transport requires that existing structures are maintained efficiently and that the infrastructure is constantly being developed.

When evaluating the Main Rail Line Vaasa as a city center was ranked 149th in accessibility. In the Plus scenario it would be the place 93rd. A rapid link through Vaasa to Umeå would clearly improve the region's competitiveness current. It would include, *inter alia*, the availability of skilled labour.

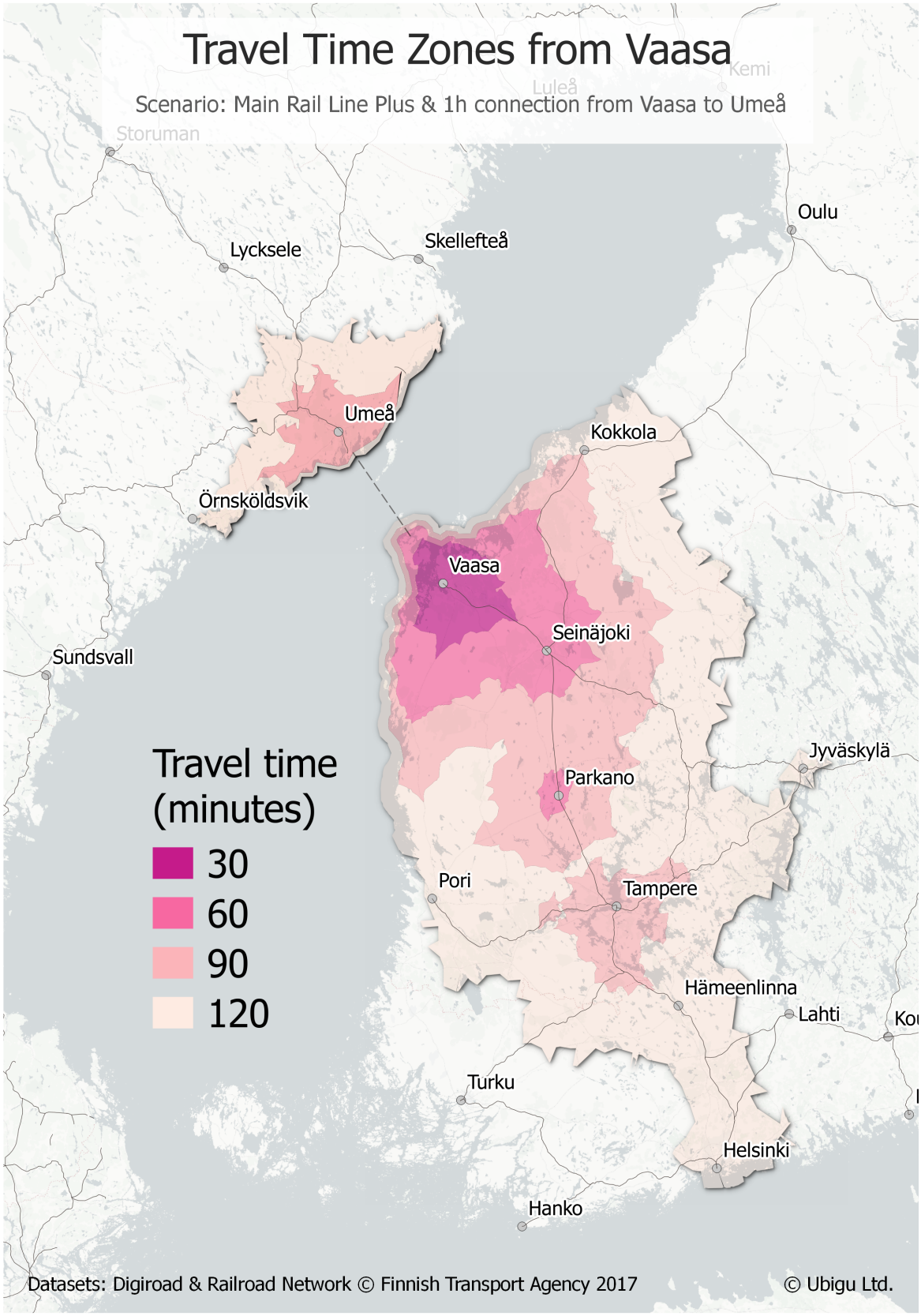


Figure 11. Travel time zones with major improvements in Main Rail Line.

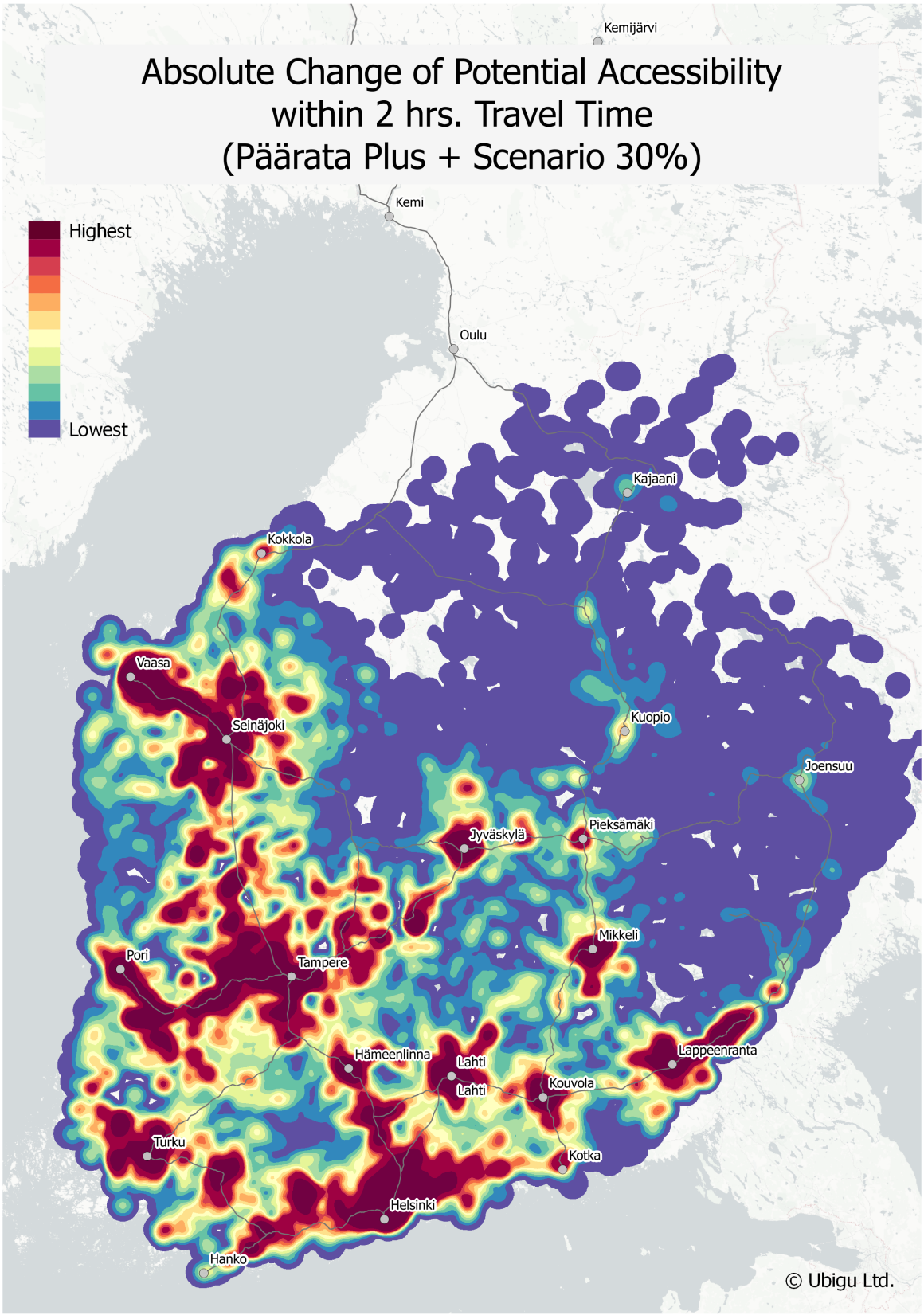


Figure 12. Absolute change of potential accessibility with major improvements in Main Rail Line.

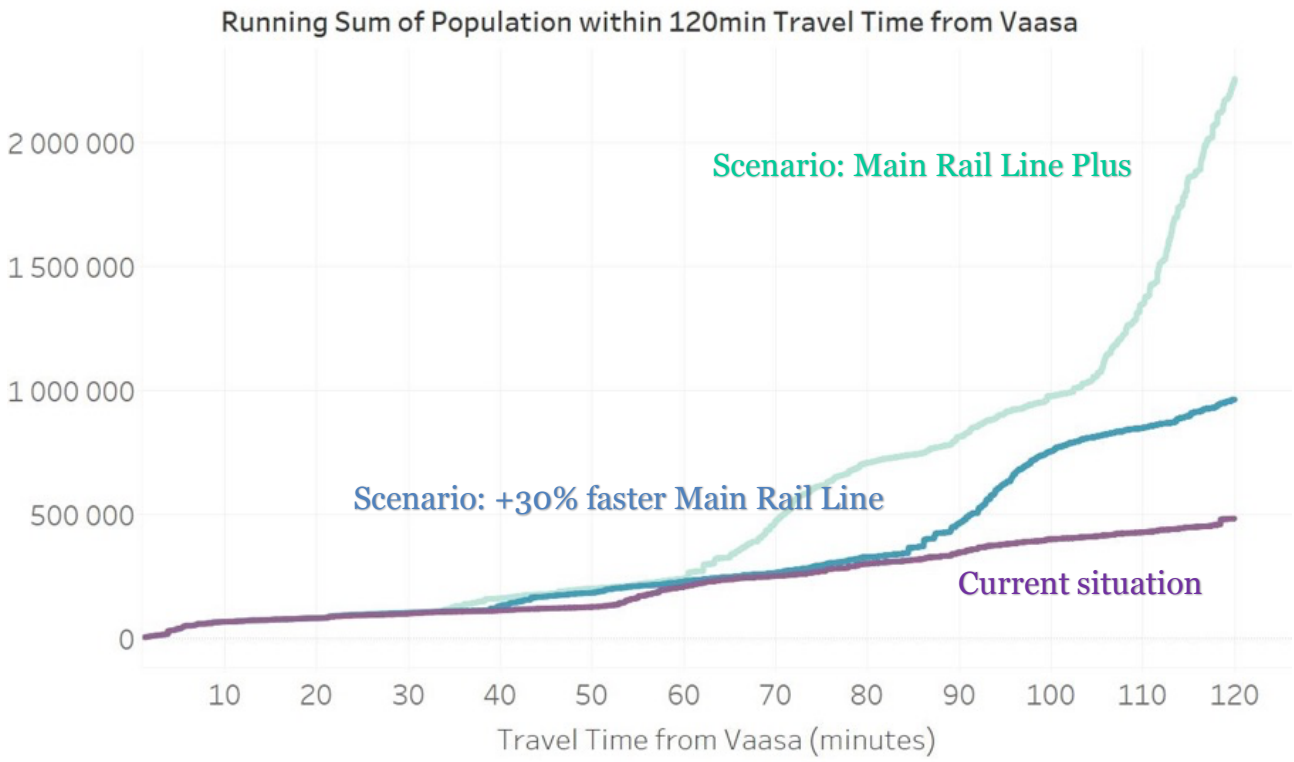


Figure 13. Running Sum of Population within 120 min Travel Time from Vaasa.

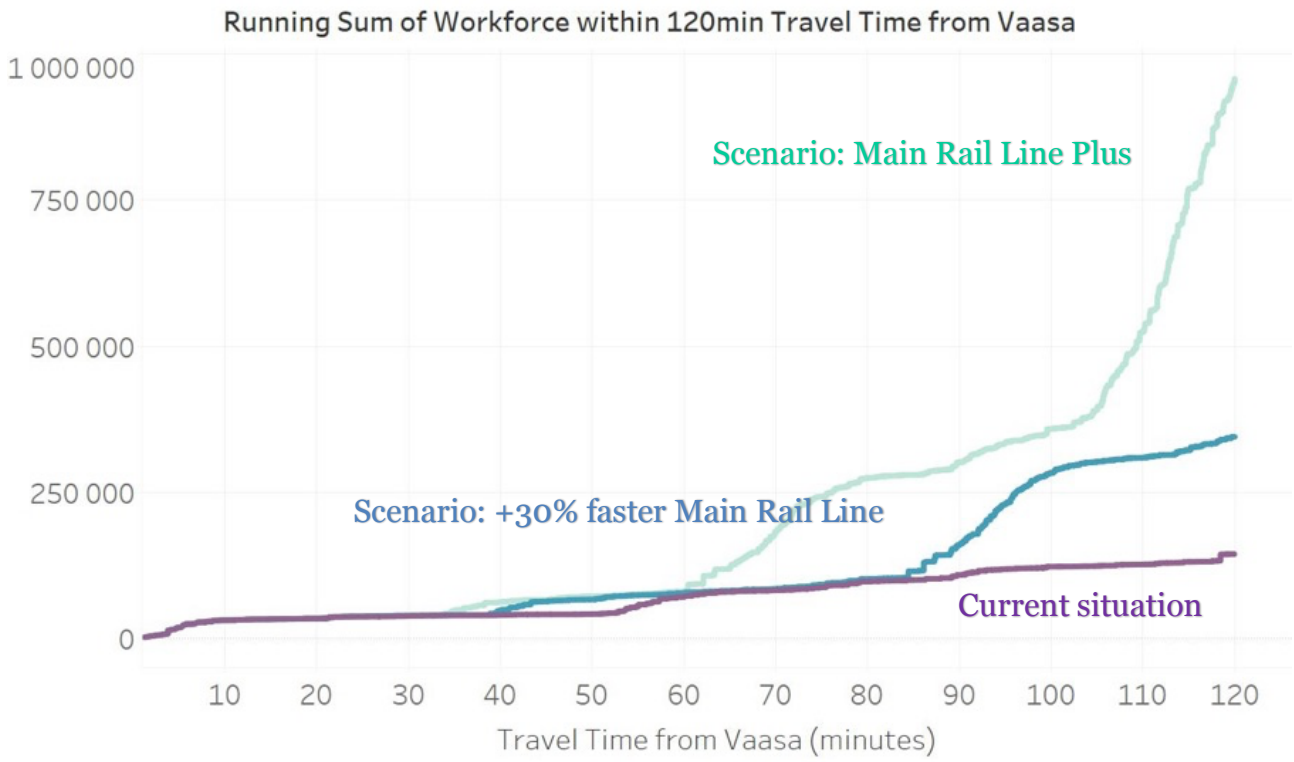


Figure 14. Running Sum Workforce within 120 min Travel Time from Vaasa.

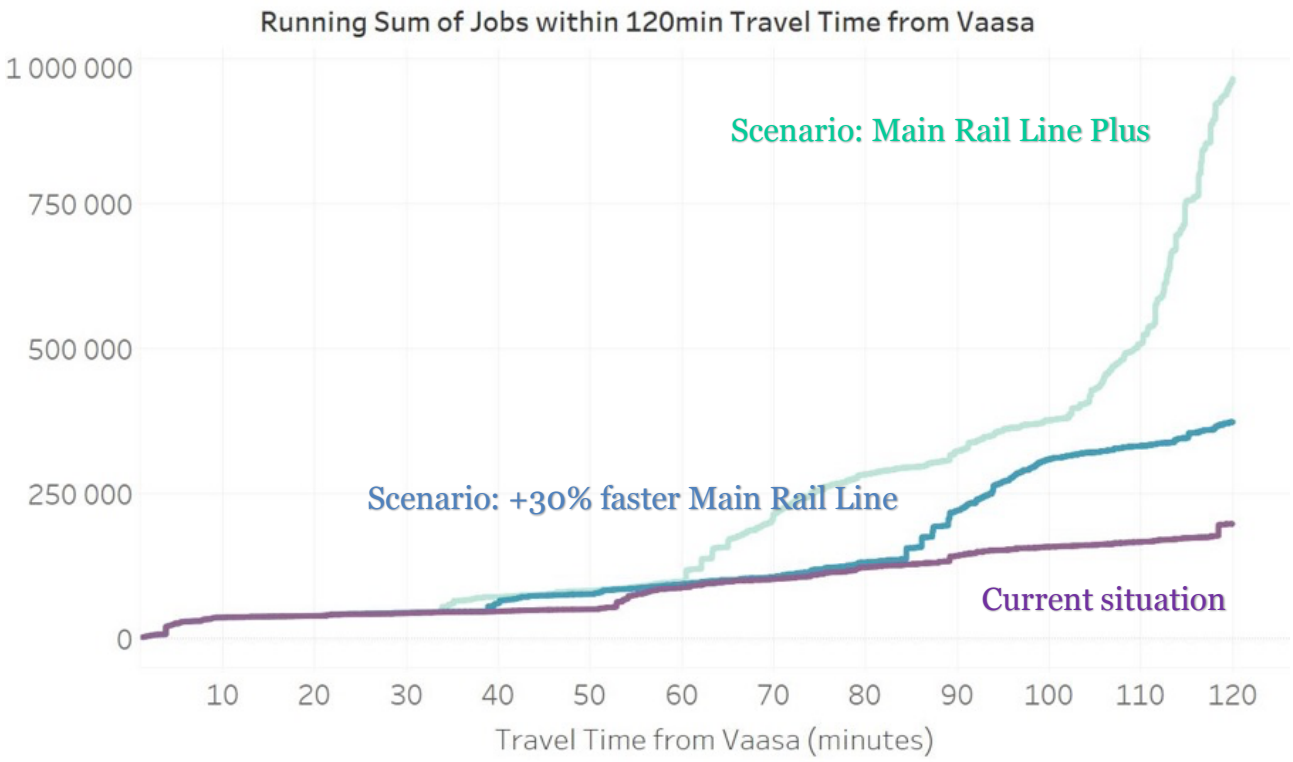


Figure 15. Running Sum of Jobs within 120 min Travel Time from Vaasa.

Bigger picture – key arguments

For making NSB more attractive, better connected, wealthier and to enlarge its labour pool, key need is to connect to the Growth Corridor Finland, by interlinking Seinäjoki – Vaasa - Umeå logistics, competence, labour force and deepening cross-border cooperation. Advocacy and cooperation is needed on regional level between cities and counties, on national level both in Sweden and Finland and in EU level.

More attractive

This corridor is about people not bulk – this should be profiled as resilient and development oriented part of NSB CoRe. It gives 750 000 more people and 50 000 students to connected NSB Core, and about 2,5 million more people connected to Northern Sweden. Kvarken is attractive and indispensable in east – west connections. Attractiveness foster positive net migration. Arctic areas have hundreds of billions of potential – Kvarken is a short cut and a doorstep to Arctic areas. Kvarken is the Northern Dimension of NSB CoRe, building connections to Norway, Arctic and Barents region as well as Russia in total.

Enlarging labour pool

Strong competence and knowledge basis – this area is powerhouse to competence-driven regional development. The Kvarken region is exceptionally strong in the energy and life sciences, adding value and competence in these fields. Kvarken is agile, with close connection between education and business. Enlarging labour market area makes it possible to commute easily between major cities both to experts and other professionals.

Better connected

Reliable, efficient and sustainable transportation network is the premise for transnational cooperation and for consolidating Kvarkens role as connector of ScanMed and the NSB CoRe. Recent decisions to prolong ScanMed and NSB are great news for Kvarken. Internal transportation needs developing for strengthening regions' competitive advantage, and external routes need to unite Västerbotten and Ostrobothnia more intensely into greater growth regions and into global networks. Kvarken Region has the possibility to develop as inevitable connector between east and west. In the first place vessel is needed, in the second phase even quicker connection and fixed link in long term. Finance of the vessel has to be secured immediately. Quicker vessel by 2035 and fixed link by 2050.

Wealthier and healthier NSB

The triangle formed by Vaasa, Seinäjoki and Kokkola has met the regional development indicators very well in the 2010s, being top 10 performers among urban regions in Finland in early 2010 - Ostrobothnia's growth triangle is engine for growth. However, it should be noted that the development picture of recent years has been more challenging. Umeå has been the growth pole in Swedish side. Umeå is a strengthening hub in the Bothnia Corridor, NSB CoRe connects northern Sweden more closely to Finland and the Baltic. In order to be able to work on the Swedish side, it is important to note that Sweden is also involved in coastal alignment, especially south of Sundsvall. Joining NSB CoRe brings growth to North Sweden, also from the East. Kvarken makes NSB CoRe wealthier and healthier. In transport focus should be on freights value rather than on mere volumes. Western cost of Finland has substantially better health and well-being figures than rest of the country. Life Science and wellbeing is core competence of Umeå. Kvarken area could be test bed for new type of health services. New type of services should be piloted at the same time as pilot period for health and social services reform is running in Finland.

Act now

In Finland an immediate decision to join Growth Corridor Finland is needed. Key targets of advocacy are the Governmental Programs especially in Finland (new government expected to start in spring or summer 2019, but some potential also earlier due to pressure in government, health and social services reform), but also in Sweden (new government expected to start in 2018). Both governmental programmes are under preparation by civil servants in relevant ministries. Now it is time to provide information to draftsmen. Political advocacy and cooperation takes place simultaneously, key moments are when new governmental programmes are drafted.

For both Finland and Sweden there is a need for stronger advocacy on EU level to extend the NSB CNC to the north. Currently Vaasa lacks connection to TEN-T corridors, therefore it is not eligible to use funding for developing such networks (3 regions). There is also need to ensure efficient NSB CoRe connections to SCANMED corridor and to integrate already existing concepts – especially E12 Atlantic Transport into the vision. The review of the core network will be carried out in 2023 and will probably enter into force in 2028.

Even more deeper cooperation between municipalities and regions is needed as well as between the two sides of the gulf – perhaps time to establish first EGTC (European Grouping of Territorial Cooperation) around in Baltic Sea Region?

Annex. Part of the NSB CoRe work

This work has been carried out as part of the NSB CoRe, which aims to improve the sustainable accessibility of the Eastern Baltic Sea Region to freight and passenger transport. The project contributes to the EU TEN-T Transport Infrastructure Policy and implements the TEN-T Policy from a regional development perspective, and bring the needs of peripheral regions to the CNC context. The project is part of the implementation of the NSB CNC work plan via the Corridor Forum in which Member States, infrastructure managers and regions communicate with the European Commission and European Coordinator. The project operates as the transnational cooperation platform in spatial and transport planning and communicates the outputs of grass root level activities to policymakers on regional, national and EU levels (Figure 17). The activity of transnational roundtable meetings brings the project's outputs to wider distribution among policymakers, transport operators and users.

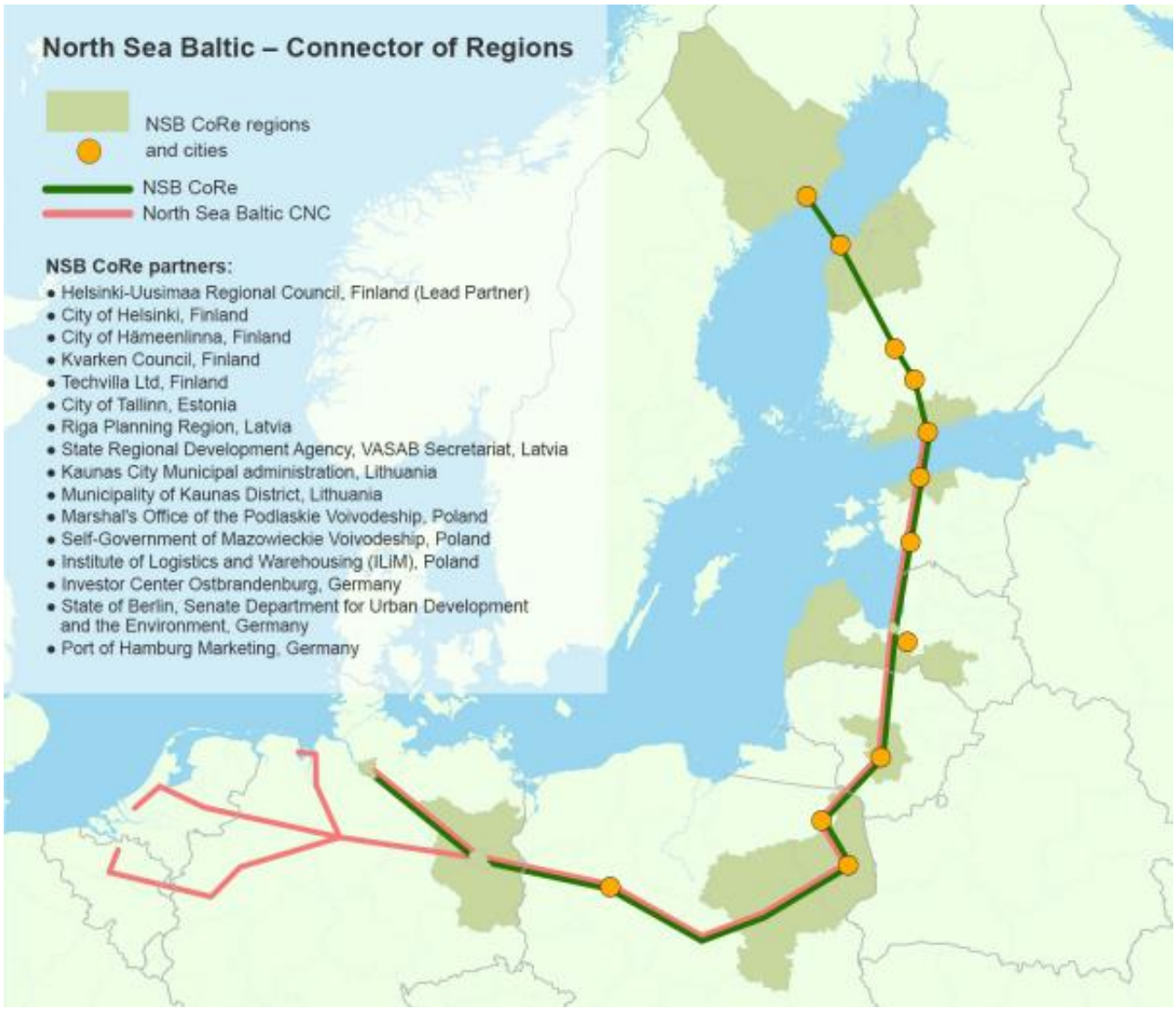


Figure 17. NSB CoRe area and partners