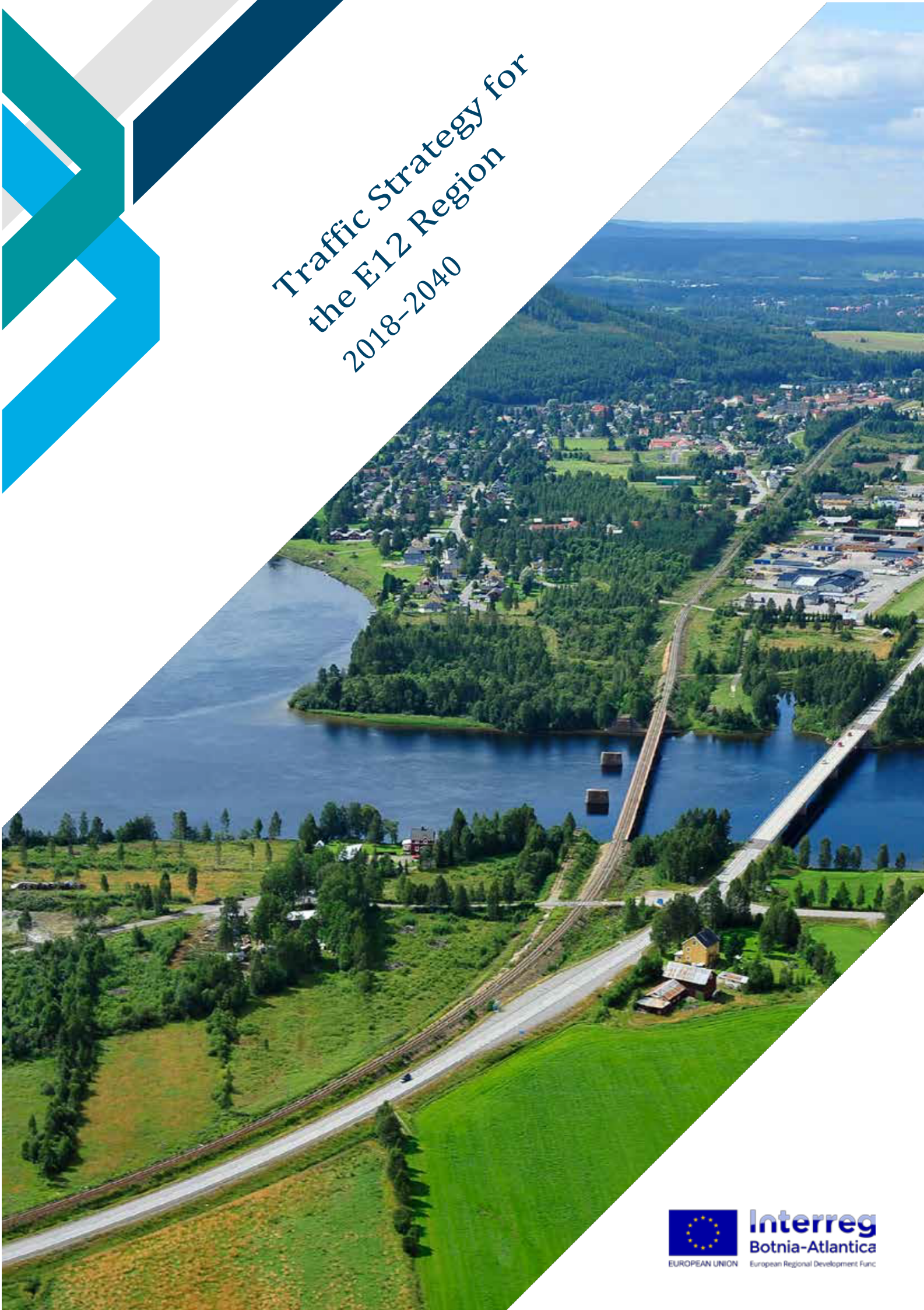
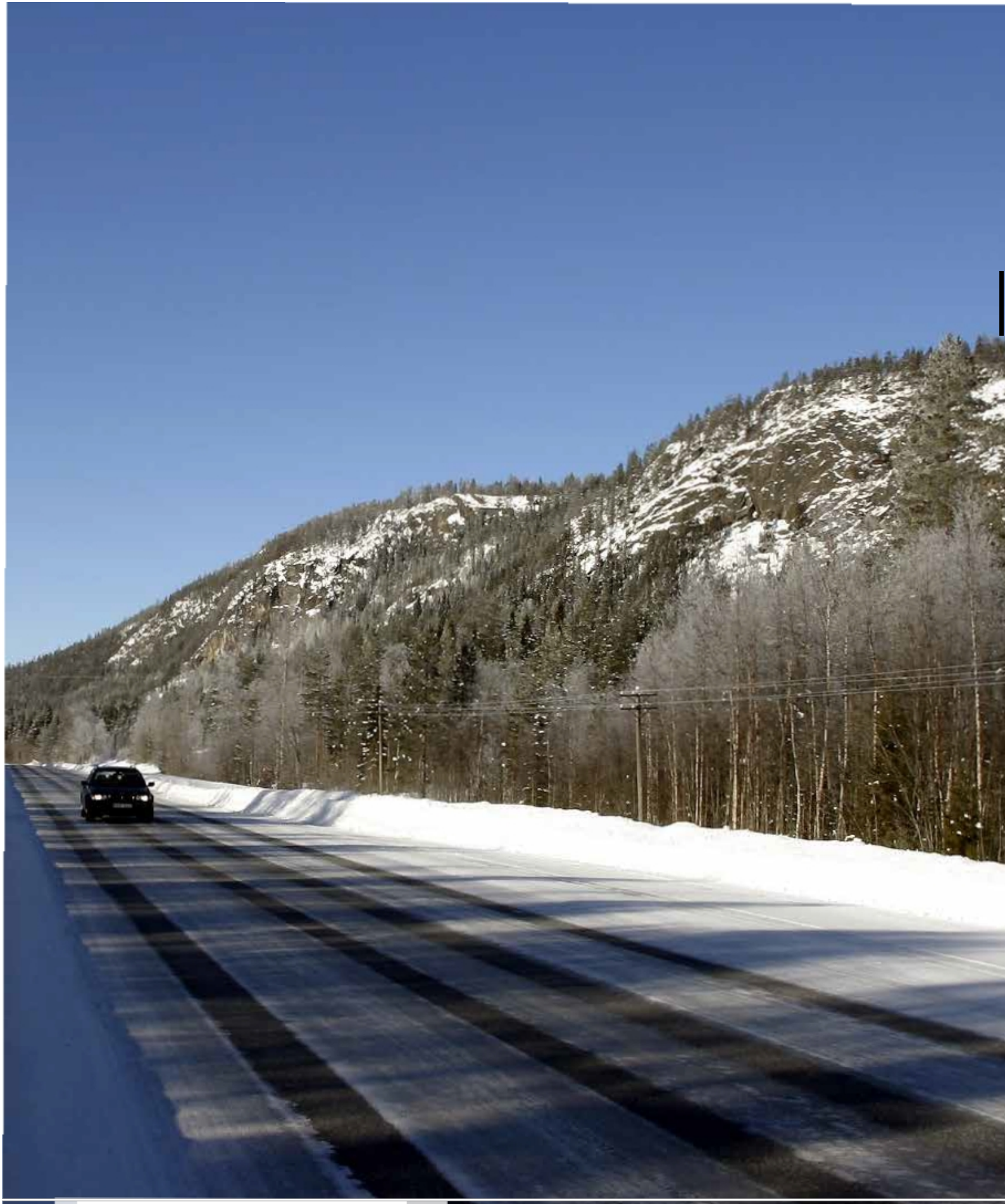
Traffic Strategy for the E12 Region 2018–2040



EUROPEAN UNION
Interreg
Botnia-Atlantica
European Regional Development Fund



Editing & layout:
Jerker Sjögren, Jesjo Konsult HB
Karin Edenius, Sweco Management AB

Published: 2018-03-12. Rev. 2018-03-27

Foreword

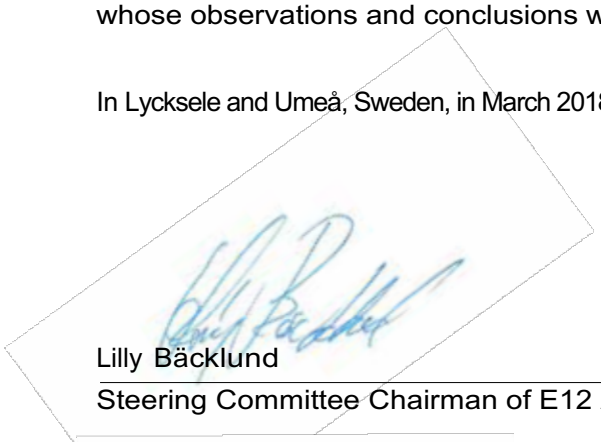
For years, the members and cooperation partners of the Kvarken Council, MidtSkandia and Blå Vägen have worked together to increase cross-border understanding and collaboration along the east-west E12 transport route. The E12 Atlantica Transport project has brought about one of the most developed collaborations in the Nordic countries by creating tools for future collaboration in the fields of transport and infrastructure development. One of these tools is this traffic strategy for the E12 region, with 2040 as its time horizon.

Traffic strategies drafted by several Swedish cities have almost exclusively focused on public transport and other passenger transports. This makes the traffic strategy for the E12 region unique, since it also encompasses freight transports and infrastructure. It even extends over three countries – Finland, Sweden and Norway – thus creating particular challenges.

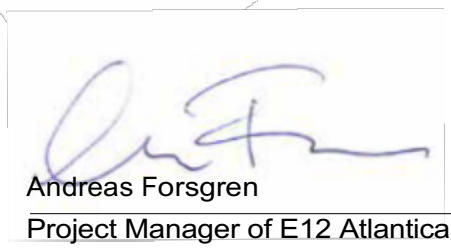
TRAST (*Traffic for an Attractive City*) and Poly-SUMP (*Sustainable Urban Mobility Plan for a Polycentric Region*) are both methods and tools for drafting traffic strategies, and they have been used as support in this traffic strategy's creation. Inspiration for the strategy has been drawn from the Luleå region's SARETS project and its result: the joint traffic strategy *Tillsammans framåt*. Luleå region's traffic strategy is exceptional, because it has a regional focus instead of a more traditional municipal delimitation.

The traffic strategy for the E12 region has been developed by a special workgroup with support from a political reference group. The workgroup consisted of around twenty persons with a great deal of experience and competence within the field. The strategy's contents took shape in less than a year during numerous lunch-to-lunch workshops and web meetings. The work process was followed by a project evaluator, whose observations and conclusions will be presented in a separate report.

In Lycksele and Umeå, Sweden, in March 2018.



Lilly Bäcklund
Steering Committee Chairman of E12 Atlantica Transport



Andreas Forsgren
Project Manager of E12 Atlantica Transport

Summary

The traffic strategy's vision for E12's transport system in 2040 is "a borderless east-west transport system for all".

A Rich Region

The E12 region is an east-west area stretching over three countries. Its circa 500 000 inhabitants are mainly concentrated in larger population centers. The region is rich in natural resources such as forests, seas, energy and minerals. It forms an industrial belt from the eastern energy cluster in Vaasa, Finland, to western Helgeland, Norway, rich with oil, energy, metals and fish. The region's tourism industry is a growing business relying on the nature, world heritage sites, sights and the Sami culture.

The development of industries and the economic life necessitates efficient transport routes for goods and passengers. The E12 region is part of a larger context, and it is important that the region is well-connected to the wider world. The region boasts a relatively well-developed transport infrastructure, although it has some shortcomings in its present state.

Faith in the Future

The E12 region is characterized by strong faith in the future. The ambitions of the region's actors surpass that of the national level in Finland, Sweden and Norway. The economic life shows positive development and growth, especially within the fishing industry, tourism industry, energy sector and service sector. There is potential for increased trade eastward along the New Silk Road and via the Northern Sea Route. This generates an increased demand for east-west transports and a need to invest in new and improved infrastructure.

Strategy for Joint Prioritizations

New preconditions for dialogue and negotiations with Finnish, Swedish and Norwegian states and traffic authorities can be created with the help of a well-defined and shared vision, future objectives, and a mutual understanding of strategic investments and measures.

The traffic strategy aims to establish joint prioritizations for how the region's transport system should be developed in the short and long term. It also points out important development projects for the region and, in addition, its purpose is to strengthen the E12 region in the competition over national and international investment funds for the objectives that the strategy brings up.

The traffic strategy encompasses three domains for collaboration that are considered particularly important for the development of the region's transport system: transport and infrastructure development, cross-border infrastructure planning, and social sustainability. These domains are based on the vision and overarching portal goals. The strategy will present each domain's prioritized goals and connected measures.

Transport and Infrastructure Development

This domain encompasses the development of the whole transport system in order to enable functional freight and passenger transports. This includes all modes of transport – road, railroad, maritime and air. The domain's goals focus on functionality, accessibility, and sustainability. Measures that are connected to these goals mainly include new investments, improvements and surveys.

Cross-Border Infrastructure Planning

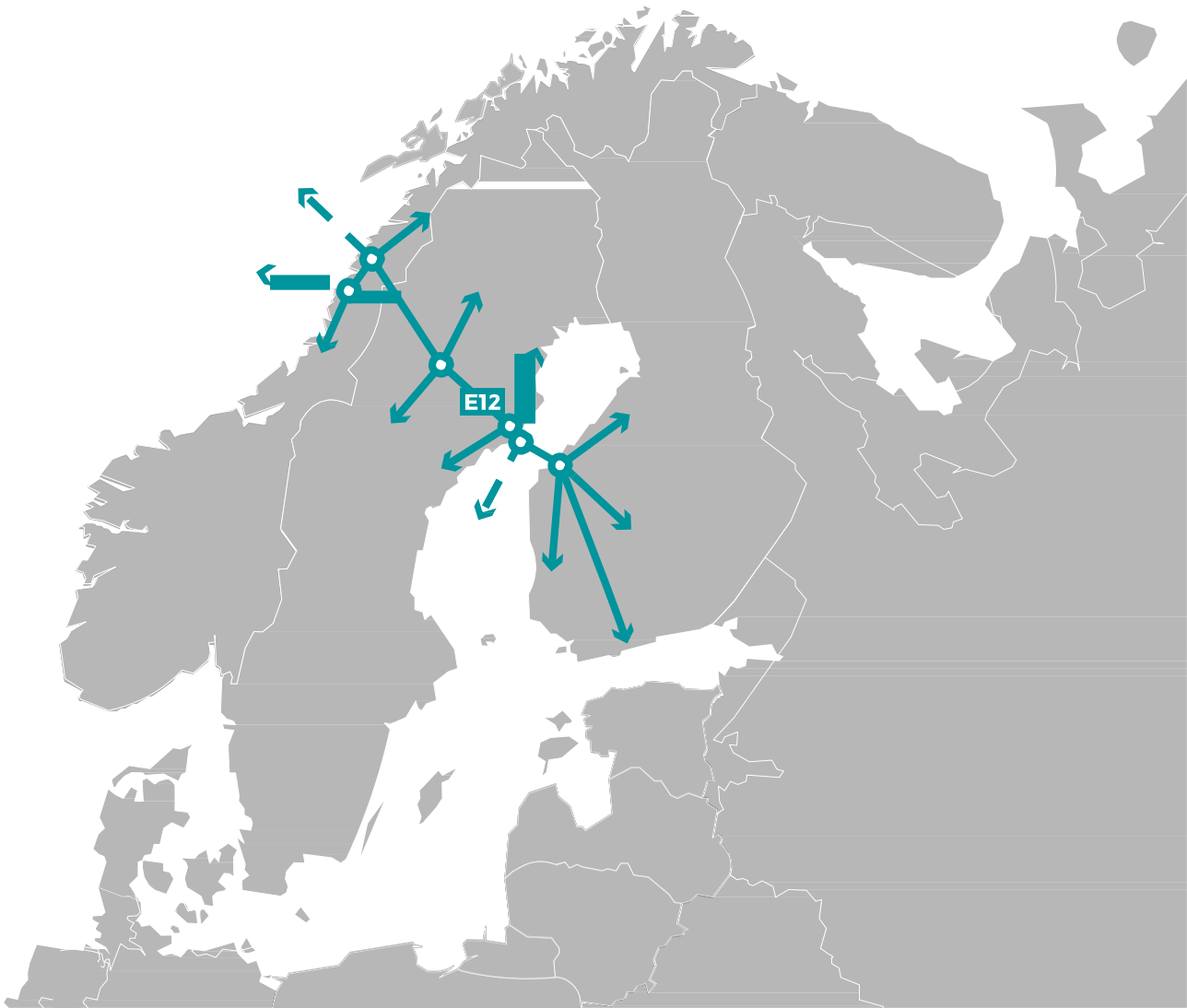
Current national planning systems tend to disfavor border regions and cross-border investments. These planning systems do not meet the needs or achieve benefits in a satisfying way. The domain focuses on the E12 region's goals and measures in the attempt to alter the approach on infrastructure planning from today's national viewpoint to more cross-border thinking. One measure is to draft a transport plan for the E12 corridor as a Nordic pilot for joint cross-border planning.

Social Sustainability

This domain highlights factors with a focus on social sustainability, and such factors should be taken into account in the development of the whole transport system. The region must attract people and companies by providing a good place to live, grow up, and establish themselves, so that people will want to move to the region. A major aspect of this is gender equality, where men and women have the same power to impact society and their own lives. One concrete measure is to guarantee access to statistics broken down by gender in decision-making.

Implementation and Evaluation

The traffic strategy for the E12 region is owned by the Kvarken Council, MidtSkandia and Blå Vägen. The strategy can be implemented when the abovementioned three organizations decide upon it. The creation of a joint action plan for the implementation of prioritized measures in the near future is suggested. The strategy will be continuously evaluated with the help of indicators.



Contents

1. Cross-Border Traffic Strategy for the E12 Region

Vision: E12 – Borderless Cooperation

The vision "E12 – Borderless Cooperation" has been created to depict the kind of future cooperation that is desired in the E12 region.

"We are building an innovative region extending over three countries and creating new possibilities based on our shared history of long-lasting cooperation. We strive together for growth, well-being and quality of life in a region where everyone is welcome and feels at home.

Borderless cooperation allows us to position the region both nationally and internationally. The E12 transport corridor binds the region together across borders and enables top-of-the-line economic life, tourism industry, education, and health care. Here you have all the possibilities within reach – whether you are in the city or in the countryside, at sea or on fell."

The traffic strategy uses this overarching vision as a foundation in describing how the region's transport system should be developed in order for the infrastructure to fulfill its role in its entirety.

Why a Traffic Strategy?

Unanimity and persistence are required to succeed in the competition over national and international infrastructure investment funds, which are crucial for desired social development.

The strategy aims to create joint prioritizations for how the region's transport system should be developed in the short and long term. It also points out important development projects for the region.

The strategy also takes into account three different and strategically equal levels: the region's function for and connection to the wider world, between the three countries, and regional functions within the corridor.

Strategy's Delimitation and Focus

The traffic strategy is based on the existing infrastructure, and it illustrates how the transport system should be developed along the E12 corridor, with the year 2040 in sight. The strategy concerns the transport corridor along E12, from Mo i Rana (Norway) in the west to Laihia (Finland) in the east, with its junctions. The region is called the E12 region or E12 corridor in this traffic strategy. See maps on pages 16–17. The strategy is multimodal and contains measures for the cross-border transport system. The suggested measures are based on shortcomings that were identified in a preparatory system analysis for the region and corresponding planning documents.

Traffic Strategy – Part of a Larger Context

A traffic strategy is a document of guidelines that contributes to developing a municipality – or, in this case, a region – in the desired direction. A traffic strategy shows how a transport system can be developed and highlights various measures of influence in association with regional planning.

There are several steering and strategic documents within the corridor that the traffic strategy takes into account and relates to, see figure 1.

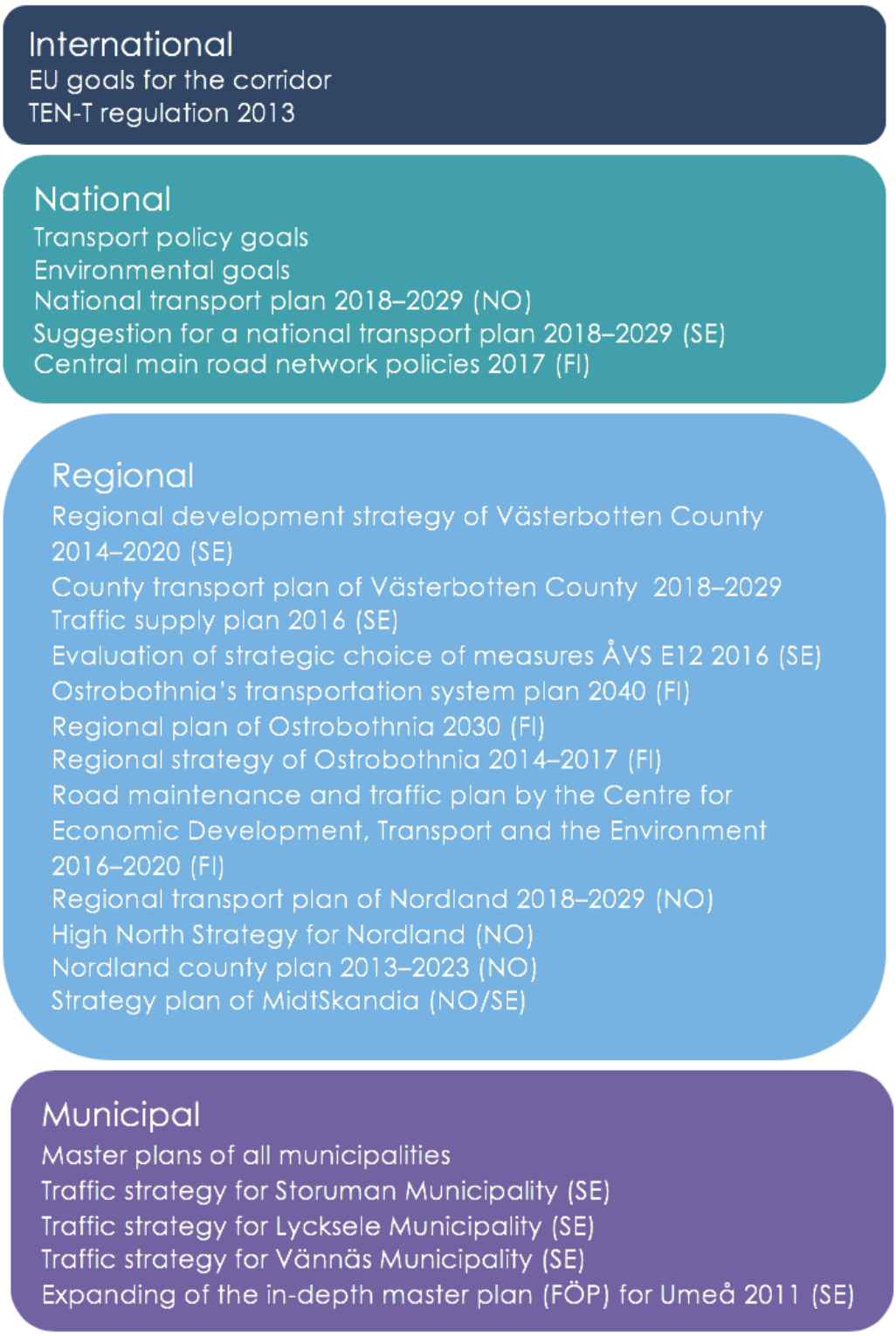
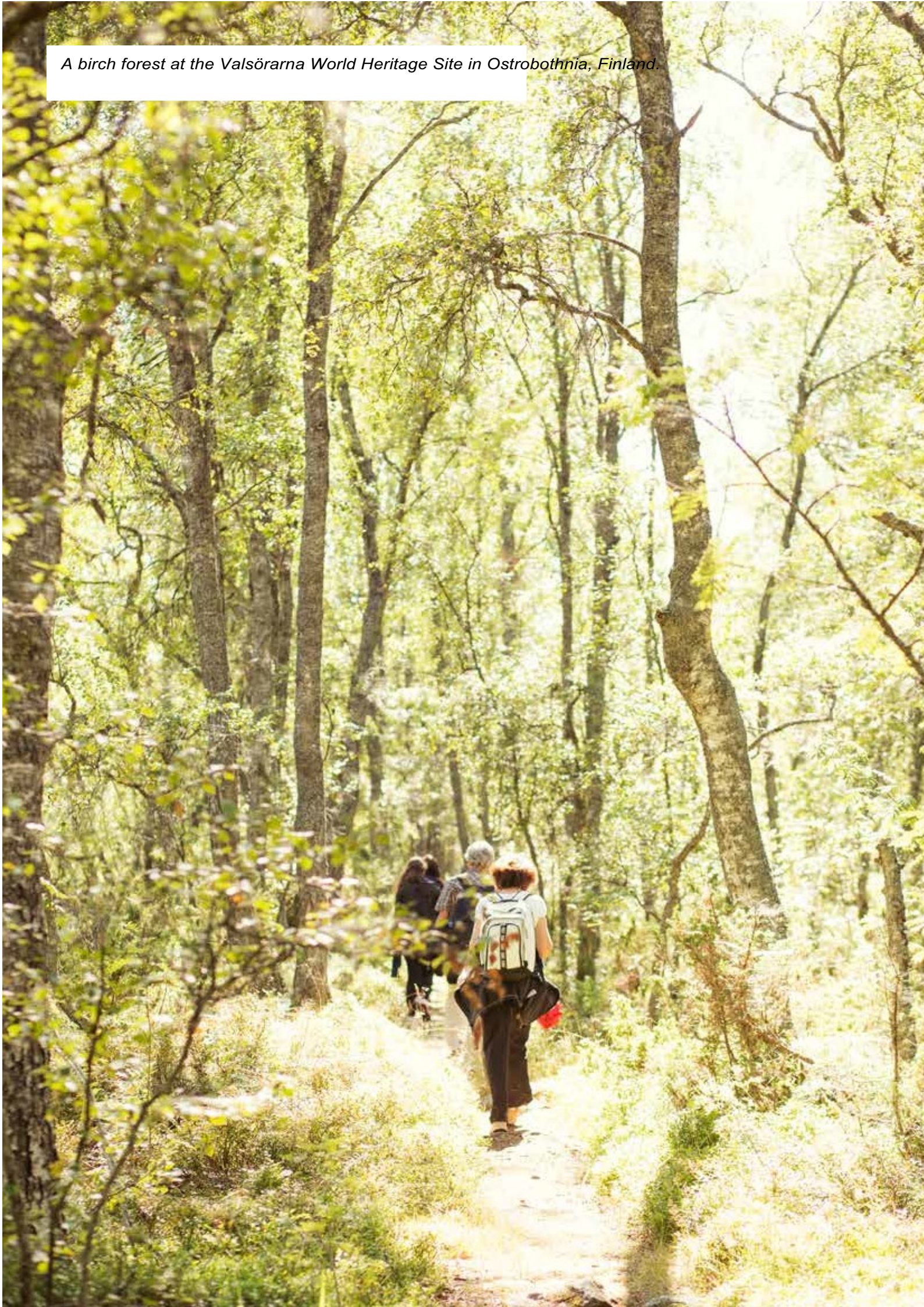


Figure 1. Strategic documents that the traffic strategy takes into account and relates to.



A birch forest at the Valsörarna World Heritage Site in Ostrobothnia, Finland.

2. Current Situation

The E12 region is an east-west area stretching over three countries. Its circa 500 000 inhabitants are mainly concentrated in larger population centers. The region is rich in natural resources such as forests, seas, energy and minerals. It forms an industrial belt from the eastern energy cluster in Vaasa, Finland, to western Helgeland, Norway, rich with oil, energy, metals and fish. The region's tourism industry is a growing business relying on the nature, world heritage sites, sights and the Sami culture. The development of industries and the economic life necessitates efficient transport routes for goods and passengers. The E12 region is part of a larger context, and it is important that the region is well-connected to the wider world.

Population

Ostrobothnia, Finland

Ostrobothnia is a province in Western Finland, at the east coast of the Bothnian Sea and the Kvarken. Its capital city is Vaasa. Ostrobothnia's surface area is almost 8,000 km^2, and the region is home to circa 181,400 inhabitants (22,9 inhabitants/km^2), of which 76,000 live in municipalities along the E12. The region is made up of 15 municipalities, and the E12 winds through two of these: the municipalities of Vaasa and Laihia. These two municipalities have around 75,700 inhabitants in total.

Västerbotten, Sweden

Västerbotten is Sweden's second largest province. Its capital city is Umeå. Västerbotten's surface area is circa 55,200 km^2, and the region is home to around 268,000 inhabitants (4,8 inhabitants/km^2), of which 150,000 live in municipalities along the E12. The region is made up of 15 municipalities, and the E12 winds through five of these: Umeå, Vännäs, Vindeln, Lycksele and Storuman. These five municipalities have around 157,000 inhabitants in total.

Helgeland, Norway

Helgeland is a region and district in Nordland County in Norway. The district encompasses municipalities from the border towards Nord-Trøndelag in the south and up to Saltfjellet in the north, where it borders the Salten district. Its largest town is Mo i Rana. Helgeland's surface area is almost 18,000 km^2, and the district is home to circa 78,500 inhabitants (4,3 inhabitants/km^2). The district is made up of 18 municipalities. The E12 winds through the municipality of Rana, which has around 26,000 inhabitants, whereas the Blue Highway runs all the way to the municipality of Nesna, which has circa 1,800 inhabitants.

Economic Life

The E12 region is often characterized by the export of raw materials and processed products. These kinds of export products set certain demands for the infrastructure and transport system – demands that will grow even bigger in the future with the increase in transport volumes and time-critical and customer-operated deliveries. The region's cities have a need for effective and sustainable transport solutions due to their large service sectors.

The public sector is the largest employer in all three countries. Some of the region's most important industries are described below.

Seafood/Fishing Industry

Helgeland has the second biggest cluster of fish slaughterhouses in Norway. A total of 110,000 tons of salmon and trout was exported from the region in 2017, and the increase in volume and value creation has grown substantially. Nearly all volumes are transported with trucks via the E6 road or the E12 corridor, with an increase of 85% since 2007.

Border crossings in Tärnaby, Sweden, have grown from 2,000 tons to 30,000 tons in the years 2007–2013. Northern Norway's value creation and export of salmon, other fish species, algae, and other sea products is expected to grow considerably during the coming years and decades. Growth estimates vary from a twofold to fivefold increase of current volumes by the year 2050.

Forestry

Forestry is one of the E12 region's most important industries, and it creates employment also in other parts of Scandinavia. Forestry and its related products have a key role in the transition towards a sustainable, bio-based society due to the industry's local raw materials. The industry includes businesses that use forests as raw materials for their products and services, such as the manufacturers of cellulose, paper, cardboard, packagings and biofuel. Sawmills and other industries that produce lumber and processed products, such as roof trusses and other prefabricated building components, also belong in this group.

Ore, Minerals and Metals

Ore, minerals and metals form an important industry in the region. The municipality of Lycksele is home to the Kristinebergsgruvan copper mine; Mo i Rana is home to the Ortfjellgruvan mine for iron ore extraction; and Brønnøy Kalk is a major producer of lime products for the paper industry. Helgeland boasts one of Norway's largest industrial clusters within the production of metals, and new mining projects are underway in the region. The cluster is based on local hydropower and mineral resources, and it strives to become a world-class green industry. Mo Industrial Park houses 110 companies that employ 2,300 persons and manufacture iron, steel, iron alloys and technical industry. Alcoa in Mosjøen is Northern Norway's largest industrial enterprise and among the most modern aluminum plants in the world.

Gas, Oil and Energy Production

Gas and Oil

Norway has the biggest oil and gas reserves in the Nordic countries, and its oil industry belongs to the country's largest trades. Norway has surpassed Russia, the great gas nation, as the largest exporter of natural gas to Western Europe. Gas is currently Norway's biggest export item.

Two oil and gas fields, Norne and Skarv, have been built off the coast of Helgeland. The Aasta Hansteen gas field is undergoing expansion for 55 billion Norwegian kroner (circa 5,7 billion euros). Sandnessjøen has a large supply base and the Brønnøysund heliport for northern oil and gas fields in the North Sea. Westcon and Mo Industrial Park are building an industrial park in the municipality of Nesna for the maintenance and scrapping of offshore-industry platforms, rigs and vessels.

Vaasa Energy Cluster

Growth in Vaasa and its surroundings is promoted by the city's energy cluster, which is the largest of its kind in the Nordic countries. The cluster employs over 10,000 people, and some of the cluster's most well-known and globally active companies include ABB and Wärtsilä. The region is home to over 140 enterprises that concentrate on energy-related products and services. Energy technology is characterized by its international nature, and a total of 80% of the cluster's products are exported.

Water and Wind

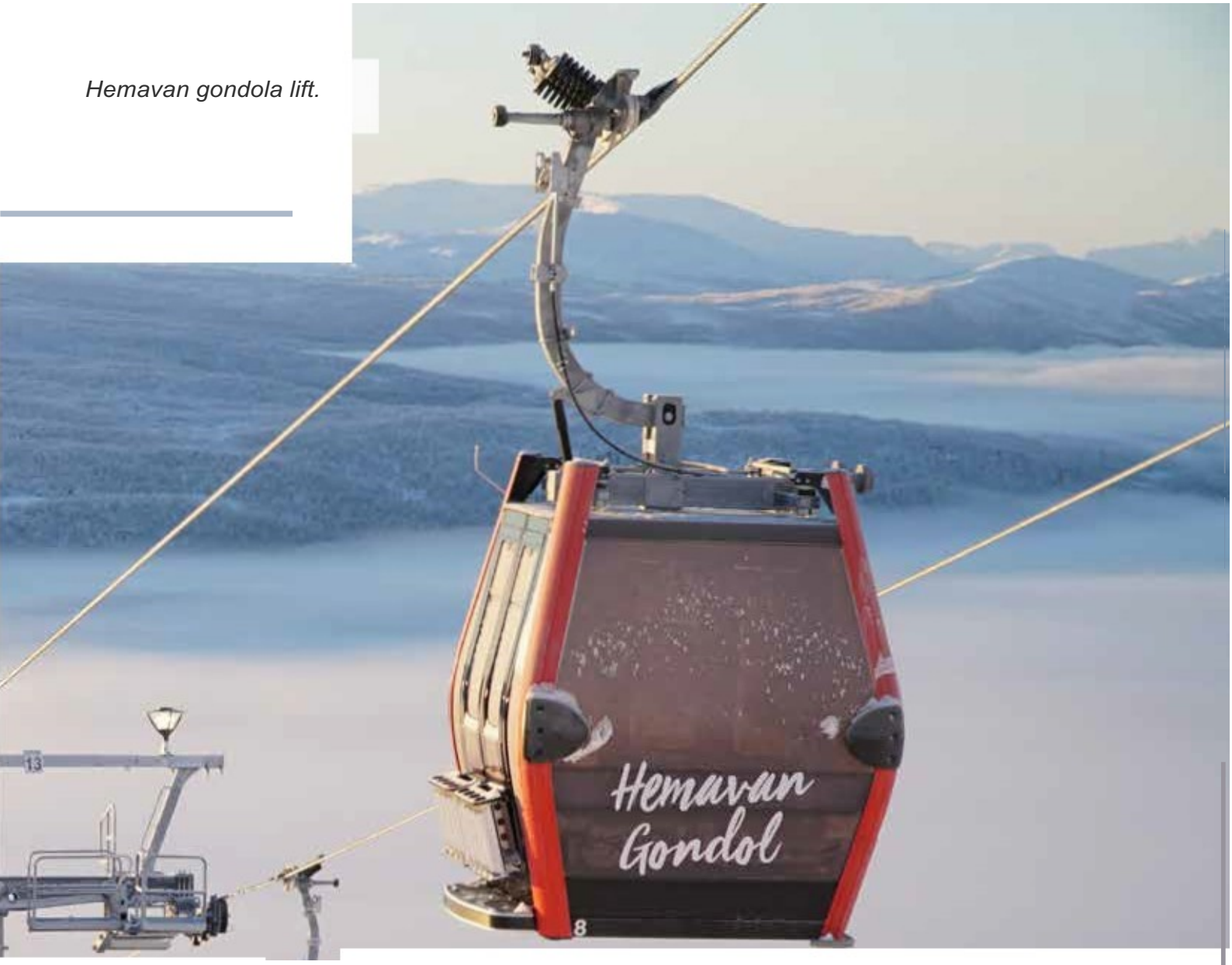
The Ume River runs along the E12 corridor and is Sweden's third largest hydropower producer with its 19 power plants. Nordland County has Norway's second highest production of hydropower. Most of the production occurs in the southern parts of the county, in Helgeland and Salten. Hydropower forms the foundation for the region's processing industry. However, there is a large surplus of power that can also be used to new industries. At the same time, there are great opportunities to increase green power production in the Helgeland region.

Wind power is a rapidly growing energy technology. The E12 region is home to several wind farms, such as Blaiken wind farm near Storuman (Sweden), Øyfjellet wind farm west of Mosjøen (Norway), and Ömossa wind farm in Kristinestad (Finland).

Mo Industrial Park.

Celsa steel mill.

Hemavan gondola lift.



Tourism Industry

The region's World Heritage Sites and cross-border tourist destinations are important for the region's growth. The biggest destinations – Umeå, Hemavan–Tärnaby and Gold of Lapland, which includes Lycksele – are situated in direct connection to the E12. The E12 is of major importance to tourism development because it binds together Finland and Norway with Västerbotten in Sweden.

The tourism industry, especially in the fells, has experienced strong growth. For instance, Hemavan–Tärnaby has increased its utilization rate substantially in recent years, with the combination of the air route to/from Arlanda and the tunnel of Umskaret. The tunnel enables the crossing of the bare fell at the Norwegian border without frequent and unpredictable road closures due to bad weather. A total of 93% of the visitors in Hemavan–Tärnaby travel along the E12, and circa 20% of all the destination's guests come from Norway.

Education and Research

The region has several universities and polytechnics, among them the University of Vaasa, Umeå University, Nord University and University of Tromsø, as well as university campuses in Nesna and Mo i Rana. These educational activities are of major significance to the region's competence provision, research and development connected to its important branches. A functional transport system is a precondition and significant factor in terms of the attraction of the study places.

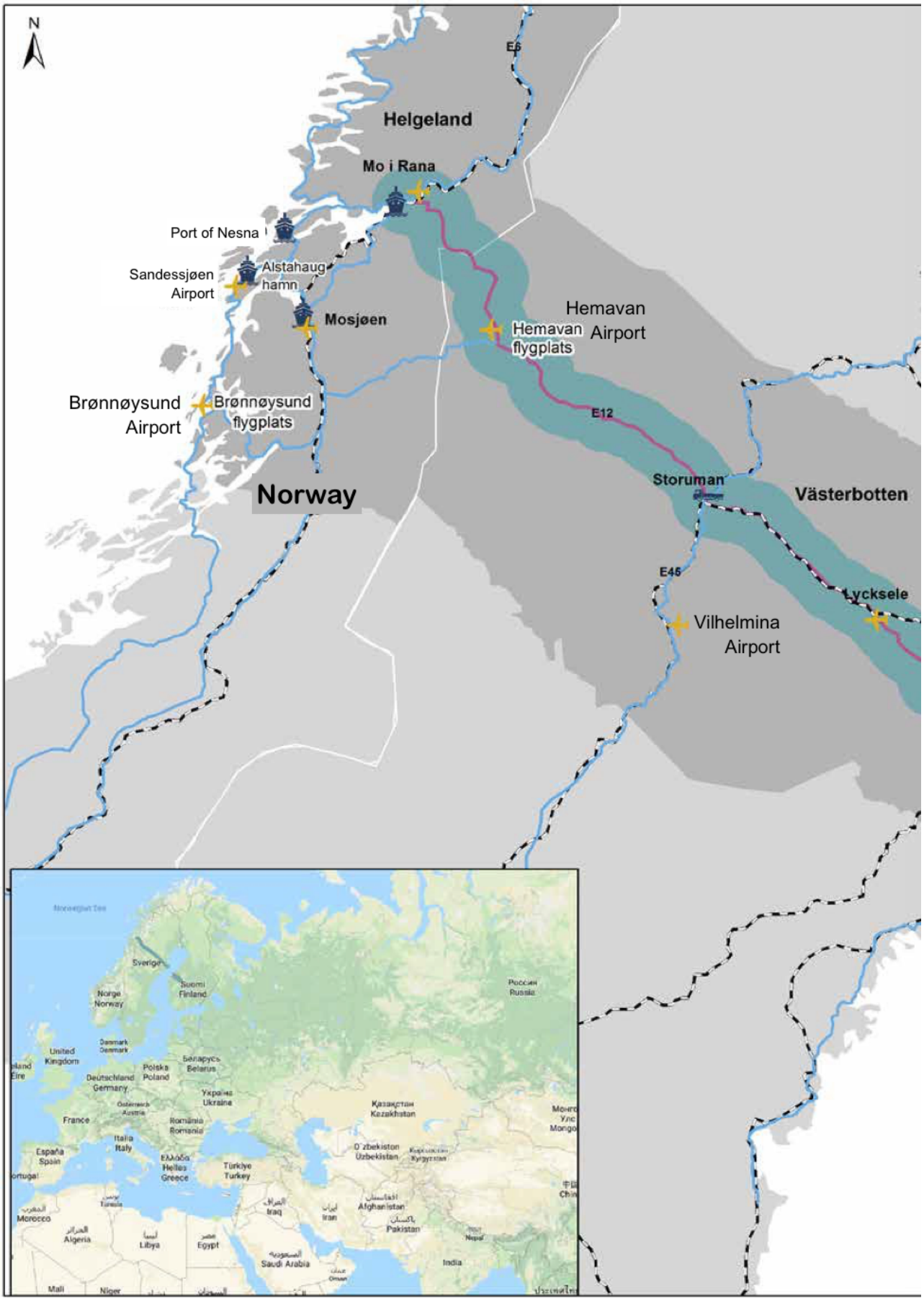
Freight Transports from International and National Perspectives

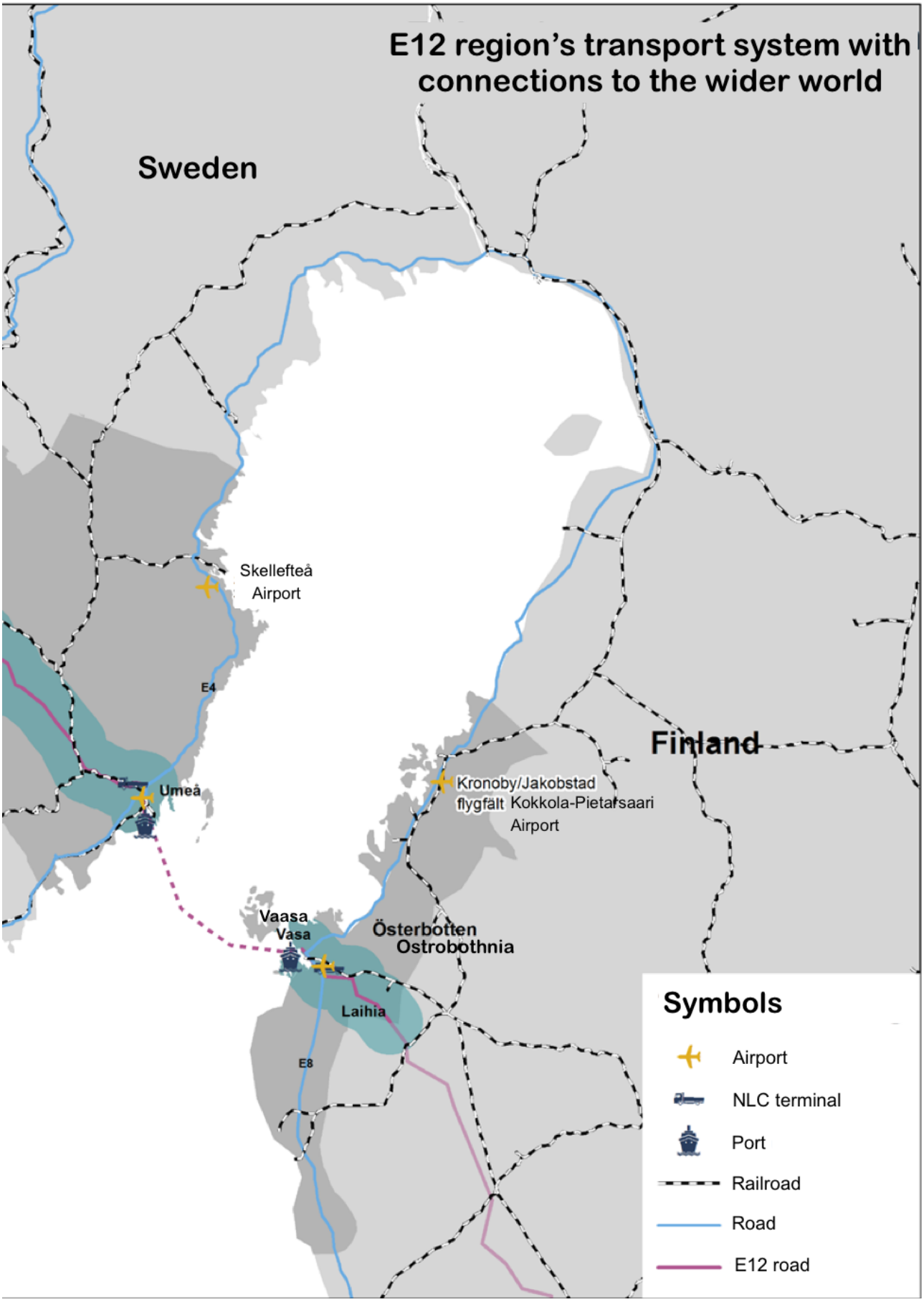
The European Union's all-encompassing goal is to bring forth a transport system that supports economic progress, increases competitiveness, and offers high-quality transports simultaneously as resources are used more effectively. Finnish, Swedish and Norwegian transport policies share the ambition of transferring all possible long-distance freight transports from roads to railroads. Sustainability and climate are also prioritized and function as steering goals in terms of infrastructure and transport investments in the three countries.

The flow of goods in Finland, Sweden and Norway reflect the localization of basic industries and manufacturing industries as well as the consumption of metropolitan areas. In addition, foreign trade has great importance for the flow structure in all three countries, with major export and import flows mainly via different ports, but also a significant share via land infrastructure towards mainland Europe. This means that large flows of goods are transported southward from the heavy basic industries in the north in all three countries. However, there is still a significant transport flow across all three countries, for instance along the E12 corridor.

Export and import mainly take place via ports, but also via land infrastructure towards mainland Europe. Different pictures emerge depending on whether one attaches weight on the port's freight value or freight volume. Port of Mo i Rana has the biggest tonnage in Helgeland and is Norway's largest port in terms of piece goods, whereas the ports of Vaasa, Umeå and Mosjøen have the highest added value per ton. Mo i Rana has the largest port in the E12 region, with a gross freight revenue of almost five million tons.

The transport and logistics route Nordic Logistic Corridor (NLC) forms an important route from Saint Petersburg in Russia to the Atlantic coast in Norway. The route continues from Vaasa further on towards Mo i Rana or Mosjøen through Umeå and Storuman. Traffic over the Kvarken is crucial in transforming NLC into a functional transport alternative.


N
E6
Helgeland
Mo i Rana
Port of Nesna
Sandessjøen Airport
Alstahaug hamn
Mosjøen
Hemavan Airport
Hemavan flygplats
Brønnøysund Airport
Brønnøysund flygplats
E12
Norway
Storuman
Västerbotten
E45
Lycksele
Vilhelmina Airport
Sverige
Suomi Finland
Россия Russia
Norge Norway
United Kingdom
Deutschland Germany
Polska Poland
Беларусь Belarus
Україна Ukraine
France
Österreich Austria
România Romania
Italia Italy
España Spain
Ελλάδα Hellas Greece
Türkiye Turkey
Қазақстан Kazakhstan
O'zbekiston Özbekistan
Afghanistan
Pakistan
Iran
Iraq
Saudi Arabia
India
Egypt
Libya
Algeria
Morocco
Mali
Niger


E12 region's transport system with connections to the wider world
Sweden
Finland
Skellefteå Airport
E4
Umeå
Kronoby/Jakobstad flygfält
Kokkola-Pietarsaari Airport
Vaasa
Vasa
Österbotten
Ostrobothnia
Laihia
E8
Symbols
Airport
NLC terminal
Port
Railroad
Road
E12 road

Transport System and its Nodes

E12 is a European route that begins in Mo i Rana, Norway, and ends in Helsinki, Finland. The route is 910 kilometers in length, meandering through the E12 region like an artery through the region's industrial belt. It is at the center of this traffic strategy.

The E12 corridor connects to the New Silk Road to the east towards Russia and to the west via Mo i Rana's ice-free ports.

Road Network

The road transport system is relatively well-developed and branched, although it does not always have the highest speed standard, load-bearing class or traffic safety standard. Some stretches are missing alternative routes, which means that traffic accidents or planned maintenance operations can severely lengthen travel times.

E12 is the backbone of the region's road network and a major road that numerous other roads connect to. E12 has been part of the Comprehensive Network in the Trans-European Transport Networks (TEN-T) since 2013. The purpose of TEN-T is to link major European social and economic centers together and establish the key infrastructure that is needed to strengthen the internal European market and promote competitiveness and economic development.

The E6 road that crosses Helgeland is undergoing significant development. The region will become better bound together and to the E12 corridor owing to major improvements in the road network between E6 and the coast.

Rail Network

Majority of the region's rail network was built in the 19th century or early 20th century. Most of the rail transports take place in a north-south direction in all three countries. The Tvärbanan rail line was opened in 1930 and is a non-electrified railroad running in an east-west direction along the E12 corridor between the Swedish localities of Hällnäs and Storuman. The Inlandsbanan (Inland Line) rail line was completed in 1937 and runs between Kristinehamn and Gällivare in Sweden. This railroad crosses the E12 region in Storuman. There is currently no railroad connection between Storuman and Mo i Rana. However, there are railroad connections to the ports of Vaasa and Umeå.

Air Traffic

The E12 region is dependent on air traffic in order for people to reach the respective capitals during the day. The capitals function as aviation system hubs, and regular traffic is built up on the national systems of respective countries. There are two airports in Ostrobothnia: Vaasa Airport and Kokkola-Pietarsaari Airport. The supply and use of air traffic is much larger in Norway than in the other two countries mainly due to Norway's geography, which causes notably longer travel times and costlier infrastructure investments. Helgeland has presently four smaller airports in Mo i Rana, Mosjøen, Sandnessjøen and Brønnøysund. A new and bigger airport will be built along the E12 near Mo i Rana. The Swedish part of the E12 corridor has three airports in Umeå, Lycksele and Hemavan. There are currently no regular flights along the corridor, only business flights.

Visualization image of the planned airport at Mo i Rana.

Maritime Transport

The importance of maritime transports for the economic life and for a functioning society in general is significant, and this mode of transportation is expected to grow. Maritime transports are most competitive in terms of large product volumes, and they dominate a significant share of basic industry transports in the E12 region. However, railroad transports are a more attractive alternative for certain industrial volumes and more time-critical transports. In addition, a growing amount of goods (e.g. salmon and consumer goods) is being transported by trucks. The ferry connection over the Kvarken is important both for goods and passenger traffic, because it shortens the driving distance considerably. A long-term solution over the Kvarken is crucial in order to be able to meet future transport needs.

The region has several ports that are important both in terms of export and import to/from/within the region. The possibility of shipping goods is an important economic precondition for many businesses as well as for the long-term, sustainable development in the region.

The E12 region's ports are situated in Vaasa, Umeå, Mo i Rana, Mosjøen, Alstahaug and Nesna. The ports in Nesna, Sandnessjøen and Brønnøysund are along the Hurtigruten ferry route.

Region's Nodes

The region's ports, airports and several freight terminals (e.g. the NLC terminals in Umeå, Storuman and Vaasa) form important nodes in the region's transport system, especially as regards the transport of goods. This is because they enable multimodality and economies of scale or, in other words, more flexible transport arrangements and mixed loading opportunities.

The ports of Vaasa and Umeå have operated a joint port company called Kvarken Ports since 2015. The port of Vaasa focuses mainly on the import and export of fuel, agricultural products, wood products and chemical industry. Half of the freight volumes in the port of Umeå are comprised of forest products, whereas unitized freight stands for one-quarter. The ports of Mo i Rana, Mosjøen and Alstahaug make up the E12 region's ports towards the Atlantic. In addition, a deepwater port is currently being built in Mo i Rana.

Transportation, storage and the handling of goods are standardized services with high and fixed costs. Therefore, logistics companies are under serious strain to utilize their vehicle and storage capacities as efficiently as possible so as to minimize costs. By being able to offer a diverse range of services, for instance the opportunity to use several modes of transportation within a logistics region, companies are better faced to meet variations in demand as well as demand from different types of businesses.

Sandnessjøen, Norway.

Port of Umeå, Sweden.

Railyard in Umeå, Sweden.

Passenger Transports and Accessibility

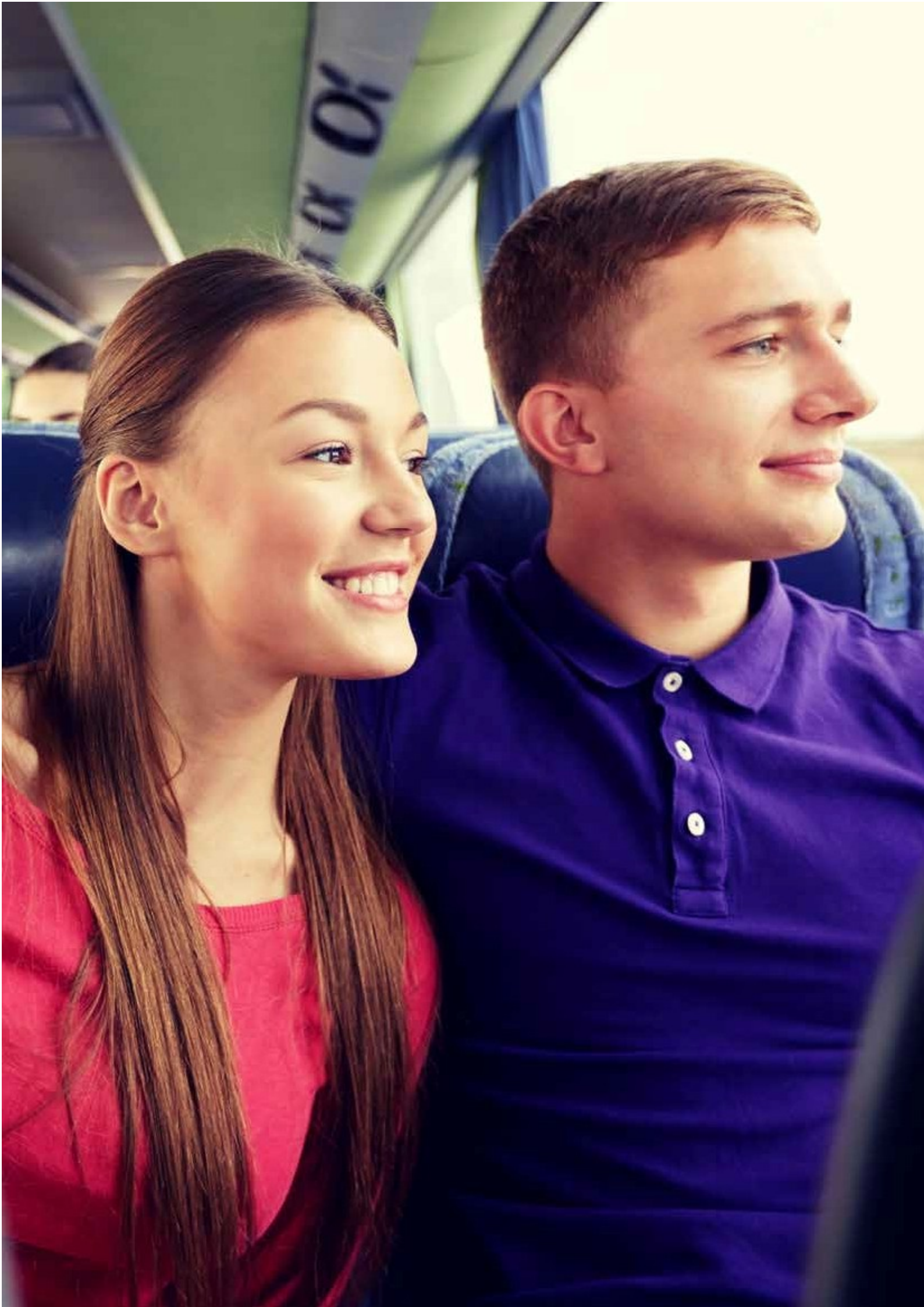
The E12 region's transport system creates opportunities for accessibility to work and studies, services, trade, entertainment, free time etc. The region is not homogeneous; instead, it consists of several functional sub-regions such as Vaasa–Umeå, Umeå–Lycksele, Lycksele–Storuman and Hemavan/Tärnaby–Mo i Rana. Various forms of exchange and commuting occurs within these sub-regions to a greater or lesser extent, and well-functioning commuting is of great importance to the region's competence provision.

People are able to travel in the E12 corridor with several means of transportation: airplane, ferry, public transport, car and bicycle. Functional passenger transports demand a well-structured and cohesive infrastructure. A four-kilometre-long tunnel was finished under the Umskaret Fell in 2006. The tunnel enables traffic in the route from the Swedish border all the way to Mo i Rana even during harsh winter months. There is currently no public transportation from Mo i Rana over the Swedish border to Hemavan. There are, however, regular services from Hemavan southeast towards the coast. For a large part of the route, travel times with public transports are longer than with private cars, with a general travel time ratio of 1,5. In Finland, public transportation is the fastest means of travelling from Vaasa both to Seinäjoki and Tampere.

Air traffic is founded on separate national systems, although there are direct flight connections between Vaasa and Stockholm as well as between Umeå and Helsinki. There are some regional airlines in Norway, whereas the airlines in Finland and Sweden are primarily directed towards the respective capitals.

Bicycling is possible along the entire E12 corridor, although the preconditions for it are lacking. For instance, even if the target point is only a short distance away, people often choose to travel by car instead of bicycle, because road traffic safety for unprotected road users along the E12 is perceived as deficient. The population centers along the E12 corridor have some shorter stretches of bicycle paths that are separated from car traffic. There paths are shared with pedestrians. In Finland, there is a bicycle path from Vaasa to Laihia, but otherwise there are only shorter stretches of bicycle paths. On the whole, there is a great need for bicycle paths and wider verges in the region.

Umeå Östra travel center.



3. Trends

There are several trends, some current and some more long-term, that are expected to affect the region's transports and transport system in the future. These trends can create opportunities, but they can also cause limitations that need to be taken into account.

Current Trends

Urbanization

Population growth in large parts of the E12 region, especially in Sweden and Norway and also partly in Finland, has been concentrated in cities for a long time. This urbanization is expected to continue, although it does not apply only to larger cities; people from sparsely populated and rural areas are also moving to population centers. This means that consumption and, consequently, freight traffic to these urban areas will increase.

Digitalization

A digital infrastructure offers new and improved opportunities to capture data on a larger scale and in a smarter way. The transport system's digitalization is a key factor for self-driving vehicles, seamless transport services, transparency through open data, and the processing of "big data" for prognoses, planning etc.

E-commerce is increasing by two-digit percentages annually. People who shop online do not worry about physical borders, which places demands on new and smart transport solutions, as opposed to traditional logistics. For instance, an increasing number of actors are taking new initiatives in terms of switching to smaller packagings, because it is a growing market.

Services and Resource-Sharing

Mobility, or transport, as a service (MaaS) is a concept that describes a shift from personally-owned modes of transportation towards mobility solutions that are consumed as a service. With new technology, trips and transports via different modes of transportation can be combined and packaged so as to achieve more efficient and sustainable transport solutions. Through combined mobility as a service, the number of shared trips can increase in relation to the use of private cars. In addition to passenger transports, MaaS can also be used for the transport of goods.

Accessibility as a Service (AaaS) encompasses digital accessibility. In contrast to MaaS, which is based on the assumption that mobility is needed to perform some task, AaaS focuses on the actual task at hand; be it work, studies or the like, and attempts to discover how to satisfy the objective in the best possible way.

Private persons have found different ways of sharing resources and, consequently, saving money, such as with AirBnb and carpooling services. This circular economy entails new business models and that resources should be kept in the economic cycle and used to other products lower down in the value chain for as long as possible.

Increased Demand for Freight Transports

According to recent analyses and traffic prognoses, the transport of goods is expected to increase in all three countries. For instance, the Norwegian national transport plan's prognoses point to a 70% increase in the volume of goods between 2015–2050 and a twofold increase in truck transports. Growth in the freight transport work is expected to be even higher in Nordland than nationally in other parts of Norway. Helgeland has, in fact, experienced much higher economic growth during recent years than Norway on average.

A growing number of goods is transported as unitized freight (containers, trailers, cassettes etc.). This is advantageous for the development of intermodal transports, where the same unit can be transported with more than one mode of transportation (e.g. road, railroad and maritime transports) without handling the actual goods. However, currently only five percent of European trailers are equipped to be lifted to and from railway carriages. Maritime transports can take place without towing vehicles or drivers on the ship (RoRo), which favors on-land intermodal transports.

There is a clear trend within manufacturing, stock management and transportation towards specialization and the utilization of economies of scale. This entails larger central warehouses, but also simultaneously more transports. Such a tendency towards specialization benefits the modes of transportation (e.g. maritime and railroad transports) that are capable of handling large quantities of goods.

Reduced Environmental Impact

Finland, Sweden and Norway have ambitious climate and environmental targets, especially in terms of the transport industry. These targets are connected to international environmental goals, such as the Paris Agreement. For instance, Sweden decided to reduce its fossil-fuel emissions by 70% by 2045, and Norway passed a Climate Law in 2017 that establishes a clear goal of reducing climate emissions by at least 40% by 2030 compared to 1990. The country aims to have reduced its climate emissions by 80–95% by 2050 compared to 1990.

In order to reduce carbon dioxide emissions, the transport sector (which stands for at least a third of all emissions) must assume its responsibility. There is a growing market for renewable fuels, especially in Scandinavia, where second-generation bio-fuels are produced from a large number of waste products.

Oil prices have been very low during recent years, thus greatly impacting transport costs. Fuel now stands for a smaller proportion of the total transport costs, both concerning maritime and road transports. This has caused a much smaller decrease in the share of maritime transports than was expected when the Sulphur Directive came into force.

Vaasa train station.

Service Sector Growth

The industry-related service sector and other private service sectors are a growing field, especially in the Umeå region. Service sector growth places high demands on the region's competence provision, social sustainability, and well-functioning passenger transports.

A growing service sector with a great demand for competence entails that the economic life needs to find new ways of attracting workers. The individualization trend has caused the balance between work and free time to become displaced. An increased demand for high-quality living environments and opportunities for flexible work means that people are prepared to spend more time commuting. Mobility as a service opens up new types of travel chains, where collective travelling plays an important role.

Changes in the Tourism Industry

Travel patterns within the tourism industry are changing, and a new trend focuses on environmental awareness. In traditional tourism, people travelled to a destination and stayed there for a fixed amount of time, whereas nowadays the travel pattern is becoming more experience-oriented; people want to focus on doing things, being active, and experiencing nature. The E12 region boasts, among other things, one of the world's seven cross-border World Heritage Sites, which offers a unique possibility for future experience-based tourism.

The tourism industry along the E12 is growing and expected to continue growing further with major planned investments, especially regarding fell regions. Travelling related to the tourism industry takes place mainly during weekends and school holidays, which places certain demands for the transport system.

Long-Term Trends

The Northern European region has great potential of becoming an integrated part of European competitiveness and offer new means of access to the global market. This requires well-functioning logistics and transport systems as well as strong cooperation.

New Silk Road and Connection to Russia

When/if the existing trade sanctions on Russia are lifted, enormous potential for eastward trade along the so-called New Silk Road will open up, both with Russia and other countries in the Eurasian Economic Union (EAEU), see figure 2. This will increase transport needs. Russian ports near Saint Petersburg are being developed, and both ports and land infrastructure have been improved.

Finland is an important bridgehead for eastward transports via the Kouvola terminal. Kouvola has a high capacity, good railroad and motorway connections to the wider world, and the shortest route to China. A direct train to China also leaves from the city.

There are also ambitious plans and surveys concerning a direct rail connection between Tampere and Saint Petersburg, which would enable the transport of both passengers and goods to and from Saint Petersburg, a city with six million inhabitants, in less than 6,5 hours.

Figure 2. New Silk Road.

Northern Sea Route

Europe is one of the world's largest trading partners, and vast majority of trade takes place via maritime transports. The European Union has begun to show interest in developing ports in Northern Europe, and the Nordic countries' northern regions are looking for a more important strategic position so that they can utilize opportunities in the Northern European economy and use northern sea routes for freight transports between Europe and the Pacific coast of Asia/North America.

The Northern Sea Route (NSR) is the shortest sea route between Northern Europe and East Asia, see figure 3. Global climate changes have increased traffic in the Arctic waters. The Arctic's shorter distances compared to other routes lead to shorter transport times and potential cost savings. Economic growth in the Arctic region offers an opportunity for the Baltic Sea and North Sea.

Figure 3. Northern Sea Route in red.

Arctic Dimension

The Arctic region, especially Norway and Russia, has the potential to become Europe's largest investment area. The whole of Europe, Russia and China would gladly capitalize on the region's natural resources (e.g. oil, gas and minerals), but these resources are difficult to extract due to deficient transport solutions.

In order to profit from the Arctic region's potential, functional transports via the Northern Sea Route as well as integrated railroads, roads and flight connections are needed, all of which require major investments. Moreover, channels for communication technology are also needed, both for the economic life and society.

E12 Region's Link to Europe's Main Corridors

By using a joint strategy as a foundation, the three countries can improve the E12 corridor's chances of becoming linked to Europe's main corridors. The corridors that are primarily affected include the TEN-T Core classified Scandinavian–Mediterranean and North Sea–Baltic corridors (NSB), see figure 4.

There are hopes of extending the NSB corridor from Helsinki northward to the Arctic Ocean. This also includes ambitious plans to create a fixed connection in the form of a tunnel between Tallinn and Helsinki, which would have a direct impact on the E12 corridor.

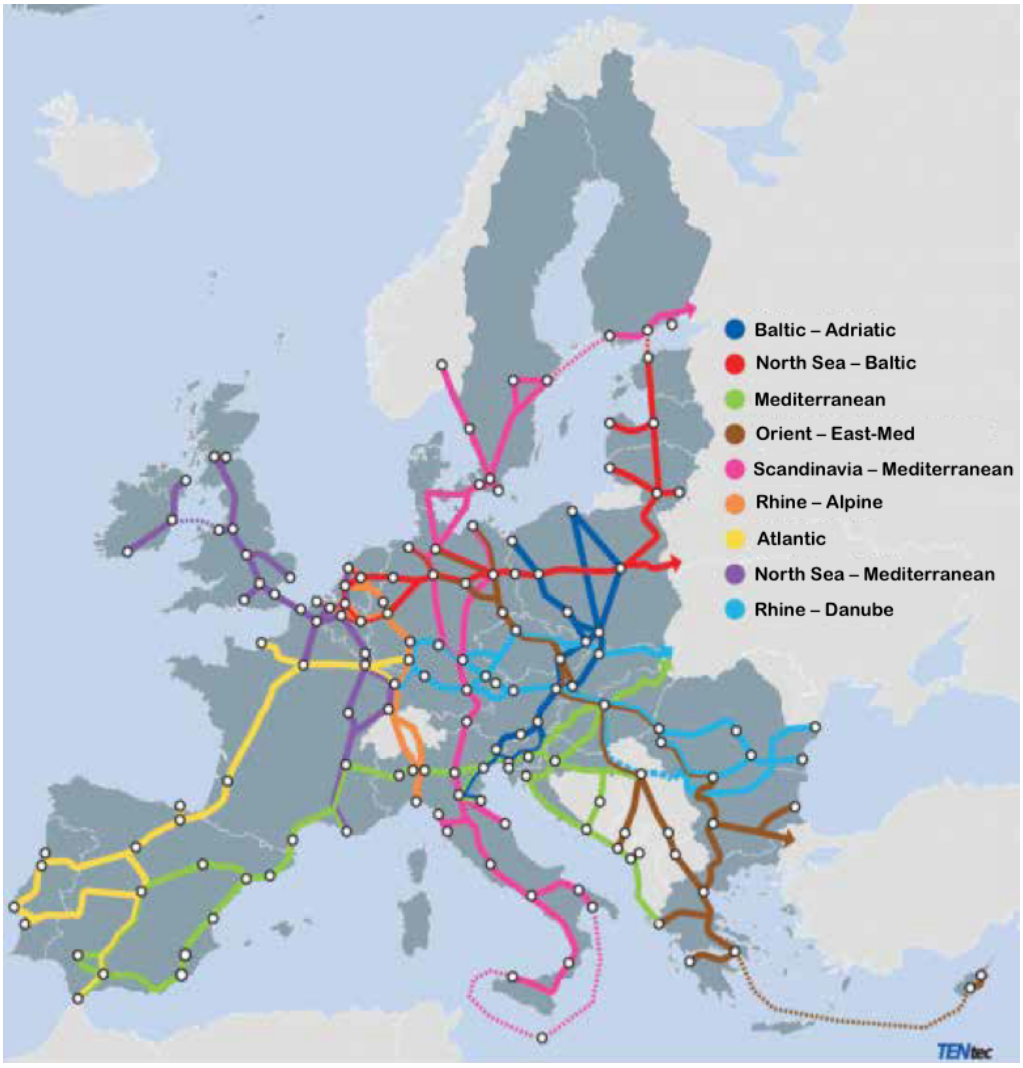


Figure 4. Scandinavian–Mediterranean corridor in pink and North Sea–Baltic corridor in red.

Umeå Östra travel center.

4. Need for Strengthened Cooperation

In order for the E12 region to develop and grow, it is important that all three countries agree on what is important so that they can together prioritize appropriate measures. A strategic steering document – a traffic strategy – is crucial so that the partners can guarantee the desired development of the transport system in the long-term. A strong and well-defined vision, measurable goals, and functions and routines for evaluation are cornerstones of this strategy.

Challenges and Opportunities

Need for Unanimity and Joint Steering Documents

The E12 region is currently home to three different cooperation organizations that cannot operate at the joint national level in a coordinated and efficient way. Therefore, the region needs unanimity, joint steering documents, and an all-encompassing collaboration platform.

The E12 region's inhabitants and companies have a strong sense of solidarity and social cohesion, all based on shared history, culture and language. If all three countries work together, they can create preconditions for development and population growth. The partnership's overarching vision states that the E12 region should be a place where everyone is welcome and feels at home.

New preconditions for dialogue and negotiations with Finnish, Swedish and Norwegian states and traffic authorities can be created with the help of a well-defined and shared vision for the traffic strategy, future objectives, and a mutual understanding of strategic investments and measures.

Without cooperation, the development of the E12 region's infrastructure and transport preconditions will likely continue as it always has, meaning that Helgeland, Västerbotten and Ostrobothnia will only focus on their own development based on the prognoses and national perspectives coming from Oslo, Stockholm and Helsinki.

Deficiencies in the Transport Infrastructure

The E12 region has a relatively well-developed infrastructure, although it has some shortcomings. Certain stretches of the corridor have limited speed and load-bearing capacity and lack slow lanes, which affects goods and passenger transports and also traffic safety in general. The region is developing, and its industries and economic life place high demands on the transport system.

Another shortcoming is the gap in transport chains for busses and trains between Sweden and Norway. The varying and occasionally bad road standards cause unpredictability in terms of travel times.

There is currently no railroad between Storuman and Mo i Rana, and the existing Tvärbanan line between Hällnäs and Storuman is non-electrified.

The only flight connections along the E12 region are business flights. Mo i Rana is in need of an airport, so that its economic life and inhabitants receive better travel opportunities and contact with the surrounding world.

The Kvarken ferry between Vaasa and Umeå, a critical link in the region's transport chain, is currently deficient, although the existing ferry solution has experienced very positive development. However, the ferry is nearing its decommissioning due to age reasons. There are ambitious plans to replace the old ferry with a new, innovative and long-term sustainable ferry solution. The ferry constitutes the only ferry connection from Finland to Sweden north of the Åland Islands, with connections further up to Northern Norway for passenger and goods traffic. The European Union's Sulphur Directive causes the ports in Northern Norway to grow in significance for Northern Sweden and Finland, which increases the importance of the Mo i Rana–Umeå–Vaasa transport link. Therefore, it is important to prioritize the Kvarken ferry connection.

The region is rich in natural resources and offers outstanding nature and culture attractions. Therefore, the primary industry, processed products, energy and the tourism industry have great potential. Even the service sector is growing, especially in the Umeå region. Industries connected to these fields are expected to grow, which results in increased and/or adapted transport needs, placing demands on the transport system.

The demand for transports and, consequently, the demand for capacity, is predicted to become larger in the E12 region than current national prognoses and respective investment plans for Helgeland, Västerbotten and Ostrobothnia imply. This deficiency must be tackled in order to process larger east-west freight volumes.

The entire E12 region needs cross-border traffic flow measurements, so that the region's development and seasonal variation for all types of traffic and transports can be evaluated.

Planning as a Border Barrier

Infrastructure and transport planning in Finland, Sweden and Norway is nationally-oriented and lacks a cross-border perspective, which means that a region like E12 has difficulties in gaining support for its needs and suggestions for new investments.

Increased Trade towards the East, Northern Sea Route and the Arctic

The E12 region binds together three countries in an east-west dimension, and it also connects Europe with the Arctic.

Europe's main corridors provide accessibility to ice-free Atlantic ports and natural logistics chains further to the wider world.

The region's ports possess great capacity, and there are hopes that the flow of goods will increase eastward towards Russia and Asia, westward towards the rest of Europe and North America, and northward via the Northern Arctic Ocean.

Environment and Climate

The E12 corridor has great potential of becoming a forerunner in environmental and climate issues by implementing measures that reduce the environmental impact of transports and by achieving goals for fossil-independent transports.

There are currently no satisfying solutions for alternative fuels. Alternative fuels also require a new infrastructure if the region wants to achieve a fossil-independent existence despite the region's growing number of transports.

Vision 2040

> A borderless east-west transport system for all.

The traffic strategy's vision describes the function that the transport system needs to maintain in order to meet the desired social development within the region. The vision has 2040 as its time horizon and functions as a beacon for continued strategic cooperation. Its purpose is to provide guidance so that the transport system is developed in accordance with the partnership's overarching vision and goals for the E12 region.

Continuous measuring and evaluation of the region's development as well as the updating and possible revision of the traffic strategy are important. The work's progress is evaluated with the help of chosen indicators.

Portal Goals

Portal goals present the overarching goals in the development towards sustainable growth in the region and, therefore, they form a link between the vision and the chosen domains for collaboration. The goals and measures are described in the next chapter.

- Strengthen the E12 region's growth and competitiveness.
- Climate-neutral transports in the region by 2030.

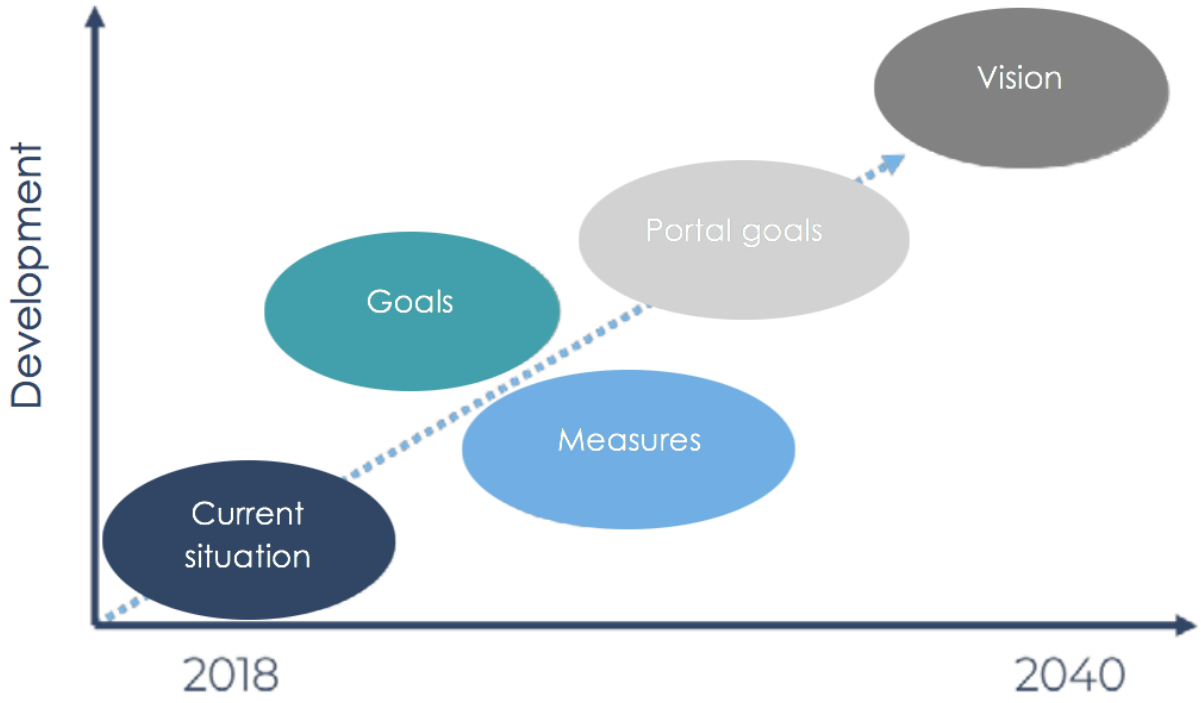


Figure 5. Journey from present situation to vision.


700

5. Domains for Collaboration

The traffic strategy encompasses three domains for collaboration that are considered particularly important for the development of the region's transport system. These domains include transport and infrastructure development, cross-border infrastructure planning, and social sustainability, and they are based on the vision and overarching portal goals. Prioritized goals and connected measures will be presented for each domain. The measures are not in order of importance.

Transport and Infrastructure Development

Well-functioning transports necessitate that the physical and digital infrastructures fulfill expectations and take into consideration future transport needs. This domain for collaboration encompasses the physical transport infrastructure as well as the digital infrastructure, and the efficient and sustainable transports of goods and passengers.

Cross-Border Infrastructure Planning

In order to achieve the strategy's vision, it is necessary to reverse the trends in national infrastructure planning in Finland, Sweden and Norway. Deficient collaborative planning between the countries risk the systematic undervaluing of infrastructure investments in border regions. This applies to both investments and operating and maintenance issues.

The current national approach must be complemented with a more cross-border perspective. Investments in the border regions must be able to compete with the same terms as other measures; otherwise, national traffic authorities will find it hard to fulfill their task of implementing socio-economically efficient investments.

The E12 region shall continue to address this issue in dialogue with traffic authorities.

Social Sustainability

Transportation is almost always used to denote the transportation of and with people, and these people have different backgrounds, requirements and needs. This domain for collaboration aims to describe and set goals for social sustainability, so that it can meet the needs of individual persons, today and in the future. The region requires attractive places to live in, and it is important to base the creation of the transport system on the inhabitants' needs.

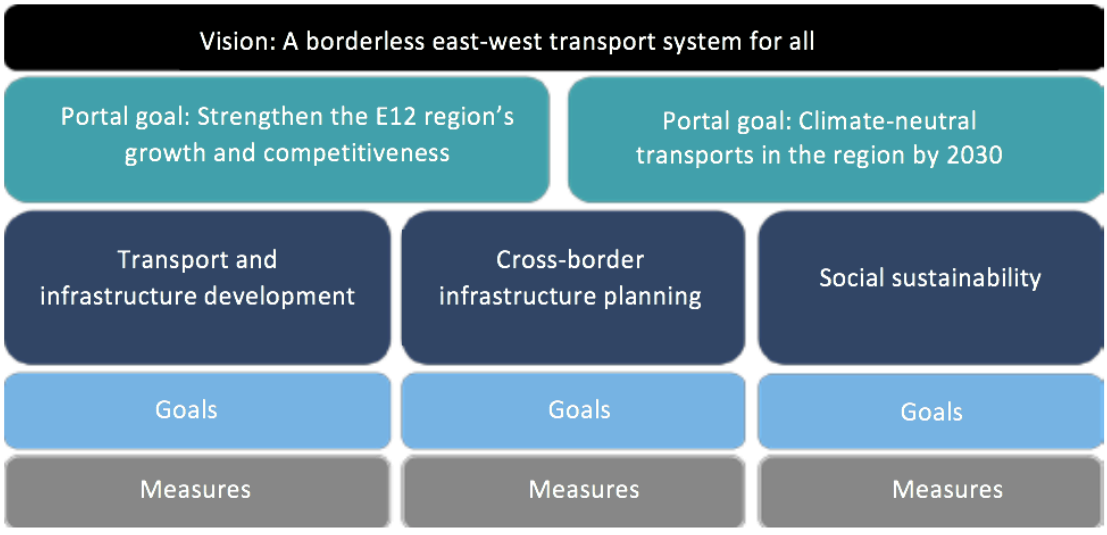


Figure 6. Overview of the traffic strategy's structure.

Transport and Infrastructure Development

The domain encompasses the whole transport system's development in order to enable functional goods and passenger transports on all modes of transportation – road, railroad, sea and air. The domain's goals focus on functionality, accessibility and sustainability. Measures that are connected to these goals mainly include new investments, improvements and surveys.

The physical transport infrastructure forms a fundamental precondition for efficient goods and passenger transports. Alternative fuels require a new infrastructure so that the region can reach a fossil-independent existence. Digitalization of the transport system creates opportunities for the development of new and improved services.

The efficient and sustainable transport of goods offers good opportunities for economic growth and increased competitiveness, simultaneously as the region continues to strive to reduce the environmental impact of transports. Transports are optimized within the region and further out into the transport network on the basis of a well-functioning infrastructure.

Passenger transports should be safe, efficient and sustainable, and meet the needs of individual inhabitants so that they can live and work in the region. The region should also be easily accessible to tourists and other visitors.

Goal: Guarantee good accessibility and high-quality function within the E12 region and to strategic destinations outside it.

Measures:

New investments:

- Guarantee a functional ferry transport solution for freight and passenger traffic between Vaasa and Umeå.
- Airport by the E12 near Mo i Rana.
- Electrify the Tvärbanan line, Hällnäs–Storuman stretch.
- Enable traffic along the Tvärbanan line for 740-meter-long trains.
- Railroad, Storuman–Mo i Rana stretch.
- Enable high accessibility (100km/h) along the E12.
- Improve accessibility and traffic safety with slow lanes at strategic locations after E12.
- Enable accessibility for at least 74-ton trucks along the E12.

Improvements:

- Secure the E12 from blizzards so as to reduce winter closures and driving behind snow ploughs.
- Implement measures that were brought up in ÅVS E12 and that are in line with the region's needs.
- Work for shorter travel times and improved travel opportunities to the Nordic capitals and other large cities, primarily by flights.
- Strengthen the digital network along the E12 corridor.

Surveys and development projects:

- Investigate how east-west flight connections create new preconditions linked to the new airport at Mo i Rana. Also assess the possibilities for procured transports.
- Investigate the Finnish and Norwegian parts of the E12 in the same way as in ÅVS E12.
- Investigate opportunities provided by digitalization for the region's transports and infrastructure.
- Investigate preconditions for competitive public transportation on the Storuman–Mo i Rana stretch and, afterwards, establish competitive public transportation on the stretch.
- Investigate preconditions for demand-responsive public transport in the region.
- Investigate preconditions for cross-border economic life collaboration. Also assess how a joint competence area linked to transport and logistics can be achieved with university collaboration.

Other:

- Traffic flow measurements along the whole corridor.
- Assess the possibilities of extending the opening hours at border/customs posts.

Goal: Climate-neutral freight and passenger transports by 2030.

Measures:

New investments:

- Charging stations for electric vehicles and filling stations for alternative fuels along the entire E12 at terminals, rest areas etc.

Improvements:

- Gather and make available information about public transportation as a travel alternative.

Other:

- Coordinated ticket system for all modes of transportation.

Cross-Border Infrastructure Planning

This domain for collaboration focuses on the E12 region's goals and measures in the region's attempt to achieve an altered approach to infrastructure planning, from current national thinking to a more cross-border perspective.

There is a need for enhanced cooperation within the region and also with traffic authorities, other border committees and the Nordic Council in order to strengthen the development of the east-west infrastructure. This enables the region to utilize the potential from global development, for instance in the form of the New Silk Road and the Northern Sea Route, with increased trade and transports. Dialogue with Finnish, Swedish and Norwegian national traffic authorities concerning the development of infrastructure planning in a more cross-border direction will continue.

Goal: Strengthen the E12 region in relation to the national levels in Finland, Sweden and Norway.

Measures:

- Develop a coordinated and proactive course of action in continued dialogue with the Finnish, Swedish and Norwegian national traffic authorities.

Goal: Strengthen the region's competitiveness.

Measures:

- Offer the E12 corridor as a pilot corridor for cross-border development projects (cross-border effect models, flow calculations, autonomous vehicles, digitalization, well-being as part of competitiveness etc.).

Goal: Create lift for the east-west dimension in national infrastructure and transport planning.

Measures:

- Develop close cooperation with other Nordic border committees and the Nordic Council.
- Initiate the drafting of a transport plan for the E12 corridor as a Nordic pilot for joint cross-border planning.

Social Sustainability

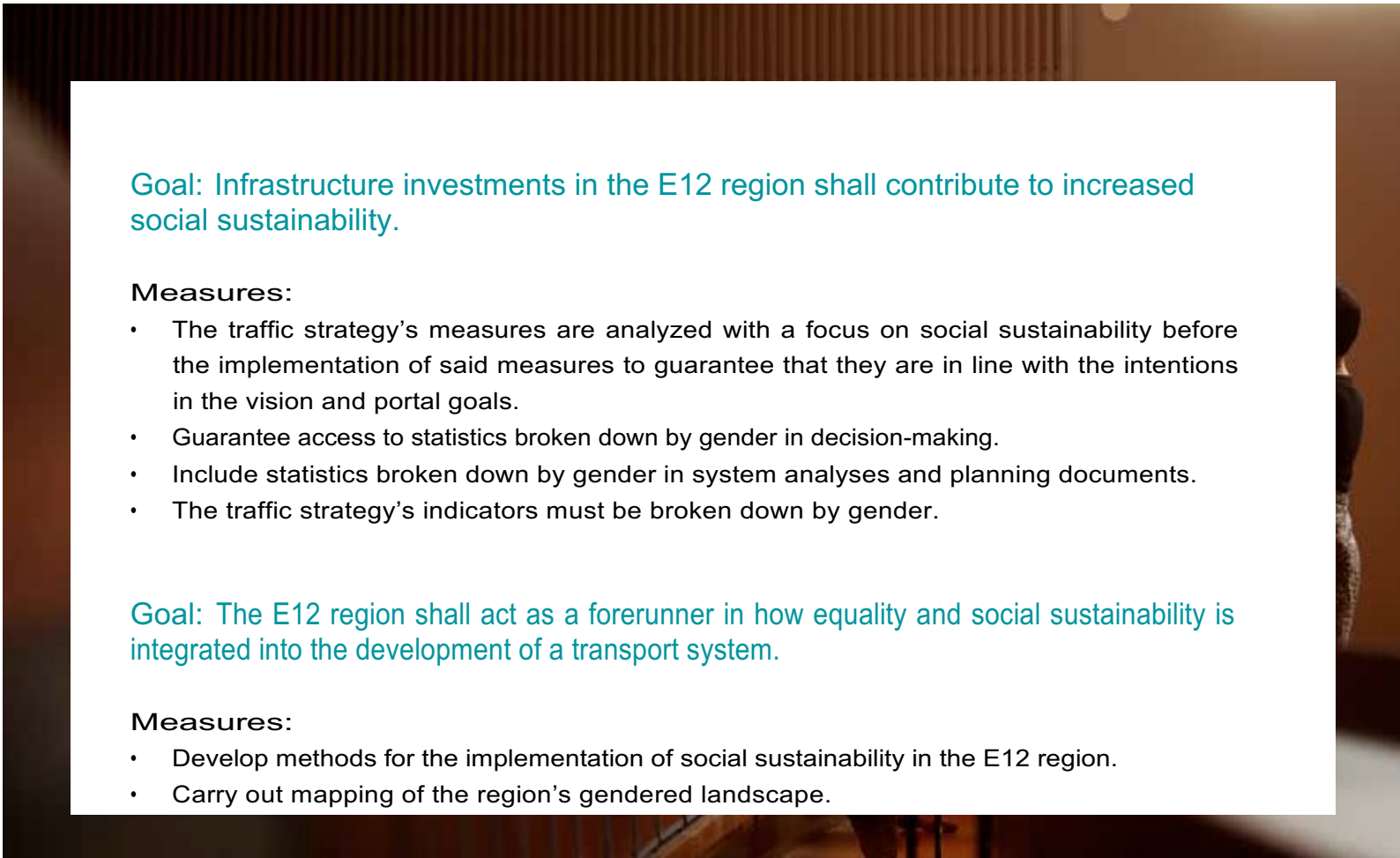
The domain highlights social factors that should be taken into account in the development of the whole transport system. A major aspect of this is gender equality, where men and women have the same power to impact society and their own lives.

Social sustainability needs to be a fundamental and integrated part of cooperation in order to create an attractive region and achieve the region's overarching goals. Investments that are in line with the strategy should be viewed as a tool in the attempt to create a socially sustainable region.

The aim of a socially sustainable region is that all individuals, regardless of their gender, have the same power to impact society and their own lives. Social sustainability also means creating opportunities for the well-being of people. The labor market, study places and other destinations need to offer a wide range of living, working and free time environments to be considered attractive.

Growth and competitiveness must be analyzed and understood from an equality perspective, where critical issues concerning the formulation of problems and solutions must form a natural part. This necessitates statistics broken down by gender as well as analyses that are based on an understanding of the route's "gendered landscape" – in other words, based on the knowledge of work, economy, education and family formation. The concept of "gendered landscape" is a method developed by the municipality of Umeå to incorporate equality issues into regional planning.

The method aims to collect and ensure visibility for statistics about men and women in a geographical context. Examples of statistics include income, participation in the labor market, distribution of full-time/part-time work, and access to public services. The illustration of such statistics from a geographical perspective enables the study of men and women's travel patterns as well as approaches to work, commuting and free time.



Goal: Infrastructure investments in the E12 region shall contribute to increased social sustainability.

Measures:

- The traffic strategy's measures are analyzed with a focus on social sustainability before the implementation of said measures to guarantee that they are in line with the intentions in the vision and portal goals.
- Guarantee access to statistics broken down by gender in decision-making.
- Include statistics broken down by gender in system analyses and planning documents.
- The traffic strategy's indicators must be broken down by gender.

Goal: The E12 region shall act as a forerunner in how equality and social sustainability is integrated into the development of a transport system.

Measures:

- Develop methods for the implementation of social sustainability in the E12 region.
- Carry out mapping of the region's gendered landscape.

6. Traffic Strategy and Future

Implementation Plan

This traffic strategy is owned by the Kvarken Council, MidtSkandia and Blå Vägen. The strategy can be implemented when the abovementioned three organizations decide upon it. The creation of a joint action plan for the implementation of prioritized measures in the near future is suggested.

The Kvarken Council, MidtSkandia and Blå Vägen hold a central role in the partnership behind the E12 Atlantica Transport project. This signifies clear ownership in terms of the traffic strategy and, consequently, a responsibility to implement and administer it.

One way of commencing this implementation is by producing an action plan for prioritized measures in the near future, i.e. in the next four years. Work concerning the next generation 12-year national transport plans in Norway and Sweden will begin during this time. Many factors suggest that Finland will also shortly switch to a similar planning model.

The transport system's development as well as the attainment of the strategy's goals and measures can be evaluated with the help of the indicators described in section 6.3. The traffic strategy must be continuously updated as well as revised and again decided on in the future.

The project has investigated future forms of collaboration, and it is possible that the partners will form a cross-border cooperation platform, a so-called EGTC (European Grouping for Territorial Cooperation) in the future. Such a form of cooperation receives the status of a legal personality, meaning that it can enter into agreements and hire personnel, which is expected to facilitate future cross-border cooperation. If this new form of cooperation is realized in the E12 region, the EGTC will become the natural recipient and administrator of the traffic strategy.

Figure 7. The continuous work with the traffic strategy.

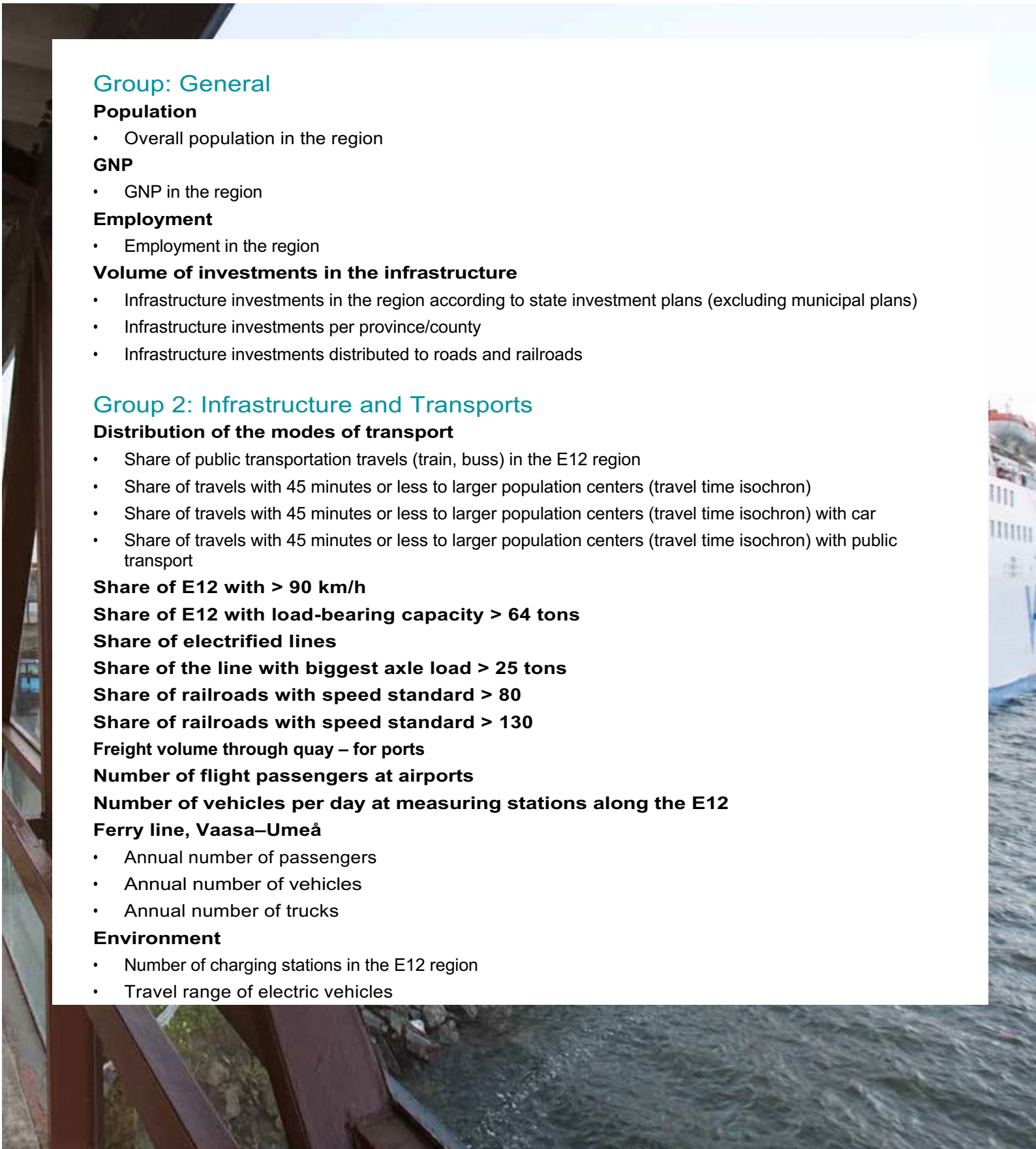
Implementation Partners

Implementation of the traffic strategy and the suggested measures requires stronger cooperation within the E12 region. MidtSkandia, Blå Vägen and the Kvarken Council, together with the regions and municipalities along the E12 corridor, form a joint cooperation structure.

It is important to enhance cooperation with other actors in the E12 region (e.g. ports and terminals, owners of goods, transport businesses, and universities) in terms of various investments and measures in the transport area (surveys, development projects, processing by national governments and the European Union). It is also advisable to form strategic alliances with actors from outside the E12 region, e.g. other regions, research institutes (Research Institutes of Sweden/RISE, CLOSER transport platform) and companies.

Evaluation Indicators

The region's system analysis presents indicators that can be used to measure the transport system's efficiency. This section describes the indicators for the domains for collaboration that were presented earlier in the traffic strategy, which enables the traffic strategy to be adapted to evaluate, assess and report back on the work within the said domains. The indicators must be broken down by gender, if possible.



Group: General

Population

- Overall population in the region

GNP

- GNP in the region

Employment

- Employment in the region

Volume of investments in the infrastructure

- Infrastructure investments in the region according to state investment plans (excluding municipal plans)
- Infrastructure investments per province/county
- Infrastructure investments distributed to roads and railroads

Group 2: Infrastructure and Transports

Distribution of the modes of transport

- Share of public transportation travels (train, buss) in the E12 region
- Share of travels with 45 minutes or less to larger population centers (travel time isochron)
- Share of travels with 45 minutes or less to larger population centers (travel time isochron) with car
- Share of travels with 45 minutes or less to larger population centers (travel time isochron) with public transport

Share of E12 with > 90 km/h

Share of E12 with load-bearing capacity > 64 tons

Share of electrified lines

Share of the line with biggest axle load > 25 tons

Share of railroads with speed standard > 80

Share of railroads with speed standard > 130

Freight volume through quay – for ports

Number of flight passengers at airports

Number of vehicles per day at measuring stations along the E12

Ferry line, Vaasa–Umeå

- Annual number of passengers
- Annual number of vehicles
- Annual number of trucks

Environment

- Number of charging stations in the E12 region
- Travel range of electric vehicles

Workgroup

Andreas Forsgren, Infrastructure Strategist at Municipality of Umeå (SE)
Angelica Johansson, Business Pilot and Project Manager at Municipality of Vindeln (SE)
Arne Langset, Head of Secretariat at Indre Helgeland Regionråd (NO)
Christer Nygren, Street Manager and Water and Sanitation Manager at Municipality of Vännäs (SE)
Grete Vesteraas, Infrastructure Strategist at Municipality of Lycksele and Blå Vägen (SE)
Isabella Forsgren, Infrastructure Strategist at INAB (SE)
Jan Wikström, Spatial Planning Officer at Regional Council of Ostrobothnia (FI)
Jimmy Lindberg, Strategic Analyst at Municipality of Storuman (SE)
Johanna Häggman, Communications Manager at Kvarken Council (FI)
Kristin Frodahl Rognerud, Project Manager at Rana utviklingsselskap and MidtSkandia (NO)
Linda Gustafsson, Gender Equality Strategist at Umeå Municipality (SE)
Maud Ericsson, Project Coordinator for Region Västerbotten (SE)
Mathias Lindström, Director of Kvarken Council (FI)
Mårten Edberg, Infrastructure Strategist for Region Västerbotten (SE)
Pekka Mäkinen, Logistics Expert at VASEK (FI)
Peter Molin, Transport Planner at Lycksele Municipality (SE)
Rauno Matintupa, Expert in Public Transport at the Centre for Economic Development, Transport and the Environment (FI)
Reidar Ryssdal, Project Manager at Rana utviklingsselskap (NO)
Riitta Björkenheim, Logistics Expert at VASEK (FI)
Tero Voldi, Traffic Expert at the Regional Council of Ostrobothnia (FI)

Political reference group

Geir Waage, Arbeiderpartiet (NO)
Hanne Davidsen, Arbeiderpartiet (NO)
Joakim Strand, Svenska folkpartiet i Finland (FI)
Johan Söderling, Socialdemokraterna (SE)
Karin Malmfjord, Socialdemokraterna (SE)
Mattias Larsson, Centerpartiet (SE)

Reference person

Ulf Pilerot, Project Manager at Trafikverket, the Swedish Transport Administration (SE)

Process management

Jerker Sjögren, Jesjo Konsult HB (SE)
Karin Edenius, Sweco Management AB (SE)

Ongoing evaluation

Edith Andresen, Mid Sweden University in Sundsvall (SE)

Support material

• A Strategic Vision for the North, 2015, Protagon Consulting Oy (FI)

• För gränsöverskridande infrastrukturplanering, 2017, Jesjo Konsult HB (SE)

• Joint Barents Transport Plan, 2013, The Barents Euro-Arctic Region (NO/SE/FI)

• Kvinnor och män i belysning, 2017, Länsstyrelsen Västerbotten (SE)

• Systemanalys E12 Atlantica Transport, 2017, Ramböll (SE)

• Trafik för en attraktiv stad – Handbok (3rd edition), Trafikverket (SE)

• The Poly-SUMP Methodology – How to Develop a Sustainable Urban Mobility Plan for a Polycentric Region – Guidelines, European Platform on Sustainable Urban Mobility Plans

• Tillsammans framåt, traffic strategy for the Luleå region, 2016 (SE)

•Tillväxt från norr – Hur kan Norge, Sverige och Finland skapa hållbar tillväxt i arktiska Skandinavien? 2015, Prime Minister's Office (NO/SE/FI)

•TRAST-guiden – Arbetsprocess för kommunens trafikstrategi, Trafikverket (SE)

• Women and Men in the Union of the Baltic Cities, 2013, Union of the Baltic Cities

•Åtgärdsvalsstudie E12, 2016, Trafikverket (SE)

Other: See illustration of steering and strategic documents in figure 1, page 9.

Figures and photos

Source, figure 2: www.svt.se
Source, figure 3: http://arcticanthropology.org
Source, figure 4: http://ec.europa.eu
Cover page: Bertil Hagberg, Sesamfoto
S. 2: Mårten Edberg
S. 5: E12 Atlantica Transport
S. 10: Vaasa Region
S. 13: Mo Industripark (upper), Rami Abood (lower)
S. 14: Hemavan Tärnaby
S. 16–17: Sweco
S. 19: Nordic Architects
S. 21: CCB Helgelandsbase (top), Mårten Edberg (middle and bottom)
S. 22: INAB
S. 27: Vaasa Region
S. 30: INAB
S. 34: Ingrid Sjöberg
S. 37: Rana utviklingsselskap
S. 38: Midway Alignment of the Bothnian corridor Wärtsilä
S. 39: Vaasa Region
S. 41: Hybricon
S. 42: Vaasa Region
Back page: Mårten Edberg
Photos without captions are purchased.