BRTL - Barents Region Transport and Logistics

ACTION PLAN, March 2022

Kolarctic CBC | CROSS-BORDER COOPERATION

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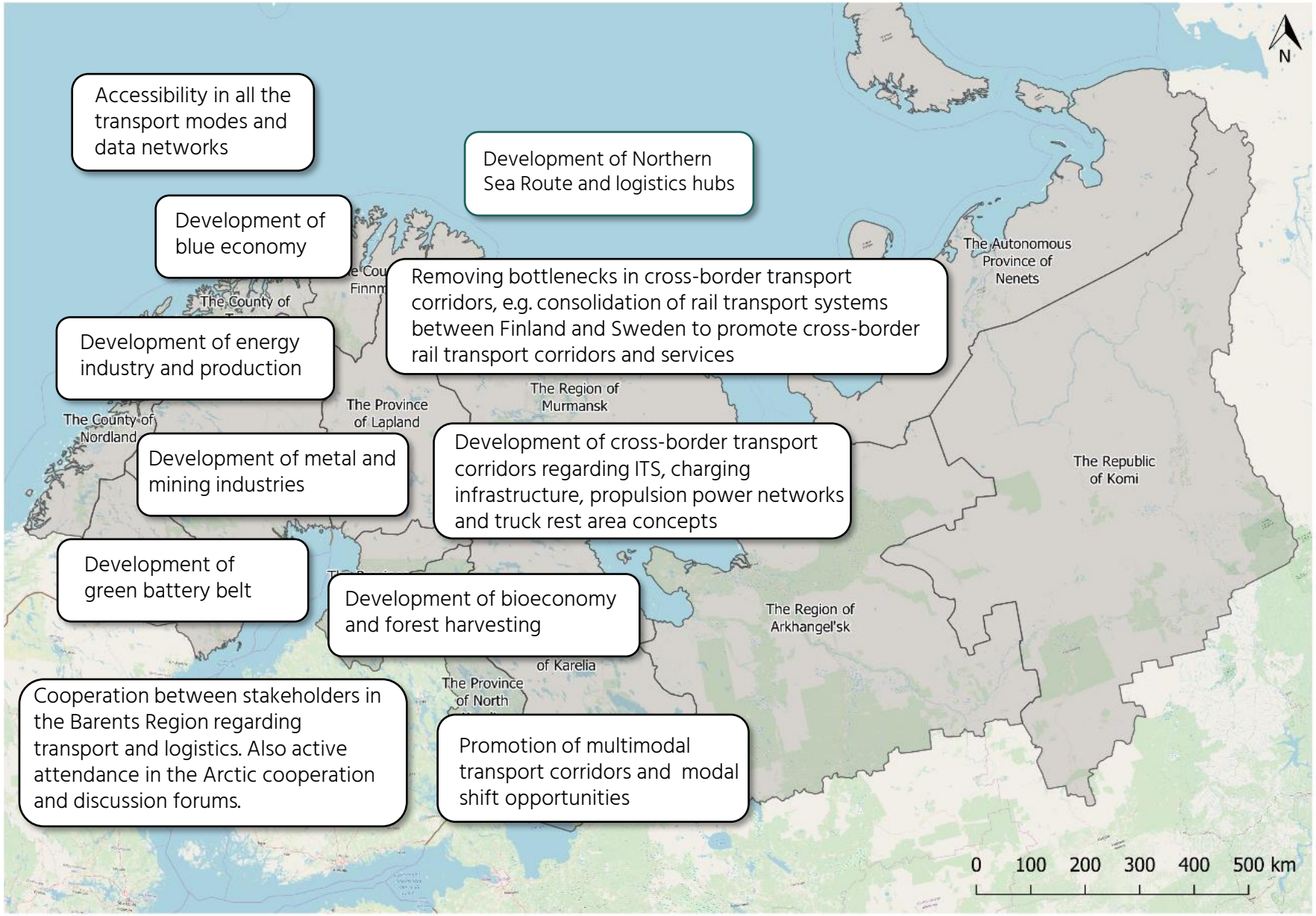
SUMMARY

The Action plan is collected under three main topics, which are recognized as key development areas for the future. Focus on industrial ecosystems development emphasise strong development of diverse industries in the Barents Region, where diverse regions have own emphases. These industrial ecosystems have connections with each other and, also high-volume transport systems both in procurement and product deliveries to the markets. Thus, this forms a solid industry-based background for both logistics and mobility of workforce.

Transport corridor development forms basis for accessibility of the Barents Region, which is a critical competitive factor for the region. Development of transport corridors and removing bottlenecks in border-crossing transport connections are precondition for efficient and sustainable logistics. Modal shift, ITS and propulsion powers regarding cross-border transport systems are key development topics in transport corridor theme.

Platforms for information sharing is the third main topic in the action plan. Activating cross-border cooperation with increased communication and common target-setting in development of transportation and logistics is a vital precondition for the future development of the Barents Region. An arctic think-tank would be an opportunity to include science and education in information sharing and to accelerate knowledge-based development to meet the new levels of ambition.



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Chapter 1

Outlook of BRTL-project reports

Background

BEATA

The Barents Euro-Arctic Transport Area BEATA is established in May 1998 to strengthen co-operation in order to create an efficient transport system in the Barents Region that integrates the different means of transport. The co-operation includes border crossing points, customs co-operation, maintenance and reconstruction as well as new projects to improve the infrastructure. BEATA reports to Barents Euro-Arctic Council BEAC and European Commission.

JBTP

BEATA has published Joint Barents Transport Plan in 2013 with the objective of developing an efficient transport system in the Barents Region with good internal connectivity between the Barents countries and with good external links to world markets. The transport system should facilitate Barents regional development and create new opportunities for important industries. JBTP has been updated three times in 2015, 2016 and 2019. The plan includes for example defining the most important transport corridors and analysis of bottlenecks in these corridors. Barents Region Working Groups on transport, logistics and tourism have operated as expert groups in conducting these transport plans.

BRC

At the same time as the BEAC was established in 1993 by the signing of the Kirkenes Declaration, the regional representatives, together with the indigenous peoples signed a cooperation protocol, that established the Regional Council BRC for the Barents Euro-Arctic Region with the same objectives as the BEAC to support and promote co-operation and development in the Barents Region. The establishment of a forum for the interregional Barents cooperation is an acknowledgement of the importance of local knowledge, the ability to identify the most urgent common priorities and the capacity to carry out cross-border projects and cooperate on implementation of common programs. In order to deepen and concretise the co-operation the Regional Council has established Working Groups in priority areas of work, and transport and logistics is one of these working groups.

Regarding BEAC and BRC, there are Barents Financial Mechanism (BFM) available for funding projects, which will contribute to developing the Barents Region as a unique Arctic region based on sustainability and people-to-people contacts. Transport and logistics is one focus area in BFM.

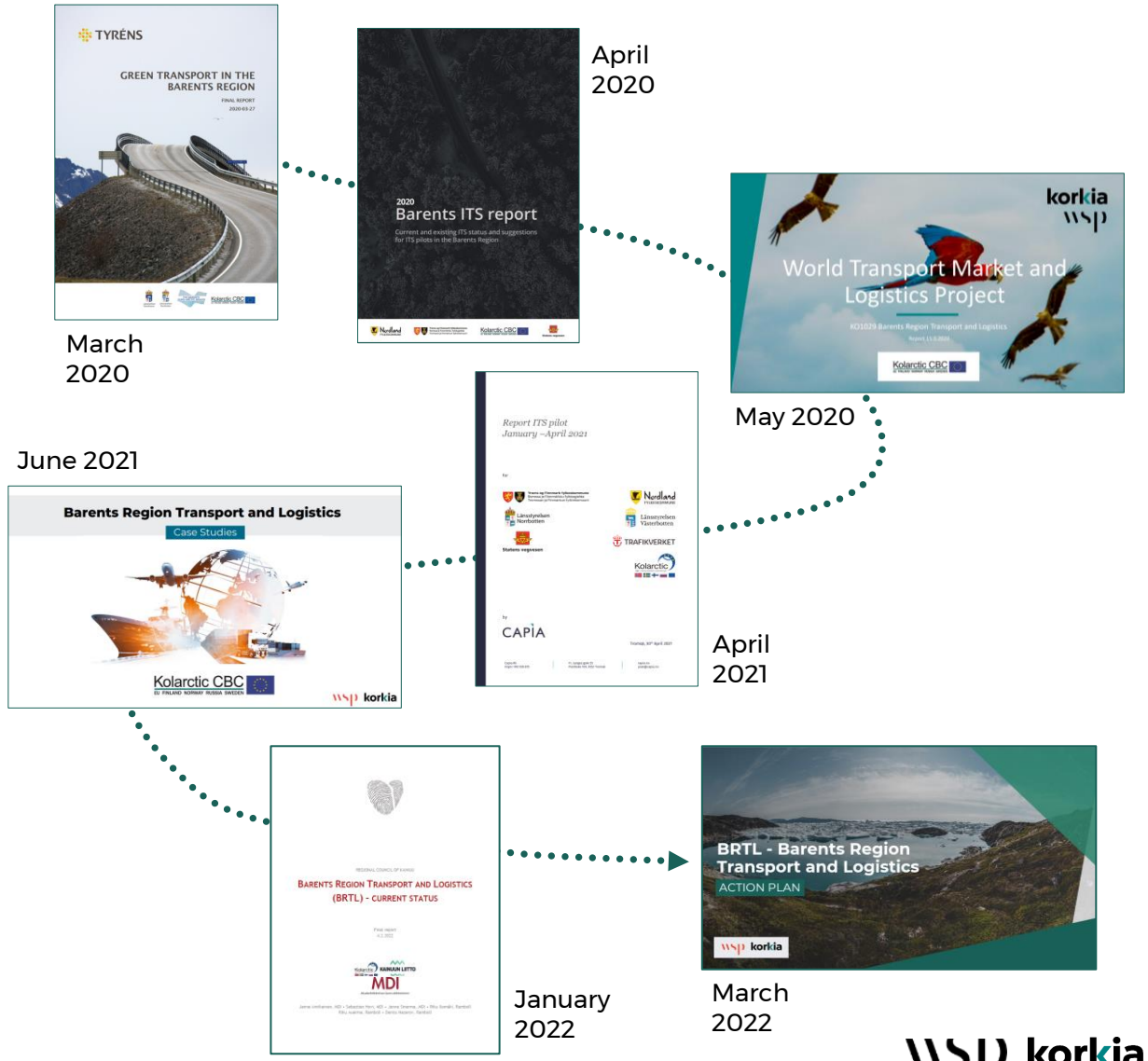
National and regional development

Difference of BEATA and BRC is, that BEATA is a national level cooperation forum and BRC is regional level cooperation forum in the Barents Region.

This BRTL Action Plan is directed to be a road map and action plan for regional level cooperation to raise up questions, development needs and regional special characteristics related to transport and logistics topics.

The Action Plan is based on series of projects produced during BRTL project (picture on the right). Most of development needs and proposed actions are scalable and possible to be utilized in other areas too, but these are also very important to secure vitality and positive development of the Barents Region as an Arctic area with some challenges in accessibility related approaches. It is important, that regions bring crucial development needs to national and EU level discussion and cooperate in development of cross-border transport corridor needs at regional level in the Barents Region.

BRTL project reports timeline



Barents Region Transport and Logistics (BRTL) project

The BRTL project is based on a fact, that usually transport plans are conducted by national levels and also regional levels, but without consolidation in a border-crossing way. Joint Barents Transport Plan (JBTP) has been a process to produce strategic level transport document and plan for the Barents Region. BRTL project focus on implementing national level transport plan at the regional level and regional cooperation. BRTL project serve as a platform to find actions for practical implementation of JBTP in the regions. Therefore, BRTL project is led by representatives of the BRWGTL group, which consist of representatives of regional authorities responsible for transport and logistics development.

Regional partners in the BRTL project are:

- Regional Council of Kainuu, FI (lead partner)
- Council of Oulu Region, FI
- Regional Council of North Karelia, FI
- Regional Council of Lapland, FI
- Troms og Finnmark Fylke, NO
- Nordland Fylke, NO
- Norway Public Roads Administration, NO
- Arkhangelsk-Avtodor, RU
- Transport Committee of Karelia, RU
- Auton. NGO "North-West Strategic Partnership", RU
- Norrbotten County, SE
- Västerbotten County, SE

The main target of the project is to increase competitivity of the Barents Region by improved accessibility and more cost-efficient and sustainable transport systems in the future. This is going to be fulfilled through removing bottlenecks and utilizing for example new ITS solutions and propulsion powers in a border-crossing cooperation.

World Transport Market and Logistics Project (2020)

World transport market and logistics forms both status of present transportation and logistics systems, and scenarios for the future. Status part examines transport infrastructure, transport flows in passenger and freight transport systems, industrial structure and development plans, national and other policies, and targets regarding the Arctic, accessibility and environment. The scenario part analyses industry trends and affecting signals in diverse business areas. Also, ITS, green transport and global warming are taken into account in the evaluation of future development.

This examination leads to three scenarios, which are:

1) Protective and company-driven Barents Region
2) Security conscious online society
3) Leading zero-carbon transportation hub

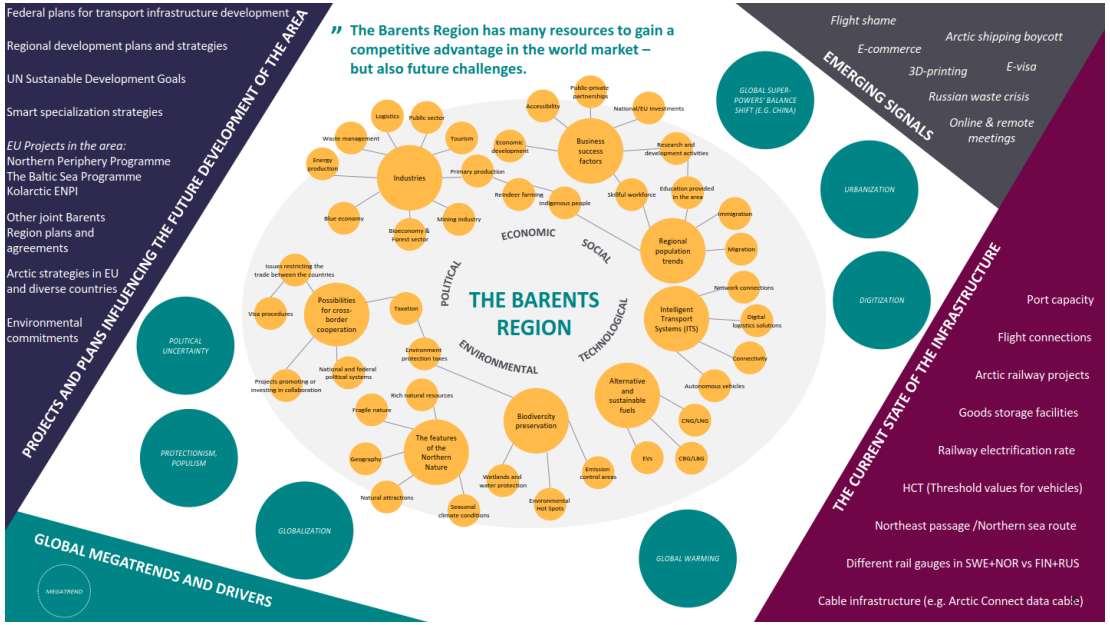
It is very presumable, that any of these scenarios are not going to totally realize, but all of these scenarios include features, which already exist and is visible in some extent in the Barents Region. Thus, scenario examination's idea is to emphasis some characteristics and not to describe exact future development.

The first scenario emphasises the business area where companies are performing their business operations and focusing on business opportunities in the region. The second one highlights data as one significant tool in minimizing distances to diverse markets and to increase attractiveness of the region.

The third one emphasises nature and cultural values. All of these are needed and a combination of these and changes in the emphasis of focus areas is easy to see for example in the arctic policies of the EU. EU's arctic policy or at least areas of emphasis has changed a lot between policies published 2016, 2019 and 2021. The focus has changed from business opportunities and utilization of natural resources to global warming, nature and cultural protection. All of these recognize the significance of very sensitive nature and culture characteristics. Also other commitments, as Polar code and Arctic investment protocol, emphasise the same focus.

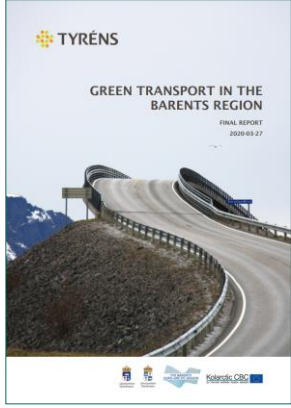
World transport market and logistics report highlights the following key success factors in the Barents Region:

- Maintenance and development of the present transport infrastructure
- Utilization of cross-border approaches – internationality is in the DNA and west-east transport connections are important in addition to national south-north connections and corridors
- Development of accessibility and data-based solutions in the northern circumstances. Potential of new transport routes by Northern Sea Route and rail container services have a great potential in the future and strengthens the Barents also as a logistics corridor in the world trade.



Megatrends, driving forces and transport & logistics operating environment as a system view.

Green Transport in the Barents Region (2020)



Green transport report examines the role of global warming and ratification of the Paris Agreement in development of the transport system in the Barents Region. All of the countries in the Barents Region have ratified the Paris Agreement and have strategies and targets for emission reductions regarding transport sector. In addition, EU has set targets for emission reductions by target years, but for example Finland has set more ambitious targets for faster emission reduction.

The strategies in Finland, Norway and Sweden include different levels of reducing travel need, modal shift and increasing the use of green vehicles and renewable fuels. Also electrification and development of charging infrastructure is in a key role. The Russian strategy is recognized to be more focused on adapting to climate change than reducing emissions. But during the case study, conducted after this green transport study, also Russian strategy is found to meet targets for new propulsion powers, development of more effective transport system and decreasing the travel need.

Green transport report looks into new service models as an opportunity to meet challenges in transport systems. For example mobility as a service (MaaS) –concept is recognized to be one solution to develop more efficient urban transport system.

Border-crossing transport systems and its development plans are one focus area in the examination. The other one is low-emission and zero-emission fuel infrastructure as a solution towards carbon neutral transport system. The report analyses also the fleet of diverse vehicles by the source of propulsion power. The report recognizes also the increasing need of rest areas for heavy trucks. Last part of examination and measures for green transport topics is a summary of green transport ITS projects in the Barents Region. For Example E8 Borealis project tested self-driving trucks and platooning between Kilpisjärvi in Finland and Skibotn in Norway. Co-project to Borealis, E8 Aurora in Muonio in Finland, had same ITS testing content and targets.

The green transport report focused on quite general level approaches and mainly propulsion powers of private cars and its distribution and charging networks. There are some references to heavy transport segment, but basically this is general level system description of green transport, which is examined in more detail later on case studies report.

Green transport report highlights the following recommendations:

1) Adopt a common definition of green transport
2) Raise the awareness of green transport
3) Use existing strategies to unify efforts in the Barents Region
4) Make electrification a top priority
5) Set common goals for deployment of green transport infrastructure
6) Implement public instruments that enable commercial infrastructure deployment
7) Include the outcome of these recommendations in JBTP
8) Monitor green transport measures

Fast-charging infrastructure in 2020. A lot of development has happened since especially in Northern part of Norway, Finland and Sweden. Latest charging infrastructure situation can be found here: https://latauskartta.fi/

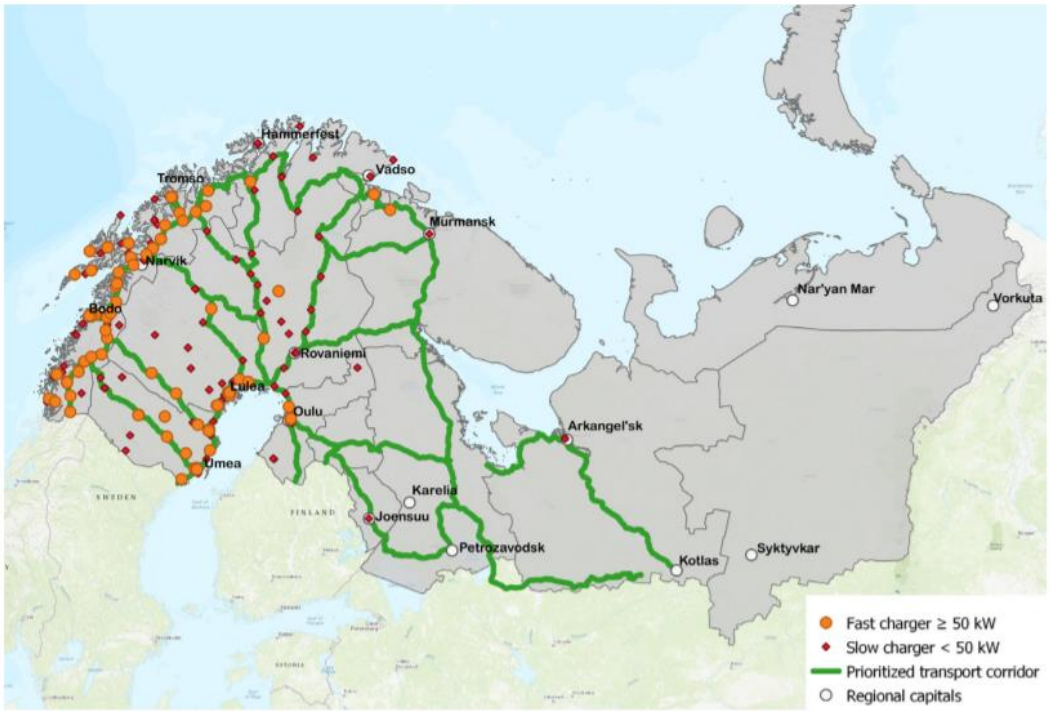
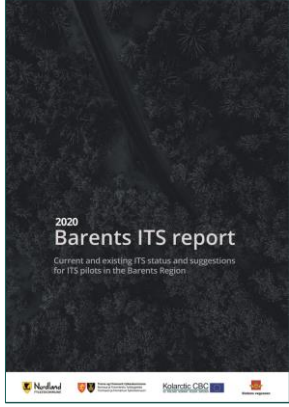


Figure 7. Public fast-charging infrastructure for EVs in Barents. Source: Illustration by Tyréns AB, processed information from Nobil (2020).

Barents ITS Report (2020)

Current and existing ITS status and suggestions for ITS pilots in the Barents Region



Starting-point in this ITS report is to recognize the geographical and transport system challenges in the Barents Region. The low traffic volumes, vast distances, often difficult terrain and highly variable environmental conditions are factors which make the transport system difficult to maintain cost-efficiently and at the same time enable growth of businesses. Cross-border transport is especially challenging due to varying jurisdictions in each country. Development of data and data platforms are highlighted as important premises for cross-border transport management. Also investments on these data-based systems should be in significant role in agendas and promotion of various working groups in the Barents Region.

The transport system in the Barents will offer very good environment for testing new transport solutions, transport management systems and advanced driver support or automated vehicles. Climate and environment is challenging enough to support development of new technologies for diverse circumstances and secondly due to characteristics, described above, Barents is an area, which has benefits of development of data systems and platforms in a broad sense. Therefore, ITS and smart mobility thinking should be included in regional transport plans and utilize cross-border approach as a basis of development of accessibility in the Barents Region.

ITS report conducts a comprehensive list of ITS projects and plans in the Barents Region. E8 Aurora and Borealis projects are recognized as very good examples of development of border-crossing transport chains and these are also the largest ITS projects in recent years. These projects encompass most of the existing Cooperative ITS (C-ITS) concepts applied in vulnerable infrastructure in challenging road conditions, and these projects produced many scalable results. From BRTL project perspective, this road border-crossing road connection comes into examination later on case studies report in modal shift, propulsion powers and ITS point of views. In addition to E8, ITS report recognizes many ITS projects to develop new technologies, new service concepts, utilize ITS in many user groups and ensure smoother border-crossing operations for example between Finland and Russia. Also CaaS – Corridor as a Service concept is presented here as an example of increasing transparency and speeding up supply chains in cross-border supply chains.

ITS report lists also general trends, which affect the Barents Region:

- Digitalization, autonomous and automated vehicles and vessels
- Connectivity/Cooperative ITS (C-ITS)
- Sustainable mobility (zero or low emission)
- Mobility as a Service (MaaS)

The transport strategy in the region should be based on continued zero or low-emission mobility, collaborative systems and more integrated and efficient data-sharing platforms. Also, safety and security are crucial factors to cross-border freight transport. The general focus should be on safety of drivers, other road users and vehicles.

ITS report raises up multimodality and ITS-development in other transport modes than road transport. Maritime ITS, electric aviation, remote control tower services, drone technologies and ERTMS (European Rail Traffic Management Systems) in rail transport system are examples of a wide variety of ITS related development opportunities to the Barents Region.

The largest ITS pilots in recent years have been the Aurora and Borealis projects on the E8 between Finland and Norway. These projects encompass most of the current Cooperative ITS (C-ITS) concepts – especially ITS for vulnerable infrastructure.

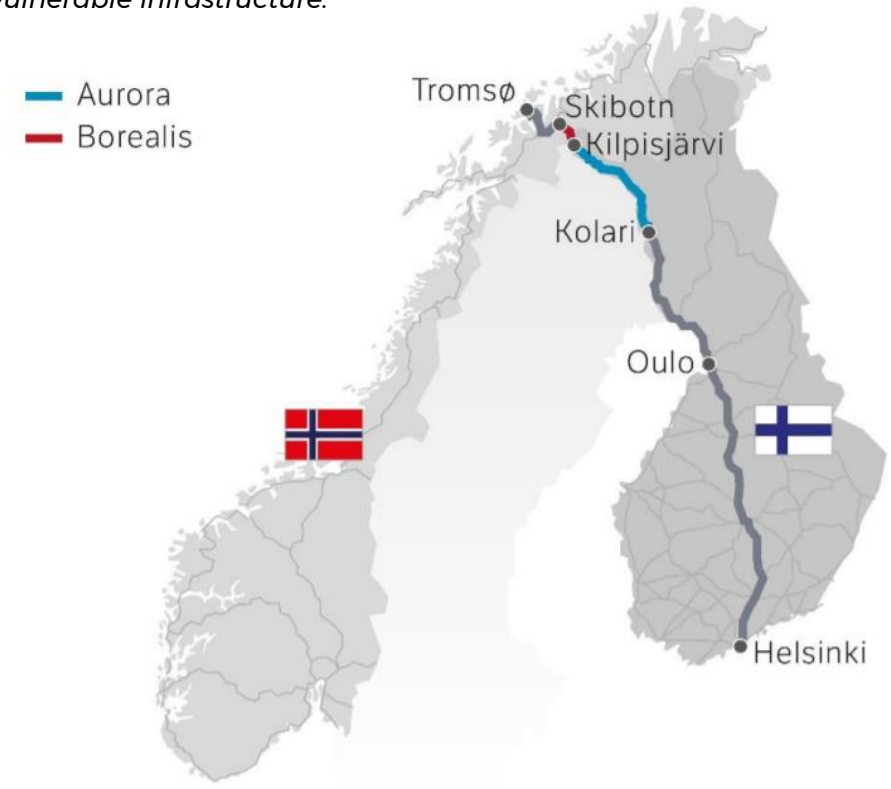


Figure 1© NPRA

Report ITS Pilot (2021)

ITS pilot wraps up a common problem which road haulage companies meet in their everyday operational planning. Truck drivers have strict rules and legislation regarding driving and rest times. In addition to there regulations, the cargo has schedules for delivering the transported products. Lack of safe resting areas for trucks is a problem that needs to be solved in the whole Barents Region. And this is a wider question than just Barents, thus scalable concepts and ideas to solve this acute topic would be very valuable. This pilot project focused on services on rest areas and supporting planning operations, but one critical problem is also availability of safe rest areas for heavy trucks with proper driver services.

ITS pilot report has ITS solutions as a main approach. This ITS pilot developed a system which automatically reports current and future availability of truck parking space and therefore offers preconditions to optimal planning of rest times for truck drivers. This is one key element for an efficient transport chain which also has an effect on reduction of CO2 emissions. The system includes information about services and weather conditions in the resting area.

This project conducted piloting in two locations, Troms and Finnmark in Norway and Norrbotten in Sweden. The developed system included camera and information technologies, and service concept was available through web-based system. In the future this could be offered by mobile applications.

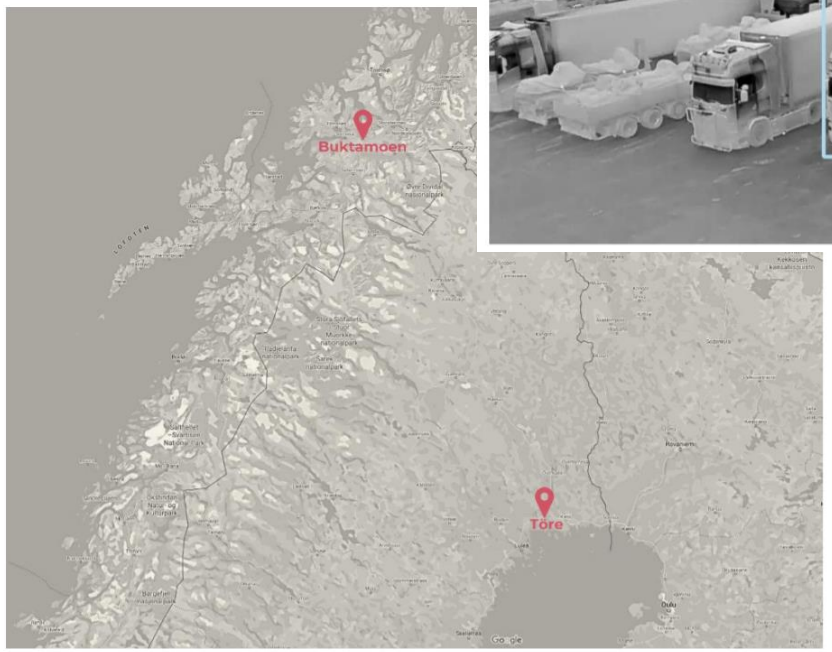
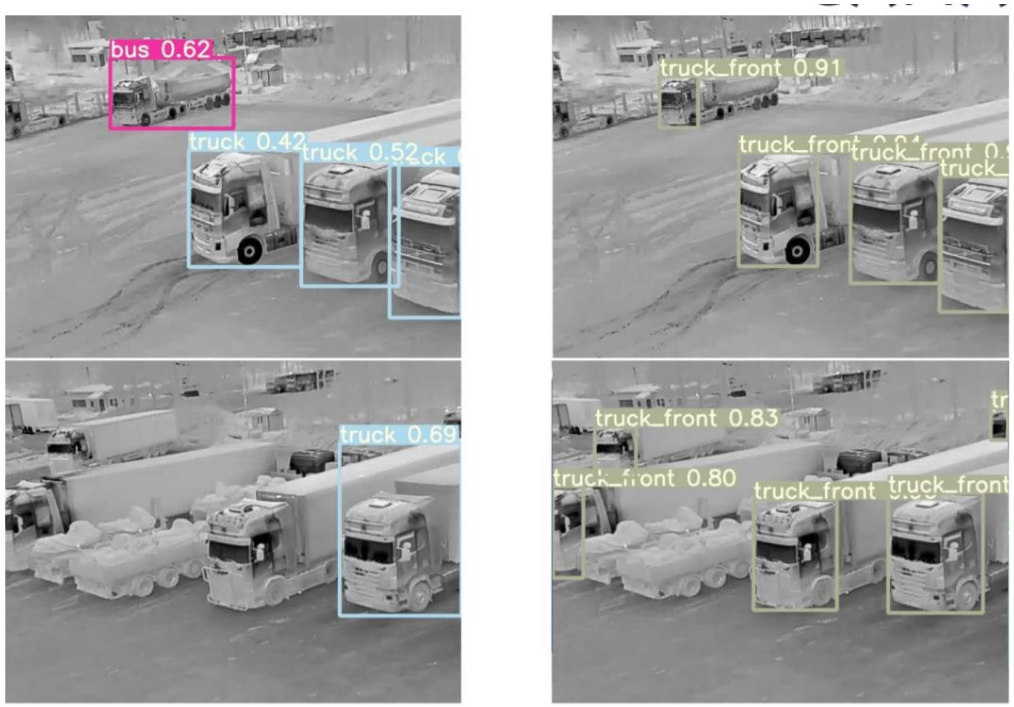


Figure 1. Location of the two rest areas in the pilot project.



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Barents Region Transport and Logistics – Case Studies (2021)

Case studies is an advanced part of the BRTL project, where chosen topics are taken into detailed analysis. This report reflects with EU strategies and financing programs regarding green deal and smart mobility. Also, national transport plans and strategies are examined regarding chosen topics.

At first case studies examines the impacts and opportunities of EU Green Deal and Smart Mobility strategies and correspondent strategies in Norway and Russia to the future of the Barents Region.

Second part consists of modal shift which includes examination of possibilities to construct multimodal transport chains in the Barents Region and therefore to find alternative transport solutions instead of long-distance road transport.

Third part examines the promotion of alternative energy sources in the transport system. This creates an operational overview of the supply network development of alternative energy sources. The coverage of the supply network will rely on the main road network, connected regions and border crossing traffic and transport chains.

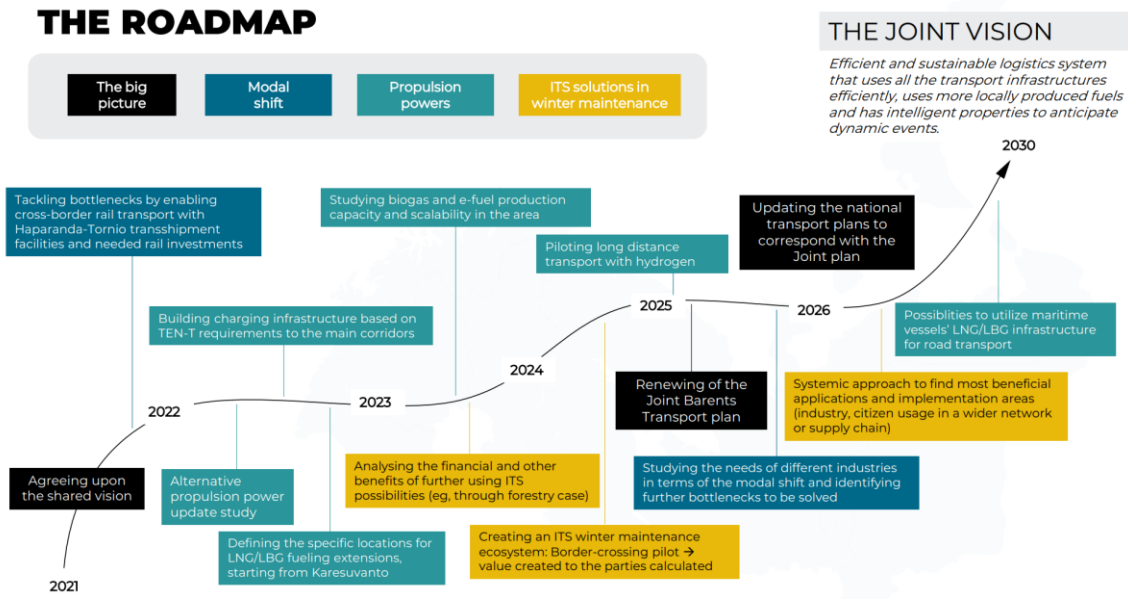
The fourth part is ITS and winter maintenance of transport infrastructure in which the measures of smart mobility to rationalize logistics systema are identified. Focus is on data gathering, refining and sharing. This leads to more predictable processes and better service level of transport infrastructure for various user groups. This part presents also technologies available and examines possibilities to utilize existing systems for better logistics conditions.

Final stage in case studies report is a Road map for promotion of smart and carbon neutral transport system in the Barents Region. At the same time case studies creates a system level approach to development of transport and logistics systems in the Barents Region by using modal shift opportunities, all the available propulsion powers and ITS solutions for smarter planning and operation models. In addition, case studies report is based on the fact, that the future of the economy, industrial structures and logistics depends on the accessibility of the Barents Region. Accessibility consist of physical accessibility and connectivity to diverse markets and regions. In addition, its sensitive nature and culture demands sustainability as a fundamental mindset. Therefore, all the five themes in this case study relate to improving connectivity and increasing sustainability of the Barents Region.

All the examinations conducted in the case studies report include both strategic system level analysis and connectivity to diverse businesses and geographical locations, and concrete case examinations from real solutions, transport chains and existing networks in the Barents Region. The future development and opportunities are also examined, for example production and usage of hydrogen and e-fuels.

Finally, case studies make a proposal for vision regarding the Barents Region transport system: ***Efficient and sustainable logistics system that uses all the transport infrastructures efficiently, uses more locally produced fuels and has intelligent properties to anticipate dynamic events.***

To achieve the above mentioned target, a joint direction is needed to get the most out of the efforts in the Barents Region. It needs information sharing, determination to align goals and coordinate actions. All the regions and countries in the Barents Region have their own national transport, energy and ITS plans and strategies. These are valuable basis in addition to EU strategies and funding mechanisms, but to improve accessibility and connectivity inside the Barents Region, a common vision, target-setting and actions are needed also in the Barents Region and between its stakeholders.



Transport plans in the Barents region countries – key highlights

RUSSIA

The Federal Road Agency (Rosavtodor) which works under the Ministry of transport of the Russian Federation (picture 1. below) has commissioned a federal transport strategy for the period up to 2030. This strategy also includes a description of the federal transport system and its priorities for 2030. The strategy also mentions the development of the Russian economy in the Barents / Euro-Arctic and Council of the Baltic Sea States (Rosavtodor, 2022).

National transport system development priorities (Rosavtodor, 2022):

- The formation of a single transport space in Russia based on the balanced development of an efficient transport infrastructure.
- Ensuring the availability, volume, and competitiveness of transport services for cargo owners in accordance with the needs of the innovative development of the country's economy.
- Ensuring the availability and quality of transport services for the population in accordance with social standards.
- Integration into the global transport space and implementation of the country's transit potential.
- Increasing the level of safety of the transport system.
- Reducing the harmful effects of transport on the environment.
- Development of transport equipment, technologies and information support.

***The regional transport** plans highlight the importance of seaports and integration into interregional and international transport corridors.*

FINLAND

The objectives in respect of the development of the transport system are the promotion of Finnish economic competitiveness, the prevention of climate change and the improvement of accessibility. The plan also highlights the importance of cooperation between stakeholders and the promotion of knowledge-based decision-making (Finnish Government 2021).

On the national level, the plan identifies the following changes which, it argues, may affect the transportation system:

- areal centralisation: population and workplaces centralise to the biggest urban areas
- climate change: increased use of alternative fuels
- technological development and digitalisation: challenges in cyber security and reliability
- Maas (Mobility as a service): more diverse range of services promoting more flexible and efficient services

In 2050 the Finnish transport system will be sustainable guaranteeing satisfactory accessibility for all people and businesses. Some aspects of the vision are however rather optimistic such as, "Finland has figured out new methods for financing transport investments". The main objectives of the national transport system are accessibility, sustainability and efficiency. Finland's national plan contains numerous objectives but few concrete measures to attain them.

***Regional transport plans** focus also on industrial competitiveness and cost-efficient industrial logistics chains. These plans highlight more the northern cross-border connections.*

SWEDEN

Sweden's national transport system plan determines the financial framework for county plans for the regional transport infrastructure. The goal of the plan is to build a robust, environmentally friendly and reliable transport infrastructure. The government has increased the level of funds related to the operation, maintenance and reinvestment of roads and railway networks. The national plan for the transport infrastructure describes the best ways to maintain and develop the national infrastructure.

The financial framework for measures relating to the transport infrastructure is SEK 799 billion for the period 2022-2033.

The plan includes the following themes:

- operation and maintenance of state roads and railways
- investment in state roads, railways and waterways
- measures to reduce the environmental impact of infrastructure building and usage
- support for municipalities to promote sustainable urban environment
- funds for innovations and research

***The regional transport plans** focus on similar themes but also underline east-west connections and regional competitiveness.*

NORWAY

Norway's national transport system plan analyses the future of transportation, the efficiency of the transport sector, financial resources, accessibility, good urban growth, freight transport, transport safety, climate and environment, social security in the transport sector and the investment programme. Overall, the report is rather broad, providing a holistic presentation of the future of transportation in Norway (Norway government 2021).

The goals of the national transport system plan are as follows:

- accessibility: better accessibility for people and goods across the whole country
- transport safety: reduce transport accidents in line with the zero vision
- climate and environment: reduce greenhouse gas emissions by moving towards the low-emissions society while also reducing other negative environmental impacts

Norway has doubled investments in the traffic sector, measured as share of the economy, since 2003. The level of public investments is high compared to that of many other countries. The plan period's financial framework is NOK 1200 billion. The national plan mentions the Barents region several times in respect of Barents watch and cooperation in developing corridors across national borders.

***The regional transport plans** follow the national plan but highlight some things as industrial green transformation, challenges in road conditions and food corridors.*

Source: MDI & Ramboll (2022) Barents Region Transport And Logistics(BRTL) – Current Status

BRTL project as a system level approach

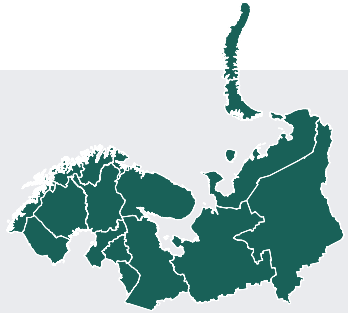
Main content Minor content

MAIN THEMES

Green transport in the Barents Region	Barents ITS report	World transport market and logistics	ITS Pilot	BRTL Case Studies	Current status of regional development plans in Barents	BRTL Action Plan

- Industries and operating environment regarding transportation and logistics
- Accessibility & cross-border supply chains
- Green transport, sustainability, new propulsion powers
- ITS and Smart mobility
- Arctic policies and transport plans in the Barents

2020 — 2021 — 2022



BARENTS REGION

Accessible
Attractive
Competitive
Sustainable
Smart

Vital and developing industrial ecosystems, including efficient and sustainable logistics, data infrastructure and connections, nature and culture values appreciative Arctic region.

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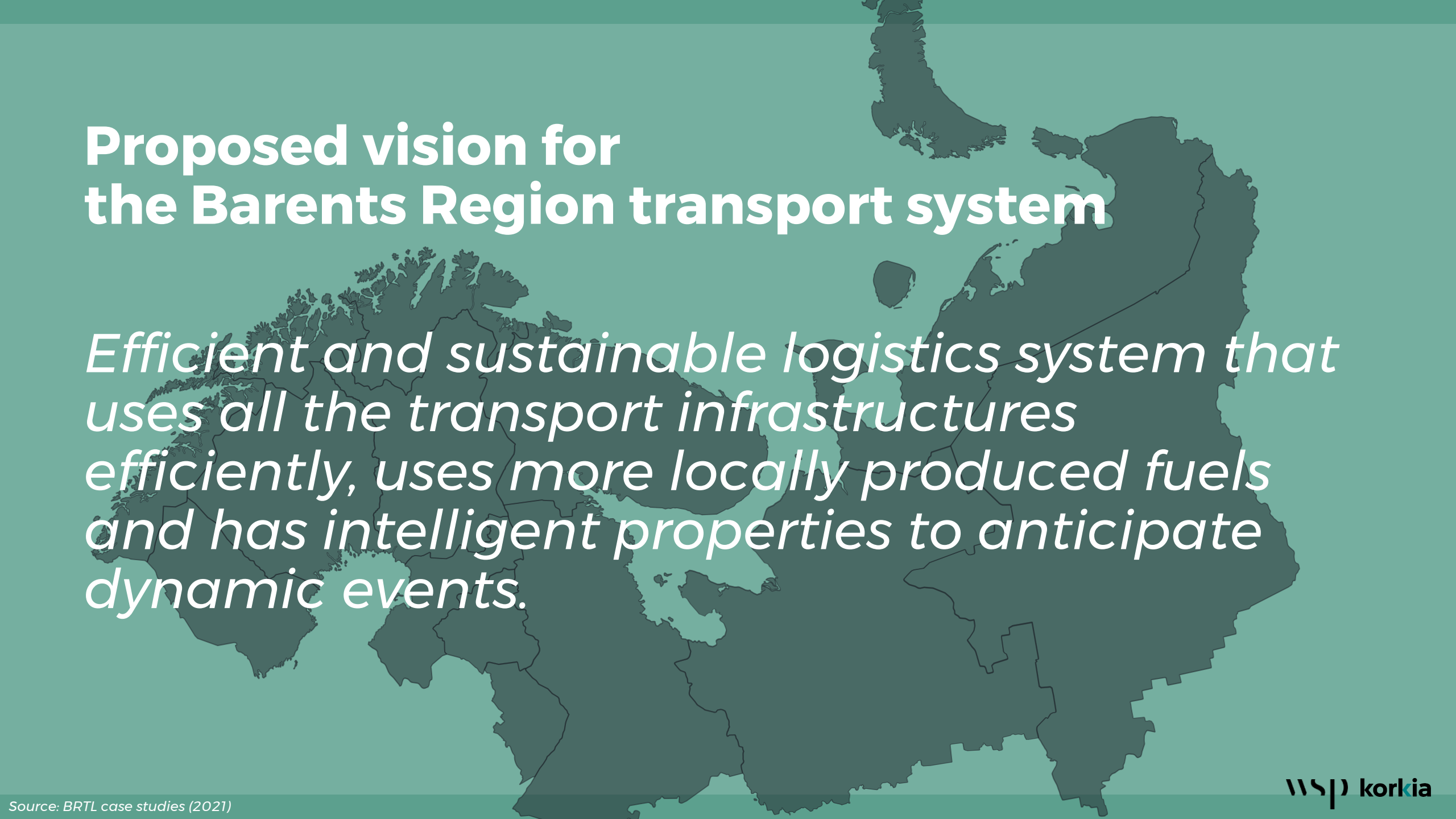
Proposed vision for the Barents Region transport system

Efficient and sustainable logistics system that uses all the transport infrastructures efficiently, uses more locally produced fuels and has intelligent properties to anticipate dynamic events.



Source: BRTL case studies (2021)

Challenges and ideas for further development

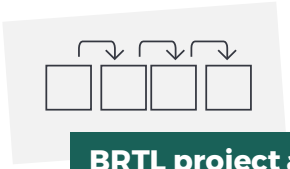
Organizing data collection of transport volumes

The World Transport Market and Logistics project started by collecting and analysing data of transport flows in the Barents Region. Transport flow analysis consisted both passenger and freight transport systems. This is very important starting point for examination of transport system in the Barents Region and future development is going to be built based on present status. However, the challenge is to find consistent data from each country and region in same form, and therefore amount of work to get status analysis covering the whole Barents Region is huge.

Official statistics presents volumes of diverse transport flows differently. For example, in Finland statistics shows number of passengers per year per rail connection and in Sweden statistics is based on number of trains. Freight transport models are also different in each countries. Sweden and Norway have excellent freight transport models and statistics available, and in Finland rail transport flows are easy to find per rail connection, but road freight transport statistics is not reliable in northern part of Finland. In Russia, there is lack of public data sources and requires a lot of contact with diverse stakeholders and combination of data sources.

It would be useful for further studies to keep updated data base regarding transport volumes both in passenger and freight transport systems in all the transport modes in the Barents Region. This would give valuable overview about arctic logistics, which has a lot of features characteristic to Northern conditions. Regional transport and logistics group could be the natural organization level to keep this data base.

Same database could include also valid national transport plans and strategies. These documents are quite easy to find, because these are driven by Transport Ministries and Transport Agencies in each country. However, these transport plans relate to operations models and future development of transport systems and therefore belong together with volume data.



BRTL project as a series of projects

The whole BRTL project consists of consistently progressive process. It starts by analysing logistics market, transport flows, arctic policies and forming alternative scenarios for future development. At the same time BRTL project produced status analysis of green transport and ITS. Thus, year 2020 was focused on constructing solid base for concrete and detailed analysis and piloting towards future development. Year 2021 has been time to conduct concrete pilots and case studies, which leads to action plan for regional working groups to promote special characteristics and opportunities of logistics in the Barents Region and to develop logistics system towards smart and carbon neutral future.

Summary

BRTL project produces a system level approach to the development of accessibility, energy efficiency and smartness in the Barents Area. This supports positive development of vitality and competitivity of the region and its business clusters by utilizing smart solutions. This system level approach is in line with national transport plans and also targets of the funding instruments in the EU.

Key findings from the main themes of the BRTL project

Industries and operating environment regarding transportation and logistics

- The Barents Region is the area of industries, huge investment potential, logistics corridors with growing transport volumes, and sensible nature and cultures to take into consideration. There are a lot of mineral and energy sources, and investments to industrial value chains including the transport system, which is one basis for development of industries.
- Border crossing transport flows and infrastructure analysis is a key in creating consistent Barents Region from logistics market point of view.
- Sustainability must be integrated in business processes especially in the Barents Region to meet challenging demands of the sensible Arctic area.
- The future Arctic strategies are more focused on green technologies, blue economy, sustainable industrial refining chains and utilization of nature and climate in tourism business instead of growing oil and gas productions.
- Digitalization as fast strengthening phenomena is going to be more significant in business models, investments and also as a tool to decrease accessibility challenges of peripheral areas.

Accessibility, cross-border supply chains and modal shift

- Utilization of cross-border approaches is vital as internationality is in the DNA of the Barents region. This should be concretized with piloting of intelligent cross-border freight and creating new corridor concepts
- Development of accessibility and digital traffic in northern circumstances
- Modal shift is closely connected with cross-border supply chains as efficiency and carbon neutrality are pursued. It is an important topic in the Barents region but is to be noted that as the region is vast, many transport flows are already operated with train or sea transport. Nonetheless, there are still improvements to be done e.g., between the Finnish and Swedish border regarding rail infrastructure.
- Regarding modal shift, it was found that it should not be pursued for the sake of it. It must be seen as a holistic transport system development work that improves logistical competitivity and brings added value to the transport customers. Modal shift is not to be exclusively regarded as an environmental action. It requires infrastructure investments especially in critical nodes of multimodal infrastructure. These are often located on borders of the countries.

Green transport, sustainability, new propulsion powers

- Future propulsion powers in passenger transport will likely be dominated by battery electricity and renewable fuels. The EV penetration rate in Barents might be slower compared to other regions based on the geographical attributes. However, charging infrastructure is developing rapidly and e.g., Norway already has a comprehensive charging infrastructure in the whole nation.
- For heavy vehicles, the situation is somewhat different. As the rail network is sparse in the north, road transport is dominant, and the distances are longer than usual. This creates challenges for battery electricity. E-fuel infrastructure could be a future-proof solution for Barents as there are plenty of resources available and infrastructure at place.
- New investments need careful consideration as the energy sector is in a rapidly changing state. Actions of vehicle manufacturers give signals to follow
- Improving alternative fuel infrastructure along main corridors will enable fleet development

Key findings from the main themes of the BRTL project

Intelligent Transport Systems and Smart mobility

- ITS is a broad topic that can be utilized to improve transport system efficiency in the Barents region
- In road transport, winter maintenance should be linked to the structural condition of the roads so that road age longevity can be improved.
- Barents road network is long and sparse which creates the need to use winter maintenance resources efficiently. Here ITS can be extremely useful to focus maintenance on recognized locations. The service can also be used to improve transport chain forecasting
- Cross-border transport chains require cross-border winter maintenance
- Utilizing the Aurora and Borealis ITS road sections in Norway and Finland for living lab piloting

Arctic policies and transport plans in the Barents

- EU ‘s Arctic strategy highlights EU’s strategic interest in playing a key role in the Arctic area. Priority areas are climate change and safeguarding the Arctic environment, sustainable development in and around the Arctic, and international cooperation on Arctic issues.
- Finland’s Arctic Strategy emphasise four priority topics: Climate change, residents, knowledge development, and infrastructure and logistics.
- Norway’s Arctic Strategy determines priority areas, which are: International cooperation, business development, knowledge development, infrastructure, and environmental protection and emergency preparedness.
- Russia ‘s Arctic Policy determine basic principles to 2035. Main approach is, that the Arctic is the main resource base for the Russian’s economic growth. It emphasise also developing Northern Sea Route (NSR) a globally competitive national transport corridor.
- Sweden’s Strategy for the Arctic have priorities, which relates to climate and environment, economic development and human dimension. Sweden published also the New Swedish Environmental Policy for the Arctic to show the state’s continued interest in the Arctic Region.

Lessons to learn from BRTL project

Feedback was collected in the country-specific workshops from both the steering group and different stakeholders.

Majority of the work was done during the pandemic, which resulted in the working meetings being organized in Teams. This of course had an impact on the implementation of the workshops and other meetings in the project. Online-meetings were, however, considered to be active and productive although face-to-face interactions were missed.

Positive feedback from the project and ways of working

- There were identified synergies with other projects., and it was an advantage that information from existing projects could be utilized.
- Communication and participation in the meetings was good even if organized in Teams and other virtual platforms, such as Mural.
- Working packages were useful with relevant and topical themes.
- Different topics of responsibility per country have meant that all project participants have had to be involved.
- Possibility to communicate with other partners from other countries. In addition, communication was efficient and easy.

Identified challenges in the project with ways of working

- Live-events were missed and thus communication and interaction was not as efficient as it could have been in live-meetings.
  - → **Remember to keep the cameras on while on Teams.**
- Including all relevant parties was not optimal. On the other hand, it was stated that some stakeholders would have wanted to participate in workshops in earlier phases as well.
- More information-sharing and communication actions were hoped especially by the stakeholders outside the core team.
- It is important to ensure that the outcomes and projects' reports will be distributed to relevant organizations. Moreover, it is essential that relevant parties and stakeholders are included in the working meetings and/or comment rounds.
  - → **How to ensure that all relevant parties are informed about the projects? And how to ensure that all relevant parties are included in the working groups / workshops / comment rounds?**
- Coherent link between strategies and projects is needed and more concrete actions were hoped.
  - → **Define a clear goal aligned with country strategies in the beginning and start to work towards it.**
- Prioritization was seen as a challenge. This might also include personal prioritization, but also a common challenge with a project with multiple stakeholders.
  - → **How to ensure that only relevant parties are included into working groups / workshops / comment rounds?**
- Lack of knowledge of investments.
- More ambition is needed.
- Available information in each country. In some cases, publicly available information was not updated.
  - → **Steering group interviews in the beginning of the project could be one solution to ensure that relevant persons are interviewed during the project and up-to-date information is used.**

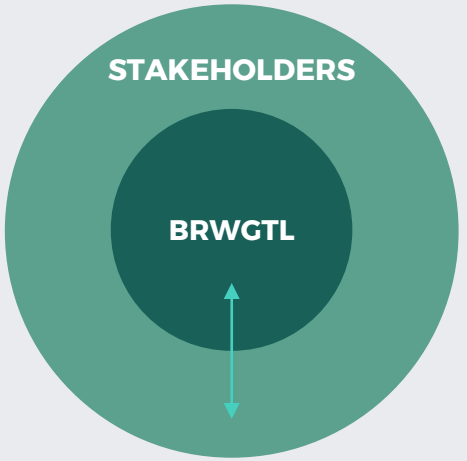
SUMMARY

Efficient communication between working group and stakeholders was identified to be one key challenge.

To tackle this, it is crucial to distribute information to stakeholders and to include them into working when applicable.

Some stakeholders saw prioritizations as an issue. Sharing all the documents and information with everybody isn't thus maybe the most optimal solution.

Clear link between strategies and projects is needed to ensure that projects are relevant and that organizations and stakeholders can prioritize the work.



Communication with other entities

Chapter 2

Themes for Action Plan

Understanding the role of BRWGTL

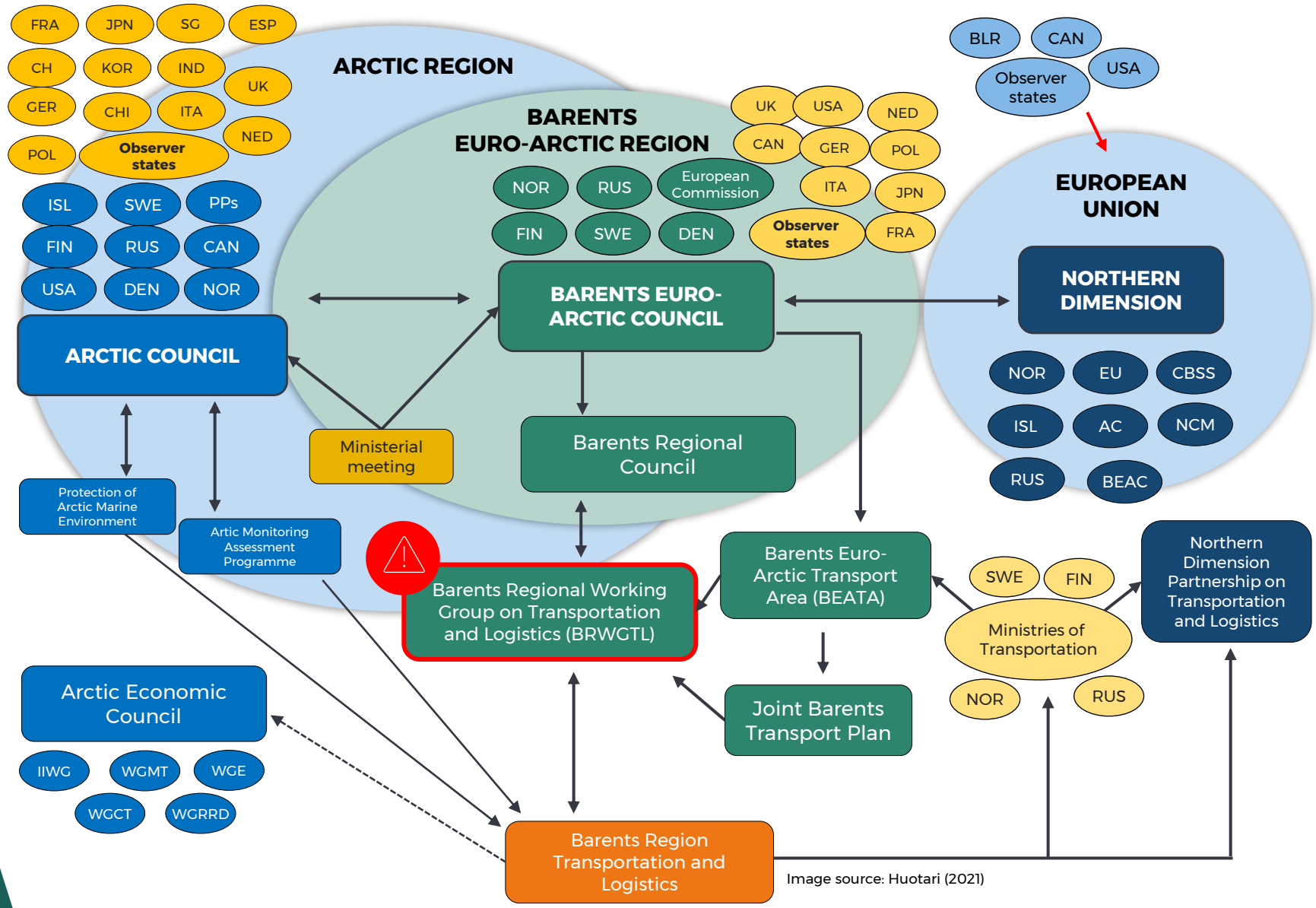


Image source: Huotari (2021)

IMPORTANT

Barents Regional Working Group on Transportation and Logistics has an important role for making sure the Barents region transport and logistics development is coherent and the region is recognized as an important part of each country's national transport plans. If BRWGTL is going to be integrated with BEATA, it is essential to secure an active role of regions to raise up questions, development needs and regional special characteristics related to transport and logistics topics. It is important that economic structure and investment plans are taken into consideration in infrastructure investment decisions. To succeed, it's vital to follow and understand development in neighbour regions in a cross-border way. Regional working group has the understanding to link national level development to Barents wide development and has also understanding about the benefits of developing actively transport and logistics in the Barents region.

Without organized regional activity there is a risk, that understanding and coordination of transport system development is not in line within each country in the Barents Region. This may lead to suboptimization situations in Cross-border transport connections. At national level traffic volumes are main driving forces in decision making instead of significance to industries and commerce. Although, there is a lot of future potential in many business areas, there is risk that these special characteristics of the regions remain in minor role in decision-making in infrastructure development. The Barents Region is a sparsely populated are with large distances, and the traditional assessment methodologies do not give desired results.

Barents Euro-Arctic Transport Area, BEATA

What is BEATA and JBTP?

BEATA the Barents Euro-Arctic Transport Area cooperation was established between the ministers of transport of Norway, Sweden, Finland and Russia in May 1998. In 2013 BEATA set up an expert working group to prepare Joint Barents Transport Plan (JBTP). This has been an important decision to set up on objective to develop an efficient transport system in the Barents Region with good internal connectivity between the Barents countries and with good external links to world markets. The transport system should support development of the region and create new opportunities to diverse industries. Also tourism is recognized as a very important business area which has a lot of potential to grow after present COVID-situation.

BRWGTL

Regional working group on transport and logistics (BRWGTL) and Joint Working Group on Tourism (JWGT) are used as expert groups in JBTP work.

JBTP contents

JBTP is a significant document as it examines, analyses and promotes opportunities to develop accessibility in the Barents Region. The High North area is a subject of growing interest as it has vast natural resources. The utilization of these resources needs good accessibility in both freight and passenger transport systems. JBTP collects information on traffic and transport flows, main corridors, bottlenecks of these corridors, development needs and development of business environment in the Barents Region. JBTP has been updated three times after the first publication in 2013. Revision years are 2015, 2016 and 2019. Actually, JPTP needs regular updating as transport flows are changing due to business process and supply chain development. New transport systems are developing and transport volumes growing as Northern Sea Route and container trains between Europe and Asia are being used more and more.

New driving forces of industries and transport sector are for example sustainability and ITS that affect target-setting of development processes and decision-making.

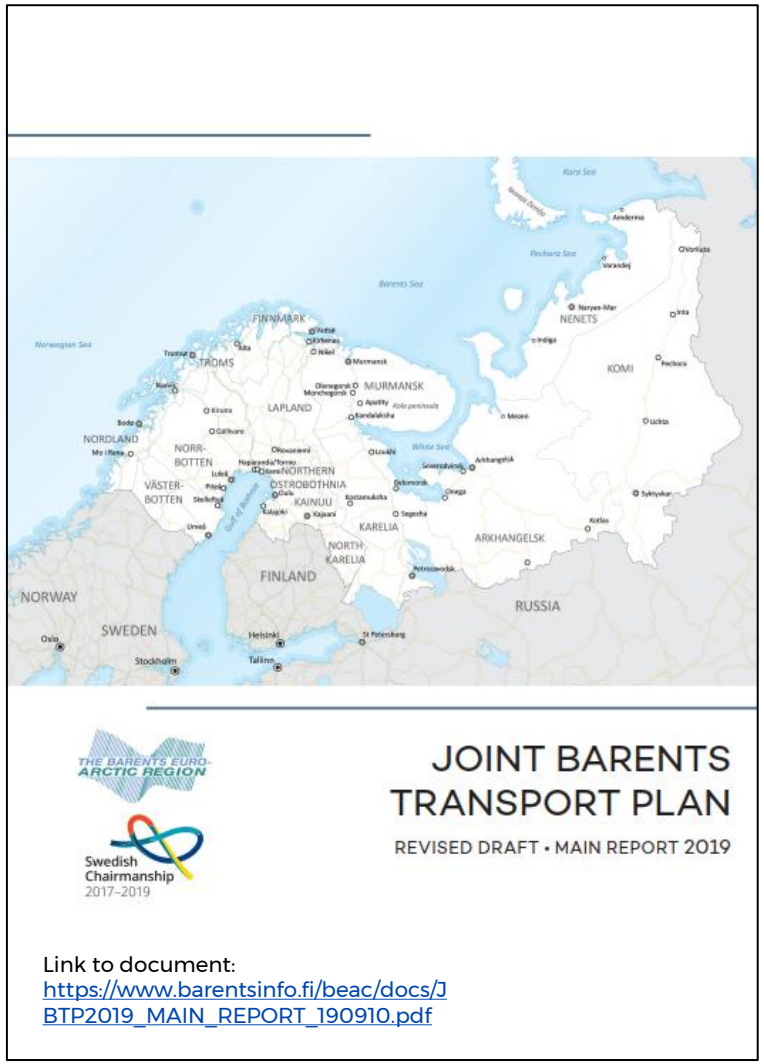
BRTL

BRTL project, as a series of projects, has focused on these approaches from political and strategic level examinations to practical solutions. All the projects conducted in this BRTL process are in line with targets of JBTP. BRTL produce detailed analysis in many approaches focused on development of cross-border transport systems and infrastructure, reduction of greenhouse gases in supply chains, improvement of accessibility in the Barents Region and effective utilization of ITS to improve road maintenance and also road safety. These topics are also in line with EU green deal and smart mobility strategies and with national long-term transport plans.

The Joint Barents Transport Plan focuses on border-crossing transport connections and flows.

The recommendations for JBTP can be summarized as follows:

1. Increase the knowledge about the transport flows and transport needs in the Barents Region.
2. Create conditions for the transport system users to reduce emissions of greenhouse gases.
3. Increase road safety and safety at sea.
4. Create a more efficient transport system and reduce border crossing obstacles.



Link to document:
https://www.barentsinfo.fi/beac/docs/JBTP2019_MAIN_REPORT_190910.pdf

THEME 1

Focus on industrial ecosystems development

Background

Many industrial sectors are in a strong development and growth phase in the Barents. These have direct effects on material flows both regionally and in a wider perspective. These also affect the extensions of workforce catchment areas. Cross-border mobility is going to increase a lot especially between Finland, Norway and Sweden. This perspective forms a challenge for the region: how to attract new workforce to support the growth of industrial operations.

Business environment is the driver for the development, whereas regional decision-making is supervision of the interests. Consolidation of these two approaches is an important success factor for the region.

Battery industry

Nordic green battery belt is an example of an ecosystem, which is strongly growing and creates a lot of opportunities. The ecosystem combines diverse stages of battery production, mining industries and logistics solutions to reach global battery markets. Above all, traffic and transport sector, and many industries need energy storages in growing extent. Thus, we are going to see a strong growth in this business area.

Other industries

Metal industries is a significant business sector in the whole Barents Region. It generates large transport volumes and uses all the transport modes. Development towards carbon neutral steel production is a good example of renewing metal industrial production processes. Circular economy is also growing and becoming essential part of productions of many industries. Bioproduction (forest industries) and energy production are investing heavily in the Barents Region and are also drivers of developing and modernizing industrial ecosystems.

Blue economy

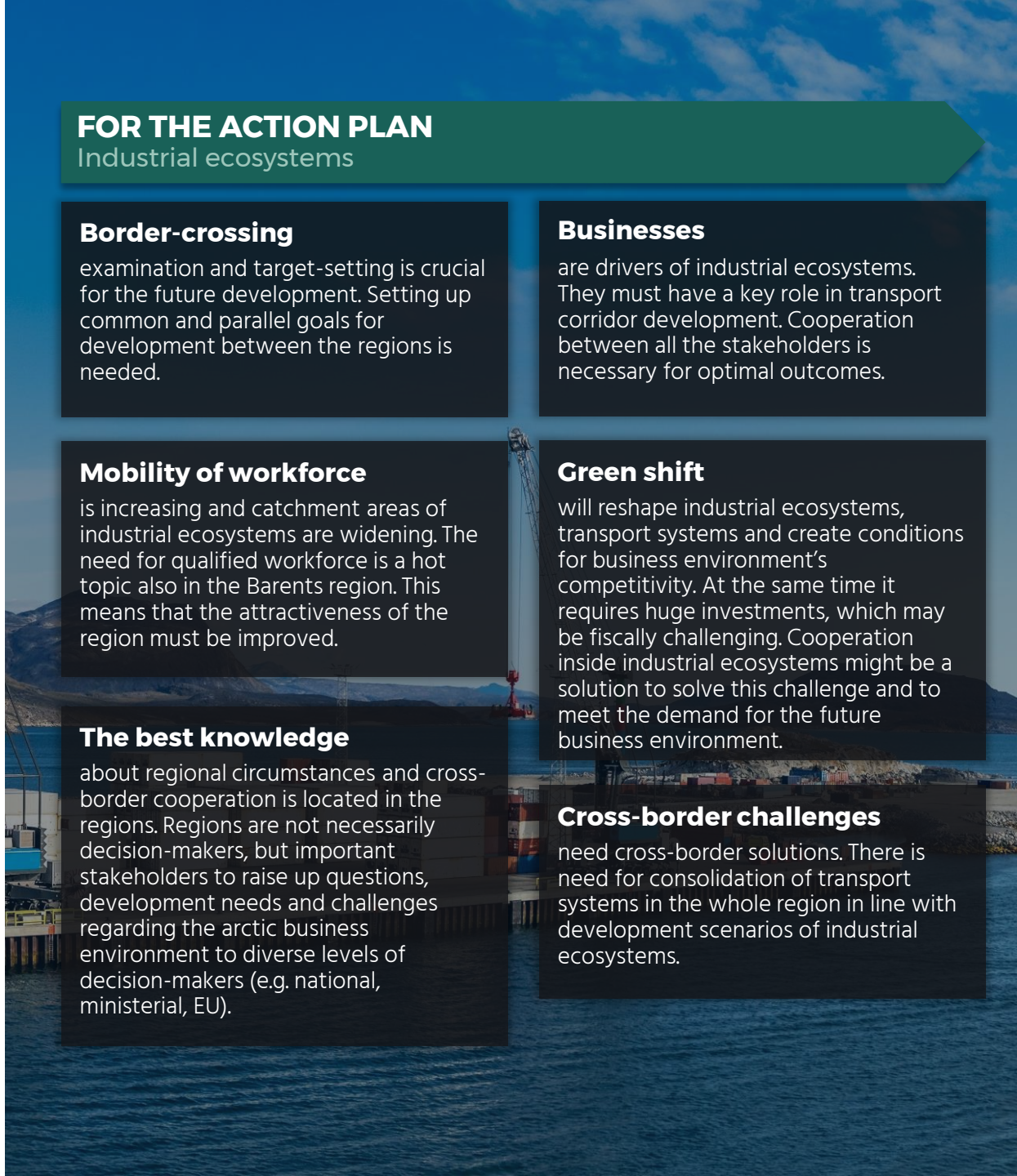
Blue economy ecosystem is developing rapidly and has to be taken into account in the development of transport corridors. Fish processing and seafood production have typically large transport volumes, but sea-based products in pharmacy and cosmetology are examples of blue economy's new potential.

New sea transport corridors, such as Northern Sea Route with extensive logistics solutions and transport corridors, are included in blue economy development. Combining green shift, increased blue economy demand, energy production is sea areas and increasing sea transport volumes needs detailed planning.

Conclusion

Development of the industrial structure and related transport corridors needs consolidation and cooperation of all the stakeholders. Industrial ecosystems have significant transport volumes, increasing demand for workforce and new forms of business processes.

The green shift will require many investments and is going to be fiscally challenging. The challenge is that at the same time greening the transport system increases the costs, at least temporarily. However, this development builds industrial future of the Barents Region as must be done.



FOR THE ACTION PLAN
Industrial ecosystems

Border-crossing
examination and target-setting is crucial for the future development. Setting up common and parallel goals for development between the regions is needed.

Businesses
are drivers of industrial ecosystems. They must have a key role in transport corridor development. Cooperation between all the stakeholders is necessary for optimal outcomes.

Mobility of workforce
is increasing and catchment areas of industrial ecosystems are widening. The need for qualified workforce is a hot topic also in the Barents region. This means that the attractiveness of the region must be improved.

Green shift
will reshape industrial ecosystems, transport systems and create conditions for business environment's competitivity. At the same time it requires huge investments, which may be fiscally challenging. Cooperation inside industrial ecosystems might be a solution to solve this challenge and to meet the demand for the future business environment.

The best knowledge
about regional circumstances and cross-border cooperation is located in the regions. Regions are not necessarily decision-makers, but important stakeholders to raise up questions, development needs and challenges regarding the arctic business environment to diverse levels of decision-makers (e.g. national, ministerial, EU).

Cross-border challenges
need cross-border solutions. There is need for consolidation of transport systems in the whole region in line with development scenarios of industrial ecosystems.

THEME 2 Transport corridor development

Background

BRTL Case Studies report raises up several transport corridor related topics, modal shift, propulsion powers and ITS in winter maintenance. Development of cross-border transport corridors in all the transport modes is a key topic regarding the industrial development and vitality in the Barents Region.

Cross-border corridors

Extension of TEN-T core corridors to the north on both sides of the Swedish and Finnish border in Tornio-Haparanda is an important opportunity for transport system development. This concept includes development of cross-border facilities between Finland and Sweden, and it extends all the way to Narvik in Norway. This promotes a new rail transport concept that would combine Finnish rail transport system with Swedish railway network in an efficient way. Swedish and Norwegian rail transport systems are already connected with each other as well as Finnish and Russian rail transport systems. Thus, there are rail corridors available for transportation needs east-westbound from Atlantic Ocean to Russia and Asia, and north-southbound between Barents and Central Europe. Availability of a wide variety of rail wagons makes this a valid opportunity to increase rail transport in the area.

Accessibility

Accessibility is a vital topic and main challenge for the Barents Region that has long distances and is sparsely populated. On the other hand, a lot of interest and business potential is addressed towards the Arctic. Many regions in the Barents are experiencing positive development in industrial ecosystems. This demands increasing focus on development of both passenger and freight transport systems.

Air connections are of great importance for accessibility. Electric aviation is an interesting opportunity to offer border-crossing short distance connections with smaller fleet. As tourism is a significant industrial segment in the Barents Region, cross-border thinking is important to provide proper services.

Tourism and its concepts are based on accessibility. However, the basis for transport service demand is formed by residents and businesses, and so is the supply based on this continuous demand. Tourism is often seasonal and brings more capacity to the transport system. Visit Arctic Europe (VAE) is a good example of developing cross- border passenger transport concepts and increasing regional cooperation in tourism.

Green transport

Green transport consists of utilization of energy efficient transport solutions, various propulsion powers (biofuels, electricity, hydrogen, e-fuels) and digitalization to make transport system more efficient. In addition, multimodality is an important tool to form efficient supply chains by using the best features of all the transport modes. Therefore, all the transport systems should offer efficient border-crossing connections and operation models in the Barents Region.

Green transport piloting is recognized as an important topic in the Barents Region. Piloting could focus on industrial ecosystem's supply chains such as bioproduction supply chains. For example, NiiKa corridor (Niirala-Kajaani) is a transport corridor which includes timber harvesting and transport from forest to production and from production to markets. Examination of energy consumption and CO2 emissions in different parts of supply chains could give an extensive overview and scalable results to utilize in other business areas as well.

ITS solutions

ITS in winter maintenance provides system level opportunities to focus winter maintenance operations e.g., according to the needs of industrial material flows in a wide area with long distances. Good winter driving circumstances improve energy efficiency and reduce emissions caused by heavy vehicles.

ITS pilot is included in a series of studies in the BRTL project. It is a good example of a concrete action that is related to a wider problem setting in the road freight transport system. Building, managing and tracking truck driver rest areas has been a challenging topic to solve. Simultaneously, more versatile offering of propulsion powers from biofuels to high-power charging infrastructure is coming and is also a requirement to implement green transport targets. This provides a potential opportunity to form energy hubs for heavy vehicles and at the same time offer safe rest area services for vehicles and drivers. Conceptual approach is recommended to solve both future challenges at the same time.

FOR THE ACTION PLAN
Transport corridors

JBTP corridors
are a good basis for development of transport corridors. Multimodality, connected rail transport systems, cross-border infrastructure and availability of all the transport modes are important approaches.

Bottlenecks
are not always related to physical infrastructure. Some of the challenges may be solved by better communication, data, ITS and cooperation.

Green transport
and ITS piloting as a basis for development of conceptual transport solutions.

Accessibility
of the regions in both passenger and freight transport systems is a key characteristics to solve. What kind of transport system we have in the Barents Region and in global logistics after the green revolution?

THEME 3 Platforms for information sharing

Background

Information sharing is recognized as one of the most important characteristics in the Barents Region. It is the basis for regional cooperation. Seamless communication is a precondition in many development processes.

Communication needs

Regarding accessibility and border-crossing transportation systems, communication between regions to consolidate targets and operation models is vital. Green shift in all of the business areas including transportation industry is going to change business concepts and emphasize efficiency in all stages of supply chains. Digitalization brings tools to make operation models more efficient in many ways. To consolidate various development targets and plans, cooperation and communication on regional level is extremely important. Regions have the best knowledge on regional characteristics and challenges which are important to communicate to national and EU levels as well.

Arctic think-tank

Arctic think-tank is an idea to form a broad discussion forum for various stakeholders. This forum would enable wider conceptual approaches in different focus areas. Arctic think-tank would form a basis for discussion and development processes which leads to accessible, attractive, competitive, sustainable and smart Barents Region, where each region has its own strengths.

Eyes on Barents

The Arctic area has very sensitive nature and culture values. However, it has also vital and developing industrial ecosystems including efficient and sustainable logistics, data infrastructure and connections. The Barents Region meets growing interests as a business potential and in some extent, future markets may move towards north. Arctic think-tank is a discussion and cooperation platform to raise up right questions, challenges and regional characteristics in future development.

Wide variety of research and education and universities are strengths in the Barents Region. Each country has universities in the Arctic region and combined with special circumstances this forms solid basis for arctic think-tank idea.

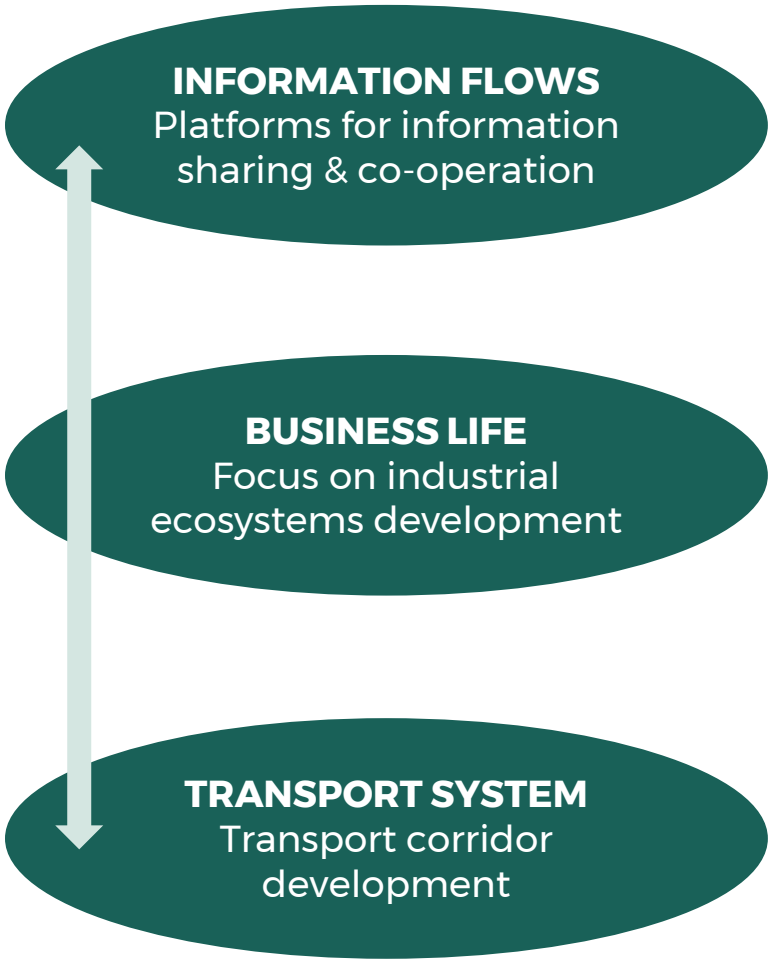
FOR THE ACTION PLAN
Information sharing

Activating cross-border cooperation
and communication in the Barents Region. Effective utilization of Barents and Arctic organizational structures.

Various stakeholders should
actively participate in development cooperation.

Arctic think-tank
is an opportunity to include science and education in information sharing and to accelerate knowledge-based development to meet the new levels of ambition.

Framework for the Action Plan



FUNCTION
- Information sharing between regions
- Innovation, discussion and cooperative development

STAKEHOLDERS
- Regional and national organizations
- Ministry level and international cooperation
- Industry, trade and logistics operators

FUNCTION
- Carbon neutral production and supply chains
- Connections between stakeholders in the value chains

STAKEHOLDERS
- Industry, trade and logistics operators
- Regional organizations as a promoter

FUNCTION
- Carbon neutral transport chains
- Border-crossing logistics
- Preconditions for export of the business life
- Transport infrastructure development
- Propulsion power infrastructure

STAKEHOLDERS
- Logistics operators
- Transport and infrastructure agencies
- Regional organizations as a promoter

Chapter 3

Action Plan Proposal for Regional Cooperation

Highlights from BRTL projects and workshops 1/3

Development of industrial ecosystems

Key questions

- *How will the development of industrial clusters impact the transport system and the demand for transport in the Barents region?*
- *How will traditional industries cooperate with new green industries?*
- *Will they together change the northern populations? Or the demand for transport and the transport system itself?*
- *Are these industrial ecosystems using or competing with same resources, workforce and infrastructure? Or is it possible to find new competitive factors in cooperation of industrial ecosystems?*

Key themes and actions

Blue economy growth

- Increased demand for sustainable food, natural resources and renewable energy will be the main drivers for further growth
- An export industry continuously growing

Battery belt development

- Nordic Battery Belt

Mining industry

- Growth induced by battery industry

Forestry harvesting and bioproduction

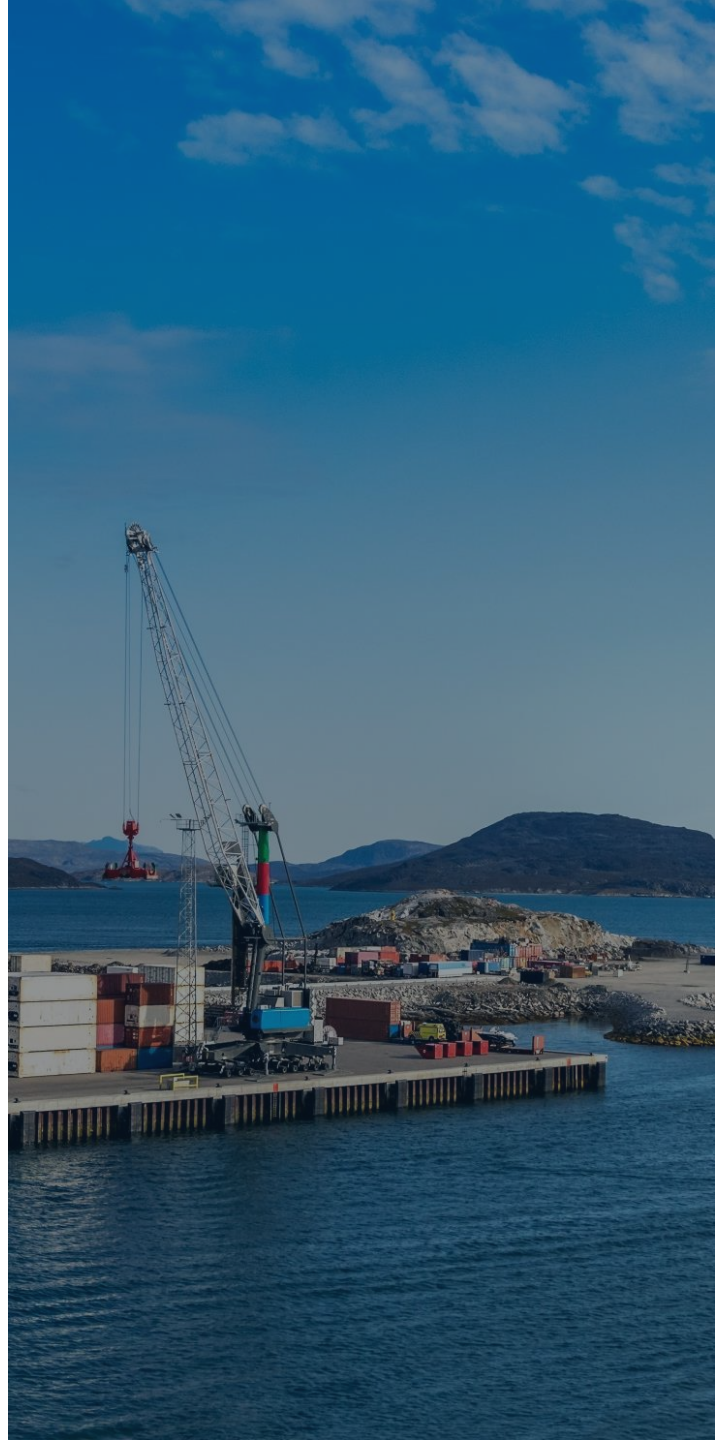
- EU regulations, new product development

Energy industry and production

- New synergies with other industries, new sustainable energy investments, new liquid fuel development

Travelling and tourism

- Common information from travelling in the Barents region – including traffic, accommodation, destinations



Highlights from BRTL projects and workshops 2/3

Transport corridor development

Key questions

- *How will the transport system respond to the Green Industrial Shift?*
- *How can efficient cross-border corridors be formed that share data and create continuous fueling / charging infrastructure?*
- *How can the transport system respond to new mobility demands? How can it ease industry's ability to get qualified workforce?*

Key themes and actions

Green Transport

- Cross-border charging and fueling infrastructure
    - Building charging infrastructure based on TEN-T requirements to the main corridors
    - Defining the specific locations for LNG/LBG fueling extensions, starting from Karesuvanto
    - Information sharing regarding alternative fuel infrastructure
    - Studying biogas and e-fuel production capacity and scalability in the area
    - Piloting long distance transport with hydrogen
- Cross-border public transport (e.g., Sweden-Norway)
- Identify key public stakeholders in each nation and set up co-operation

ITS – creating an efficient and data driven transport system

- Co-operation between national ITS organizations
- Bring ITS development to JBTP: Resourcing and planning of ITS investments as well as endorsing active attendance in ITS World Congress
- A starting point would be a prioritization of rest areas. The extension of a pilot project from two rest areas to all rest areas can be implemented as a several step project which can also run in parallel.
- Create a comprehensive ITS knowledge base for the Barents Region for all types of projects, mobility, logistics and cooperating systems
- Investigate further cases for both the maritime ITS sector/autonomous ships and rail under a multimodal umbrella for the Barents Region.
- Creating an ITS winter maintenance ecosystem: Border-crossing pilot → value created to the parties calculated

Removing bottlenecks

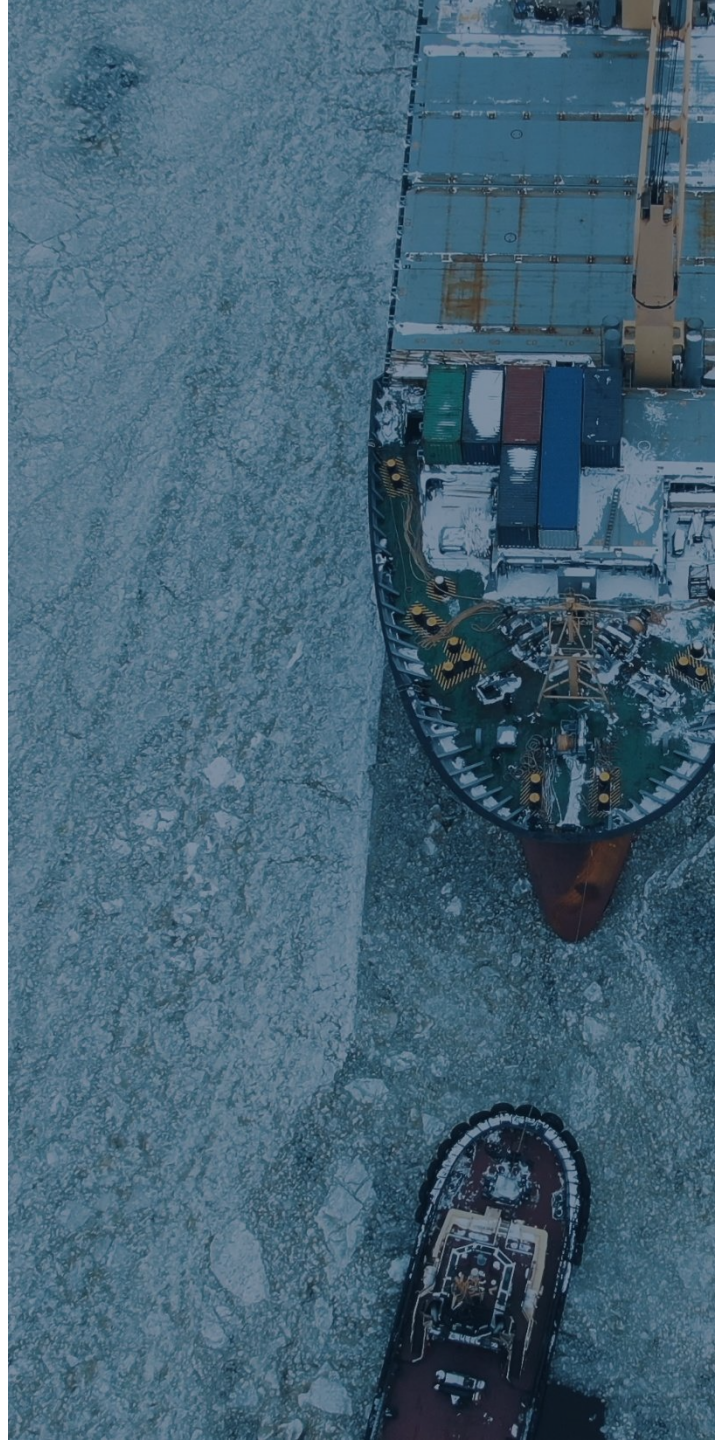
- Enabling cross-border rail transport with Haparanda-Tornio transshipment facilities and needed rail investments

Accessibility of the region

- Electric aviation and new business models based on national studies
- Road and rail infrastructure and services

Maritime transport

- Development of the Northern sea route and increasing logistics service structures and security



Highlights from BRTL projects and workshops 3/3

Platforms for information sharing & co-operation

Key questions

- *How to react on Barents-level and lobby arctic interests regarding Green shift and sustainable transport?*
- *How to increase information exchange and usage in different countries?*
- *How to promote innovation in ecosystems and between them?*
- *Can increased cooperation lead to more successful funding applications?*

Key themes and actions

Lobbying

- Arctic view on green shift and sustainable transport towards EU
- Lobbying co-operation related to e.g., TEN-T networks

Information exchange

- Create ways and possibilities to exchange information in the Barents region
- Form Arctic think-tank to support widely recognized R&D, communication and border-crossing conceptual development
- Create ways and structure for systematic reporting between topical projects and best practices in the Barents region

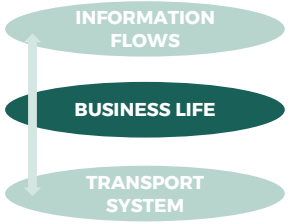
Co-operation

- Create ways to do co-operation with funding applications
- Co-operation between old and new industries
- Promote the benefits of inter-provincial co-operation in the Barents region

Harmonization

- Standard harmonization in diverse regulations and operations models

Prioritised action plan tasks – Support industrial ecosystems



OBJECTIVES & ACTIONS

Work more closely with industry and business life in the Barents Region

➡ Closer co-operation and dialogue with business life is needed to enable attractive conditions to make business in the Barents region

1. Form a working group or forum and engage industrial players to the work
   - Define the aim and common interests of the working group / forum and needed participants
   - Set targets for the working group
2. Inform shareholders about the work and invite all relevant organizations to working meetings
3. Create a common vision for the transport and logistics development in Barents region from industry perspective
   - Focus on the big picture, not only individual projects
4. Identify the main challenges and bottlenecks industrial ecosystems face currently regarding transport and logistics
5. Identify ways to solve the main challenges and bottlenecks
   - Identify costs and benefits
6. Produce the information to transport corridor development
7. Inform decision-makers about the actions needed and benefits from supporting industrial ecosystems in the area

POTENTIAL SHAREHOLDERS / RESOURCES

- EU offices (such as NSPA)
- Regional councils
- Investors
- Entrepreneurs
- Business offices (country, city, area)
- Local chambers of commerce
- Industry representatives
- BRWGTL / BEATA
- Public authorities

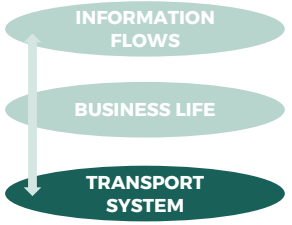
TO BE CLARIFIED

- In what ways it is possible to support industrial ecosystems in transport and logistics development
- What kind of transport system ecosystems require?
- Who are needed to the working groups? Who should be informed? How informing should be done?
- Schedule and timelines for the work (unable to schedule in current situation)

WAYS OF WORKING

- Working meetings with industry representatives to study needs in terms of modal shift and identify bottlenecks to be solved
- Scenarios
- Pilots

Prioritised action plan tasks – Transport corridor development



OBJECTIVES & ACTIONS		POTENTIAL SHAREHOLDERS / RESOURCES
Cross-border corridor development	**Development of cross-border transport corridors** in all the transport modes is a key topic regarding the industrial development and vitality in the Barents Region 1. Review studies and reports done and decide if new studies are needed to ensure the cross-border transport corridors and study if needed 2. Ensure that information is distributed and invite all relevant parties to the working groups 3 Define the priority corridors to develop (e.g., combine Finnish rail system with Swedish), take industry needs into account 4. Study how funding mechanisms (e.g., EU Green Deal) could be utilized and apply for funding for corridor development	Local chambers of commerce BRWGTL / BEATA Regional councils Public authorities Business life and industry representatives
Green transport pilots	**Green transport piloting** is recognized as an important topic. Actions could be similar than in cross-border corridor development 1. Start by reviewing the studies and reports done and decide if new studies are needed. 2. Study of cross-border charging and biofuels distribution networks to support development of transport corridors.	
Cross-border ITS study	**ITS pilot** is included in a series of studies in the BRTL project. It is a good example of a concrete action that is related to a wider problem setting in the road freight transport system. 1. Form a working group and engage members to the work 2. Review the ITS studies done and carry out relevant ITS pilots and ideas listed	
Cross-border review of resting areas	**Utilize the information gathered in resting areas for trucks -study** and apply it to the other areas in the Barents region.	

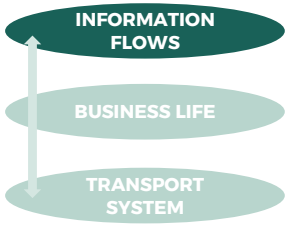
TO BE CLARIFIED

- Needed stakeholders and resources?
- Schedule and timelines for the work (unable to schedule in current situation)
- What actions from the case studies report from 2021 should be implemented?

WAYS OF WORKING

- Working meetings with regional organizations and industry representatives to study needs in terms of modal shift, ITS and propulsion powers, and identify bottlenecks or development needs to be solved
- Pilots
- Reports

Prioritised action plan tasks – Information sharing



OBJECTIVES & ACTIONS	POTENTIAL SHAREHOLDERS / RESOURCES
Improving the information flow and exchange in a more accessible way ➡ Creation of a think-tank with a shared, up-to-date online portal is needed to monitor and exchange information across borders 1. Select possible think-tank and portal development partners 2. Survey the most critical requirements and information needs 3. Scope the hosting and data collection responsibilities 4. Design the content and layout 5. Launch a pilot version and collect feedback for continuous development	Business offices (country, city, area) Local chambers of commerce BRWGTL / BEATA Service portal partner / host Business operators / Industry representatives Regional councils Forum / conference partners Universities and other research centres
Increasing visibility in relevant channels ➡ Active promotion of the Barents region in relevant forums and conferences, such as Arctic Frontier and Arctic Circle 1. Create a long list of relevant events and conferences in at selected time intervals – contact event organizers to discuss relevant opportunities for Barents 2. Map out ways to benefit from recognized conferences to promote Barents region and its needs and opportunities 3. Create recyclable presentation materials that can be utilized in events – participate and present	
Increasing the level of practicality and degree of implementation ➡ Implementation of previous studies and roadmaps into practice 1. Review studies and roadmaps and unify needed information 2. Divide responsibilities of each roadmap and incorporate existing roadmaps in corridor development and industrial ecosystems	

TO BE CLARIFIED

- What information is the most critical?
- What is the scope of needed information?
- Schedule and timelines for the work (unable to schedule in current situation)

WAYS OF WORKING

- Pilots
- Stakeholder meetings

Discussion

The action plan in BRTL project is produced in a difficult geopolitical situation, which means that it is very difficult to determine time span and scheduling for all the actions emphasized in this plan. All of these actions are possible to contribute in some extent, although Barents Region wide development is quite limited at the moment. Despite the fact that northern areas have had very low tension since Kirkenes declaration, circumstances for common development are unstable at the moment.

The first main theme focus on industrial ecosystem development is thought to be a collective approach for development of transportation and logistics in the Barents Region. There are many industrial business areas with positive development, a lot of potential and vast investments in diverse time spans. Many industries are also leaders in green shift topics. For example, green battery belt is operating in green business area, forest industries are transforming towards bioproduction, and steel manufacturing industries are investing to zero carbon production processes. In addition, green and sustainable mining relates to many of these industrial sectors and industries forms value-adding relationships each other. Focusing on industrial ecosystems is possible to get all the stakeholders involved in this development processes. These ecosystems include high volume logistics and transport systems both in procurement and product deliveries to diverse markets. Therefore, zero carbon production and supply chains are a part of future development in the Barents Region.

Focus on industrial ecosystems include a crucial question about mobility of workforce. These development and investment plans leads to tens of thousands new workplaces in the northern regions. This requires a lot of border-crossing mobility of workforce and also to attract new residents. Accessibility is a vital topic for the Barents Region in both passenger and freight transport systems including data networks.

Development of cross-border transport corridors are action, which are possible to progress in many ways. JBTP emphasized main corridors in the Barents Region and recognized also bottlenecks to remove. BRTL Case Studies and ITS piloting projects examined few very concrete topics for development of transport corridors.

Modal shift opportunities and multimodal transport chains are one topic to progress in the Barents Region. For example, consolidation of rail transport systems in border-crossing with different rail gauges in Tornio-Haparanda would be valuable focus area to develop new logistics service models for future transport corridors.

Charging and diverse propulsion powers networks are one topic to examine in more detail and to consolidate charging, biodiesel, LNG/biogas, hydrogen and other propulsion power networks to support border-crossing transport corridors in the Barents Region. This approach could be useful to combine with the needs of truck rest areas and to form future concepts for high-volume freight transport systems in the region.

ITS has a wide variety of opportunities to develop maintenance of road network, operation models of transport systems and new technologies to support for example platooning, and also as a tool for truck stop concept development. Availability and coverage of data networks are vital for large and sparsely populated Barents Region to support attractiveness, accessibility and competitivity in the future operations environment.

Finally, active communication and coordination between all the stakeholders are a key to success in the Barents Region. One significant advantage is, that there are universities and research organizations located in almost all the regions in the Barents. Therefore, there is a very good basis for extensive and business-oriented development and cooperation in the Barents Region. Transport corridors and services are one of the main topics to proceed.

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