Baltic Loop

Interreg Central Baltic

EUROPEAN UNION
European Regional Development Fund

BALTIC LOOP PROJECT

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Welcome to read our last newsletter

BALTIC LOOP RESEARCH

Digital and automated working methods reduce travel time in the Baltic Sea countries

BALTIC LOOP IN A NUTSHELL

Discover business models for smart and sustainable logistic and port operations

Dialogue between different transportation actors

Technical and non-technical solutions

ACQUAINTED WITH REPORTS

Dive into our research results

WATCH OUR VIDEOS!

DIGITAL AND AUTOMATED WORKING METHODS REDUCE TRAVEL TIME IN THE BALTIC SEA COUNTRIES

Within the framework of the EU project Baltic Loop, Region Örebro County has mapped and analysed various digital and automated working methods that could contribute to shorter travel times in public transport. A number of different nodes, both along the railway and with other public transport, in Sweden, Finland, Estonia and Latvia have been analysed from a travel time perspective. Current train planning processes and railway operations in the four countries have been analysed to get an idea of how much extra time is applied in timetable construction, and whether this time could be removed by applying one or several of the digital and automated working methods that have been mapped.

Read more Here

FINAL CONFERENCE OF THE PROJECT: RECORDING AND PRESENTATIONS AVAILABLE

Within the framework of the EU project Baltic Loop, Region Örebro County has mapped and analysed various digital and automated working methods that could contribute to shorter travel times in public transport. A number of different nodes, both along the railway and with other public transport, in Sweden, Finland, Estonia and Latvia have been analysed from a travel time perspective.

If you missed our conference, but are interested in what was discussed at it, we invite you to review the presentations.

FIND ALL THE CONFERENCE PRESENTATIONS HERE

VIDEO RECORDING AVAILABLE HERE

BALTIC LOOP MAIN DISCOVERIES

IN A NUTSHELL

TO FIND OUT THE ESSENCE

#1 DISCOVER BUSINESS MODELS FOR SMART AND SUSTAINABLE LOGISTIC AND PORT OPERATIONS

#2 DIALOGUE BETWEEN DIFFERENT TRANSPORTATION ACTORS

#3 TECHNICAL AND NON-TECHNICAL SOLUTIONS

1 DISCOVER BUSINESS MODELS FOR SMART AND SUSTAINABLE SEA LOGISTIC AND PORT OPERATIONS

THE MARITIME INDUSTRY

constitutes the backbone of global trade. International maritime transportation is forecasted to grow by an average annual growth rate of **3.5%** over the period of 2019-2024 . It has a long tradition and hence it has until today remained conservative and a slow adaptor of measures modernising the industry to become more environmentally friendly and operationally more efficient.

IDENTIFIED PROBLEMS AND WHAT THEY BRING

System mainly serves the purposes of shipping very large cargo loads

- one customer at a time
- strict and exclusive (bilateral) freight agreements.

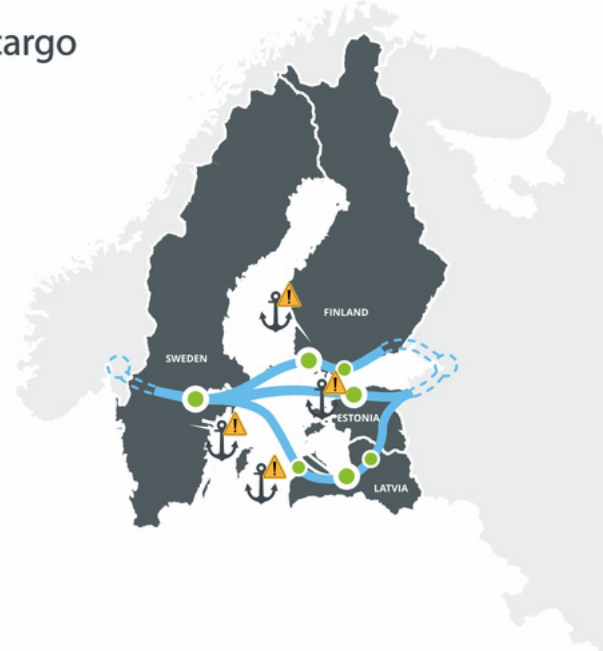
Sea voyages without cargo

- burden on economic activity (excessive cost and lost system capacity)
- non-productive consumption of fuel and emissions

Such rigidity, economic waste, and environmental impact is in stark contrast to EUSBSR objectives of saving the sea, increasing prosperity and connecting the region, and constitute unambiguous obstacles for fulfilling the Europe 2020 objectives in this domain.

Inefficiencies to be tackled in the BSR short sea dry bulk cargo shipping of large ports:

- Radically reducing the waiting times outside the ports
- Radically reducing the time ships spend in ports
- Radically reducing sailing in ballast i.e. without cargo
- Increasing system-wide market-based coordination of activities (cargo coordination)
- Reducing CO_2- and other emissions, both in absolute terms and per ton of cargo transported
- Increasing competitiveness and economic performance of all key system stakeholders and consequently the BSR member states
- Making BSR short sea shipping a more flexible and relevant mode of transportation, capable of replacing road transportation



BALTIC LOOP RESEARCH REVEALS

#1 Current logistics solutions in short sea shipping are not efficient

- Low vessel utilization
- long port call durations

#2 Way of organizing the logistic chain is inevitably outdated and in need of reform

- high number of actors involved in the transportation chain
- increased shipping costs
- disruption of information flow in transportation flows
- lack of transparent and timely access to relevant information

#3 Ship operators have a limited ability to plan their operations so that vessels would be maximally utilized

- low vessel utilization
- unnecessarily high freight rates and emissions

#4 Sailing in ballast conditions should be solved

- no revenue
- informational failure

#5 Time spent in ports is a waste

- rushing to wait ('first come, first served')
- suboptimal sailing
- excessive fuel consumption
- emiccions

slow cargo loading and unloading

#5 Lack of competitiveness through automation and digitalisation

- anchor in the past
- discontinuation point in supply chains and supply chain efficiency
- conservative and uncoordinated communication and information transmission methods
- no adaption to possibilities of automation and digitalisation
- lack of understanding of big data
- poor optimisation of port operations
- untapped potential to limit energy consumption and environmental impact
- little used sensors

#6 Old port locations are less competitive

- far from big hubs and not along good traffic connections
- cargo types often generates externalities and fits in poorly in an urban environment

QUICK FACT #1

Industrial customers consider sea logistics as a 'black box', which is largely impossible to affect, and whose efficiency or inefficiency cannot be really ascertained.

QUICK FACT #2

Currently, sea logistics is by and large detached from operation planning in industrial organizations, and treated as an isolated function of its own.

QUICK FACT #3

About half of the vessels in dry bulkand general cargo segment operating in the Baltic Sea currently spend at least 40% of their time in ports – and most of this is time not spent creatingeconomic value and earning revenue.

QUICK FACT #4

In many Baltic ports, there is no clear slot system that would allow booking in advance a certain time for the vessel to arrive, load or unload, even if the arrival of a vessel is known days before and could be targeted with accuracy during sailing.

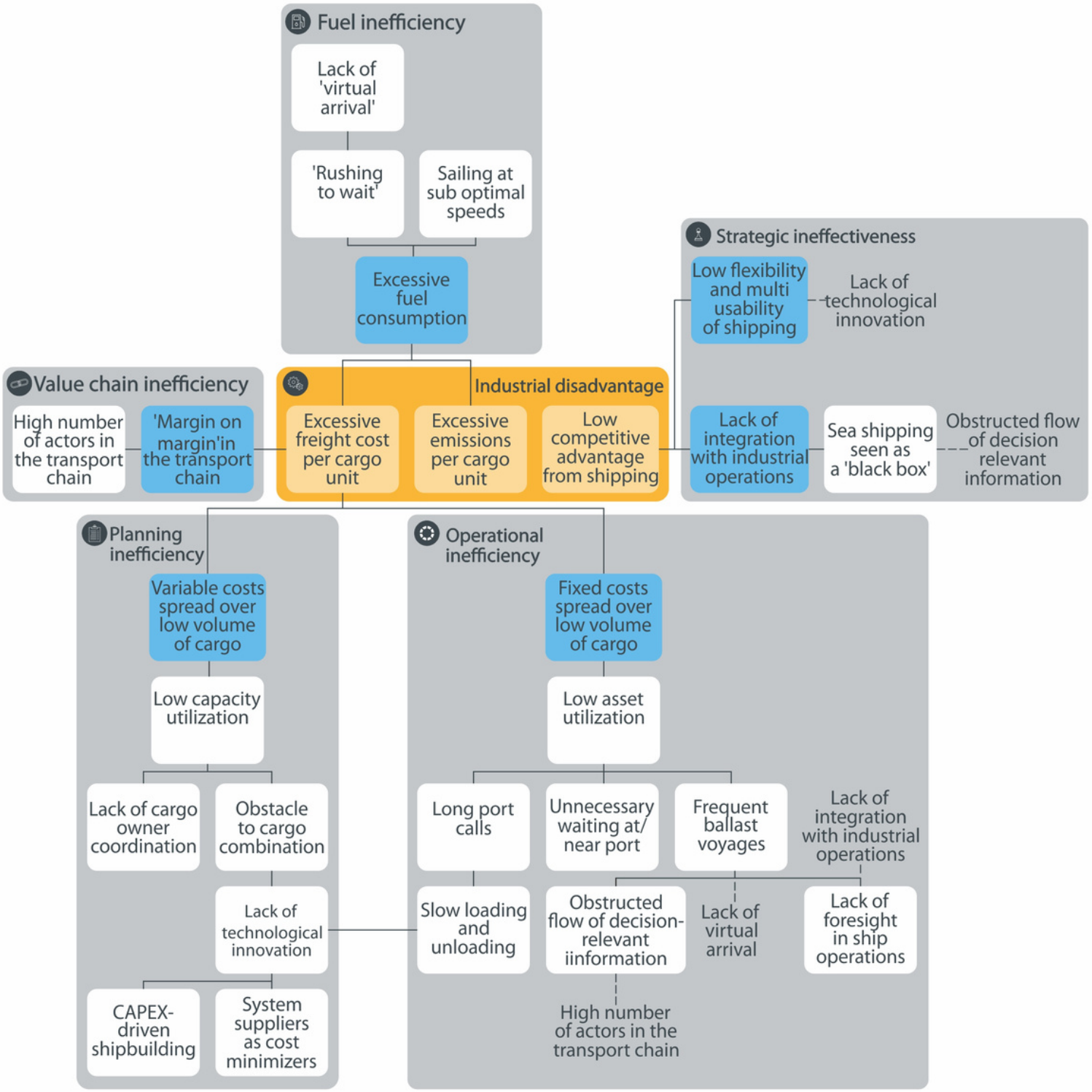
QUICK FACT #5

It is not uncommon that unloading, cleaning, and loading– i.e. the port turn-around – of a typical bulk and general cargo vessel takes two days or more. This is by and large a result of using outdated technology.

QUICK FACT #6

Until recently, the shipping industry, including ports, have been anchored firmly in the past and generally formed a discontinuation point in supply chains and supply chain efficiency due to conservative and uncoordinated communicationand information transmission methods between the relevant stakeholders.

Inefficiencies in short sea shipping and their effect on industry



THE FUTURE

The maritime transport industry has nevertheless started to undergo a profound transformation catalysed mainly by **changing trade patterns, technological development** and **digital disruption** and an **expanding environmental agenda.**

Environmental sustainability has become a priority on the global policy agenda, putting much-awaited pressure and scrutiny on the maritime industry and, consequently, affecting market dynamics, ports, supply chains and maritime policy governance.

2 DIALOGUE BETWEEN DIFFERENT TRANSPORTATION ACTORS

The project has chosen a form of dialogue as one of the potential solution drivers. Learn how negotiations and discussions lead to practical solutions.

TAKE PART TO RESOLVE A PROBLEM

The strength of logistic networks within defined geographical scope varies largely on the dialog between different actors.

Efficient solutions can be found in cross-cutting cooperation among stakeholders.

Various stakeholder involvement platforms can initiate a purposeful discussion and lead to successful cooperation among the players in transport corridors.

STEPS TO BUILD UP A DIALOG

01

identify the actors and administrative bodies, and their responsibilities.

02

highlight topicalities and to raise issues that cause bottlenecks in traffic flow.

03

establish platform for discussion and decision-making.

TESTED BY BALTIC LOOP

189 Stakeholders participation

- **124** public sector
- **46** private sector
- **124** NGOs

- passenger transport
- freight transports
- transport infrastructure system

QUICK FACT #1

The wide range of issues and priorities discussed among stakeholders allows to see a picture of variety amongst participant countries.

QUICK FACT #2

All countries have their own transportation system established including transportation infrastructure, technology, management, and cooperation culture. In transportation sector, it is good to observe comparative situations to give context to the identified problems and understand which areas in which countries need to be developed better and which are already well functioning.

CALL-TO-ACTION

1. Improvements in transport planning

a. Implement long-term thinking (at least over 7 years in transport planning) in transport and mobility planning.

b. Implement integrated transport planning approach, looking at different transport modalities at the same time.

c. Freight transportation gets too little attention and funding.

2. Exploring the Baltic Sea region opportunities

a. Within integration of the countries in the EU, the focus has been on the EU centralized objectives: TEN-T transport corridors and linking Sweden to the Central Europe. During this process regional opportunities have been underlooked, especially for the Baltic Sea ports.

b. Ports need to find cooperation and specialization strategies and develop value-adding services, and avoid excess competition at national level.

c. The degree of digital infrastructure in readiness, integration and adaption varies between ports, industries and countries. Until lately, ports have typically been recognised to form a discontinuation point in maritime and transport logistics, exhibiting low information transparency and coordination of processes and procedures inside the port. Intelligent connected transport systems enable vessels, goods and infrastructure to communicate with each other and provide new opportunities to achieve greater sustainability, supply chain traceability, optimised operations, enhanced performance and efficiency, and safer operations throughout the (maritime) supply chain.

d. Being on forefront in innovation, Research & Development is important for getting advantages in developing transport corridor. Collaborative research projects among the institutions from different countries.

e. For cross-border projects, coordination between countries needs to be improved in many ways. Joint planning, common goals, common processes and financing are some examples where cooperation should take place.

3. Sustainability issues in the transport sector in the Baltic Loop corridors

a. Efficient and environmentally friendly traffic flows that are good for business and environment.

b. Waterborne transport (sea shipping and inland waterways) offers environmental benefits over road transportation, and increased shift towards rail and shipping is one of the objectives of the European Green Deal for transport sector.

4. Work with national governments

a. Several cooperation bottlenecks have been found at the government level. For better transnational cooperation, national governments must be involved to fully use transport potential in the Baltic Sea Region, especially its East-West direction.

b. The agreement, design and work on transnational projects (for example, the Oslo-Stockholm railway line) is a complex issue where political, economic and cooperation issues are so important and difficult to manage.

c. Long-term development plans and visions require innovative governance models for achieving effective transnational co-operation.

QUICK FACT #3

Communication and collaboration can be time consuming, with a lot of communication but little result. Using the project management approach, it can become more focused and outcome oriented.

3 TECHNICAL AND NON-TECHNICAL SOLUTIONS

However, the overall efficiency could also be improved by employing digital infrastructure and communication methods during the cargo transportation. The main idea is to achieve the maximum utilization rate of the available infrastructure, technology, and other kinds of resources. Together with a collaborative environment, it will be possible to reduce transport emissions in our corridors and result efficient transportation. Today`s transport infrastructure investments must correspond and adapt to the tomorrow`s transport demand and requirements.

But there are always divided opinions about **which measures should be implemented** and **how they should be implemented** in a problem situation.

It is important to analyze the situation, identify bottlenecks and find the most appropriate solution. This can be both technical and non-technical.

KINDS OF BOTTLENECKS:

- Institutional bottlenecks
- Operational bottlenecks
- Technical bottlenecks

TWO TYPES OF SOLUTIONS:

- Hard investments and technical solutions

They are are related to tangible assets - improved road infrastructure, efficient public transport, modern freight fleet, appropriate terminal location, or revised operations inside terminals.

- Soft investments and non-technical solutions

They help to overcome non-technical barriers such as absence of cross-border collaboration or lack of expertise or poor information flow.

HOW TO START

Step 1

Re-think (non-technical solutions)

The first step is to first and foremost consider measures that may affect the need for transport and travel as well as the choice of mode of transport.

Examples of measures: Localization, land use, taxes, fees, parking fees, subsidies, collaboration, travel-free meetings, speed limit, coordinated distribution, information, marketing, travel plans and programs and so on.

Step 2

Optimize (non-technical solutions)

The second step is to investigate whether it is possible to use existing infrastructure in a more efficient way.

Examples of measures: redistribution of areas, bus lanes, signal prioritization, ITS solutions, special operations, coordinated train schedule, increased frequency, logistics solutions, travel planners and so on.

Step 3

Rebuild (technical solutions)

In the third step, it is tested whether it is possible to solve the problem through a minor rebuild by, for example, adding lanes, adding an intersection, extending a platform or other alternatives.

Examples of measures: reinforcements, trimming measures, bearing capacity measures, widening, platform extension, bypass tracks, ascent fields, dredging in fairways, ITS solutions, level crossings, installation tracks and more.

Step 4

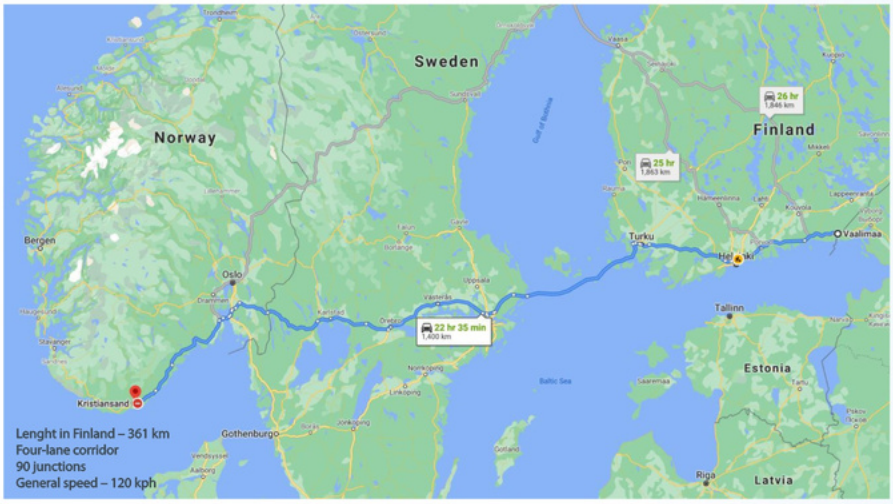
Build new (technical solutions)

The fourth step is performed if the need cannot be met in the three previous steps. This means new investments and/or major redevelopment measures. This part is the most costly measure / solution.

TECHNICAL SOLUTIONS ALONG THE CORRIDORS to reduce transport time, bottlenecks and emissions

Basic data concerning amount of traffic, heavy duty vehicles as well as rush hours was collected with the help of statistics, interviews, and meetings and own field trips along the corridor.

Challenges for freight transport relate to point-by-point improvement needs (industrial and logistics centers, ports), in some places deficiencies in the road network from the point of view of heavy vehicles (road network narrowness, access, bridges, bypasses) and congestion in urban / port entrances. In addition, there are problems with the number, location and services of heavy-duty break and rest areas.



The following criteria and issues have been taken into account when bottlenecks are described:

- Bottleneck location; Certain spot or longer segment
- Capacity, type and performance of infrastructure vs. traffic flow at the bottleneck
- The reason, why do the bottlenecks occur

DEVELOPING TERMINALS: optimize location and manage routine inside

LOCATION

THEORY

Factors which influence location decisions of terminals and logistics centers:

- Relative location to customers
- Relative location to suppliers and sourced material
- Regional land and property cost
- Accessibility based on transport infrastructure with different modes of transport
- Exchange rates
- Culture and social attitudes towards activities of people in nearby areas
- Regulations and decision-making by authorities on the use of areas
- Organization, industry and principle of operation of the company

/Rushton et al. (2014)/

PROOF TESTING

The Baltic Loop team tested proposed solutions by analyzing road section in Finland on international route E-18 as well as conducting an on-site survey at the ports and cargo terminals. Afterwards experts came up with detailed report and Handbook for terminal development to locate and plan future cargo terminals.

QUICK FACT #1

The terminal network on E18 route Finland and Sweden is crucial to domestic and international transport, within numerous cargo types, shippers, and receivers.

QUICK FACT #2

Delay conditions in transport corridors:

- weather conditions,
- constrained accessibility,
- lack of common cooperation,
- co-organization,
- concentrations,
- conflict interest of capacity usage,
- customs and border services,
- low frequency of service,
- current capacity of traffic,
- poor connectivity,
- lack of timely information.

To extend the bottlenecks, there are two major options:

- Build and open new distribution centers and logistics zones further beyound city centers with modern and sufficient land transport connections
- improve existing road, street and railway capacity between E18 junctions and current terminals by increasing number of lanes and changing old intersections into interchanges or at least fluent multi-lane roundabouts

QUICK FACT #3

The largest single expense for logistics operations comes from transport costs. As a result, the accessibility of the area through different modes of transport plays an important role in choosing the location of the logistics nodes.

QUICK FACT #4

In the optimal situation, the logistics centre would be located as close as possible to thecustomers, as well as the four main modes of transport: road, rail, port and airport.

QUICK FACT #5

The location of the logistics centre is subject not only to geographical requirements, but also to operational requirements. These include cooperation with the authorities, the pursuit of economies of scale, and internal cooperation.

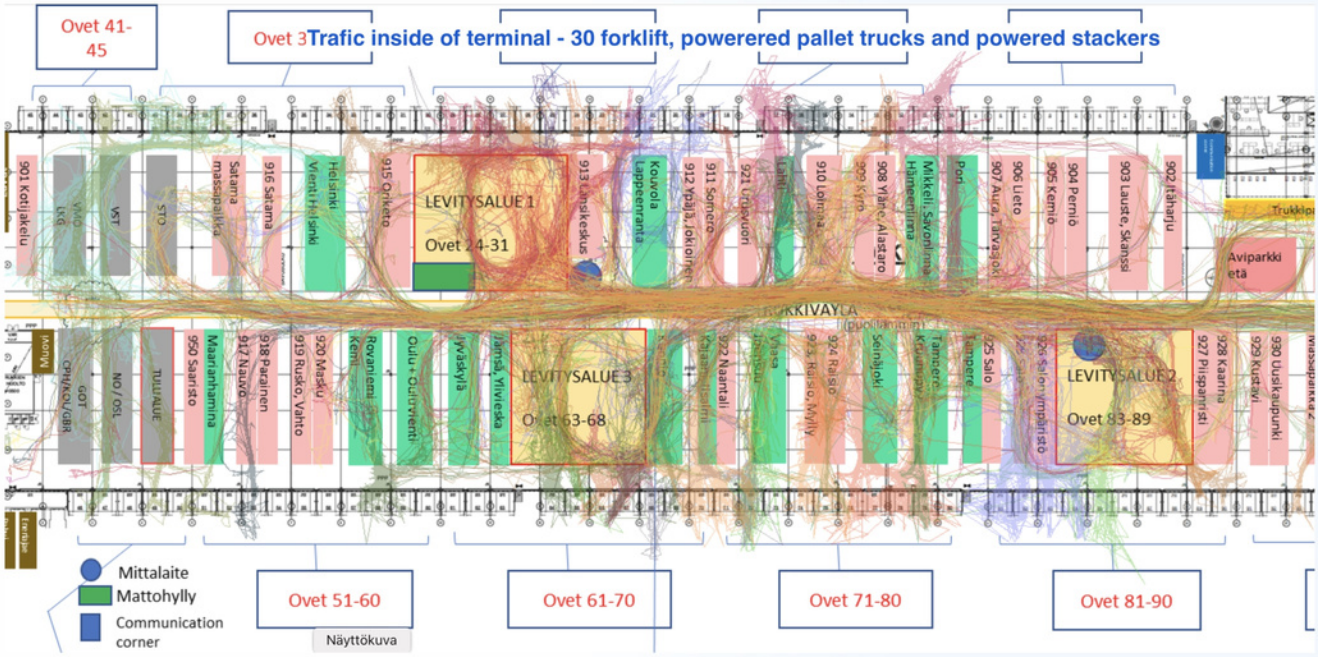
The location is often determined by the fact that the logisticshub`s operations are more focused on exports or imports. Import-oriented logistics centresare located mainly along the transport chain leading to the main market, while export-oriented logistics hubs are located in more near major transport terminals.

INSIDE THE TERMINAL

At the terminal, goods are transferred from one means of transport to another, either from trunk transport to distribution or from pick-up transport to trunk transport. The terminal does not store goods but should be empty twice a day.

Collecion of data before improvements:

- forklift and pallet truck movements
- shipment movements
- shipment volumes
- schedules, etc.



Ilustration of routes of 30 different forklift, powered pallet trucks and powered stackers.

Within the framework of Baltic Loop project involved experts came up with detailed report and Handbook for terminal development to locate and plan future cargo terminals.

Baltic Loop

FIND OUR IN-DEPTH RESEARCH

BUSINESS MODELS FOR SMART AND SUSTAINABLE SEA LOGISTICS AND PORT OPERATIONS

- Identification of bottlenecks and inefficiencies in transport flows in Baltic Loop East-West corridors with emphasis on maritime logistics
- Assessment of the Transit Corridor Belarus-Latvia-Sweden within Baltic Loop
- Recommendation report on methods, actions and ICT solutions linked to enhanced information visibility and transmission processes for improving the cargo flow efficiency of the BSR maritime transportation and port operations

TECHNICAL SOLUTIONS ALONG THE CORRIDORS

- Heavy vehicle resting and stopping areas on E18
- Potential locations for logistics centers near the E18 road in the Southwest Finland
- Terminal report of the Northern Corridor
- TUAS data collection: Corridor 1, E18 Finland Turku/Naantali-Helsinki-Vaalimaa

NON-TECHNICAL SOLUTIONS FOR CROSS-BORDER CORRIDORS

- Definition of non-technical and technical solutions
- Study of travel times in public transport on selected nodes in Sweden, Finland, Estonia and Latvia (short version)
- Bottlenecks and solutions on E18 in Sweden
- Conditions for increased freight flows in the Baltic Sea area
- Oslo-Stockholm corridor, compilation of previously studied measures
- Potential of the Baltic Loop connections and solutions for inland and cross-border mobility of the Riga metropolitan area
- Improved accessibility to corridors from remote and connected areas in region Orebro
- Summary of the Development vision 2030 for tourism and transport corridor of the VIA Hanseatica route (**INFOGRAPHIC**)

DIALOGUE BETWEEN DIFFERENT TRANSPORTATION ACTORS

- Collected operators` opinions along corridors / Practical solutions - Tools for better delivery and passenger transport
- Planned roadmap for future cooperation
- Dialogue between actors and administrative bodies - Dialogue summary

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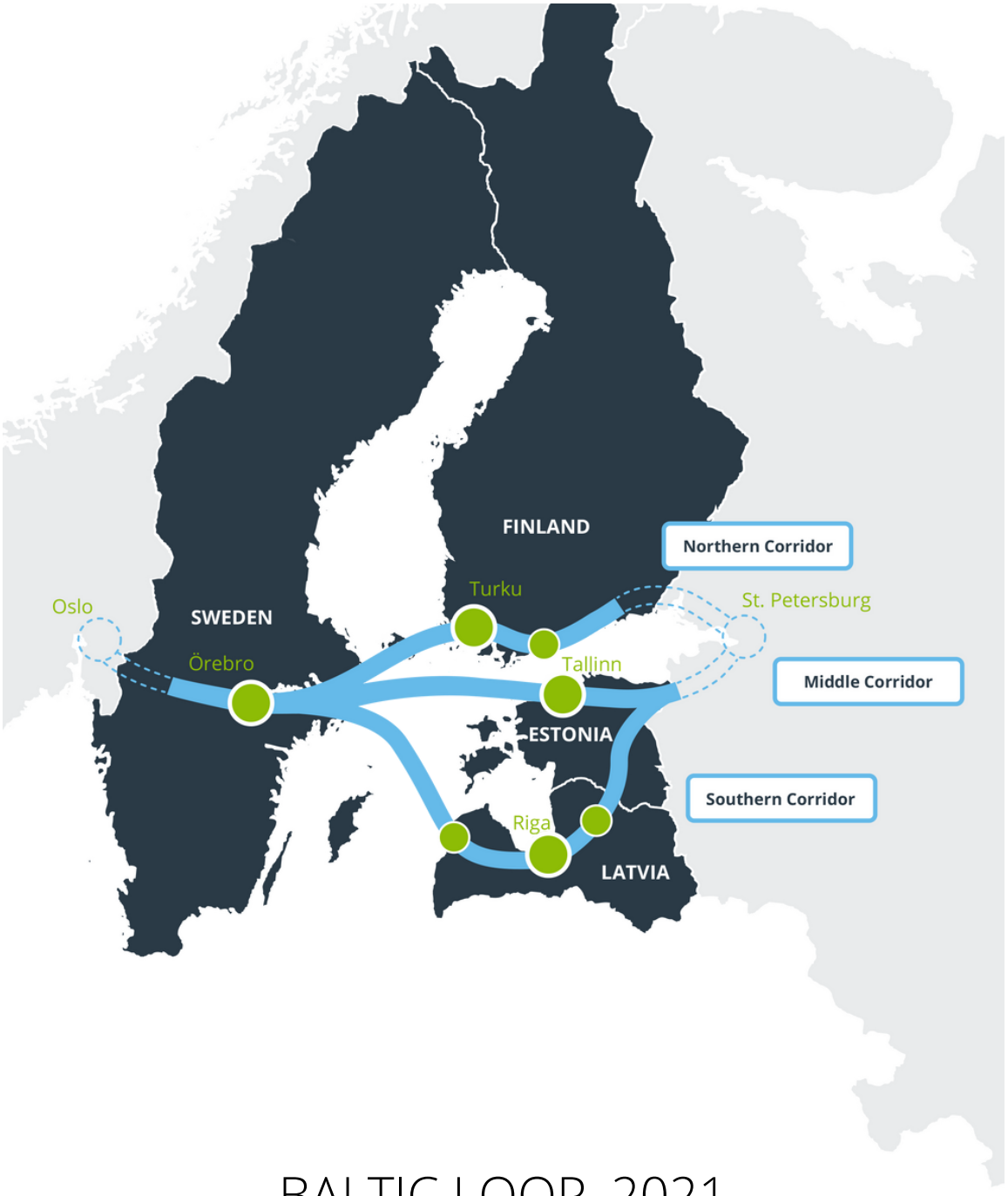

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