



RISK SCENARIO *regarding* FINNISH BUSINESSES' LOGISTICS CHAINS IN THE BALTIC SEA AREA

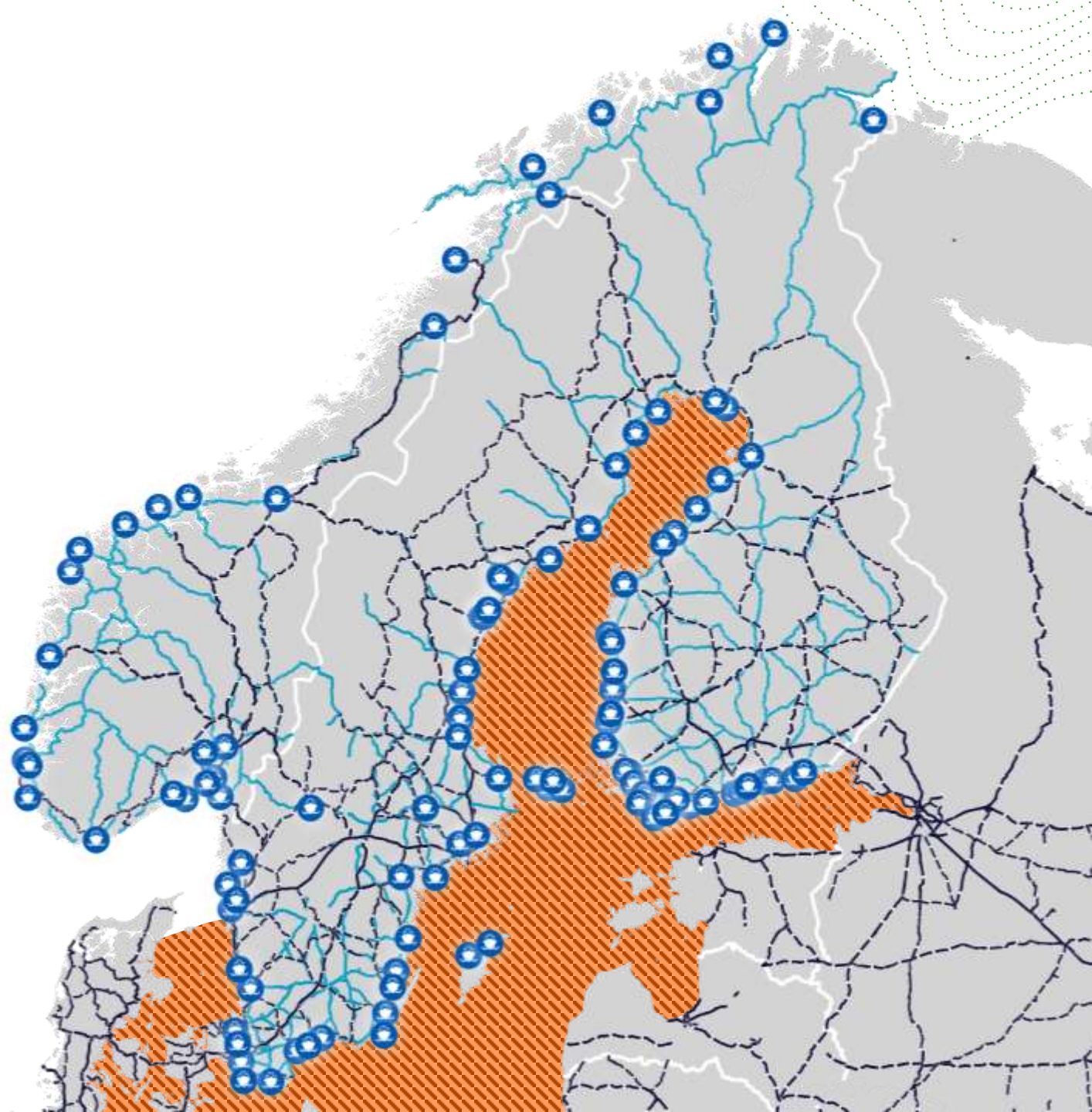
Presentation material

DESTIA
A COLAS COMPANY

 Confederation of
Finnish Industries

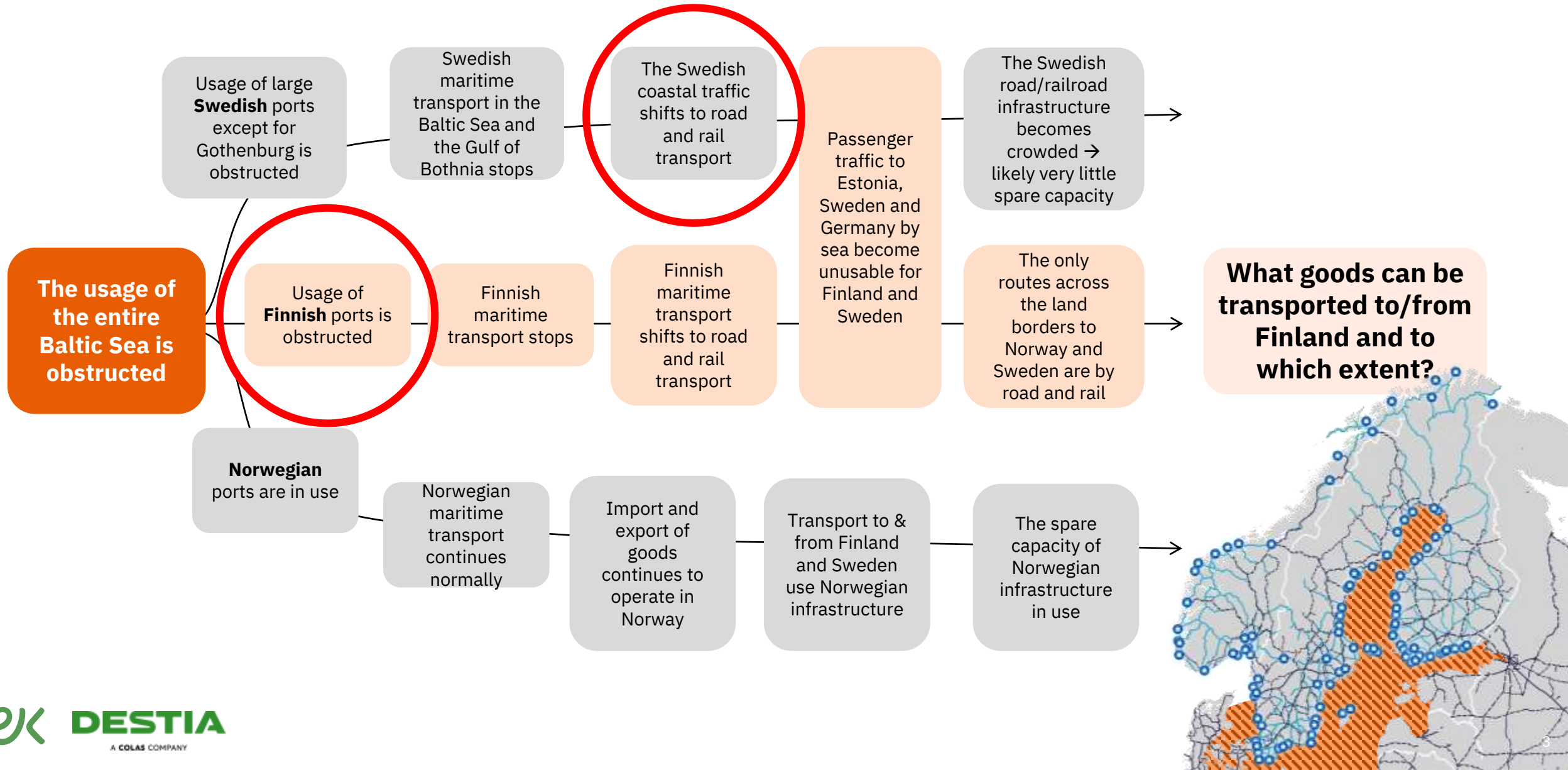
Risk scenario:
Maritime transport is obstructed in the entire Baltic Sea region

Also under inspection a variation where the Gulf of Bothnia can be used



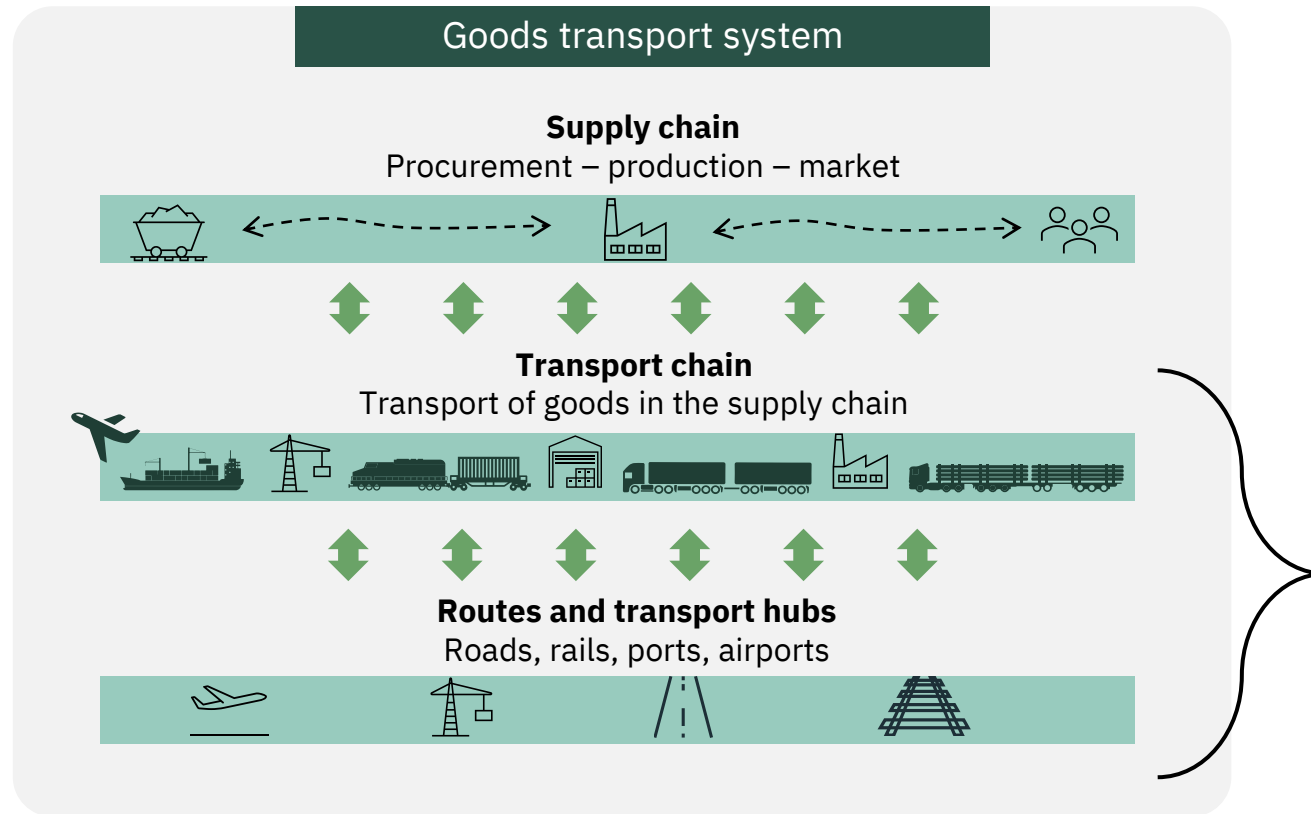
A simplified description of the action sequence of the risk scenario

The usage of the Baltic Sea, the Gulf of Bothnia and the Gulf of Finland is prevented

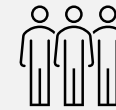


The capacity of the transport system – what does it consist of?

The capacity of the transport system can be assessed through four factors, which are examined in this presentation. These are the **critical number of personnel, pieces of equipment and the capacity of routes and transport hubs for each mode of transport**. These are examined at a high level in this presentation. The capacity of the transport system defines the potential transport volumes of companies and industries in the risk scenario.



The four factors of capacity



1. Drivers and other personnel of logistics



2. Equipment in different modes of transport



3. Finnish, Swedish and Norwegian terminals, ports and airports



4. Finnish, Swedish and Norwegian roads, rails and waterways



Large units and break bulk



Dry bulk



Liquid bulk

Retail industry

Groceries, primary production

Oil industry

Crude oil, oil products

Chemical industry

Chemicals (including raw materials), medicine

Metal and mineral industry

Critical minerals, metals

Wood industry

Raw wood, chemical pulp, timber

Import and export transport



Maritime transport



Swedish or Norwegian port



Road or rail transport on the Swedish or Norwegian network



Haparanda/Tornio transloading



Reloading trucks at railway yards



Key observations of industries



Oil industry

- Less than 10 % of the transport could be arranged
- Bottlenecks are the lack of suitable rail & road fleet in Sweden and Norway, and transloading at Haparanda/Tornio



Retail industry

- A large part of the unit traffic could be organized
- Road and railway transport equipment available in both Finland and Sweden



Chemical industry

- Would be seriously disturbed
- A fraction of the transport could be arranged
- Bottlenecks are the lack of rail & road fleet and the need for transloading of liquid bulk



Metal and mineral industry

- Large changes to the logistics of the operators
- A large part of the transport could be arranged
- The connection to Narvik is important



Wood industry

- Less than half of the transport could be arranged
- The logistic structure of the forest industry in Sweden can be utilized
- A lot of large unit transport



Other industries

- Within the energy industry, the shipment of LNG and uranium would be at risk – Hammerfest is an important port

The sudden increase in the cost of logistics would reduce the less critical transport flows. The total volume of transported goods would still be significant.

All combined import and export flows of industries do not fit on the transportation network. Only a fraction of the total volume could get through. The risk scenario requires a more precise analysis of the prioritization of transport flows.

Large unit transport is the easiest to implement and there are good logistical structures for it in Sweden and Norway as well. Liquid and dry bulk, on the other hand, pose significant challenges due to transloading and large masses.

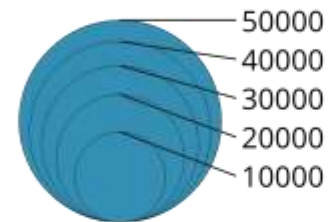
Ports are the scenario's worst bottlenecks

Ports do not have a significant amount of additional capacity available – increasing capacity takes time and investments

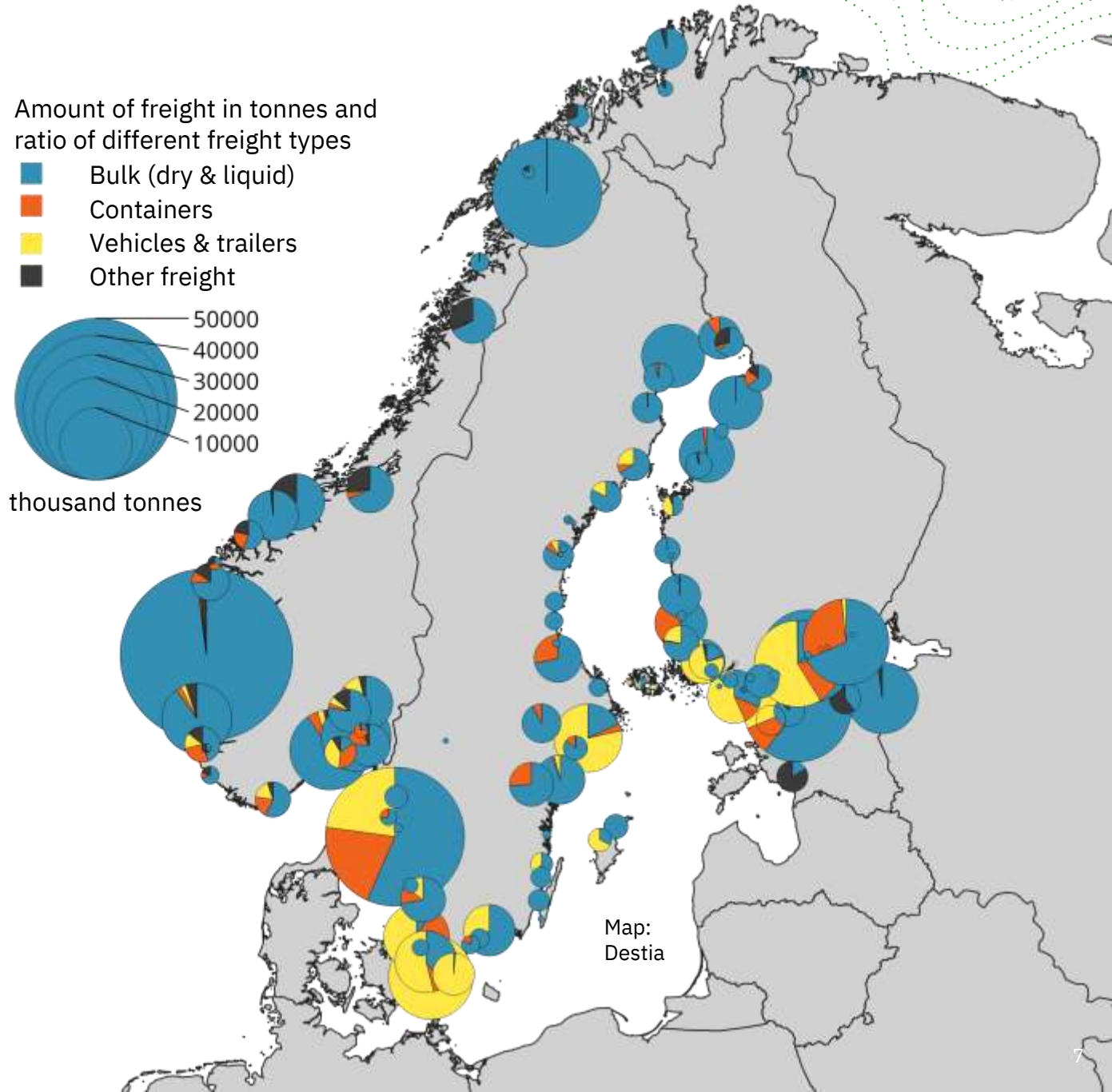
Relocating all of Finland's current container traffic to Gothenburg could even triple Gothenburg port's container traffic volume, which the port and its land transport connections are not prepared to handle

Amount of freight in tonnes and ratio of different freight types

- Bulk (dry & liquid)
- Containers
- Vehicles & trailers
- Other freight



thousand tonnes



Map:
Destia

Transport chain bottlenecks in container traffic



Narvik

- 1 STS-crane (*Ship-To-Shore crane*), 50 years old
- 20–30 lifts/h
- 480–720 containers/day

Malmaban ("Iron Ore Line")

- Free capacity is estimated to be limited to 100–200 containers per day, i.e. a few container trains



Haparanda

- 1 reachstacker
- 12–15 lifts/h
- 288–360 containers/day

Some capacity available on the main line along Gulf of Bothnia



Tornio

- 1 gantry crane, has had little use in recent years
- 25 lifts/h
- 600 containers/day

NB! In both Tornio and Haparanda, the transloading of non-container cargo can be very difficult

Oulu–Tornio railway

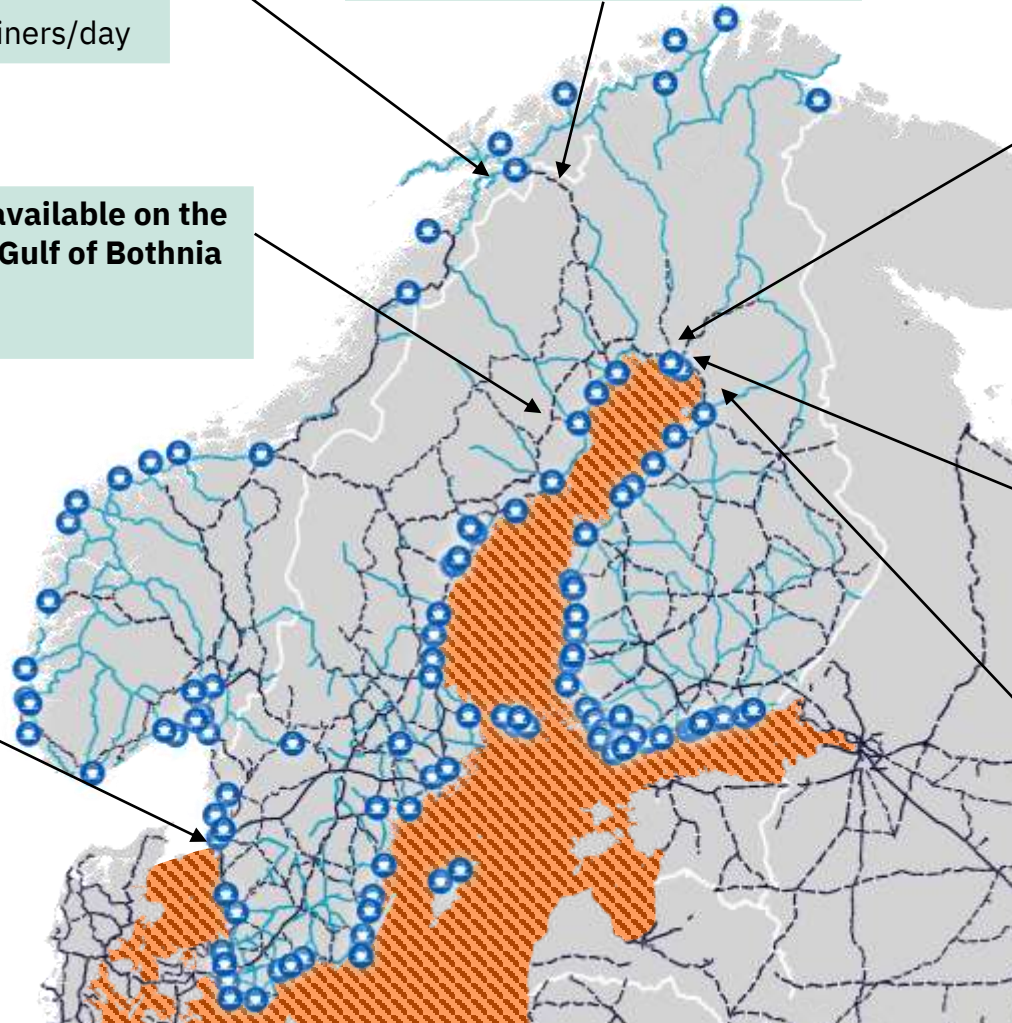
- Trains with 40 containers
- Extra capacity for up to 40 trains
- 1 600 containers/day



Gothenburg

- 8 STS-cranes, newish
- 25–35 lifts/h
- 4 800–6 700 containers/day

The utilization rate of the **Gothenburg port** railway is almost 100 %



Rail capacity is moderately available across the border

Ofofbanen/Malmbanan (“Iron Ore Line”) towards Narvik

- About 60 % of the rail capacity is in use

Main line along the Gulf of Bothnia

- The railway can be congested (by Finnish standards)

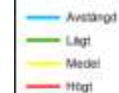
Railway directed to Gothenburg port

- Gothenburg port railway’s section Kville–Pölsebo is the most congested railway section in Sweden
- Only one track with calculated utilization rate already at 100 % or about 90 trains/day

Malmö–Copenhagen directed to Europe

- The railway between Stockholm and Malmö is congested especially between Alvesta and Malmö
- Available capacity on the railway section between Malmö and Copenhagen

Kapacitetsbegränsningar 2021



Picture: Trafikverket

Nb! In Sweden the utilization rate ”lågt” (low) means a rate below 60 %, meanwhile 60 % is the recommended maximum in Finland



Flexibility by road transport



Finland
76 t
34,5 m



Sweden
74 t
34,5 m (autumn 2023)



Norway
60 t
25,25 m

Swedish road network suitable for heavy trailer lorries

— Highest bearing capacity class roads in Sweden (BK4)
= suitable for 74 tonne trailer lorries

Multi-lane roads in Sweden

— 3 lanes (2+1)

— 4 lanes (2+2)

— 5 lanes or more

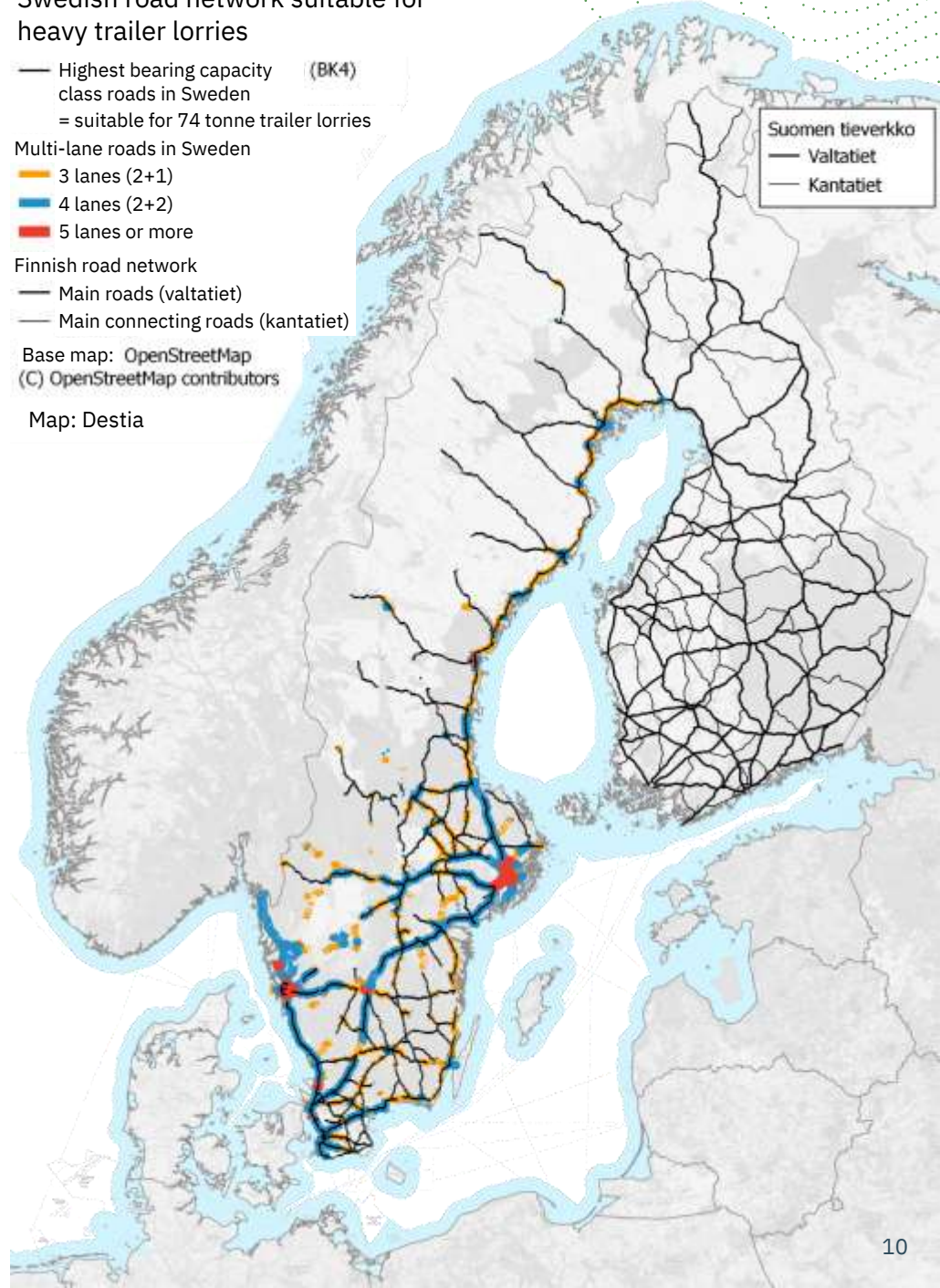
Finnish road network

— Main roads (valtatiet)

— Main connecting roads (kantatiet)

Base map: OpenStreetMap
(C) OpenStreetMap contributors

Map: Destia



The road network capacity in the Nordic countries is not a bottleneck in the scenario

- Sweden has significantly more 2+2 and 2+1 lane roads than Finland
- Local congestion can appear on some road sections

Key routes of transport flows in the risk scenario

Maritime transport



- Finland's maritime transport completely blocked
- Sweden's coastal transport completely blocked
- Norway's sea area available as well as the connection to Göteborg

ROAD TRANSPORT



- Road transport using different Norwegian and Swedish ports
- Long distances are a challenge from the perspectives of transport personnel, time and cost

INTERNATIONAL PASSENGER TRAFFIC



- Maritime transport blocked – significant challenge for commuting traffic from/to Estonia
- Air transport continues, some routes are diverted

RAILWAY TRANSPORT

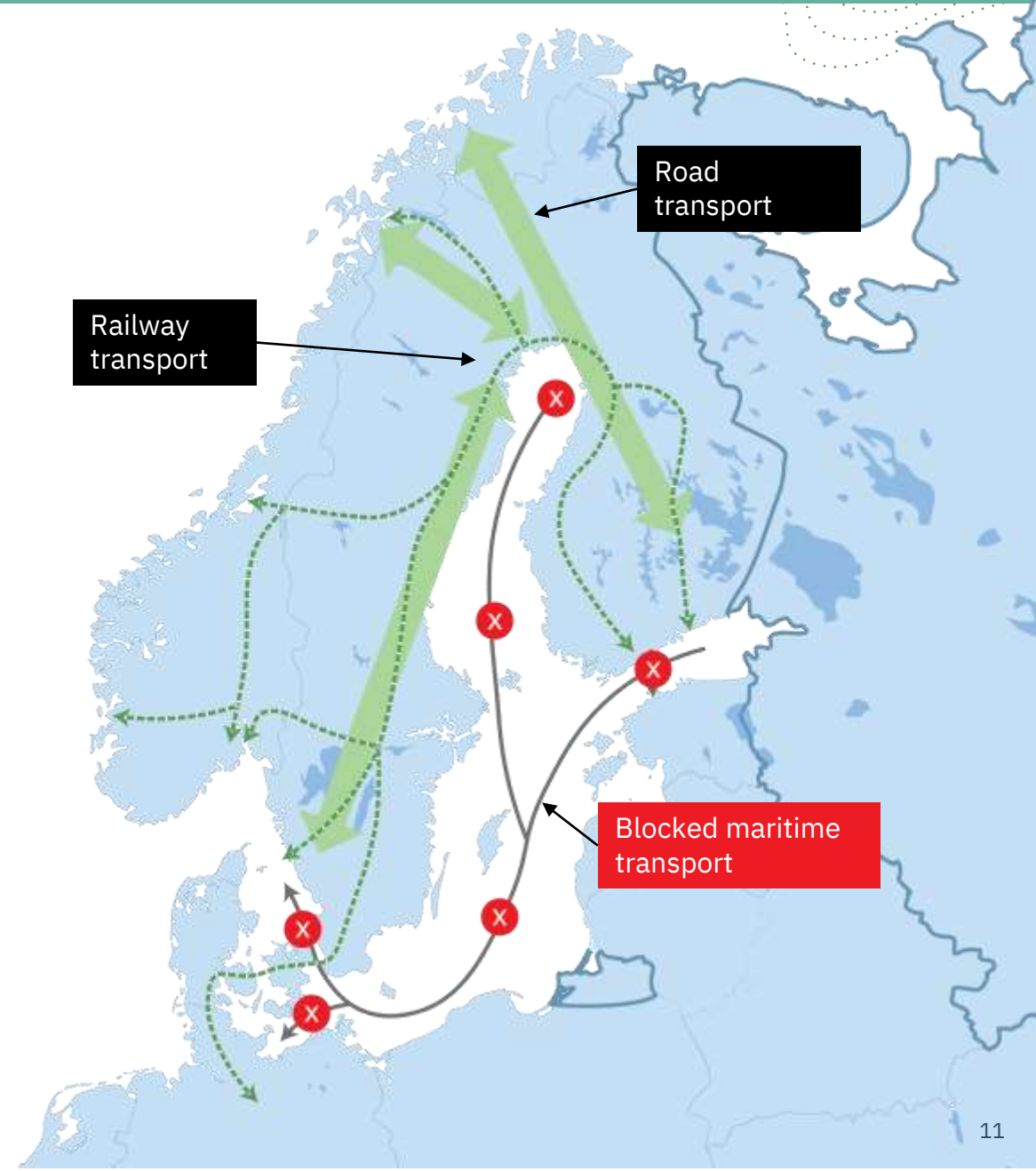


- Railway transport as the primary substitute for maritime transport
- Haparanda and Tornio transloading → a challenge
- Ports with rail connection include e.g. Narvik, Trondheim, Bergen and Oslo in Norway, and Gothenburg in Sweden
- Direct rail connection to Europe through Sweden and Denmark may also be available for use

AIR TRANSPORT



- Air transport for critical products, such as medicines and valuable goods
- Flight path depends on the type and extent of the crisis



Import and export of general cargo



Container and trailer ports' throughput is a bottleneck, even though several ports are available for use



Sufficient road capacity, limited rail capacity



Fluent border crossing by road, transloading for rail transport



Mostly road transport, some rail transport



ANNUAL IMPORTS
11,0 Mt, which is equivalent to
440 000 containers



ANNUAL EXPORTS
16,1 Mt, which is equivalent to
644 000 containers

CAPACITY

Rough estimate: Sweden's and Norway's ports have capacity for 20 % of Finland's general cargo flows. Some flows can be transported overland through Sweden and Denmark.

Import and export of dry bulk



Not many dry bulk ports available for use. Narvik is the most important port.



Limited capacity on the rail network



Reloading of dry bulk needed – slow



Mostly rail transport, rail capacity between Oulu and Tornio is not high enough



ANNUAL IMPORTS
17,6 Mt.



ANNUAL EXPORTS
17,7 Mt.

CAPACITY

Rough estimate: There is capacity for 25 % of Finland's dry bulk flows in Sweden's and Norway's ports.

Import and export of liquid bulk



Liquid bulk ports include Bergen and Gothenburg

Limited capacity on the rail network and not enough wagons for liquid bulk

Temporary storage and transfer loading capacity needed

Mostly rail transport, rail capacity between Oulu and Tornio is not high enough



ANNUAL IMPORTS
14,4 Mt.



ANNUAL EXPORTS
7,4 Mt.

CAPACITY

Rough estimate: Swedish and Norwegian ports have capacity for 50 % of Finland's liquid bulk flows. However, a large portion of e.g. Finnish crude oil and oil product imports already come from Norway and Sweden. This makes the estimation process complicated as the blockage of current maritime flows actually frees up capacity in Swedish and Norwegian ports.

Even in the best-case scenario...

30–40 % of general cargo
can be transported



A reasonable situation in the transportation of retail and grocery products



The forest industry's large product volumes are a challenge

Other industries need transport of general cargo

20–30 % of dry bulk
can be transported



Large impact on the metal and mineral industry

About 10 % of liquid bulk
can be transported



Adequate access to crude oil is an issue

Only a fraction compared to the other industries and cargo types



The chemical industry would easily be disturbed



The logistical system would be disturbed seriously.

Key messages of the presentation



The Baltic Sea is a strategic connection for Finland's foreign trade

The aim is to keep the maritime routes open by all means in all situations. Over 90 % of Finland's foreign trade depends on maritime transport.




Logistics costs would increase quickly and drastically

An increase in costs would cause a drop in companies' competitiveness. If the crisis is prolonged and exports decline, it would affect the Finnish economy.



The manufacturing industries in Finland would be endangered

The uncertainty of the duration of the crisis would force companies to take different measures and even consider moving production out of Finland.



In the situation of the risk scenario, goods transport would use the ports of Sweden and Norway as well as their rail and road network

The capacity of ports and railways sets limitations in Sweden, Norway and Finland. Tornio-Haparanda would be a critical hub for rail transport, and the single-track section between Tornio and Oulu would be at the limits of its capacity. However, the biggest bottlenecks may be the ports in Sweden and Norway, i.e. outside Finnish influence.



We can prepare for the risk scenario by signing international cooperation agreements between states and between companies

Infrastructure development takes time, so future risks must be prepared for well in advance with precisely targeted plans.