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Inland waterway transport in the Baltic Sea Region

Why and how to implement new services?

Agenda

1. **Background: the EMMA project**
2. Best practices: how to make IWT operationally and economically possible?
3. How to increase Inland navigation in the BSR?
4. How to set-up a new inland waterway service?
5. New business cases
6. Support by SPC

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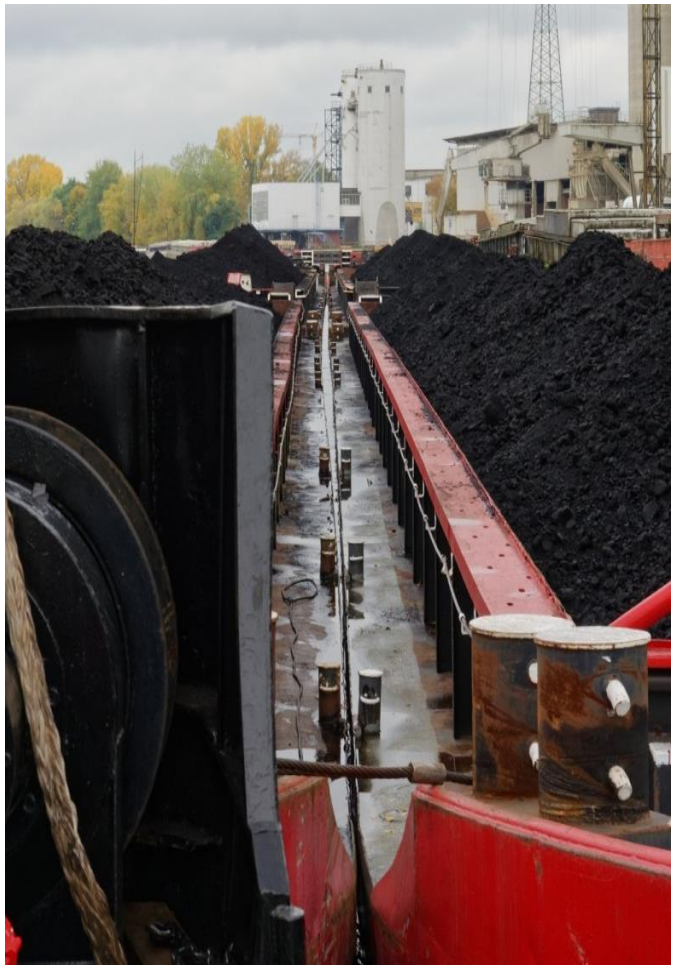
1. Background: the EMMA project

…AIMS TO ENHANCE INLAND NAVIGATION IN THE BALTIC SEA REGION

***E**nhancing freight **M**obility and logistics in the BSR by strengthening inland waterway and river sea transport and pro**M**oting new intern**A**tional shipping services*

- Lead Partner: Port of Hamburg Marketing
- Project Partners: 20 (from DE, FI, LT, PL, SE)
- Associated Partners: 45+

- Funding Programme: Interreg Baltic Sea Region Programme
- Project Budget: 4.42 million €
- ERDF co-financed: 3,45 million €
- Project duration: 3/2016 – 2/2019



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Port of Hamburg MARKETING

Agenda

1. Background: the EMMA project
2. **Best practices: how to make IWT operationally and economically possible?**
3. How to increase Inland navigation in the BSR?
4. How to set-up a new inland waterway service?
5. New business cases
6. Support by SPC … and EMMA Extension?

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2. Best practices: how to make IWT operationally & economically possible?

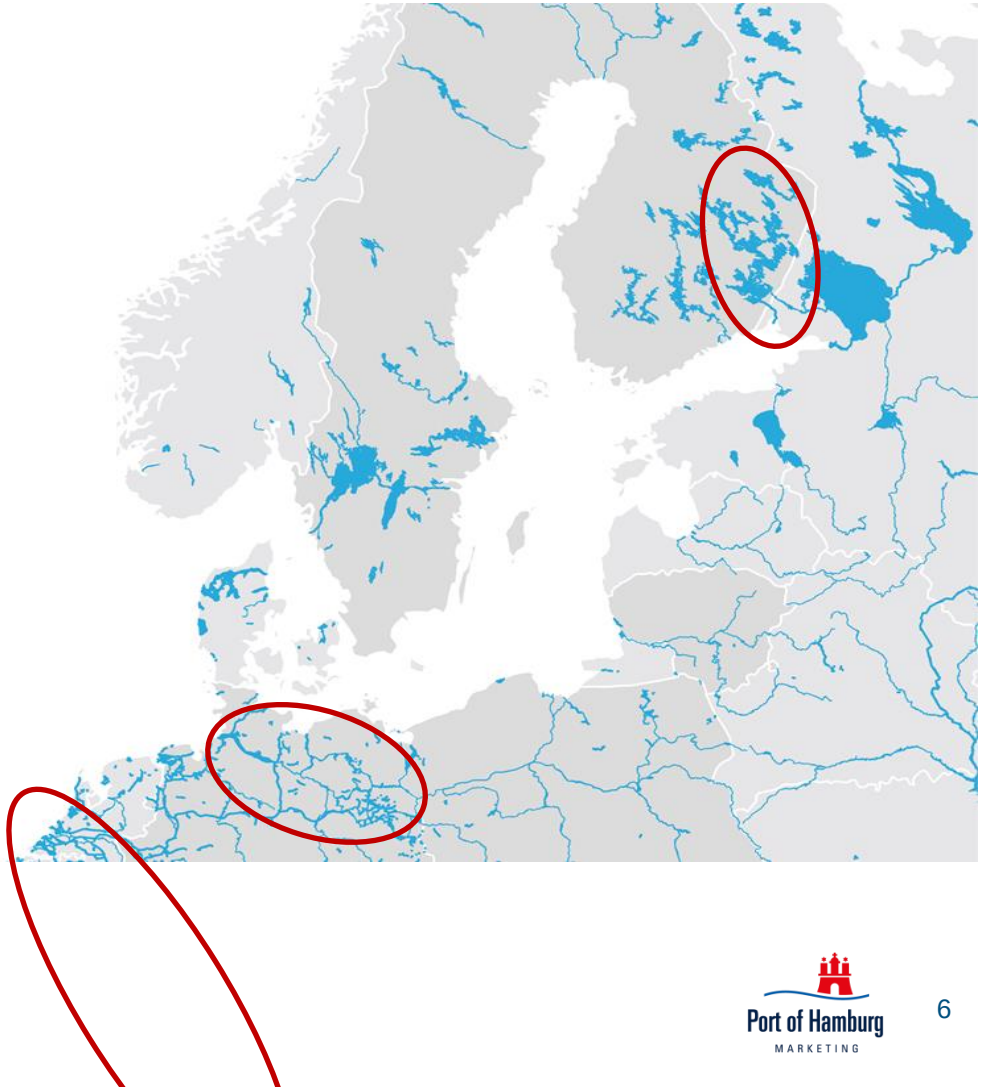
Challenges for inland navigation in the Baltic Sea region

- Infrastructure bottlenecks caused by bridges, locks and ship lifts
- Insufficient fairways conditions caused by poor maintenance
- Weather conditions and water levels
- Smaller transport volumes
- Less dense IWT network
- Limited coverage of the area classified as inland waterways
- Insufficient River Information System applications
- Lack of new business locations close to the water front
- Competition for land

2. Best Practices to address inland navigation challenges

Best Practice cases

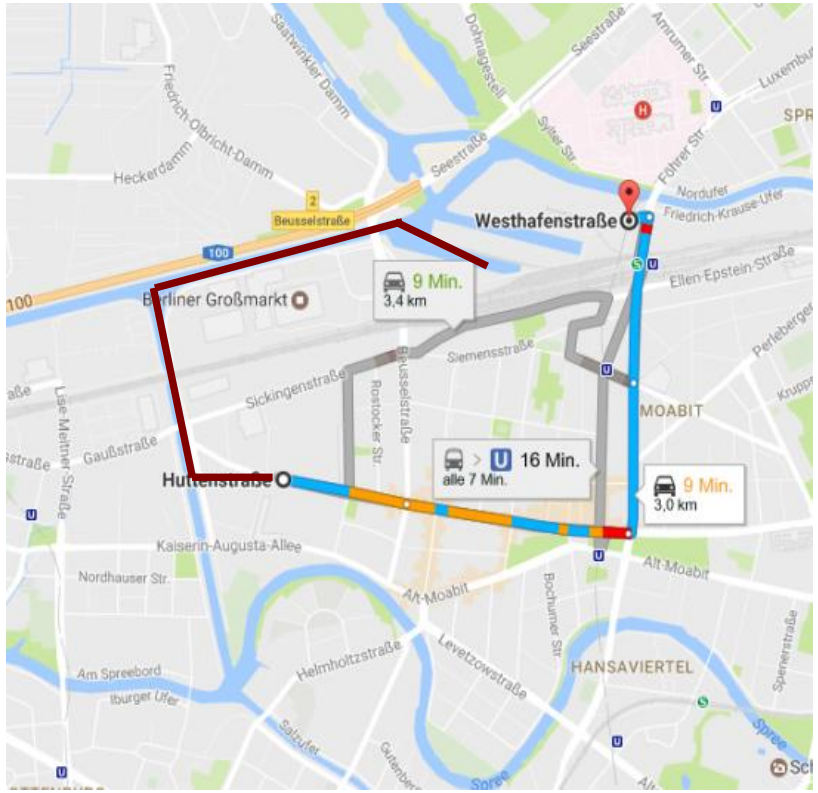
- Heavy goods on the Elbe – three cases
- Container transport on the Rhine – historical success story
- Cellulose on Saimaa Canal



2. Best Practice: Heavy goods on the Elbe

Example: Berlin - Challenge

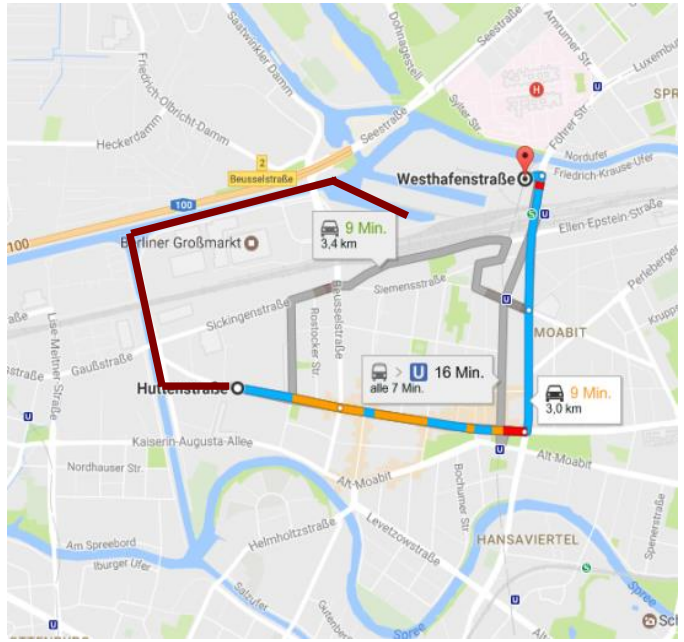
- Increasing dimensions and weight of turbines: 500 t/ unit
- Factory located in the middle of Berlin
- Distance to inland port BEHALA: 9 km
- Route includes a bridge over rail tracks: max 250 t
- Distance to next waterway: about 500 m (no bridges)



2. Best Practice: Heavy goods on the Elbe

Example: Berlin - Solution

- Defined route for heavy cargo
- Construction of a RoRo-ramp on the channel
- Special RoRo barge „URSUS“
  - Admission for transports in zone II
  - Dimension: length 64,50 m, width 9,50 m
  - Draught max. 2.56 m (zone 2), 3.06 m (zone 3)
  - Bearing capacity 1,200 tons
  - 8 tanks for 800 tons ballast (ballast pumps with a capacity of 200 m^3/h)
  - Crane on board with 25 tons capacity (for mobile ramp)
  - Bow-thruster 265 kW, two gas oil generators (74 kW + 400 kW)
  - Sonic deep finders (stern/bow)



Source: BEHALA

2. Best Practice: Heavy goods on the Elbe

Example: Görlitz/ Dresden - Challenge

- Increasing dimensions and weight of steam turbines
  - 6 m height, 6 m width, 10 m length, 280 t
- No truck transport to seaports possible
- Next inland port Dresden
- Restrictions on highway Görlitz-Dresden (bridge clearance, traffic boards…)

Source: Sächsische Binnenhäfen Oberelbe GmbH

2. Best Practice: Heavy goods on the Elbe

Example: Görlitz/ Dresden - Solution

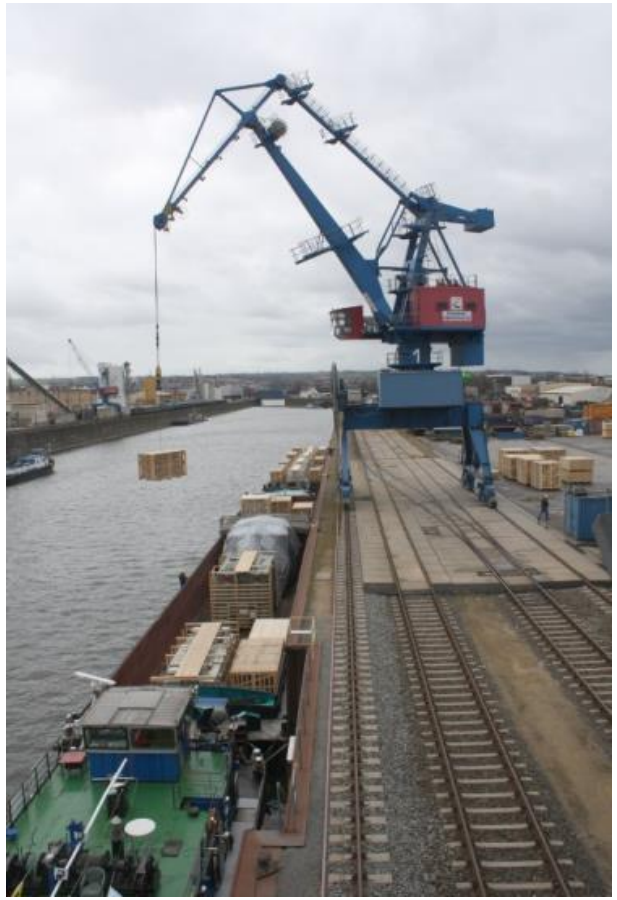
- Lifting traffic boards on highway about 1 m
- Turbines divided intro three parts (stator in two parts, rotor)
- Definition of standardized processes and equipment for transport for easier permissions of permit authorities
- Construction of assembly hall in Port of Dresden
  - Complete turbines and run tests
- New crane for handling to barge

Source: HHM/S. Kunze

2. Best Practice: Heavy goods on the Elbe

Example: Low transport volumes of small goods - challenge

- Market for heavy cargo is limited
- Market for smaller goods is substentially larger
- For small goods truck is cheapest option as quantity of goods often does not fill a complete ship.



Source: Sächsische Binnenhäfen Oberelbe GmbH

2. Best Practice: Heavy goods on the Elbe

Example: Low transport volumes of small goods - solution

- Reduce cost per unit by combining different kinds of goods
- Groupage freight:
  - Combination of different project cargo
  - Combination of project cargo with other goods (bulk, break bulk)
  - Transport of project cargo in regular shipping services
- Combination leads to inland navigation becoming more competitive to road transport.

Source: EUREX s.r.o.

2. Best Practice: Heavy goods on the Elbe

Conclusions

- Road transport:
  - restrictions in dimensions (length, height, width)
  - permission is necessary, additional costs (police, preparation and control of routes etc.)
  - problems with infrastructure in the hinterland (reduction of capacity of bridges)
- Rail transport:
  - restrictions caused of railway loading gauge
  - planning is difficult caused of high frequented relations
  - special waggons are available, but rare

2. Best Practice: Heavy goods on the Elbe

Conclusions

- Inland navigation
  - allows to transport the goods in the surrounding of final destination
  - storage in inland ports is mostly cheaper as in sea ports
  - jit – delivery is easy to organize (requests short in time)

Source: HHM

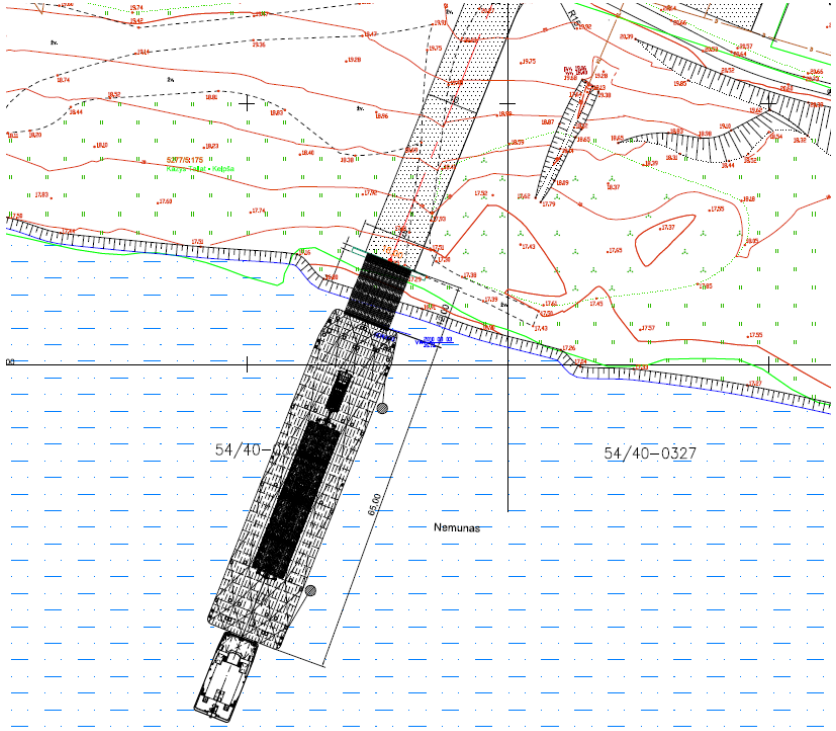
Inland navigation is a solution for most challenges – but you can get new ones.

Reliable transport chains are possible if you consider the risks in the process of transport planning.

2. Best Practice: Heavy goods on the Elbe

Transfer of experience to other BSR countries

- Similar problems in other countries identified
- Exchange with Lithuania in EMMA initiated in order to shift heavy good transports from road to barge
- Direct contact between Lithuanian partners and BEHALA as possible “solution provider”

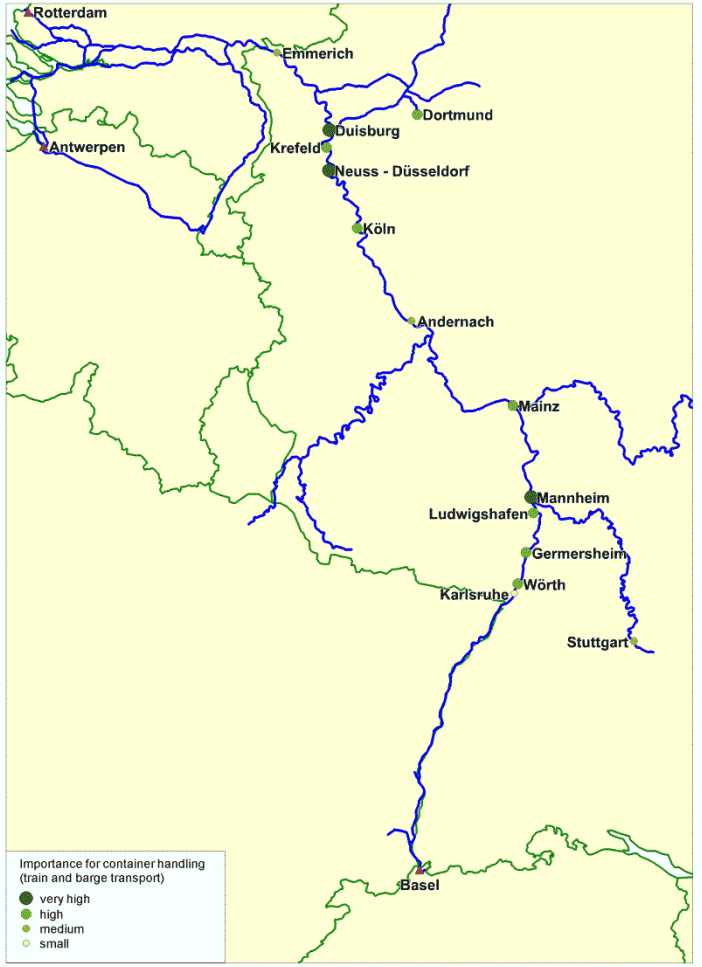


2. Best Practice: Container transport on the Rhine

Success story inland navigation on river Rhine - Background

Growth of container volumes on the Rhine from the past 30 years is showing what can be achieved by

- positive political atmosphere and support
- Cooperation of industry and policy makers for favourable inland navigation conditions
- Volume of traditional goods carried by barge decreased and forced the evolution
- Competitive situation between rail and barge changed



2. Best Practice: Container transport on the Rhine

Success story inland navigation on river Rhine – success factors

- Unlimited barge capacity
- Open for traffic all over the year
- Many economical hot spots along the Rhine
- Massive investments in terminals along the Rhine
- German Funding scheme for intermodal Terminals up to 80%
- Parallel railway lines to seaport
- Railway can substitute inland navigation and vice versa

2. Best Practice: Container transport on the Rhine

Success story inland navigation on river Rhine – success factors

- Inland Ports offers areas for industrial & logistical locations
- Close to intermodal terminals so short last/ first mile
- Industrial Clusters in inland ports
- Clustering of transport chains
- Ports reinvest in new facilities – supporting ROI
- Scale effects on shipping and railway frequencies (daily departures for main destinations)

2. Best Practice: Container transport on the Rhine

Success story inland navigation on river Rhine – success factors

- Massive storage capacity at inland terminals
- State of the art rapid cranes and 24/7 opening
- Some terminals offers customs declaration, repairing, trucking, packing
- Good network of destinations
- Strong competition of networks, operators and nodes
- Different business models, incl. merchants and carriers haulage

2. Best Practice: Container transport on the Rhine

Conclusions

Transferrable to other corridors when

- Investments to terminals close to inland ports
- Financial support for intermodality
- Inland ports have to have hands on land and possibility to grow
- Enough space for industry and logistic investors to enter the area
- EU and member state support for intermodality services
- Removing physical, structural and administrative bottlenecks

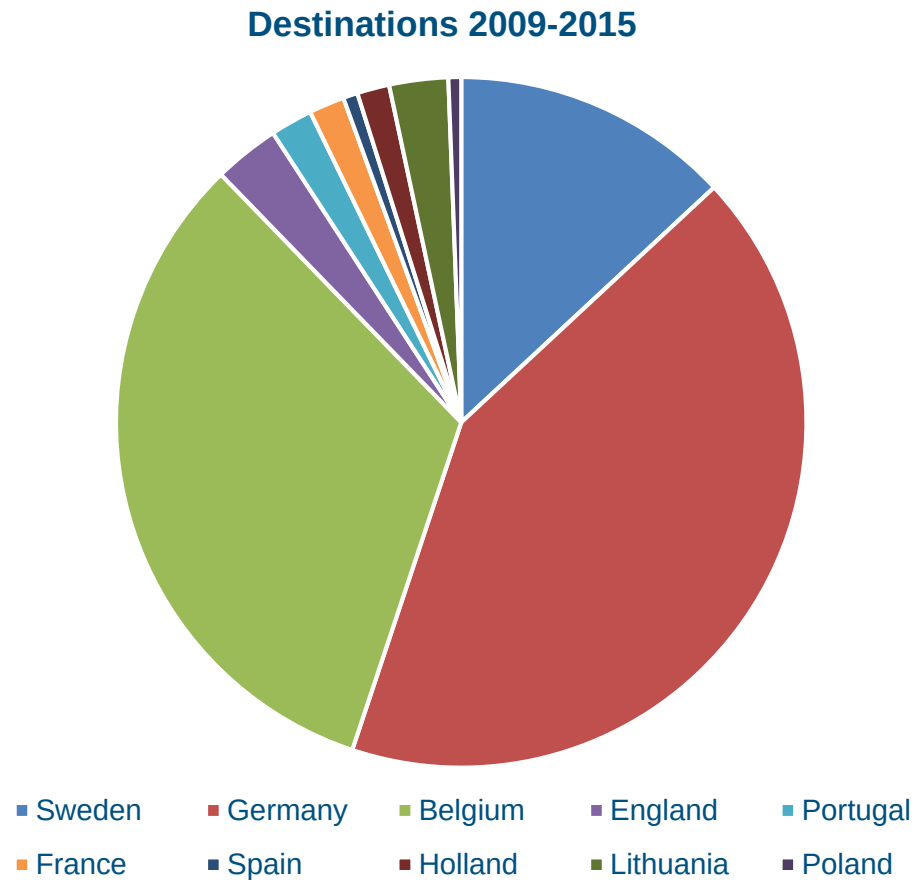
2. Best Practice: Cellulose on Saimaa Canal

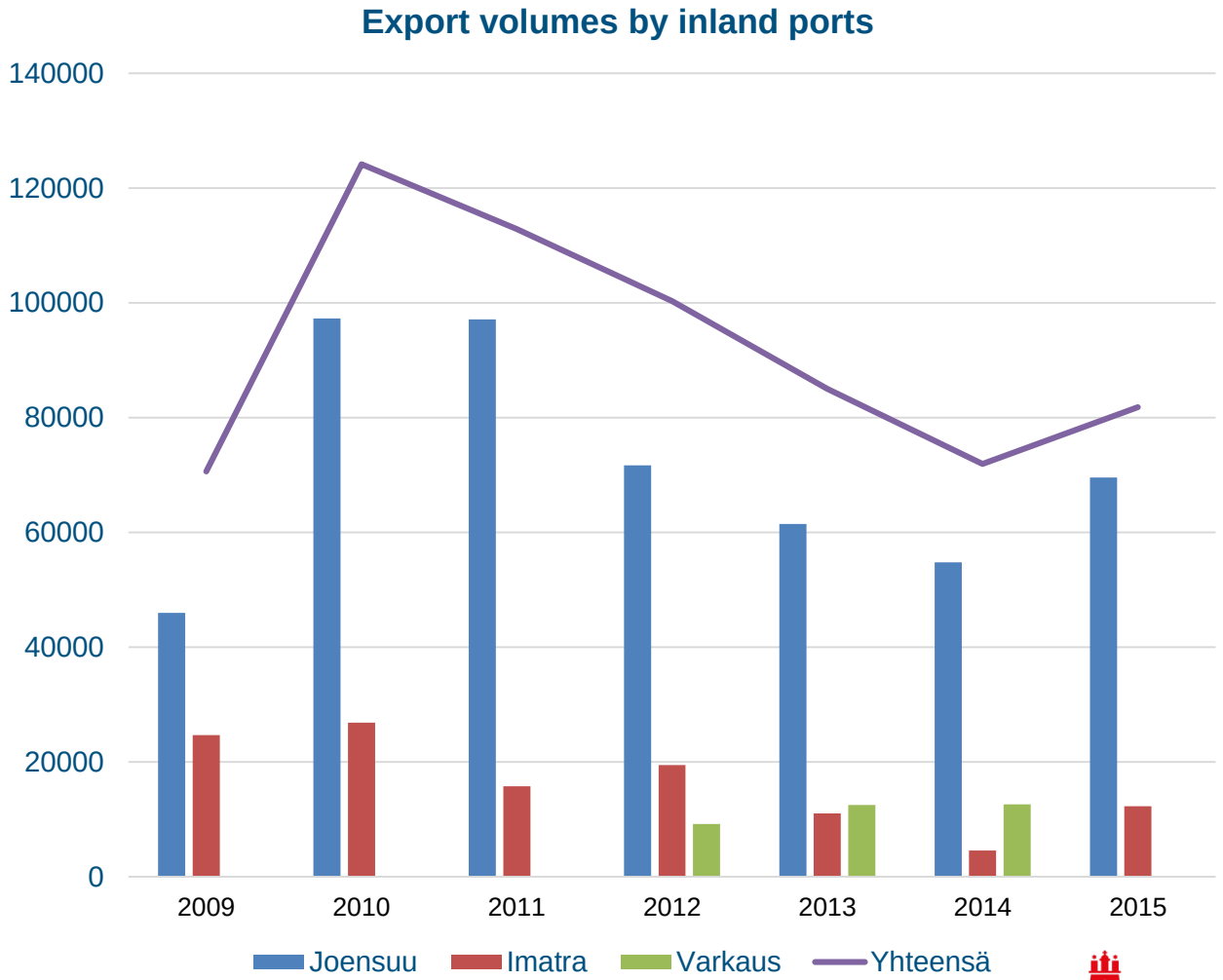
Background

- IWW development focuses mainly in the Saimaa area and the Saimaa Canal
  - Cellulose shipments from Saimaa (2009-2015)
  - From three different inland ports(Joensuu, Imatra ja Varkaus)
  - All the exported cellulose comes from production sites near ports
  - Exported volumes goes approximately 1/3 to Germany, 1/3 to Belgium and 1/3 to other European ports

2. Best Practice: Cellulose on Saimaa Canal

Background: destinations and volumes 2009-2015

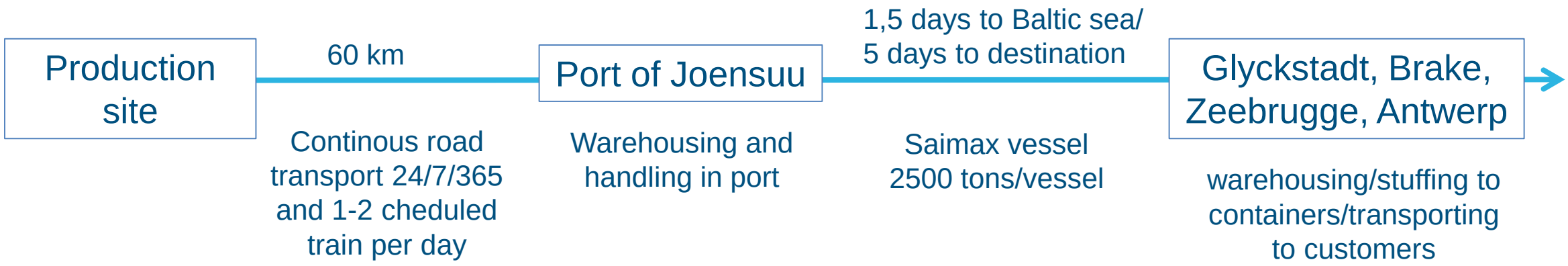




2. Best Practice: Cellulose on Saimaa Canal

Example: Cellulose from North Karelia to Germany/Belgium

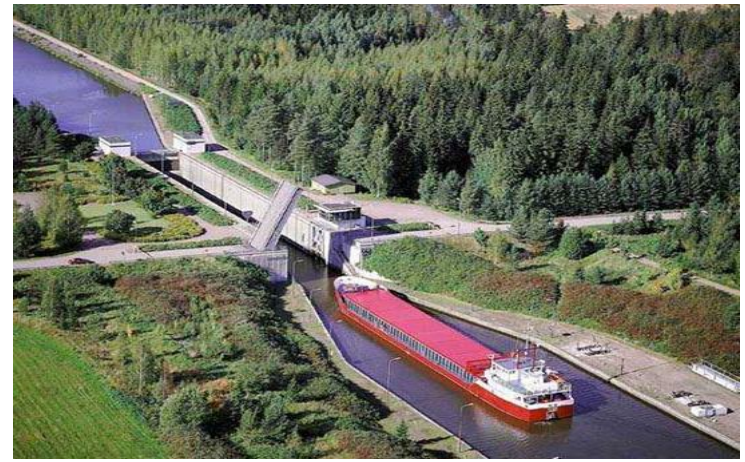
- Cellulose shipments to customers in Europe
- Yearly contracts are divided to 2500 tons shipments
- Starting point: Pulp mill on North Karelia
- Destination: Central Europe



2. Best Practice: Cellulose on Saimaa Canal

Conclusions: Success factors

- Short first mile from mill sites to port/vessel
- direct shipments to customers
- Vessels designed to Baltic Sea are able to enter the hinterland close to production sites
- Efficient and modern material handling loading speed up to 600 tons/hour
- Standard size export unit ables efficient material handling in supply chain



2. Best Practice: Cellulose on Saimaa Canal

Conclusions: Success factors

- Industry must be located close to the water
- Sufficient storage capacity in the port
- Efficient handling equipment
- Minimized handling times in supply chain
- 24/7 operation
- Sufficient barge capacity
  - There may be future demand for increased cargo (IWW and road combined) related to new power plants that produce bioenergy

2. Best Practice: The voice of the Finnish industry

“Economic Order Quantity, optimal transport frequency and knowhow in material handling are the key success factors why the Inland water way is good way of transporting. Also the cost of first and last mile is benefits for Inland water way transport…”

Managing director Ari Mononen, Scanpole/Iivari Mononen Group

“Scheduling of vessels has been very easy, because vessel that operates in Inland water transport is easy to get. Advantage compared to sea ports is that there is always free space in inland port were unload the cargo. That means no waiting and demurrage costs for the shipper. This means excellent supply certainty for our customers…”

Logistic manager Risto Kuittinen, Embra Oy/CEMEX

“For our company Lake Saimaa inland water way transport is not seen as separate transport mode but considered as equal shipping mode to our sea port shipments. When the plant is situated at the lakeside, shipping via Lake Saimaa is the natural, most efficient and environmentally friendly mode of transport. Direct shipments from our inland plant to our customers terminals reduce the number of handling of our cargoes preserving the cargo quality and keeping the intermediate handling and storage costs down.”

Maritime Transport Manager Anna Näsi, Yara Finland

2. Best Practice: The voice of the German industry

“For certain combined transports, there is a maximum total weight of 44 t for trucks transporting goods to the nearest rail station on inland port. This should be valid for all kinds of goods as it would lead to a significant shift potential.”

Authorized representative Jes-Christian Hansen, HaBeMa Futtermittel GmbH & Co KG

“Shippers with smaller transport volumes that do not fill a complete barge, benefit of a regular shipping service for project and bulk cargo. The combination of heavy and high volume goods leads to an optimized vessel utilization.”

Sales manager Annett Hütter, Imperial Baris GmbH, branch Dresden

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3. How to increase Inland navigation in the BSR?

Results from the EMMA survey amongst selected companies

- Not all companies have a potential of shifting their cargo to inland waterway transport.
- Important factors:
  - Location and distance to the IWT network
  - Type of cargo
  - Volume
  - Infrastructure in place
- Willingness is the decisive factor.

3. How to increase Inland navigation in Finland?

Ideas from the Finnish survey and interviews

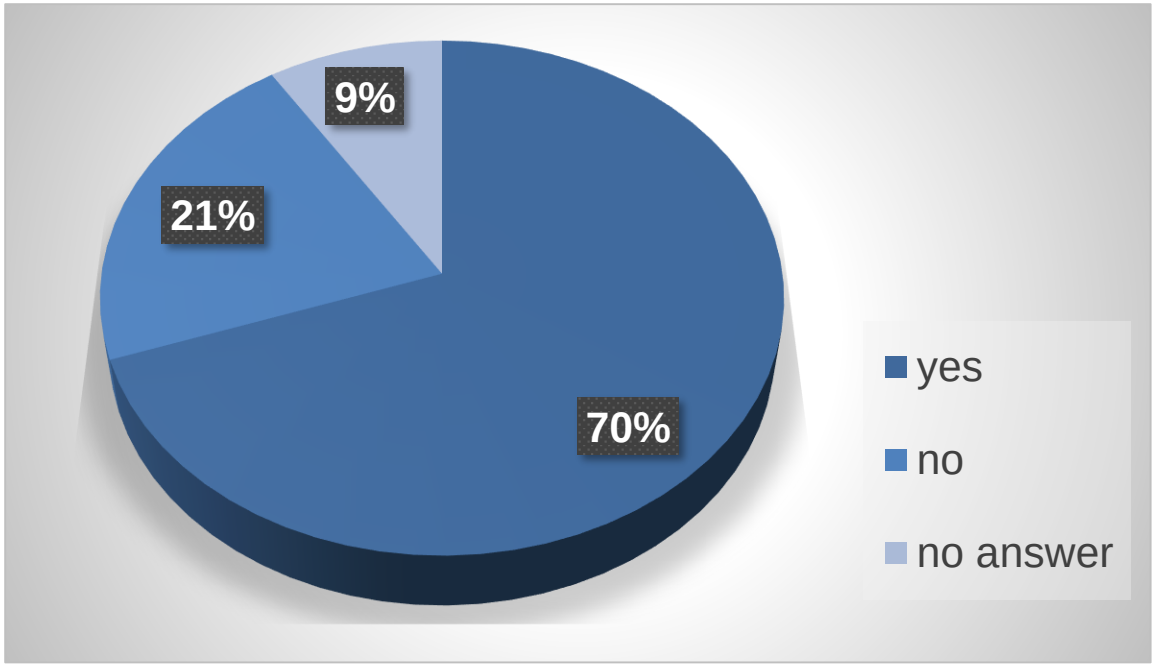
- Biggest potential for IWT is around the mills of Lake Saimaa
- Mills belong to forestry, construction and chemical industry (UPM, Stora Enso, Versowood, Nordkalk, SP-minerals…)
- Small cargo volumes due to missing interest in IWT – it‘s not important for the companies‘ competitiveness
- Finnish climate as limiting factor
- Changes in law regarding working hours is a challenge

3. How to increase Inland navigation in Germany?

Ideas from the German survey and interviews

- EMMA survey in Germany: if all of the barriers would be removed, would you integrate inland navigation in your transport chain?

30 companies are using trucks as dominating transport mode, but if all barriers would be removed, they would integrate inland navigation.



3. How to increase Inland navigation in Germany?

Ideas from the German survey and interviews

- Information about reliability of IWT and its economical advantage is poor
- Driver and fleet shortage can be beneficial for transport companies using IWT
- More support (framework and investments) by policy needed
- Removing infrastructure bottlenecks (locks) and extending vessel fleet
- Improved information system by administration (water levels, closing times of locks) helpful

3. How to increase Inland navigation Lithuania?

Ideas from the Lithuanian survey and interviews

- Kursiu lagoon and river Nemunas have potential for IWT development
- Potential for IWT usage by chemical, energy and construction industry
- IWT infrastructure needs to be developed (loading places) as well as IWT transport units (operators and barges)
- Experience and knowledge about IWT needs to be increased

3. How to increase Inland navigation in Poland?

Ideas from the Polish survey and interviews

- IWT potential on Oder river E30, Vistula river E40 and international waterway E70
- Highest potential in oversize cargo, bulk, chemical and petrochemical industry
- More inland ports, loading and transhipment possibilities needed
- No suppliers on IWT network yet
- Inland Waterways locks don’t work on Bydgoszcz Canal

Only when the river conditions would be improved and IWT would be offered at a low price level, the potential of IWT could be increased. The AGN implementation will be crucial to make Polish inland waterway to minimum IV class (International Waterways E-30, E-40, E-70).

3. How to increase Inland navigation in Sweden?

Ideas from the Swedish survey and interviews

- Sweden implemented EU regulations for IWW in December 2014
- Appointed IWT zones: lake Vänern, Göta älv and lake Mälaren
- Knowledge about new mode has to be increased amongst industry and policy
- Potential within basic industies (forest, petroleum)
- Appropriate vessel fleet needed for Swedish conditions
- Realisation of planned new warehouses and logistics hotspots along Göta älv river
- Lake Mälaren has suitable barges and high volume due to proximity of city of Stockholm

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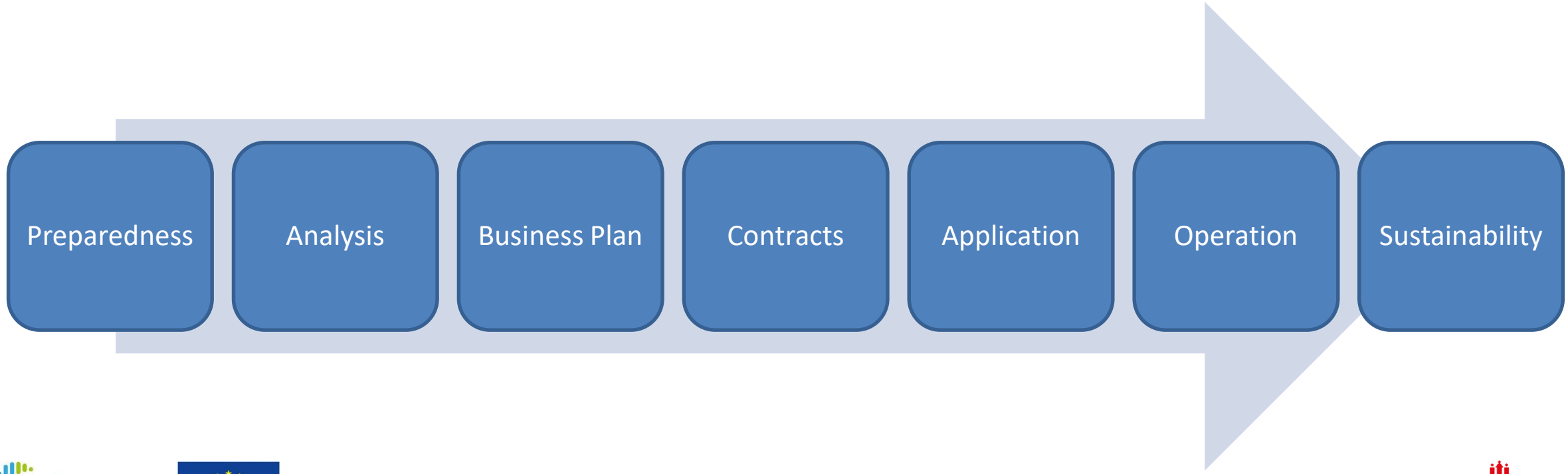
4. How to set-up a new inland waterway service?

From analysis to business case: 7 steps

- Economic feasibility is key.
- Special characteristics: many parties involved and issues related to shipping



4. How to set-up a new inland waterway service?

From analysis to business case: 7 steps

1. **Preparedness**
   - Lobbying, promotion, marketing
   - Supporting infrastructure and services (pilot, locks…) are supporting business development
   - Economy and ecology benefits
2. **Analysis**
   - of the market potential
   - Identification of potential volumes and clients
   - Profitability calculations

From analysis to business case: 7 steps

3. Business Plan

- Service characteristics – Business idea
- Market and Customer requirements
- Vessel characteristics
- Organizational set-up
- Legal considerations
- Market Regulation and quality control
- Economic feasibility
- Marketing
- Risk management

From analysis to business case: 7 steps

4. Contracts

- Understanding of contract law
- Consideration of legislation of several countries
- Long-term contracts enable investments

5. Application

- Permission process
- Environmental impact assessment?

From analysis to business case: 7 steps

6. Operation

- Monitoring of performance and quality
- Reacting to possible changes or challenges
- Implemented maintenance and repairs

7. Sustainability

- Environmental side (e.g. alternative fuels - hybrid, electricity, LNG…)

Sustainability of business requires constant monitoring of costs, changes in the market, changes in demand, and acting accordingly.

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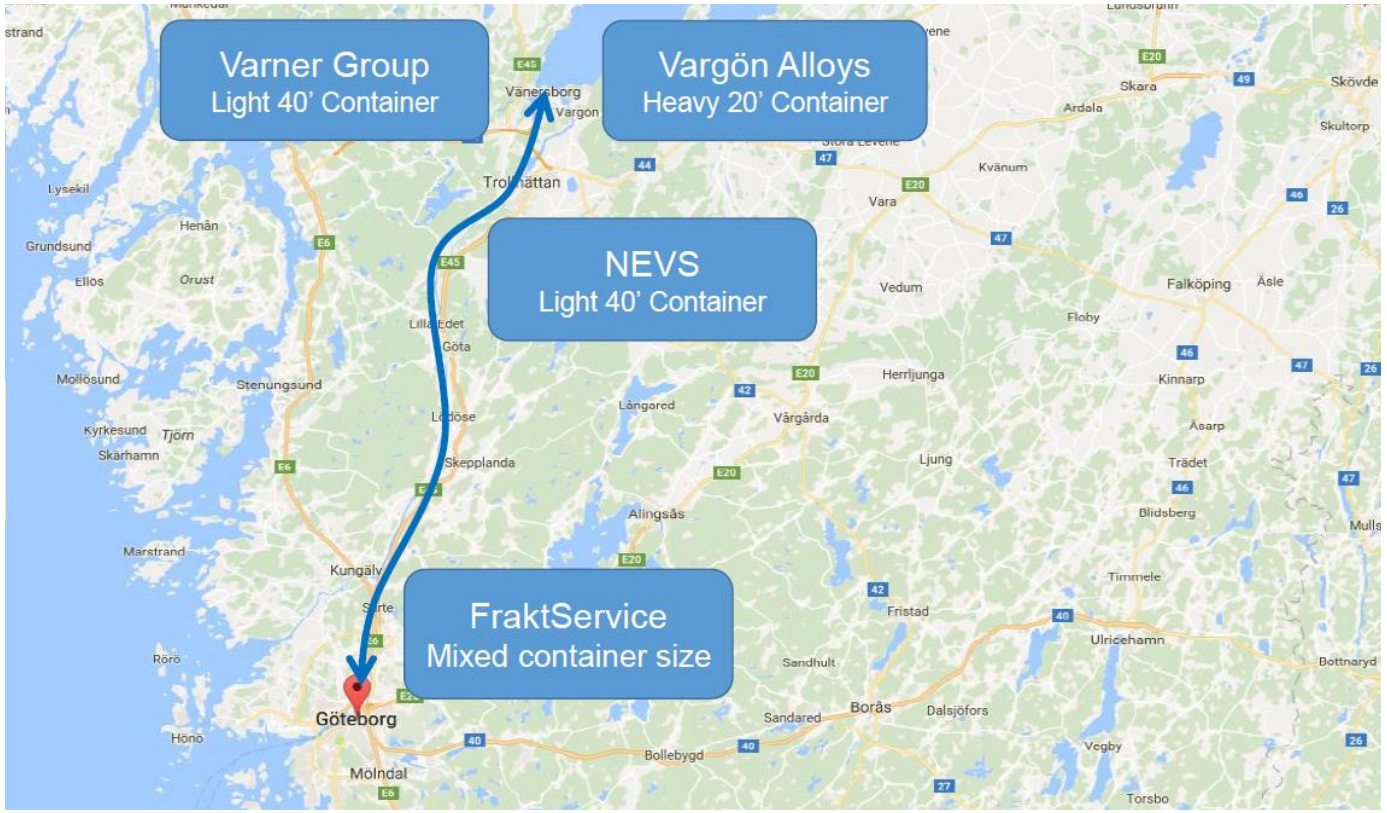
5. New business case: Sweden

Barge container service on Göta älv: Göteborg - Vänersborg

5. New business case: Sweden

Barge container service on Göta älv: Göteborg - Vänersborg

- Customers and market area



5. New business case: Sweden

Barge container service on Göta älv: Göteborg - Vänersborg

- Potential volumes – via Port of Göteborg

Customer	Annual Potential	Cargo	Direction
Varner Group	6000 units	40‘	Import
Vargön Alloys	1200 units	20‘	Export
NEVS	3000 units	40‘	Export
FraktService	500 units	Mixed	Import/Export
Total estimation	20.000 TEU		

5. New business case: Sweden

Barge container service on Göta älv: Göteborg - Vänersborg

Strenghts

Strong & solid owners of Avatar Logistics

Good skills in inland navigation

Reliable partners in barge operations, port handling & distribution

Offering a sustainable solution

Weaknesses

High fixed costs on long term

High initial costs before start

Low volume during start-up phase

Difficult to predict start date of the IWT service

Inland navigation is a new transport mode in Sweden, a lot of marketing needs to be done

ctors in port, fairway & pilot dues

SWOT

Opportunities

Offering a sustainable solution

IWT has high transport capacity

Reliable time table with a IWT solution alternative

Barge will be established as the fifth transport mode reised from pilot & infrastructure fees

Threats

Strong competition from road transport

Low price services

Price shocking campaigns from competitors

Negative or none political decisions for IWT future in Sweden

Non-performance in contracted ports

5. New business case: Poland

5. New business case: Lithuania

Transport of oversize and mass cargo by barge

- Barge service between Klaipeda and Kaunas or Jurbarkas

- Potential IWT market:
  - Oversize cargo (wind meals spare parts, heavy machinery for the energy and chemical industry as well construction big and heavy spear parts
  - Grain, wood and wood production
  - Chemistry production (fertilizers and raw materials for fertilizers producing
  - LNG as fuel for small cities hitting stations and other users

5. New business case: Lithuania

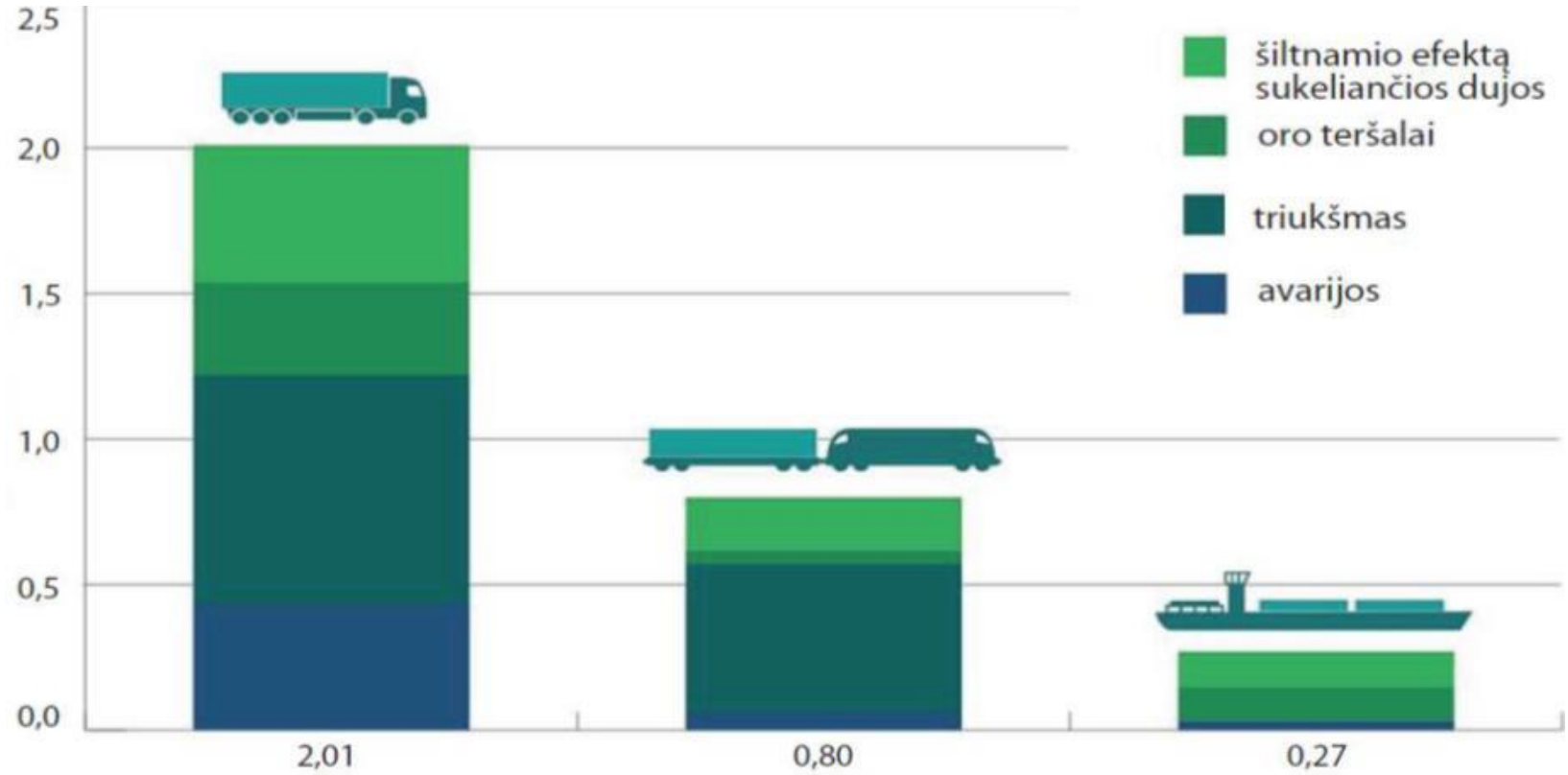
Transport of oversize and mass cargo by barge

- Potential cargo flows
  - Construction materials (sand, gravel) - up to 1 million tons per year;
  - Grain – up to 500000 tons per year;
  - Wood and wood production – up to 300000 tons per year;
  - Oversize cargo - up to 1000 units per year.

5. New business case: Lithuania

Transport of oversize and mass cargo by barge

- Comparison costs, environmental impact and accidents risks between transport modes



5. New business case: Lithuania

Transport of oversize and mass cargo by barge

Strenghts

Possibilities used Lithuania IWW for the oversize cargo transportation as well some types of the mass cargo.

Existing depts. of the IWW is enough for the oversize and mass cargo transportation with barges capacities up to 600 – 800 tons.

Transportation oversize cargo by Lithuania IWW can decrease transportation costs, delivery time and should be more environmental friendly in comparison with other transport modes

Weaknesses

High infrastructure and superstructure preparation costs, lack of experience and tradition. During dry summers it is complicate keep guaranties depts. on the all length of the Lithuania IWW for the freight transportation

Limit of the cargo quantities which could be reoriented from roads and railway transport on IWW.

SWOT

Opportunities

Increase depts. on the IWW by building patches of equipment and attract more cargo on IWW.

Mass cargo owners, located clause to the Lithuania IWW, such as agriculture and wood industry positively look on IWW opportunities in future.

Threats

Good public road and railway network in Lithuania and low density of population (in comparison with The Nederland density of population in Lithuania is about 8 times less), cannot stimulate create big volumes of the cargo and rich critical mass.

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