

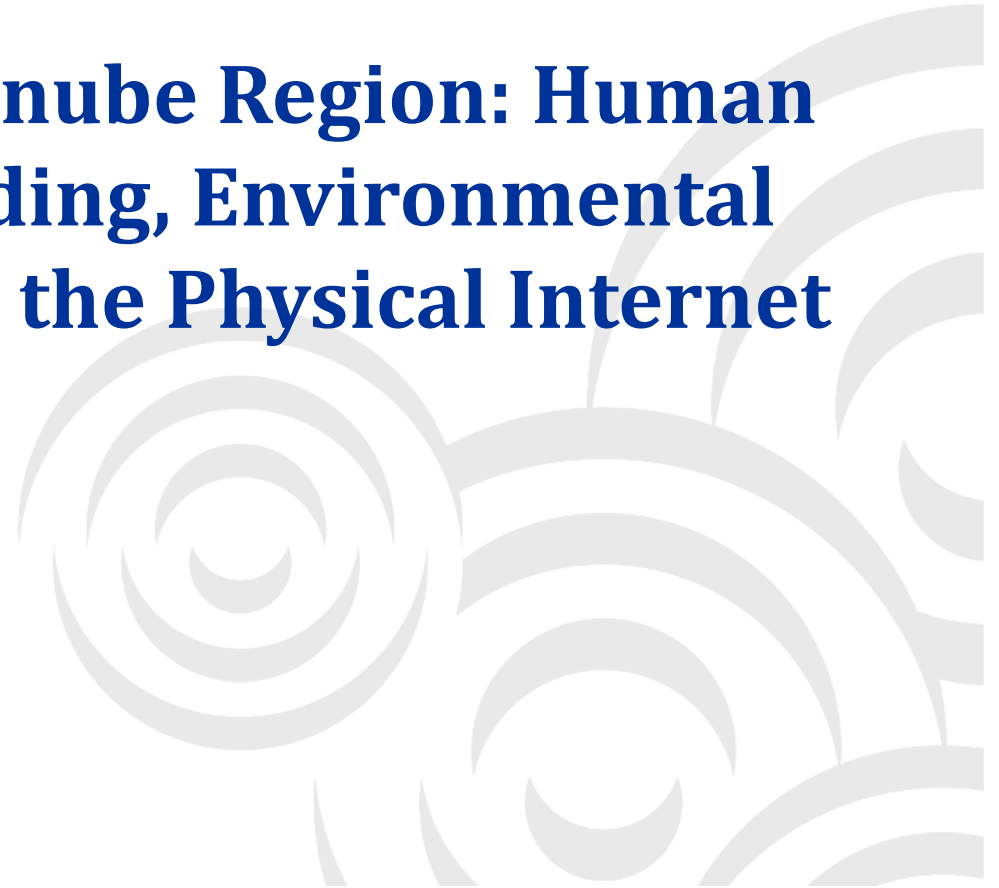


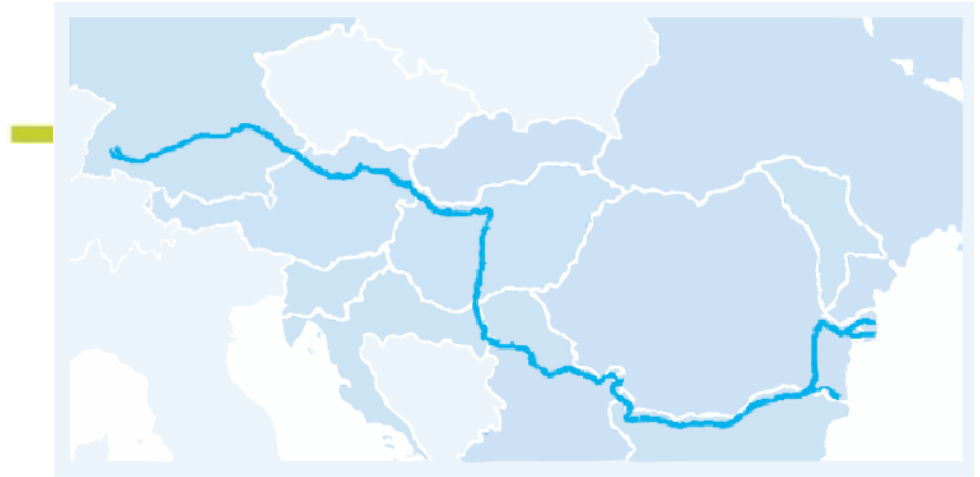
Danube Transnational Programme

DAPhNE



Ports in the Danube Region: Human Capacity Building, Environmental Performance & the Physical Internet





Danube ports

... as key elements for a sustainable and efficient transport system and important centres of economic activities

- 230 inland ports in the TEN-T network - 70 along 2.414 km length of Danube
- connects CE & SEE with growing markets in Black Sea Region
- international waterway – 10 countries with 90 Mio inhabitants in Danube area → economic importance

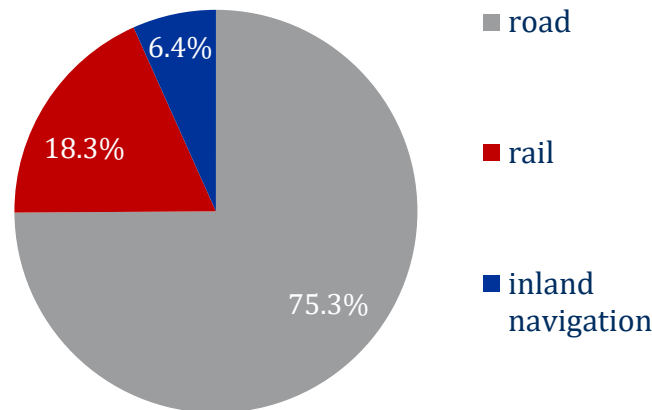
BUT

- ... lack of environmental monitoring → use environmental key performance indicators
- ... lack of qualified & trained personnel → develop training for human resources
- ... digitalization needed → integrate in the Physical Internet



Challenges of freight transport in Europe

Modal Split Europe (2016)



transport accounts for almost a quarter of Europe's greenhouse gas emissions!

Challenges

- increasing freight volume
→ CO2 emissions
- increase of energy costs
- bottlenecks in infrastructure
→ limited road capacity
- public and political pressure



Increased use of eco-friendly transport modes necessary

What is a sustainable transport mode?

bulk freight capacity

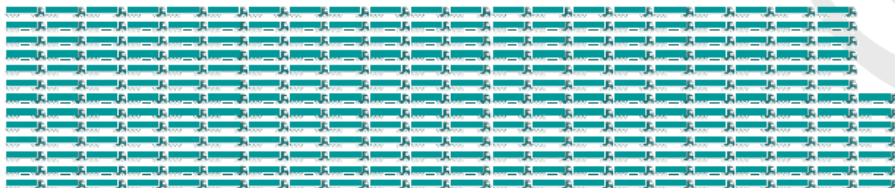
1 convoy with four pushed lighters: 7,000 net tons



175 railway wagons at 40 net tons each

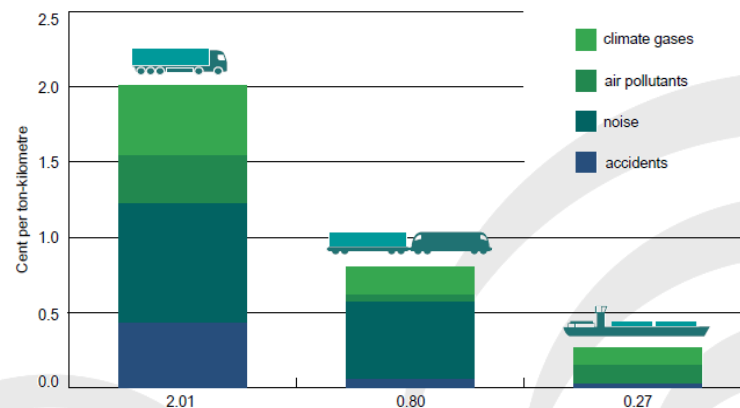


280 trucks at 25 net tons each



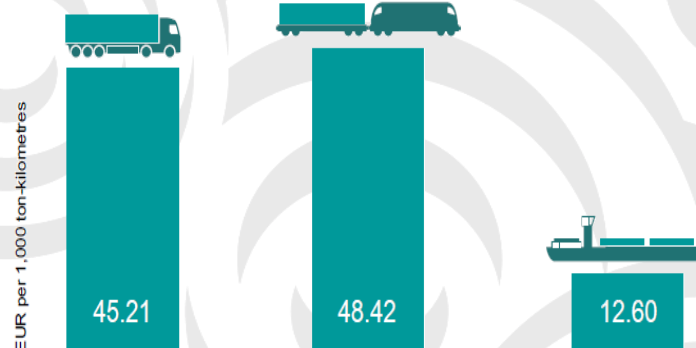
Source: via donau

external costs



Source: PLANCO Consulting & Bundesanstalt für Gewässerkunde 2007

infrastructure costs



Source: PLANCO Consulting & Bundesanstalt für Gewässerkunde 2007



Why measure the environmental performance of Danube ports?

Pressure due to shift to inland ports

- environmental performance needs to be monitored
- location at densely populated urban areas

Port operations and activities have effects on environment

- air, water, noise, port area...

Environmental key performance indicators (EKPIs) to...

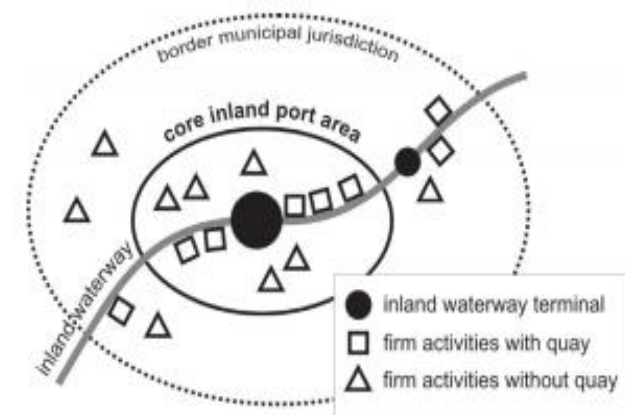
- monitor progress, provide picture of trends and change over time
- enable benchmark
- raise public awareness on environmental issues

Challenges when measuring the environmental performance of Danube ports

“When you have seen one port – you have seen one port” (*Charles Haine, DP World*)

Specifics of inland (Danube) ports

- each port has different environmental aspects – depending on activities carried out
- relationship with local community important – port area and hinterland
- different settings
- choice and measurement of EKPIs or how to integrate them on-going debate



Relation between inland port and hinterland

Source: Wiegmans et al., 2015;

Challenges when measuring the environmental performance of Danube ports

Limited research on EKPIs in inland ports

- no standardized procedure to define EKPIs
- research focuses on sea ports - in particular container ports
- culture of monitoring and reporting in inland ports restricted due to their special circumstances in terms of geography, ownership, organization, commercial profile...

Sea ports as benchmark

- inland port and seaport sectors may face equivalent environmental challenges
- environmental Management Systems (EMS) for seaports such as PERS, EMAS, ISO 14001

Recommendations to measure and improve environmental performance of inland ports

Elaborate common Environmental Evaluation Framework and Policy for Danube Inland Ports

- standardise

Dissemination and Lobbying

- collaborate with stakeholders from industry (e.g. logistics service providers), political institutions, and interest groups (e.g. ALICE)

Financial support

- Identify potential funding sources and collaborate in projects

Networking and Collaboration

- learn from good practices in Rhine region/ good performing ports
- Build up a strong network

Education and Training

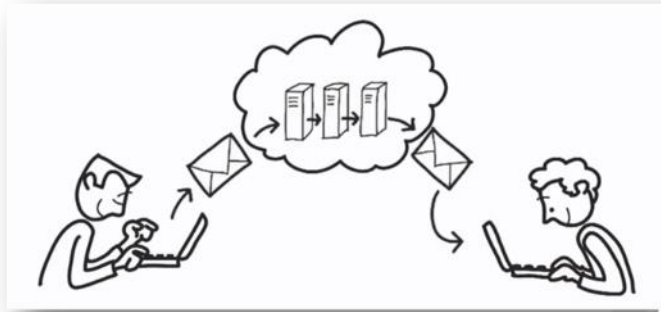
- Ensure that environmental performance/ sustainability is part of education & training



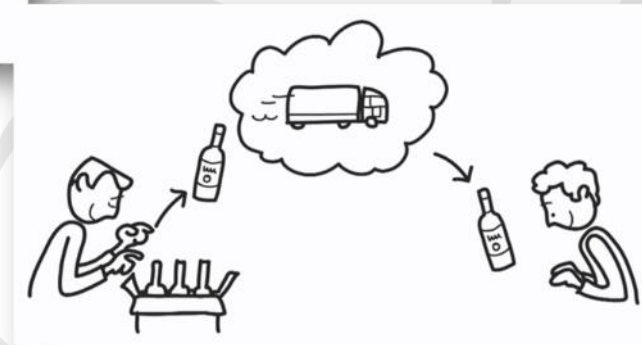
What can we do to integrate inland navigation
into a multimodal network?

THE PHYSICAL INTERNET

The Vision of the Physical Internet: Established by 2030

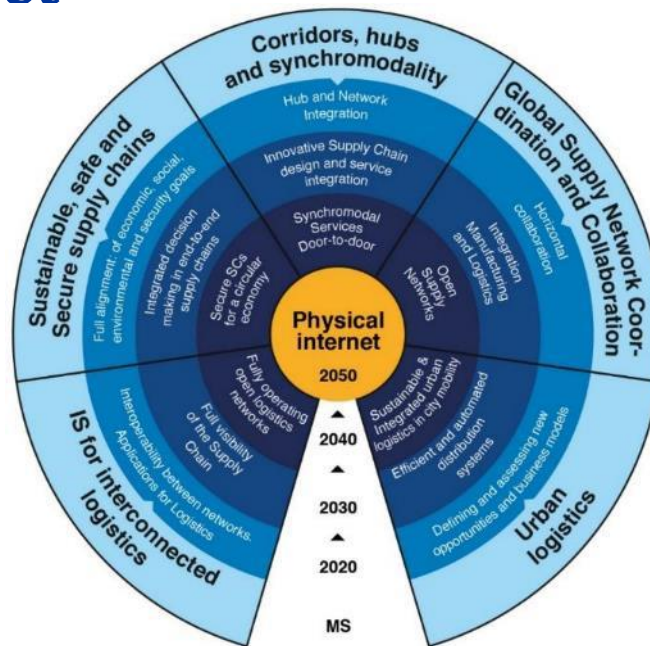


Synchromodality is needed to establish the Physical Internet



Quelle: ALICE

Synchromodality as a Way towards the Physical Internet



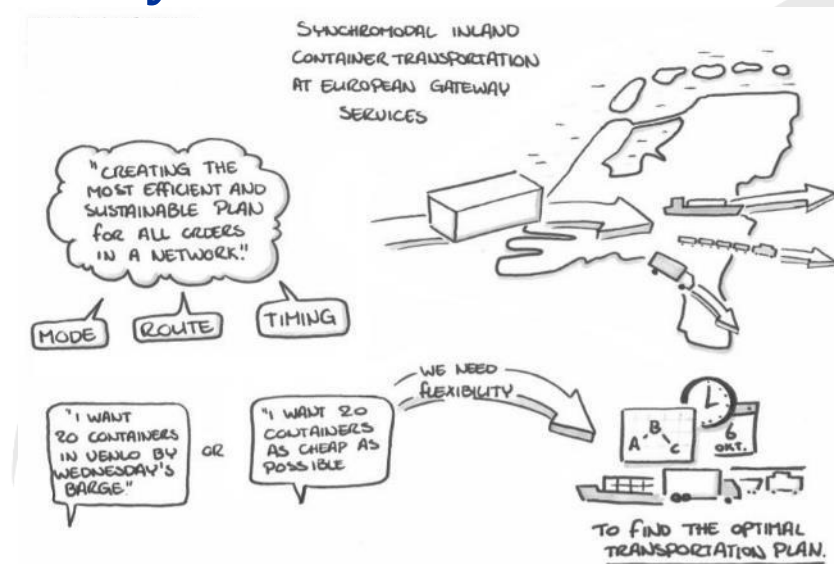
According to the European Union, future freight transport is sustainable and synchromodal

alice | Alliance for Logistics Innovation through Collaboration in Europe

Physical Internet until 2030
Emission free transport system until 2050

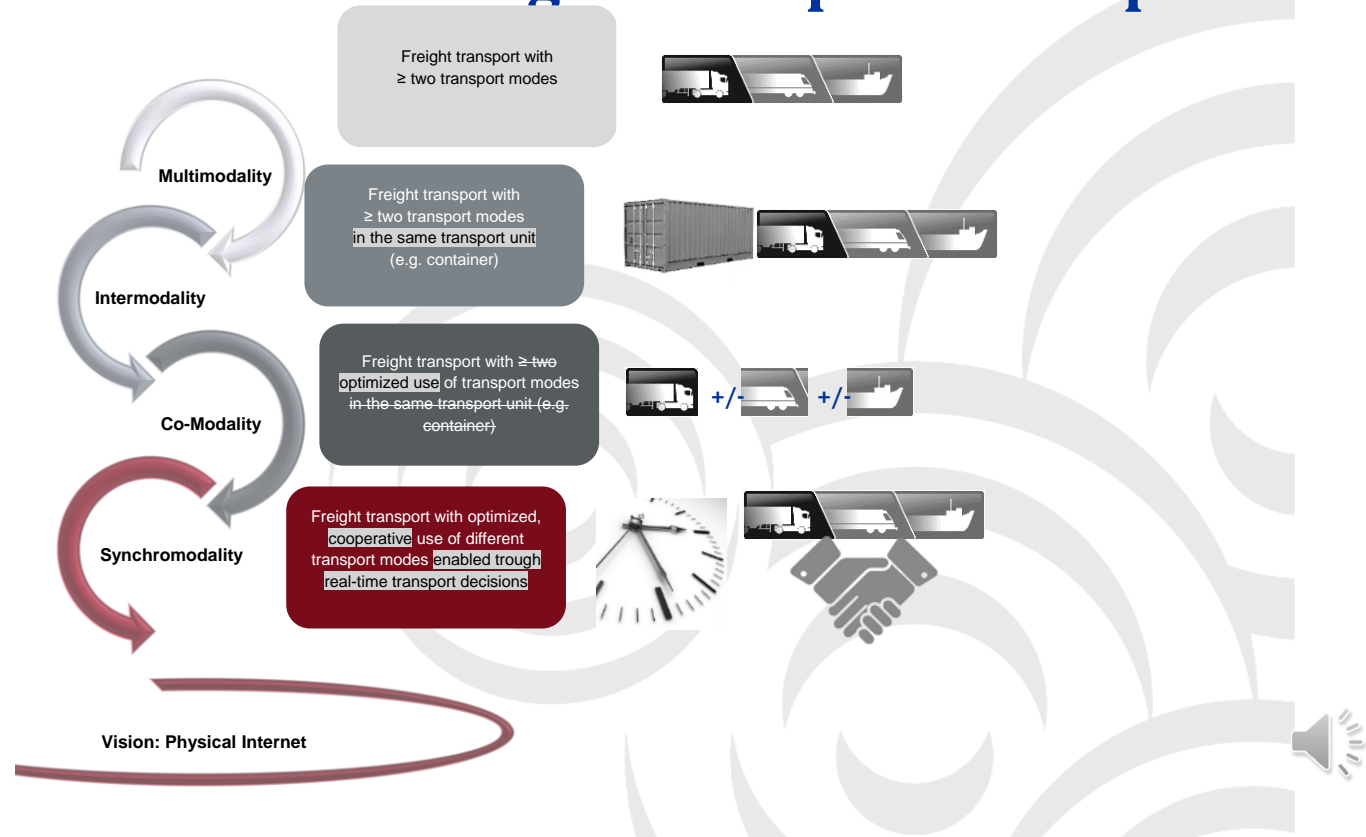
What means Synchronomodality?

- Promising concept to foster modal shift
- Based on „amodal booking“
- Network orchestrator plans and optimizes flows of goods
- Real-time switching of transport modes
- Resilience through back-up function

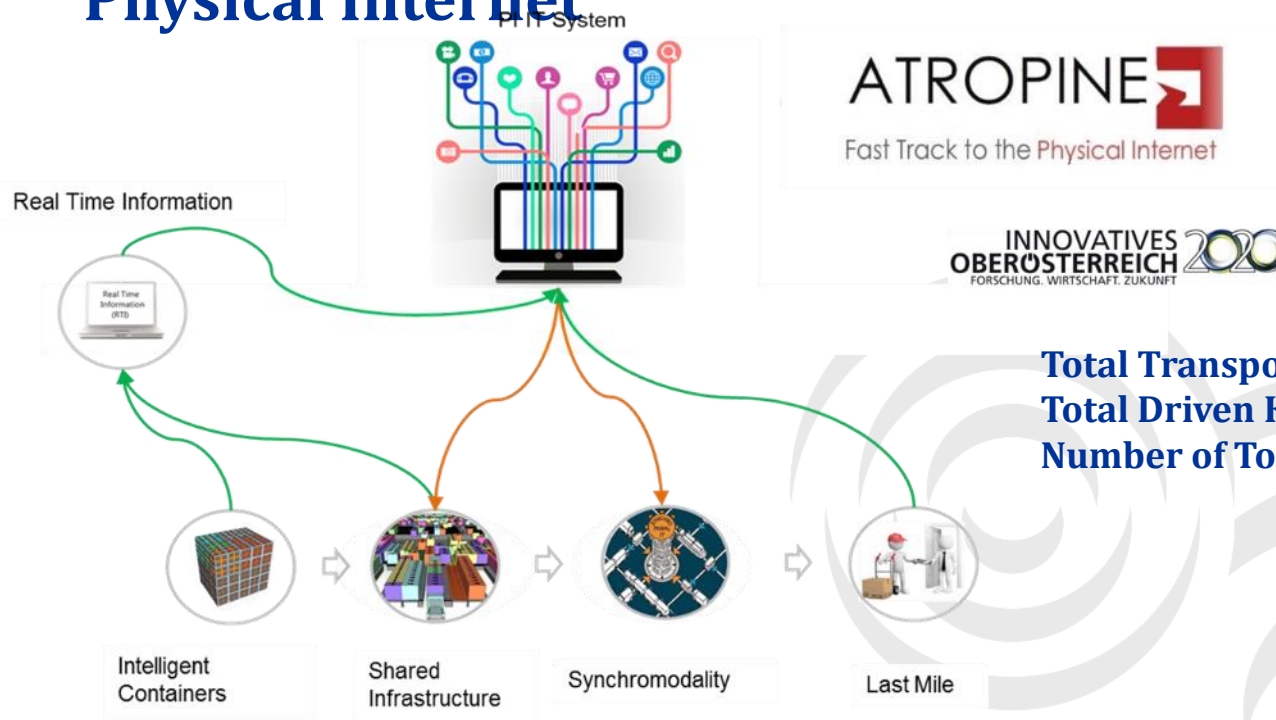


Source: <http://rudy.negenborn.net/rudy/>

Chronological Evolution of Freight Transport Concepts



Transport Bundeling in Austria: Test Region for the Physical Internet

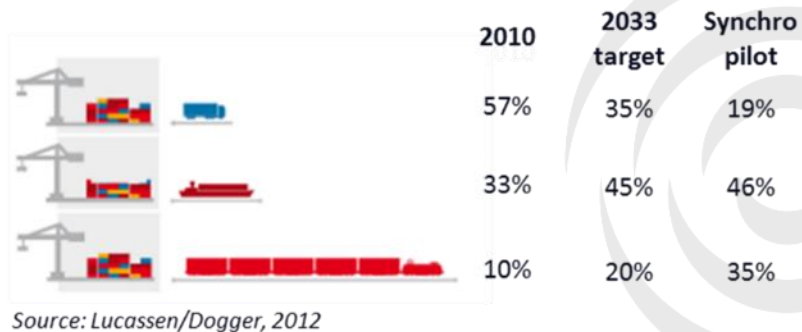


Total Transport Costs: up to - 15%
Total Driven Kilometers: up to - 20%
Number of Tours: up to - 25%

Quelle: Logistikum

The Results of a Synchromodal Pilot

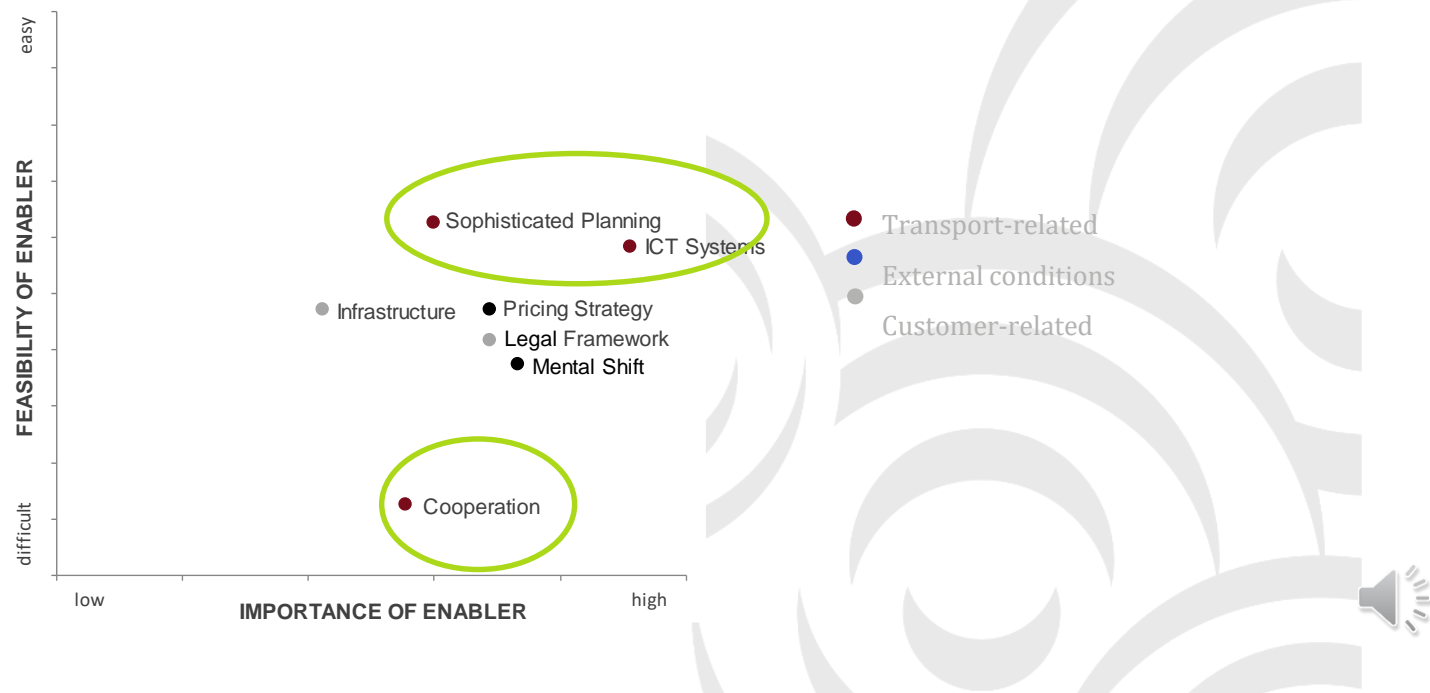
- Concept originates from the Netherlands
- Quite unknown in the rest of Europe
- First pilot from Rotterdam to Tilburg in 2011
- Impressive modal shift achieved within pilot





Key Enablers: The Opinion of the Experts

Classification according to Feasibility and Importance based on Expert Interviews (with experts from the Netherlands and Belgium)



What happens without cooperation?



LOGISTIKUM
CHALLENGE ACCEPTED



Quelle: NASA



Danube Transnational Programme

DAPhNE



How has the skills to implement Environmental Key Performance Indicators and the Physical Internet?

NEED FOR TRAINED PEOPLE



Workplace Danube inland port

Challenges:

- ... shortage of qualified personnel
- ... focus of port sector mainly on technological advances
- ... activities are less dependent on human effort, knowledge and skills
- ... training is often an overlooked area which can have a significant impact on port performance
- ... new trends in field of logistics (digitalisation, new business models, sustainability...) have an affect on ports and training
- ... changing labour market – jobs are changing

What are my tasks in the future?

What qualifications do I need?





Results – current and future training needs

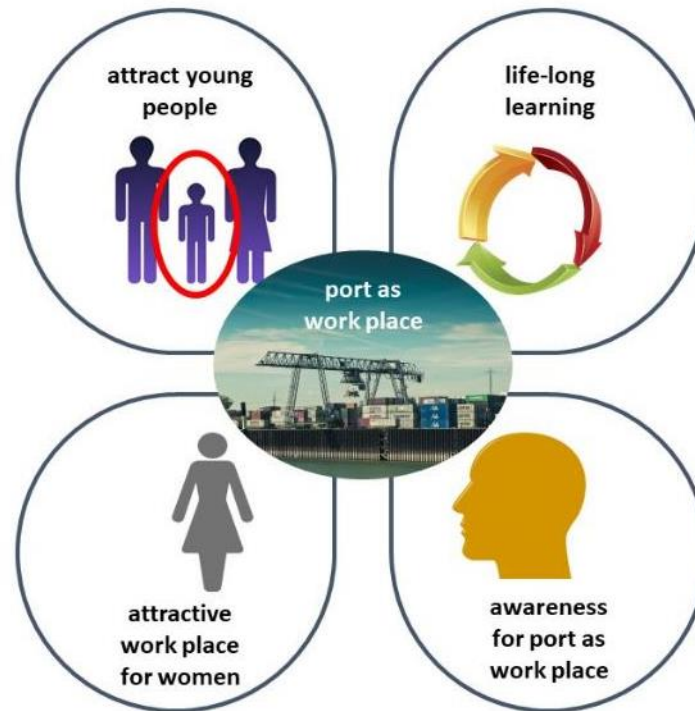
current training	future training
<ul style="list-style-type: none"> • focus on safety, logistics and administration • no standardized training program for new employees • no funding sources for training • school-leaving qualification 	<ul style="list-style-type: none"> • harmonized training is needed to increase competitiveness of inland ports • important trends: digitalization, sustainability must be covered • preferred media <ul style="list-style-type: none"> • online media (learning materials, courses) • workshops (theory & practice)

Major findings

- majority of port employees are older than 35years → babyboomers will retire → new employees need to be found!
- current training is not sufficient → adaption of curricula and use of new media (e.g. online learning)
- port logistics → included in general logistics education (not many schools with focus on inland ports)
- ports as an attractive workplace in the future → awareness: improve port image, promote new jobs



Four recommendations for people working in ports





Thank you!

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If you want to keep up-to-date about the DAPhNE project, please subscribe to project newsletter:

<http://www.interreg-danube.eu/approved-projects/daphne>

Results – port authorities

	Austria	Hungary	Croatia	Bulgaria	Romania
Number of filled questionnaires	3	3	1	3	1
Number of Employees	199	64	8	305	911
HR department	No	No	Yes	No (2) Yes (1)	Yes
Gender	male: 74% female: 26%	male: 54% female: 46%	male: 50% female: 50%	male: 79% female: 21%	n.a.

Status-Quo on HR in Danube region

Method:

quantitative survey (standardized questionnaire)

Target group:

port Industry can be identified as target group for survey – consisting of companies situated at ports & port authorities

Participating countries:

- AUT, RO, BG, HR, HU

