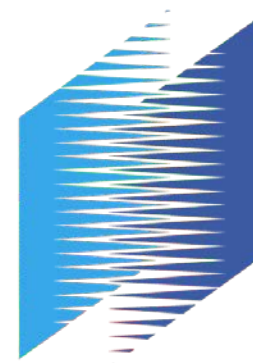




**duisport**



*excellence in logistics*

## duisport – Research Activities on Innovative Solutions for Intermodal Transports

**Markus Bangen**

Member of the Executive Board

## duisport – excellence in logistics

### The largest inland port in the world

- > 120 million tons of goods handled per year (incl. private company ports)
- > 3 millions TEU handled per year (TEU = twenty foot equivalent unit)
- > 70 companies settled here in around 10 years (30 from abroad)

### Leading logistics hub in Europe

- 1,350 hectares of logistics space
- 2 million square meters of covered warehouse space
- > 250 million euros of investment initiated each year by duisport

### The most important trade and transport hub in the Rhine-Ruhr region

- > 3 billion euros of value creation by the port each year
- 20,000 ships per year in Duisburg port
- 20,000 trains per year in Duisburg port



➔ **Most important inland hub in and for Europe**

## duisport - an integrated service provider

### Infrastructure and suprastructure



### Transportation and logistic services



### Packaging logistics



With 20 locations around the  
world

➔ Multi-purpose port with diverse warehouse and storage spaces as well as market-oriented and customer-oriented service concepts

# Location advantages at a glance

## In tune with the times - at the heart of Europe

### International transport network

- Excellent rail and ship connections between Duisburg and the western and northern ports
- 25 national and international rail service providers and operators offer connections to around 90 destinations in Europe and Asia
- Daily shuttle transports to sea ports

### Intelligent logistics concepts

- Development of logistical transport chains in accordance with customer requirements
- Attractive logistics areas with road, rail, and water connections
- Support provided by duisport for project development, property financing, construction works, contact with the authorities, and facility management

### Efficient infrastructure and suprastructure

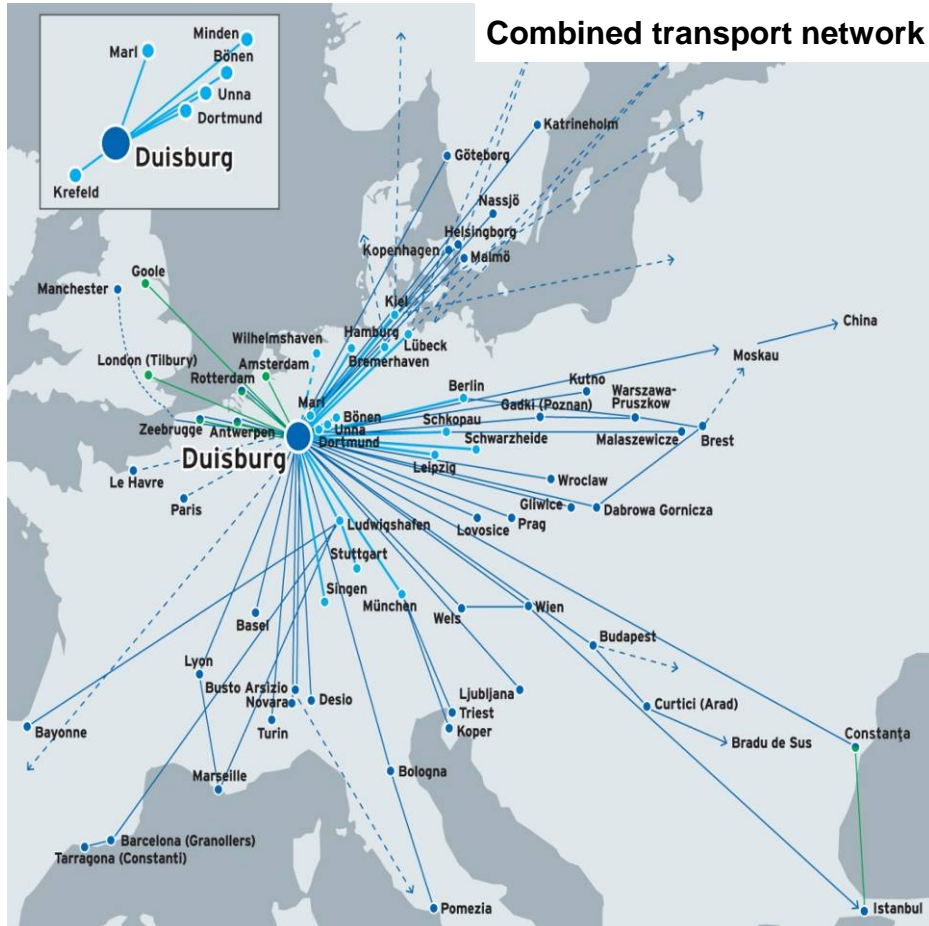
- 9 intermodal container terminals (capacity of 5 million TEU)
- 200 km owned rail infrastructure
- 5 steel service centers, 600,000 m<sup>3</sup> tank capacity, 10 dry bulk terminals



**➔ duisport enables transport via all European sea ports, thus providing flexibility and independence in choice of shipping companies**

# Wide-ranging international network

duisport is the largest international hub in Europe



- National railway transportation
- International railway transportation
- Ship connections
- Indirect connections

- Further increase in transport volumes
- Aim of sustainability (reducing CO<sub>2</sub> emissions)
- Reliable and just in time transports
- Flexible choice of transport mode
- Increase of risks and interruptions (infrastructural bottlenecks)
- Increasing energy costs
- Cost pressure



➔ **Need for innovative solutions to meet challenges in transport logistics are necessary**

# Best practice: Research project Multimodal Promotion

## Aim of the project

- Simplified access to intermodal transports
- Development of a cloud-enabled tool to organize intermodal transport chains door-to-door without prior knowledge of the combined transport
- Implementation of a company-wide consolidation and if necessary establishing of new relations
- Bundling of individual quantities to large quantities
- Evaluation of transport alternatives by parameters
  - Costs
  - Duration of transport
  - CO<sub>2</sub> consumption



# Best practice: Research project Multimodal Promotion (MMP)

## Results

- Web-based analysis and planning tool particularly facilitates planning combined transport for smaller and medium-sized shippers
- With the help of the Multimodal Promotion tool alternative transport flows can be checked quickly and simply and compared with each other
- The neutral and provider-independent platform calculates transport alternatives for ship or rail thus supporting the build-up of new connections
- Analysis include door-to-door routing, departure times, delivery and collection considering time slots at the terminals as well as contact information for the respective provider

➔ **MMP tool can simplify combined transport especially for smaller and medium sized shippers**

The screenshot shows the website www.multimodalpromotion.de. The header includes the logo and navigation links: FAHRPLANCHECK, PROJEKT, FUNKTIONEN, VERÖFFENTLICHUNGEN, PARTNER. The main content area features a large image of a red 'EXPRESS' truck and a stopwatch, with a 'FAHRPLANCHECK' button and a 'STARTER' button. Below this are three columns: 'FAHRPLANCHECK' (Überprüfen Sie ihre Verlagerungspotentiale), 'FUNKTIONEN' (Alle Information zu der Plattform), and 'PROJEKT' (Alles Wissenswerte über Multimodal Promotion). A detailed form is visible, including fields for 'Absender' (Land, PLZ), 'Empfänger' (Land, PLZ, Flurstücks-Nr.), 'Abholung' (Uhrzeit), 'Ankunft' (Uhrzeit), 'Kriterien' (Kosten, CO2-Emissionen, Zeit), and 'Verkehrsträger' (Schiene, Wasserstraße). A map shows a route between two locations, with a table of results below it.

Kriterium	Abschnitt	Verkehrsträger	Kosten	Abfahrt	Ankunft	
Kosten	Strecke	Straße	0710	10:01	14:14	14:16:05
		Straße	4240	10:01	14:14	14:19:48



## LoFIP: Logistic Future Internet Platform

### Aim of the project

- Combination of Future Internet Technologies in control towers for real-time monitoring and control of operational processes
  - Monitoring of physical processes, material flows and business processes
- Federation of control towers
  - Within an organization / between organizations
  - Collaborative management of operational processes
- Development of a software platform for control towers

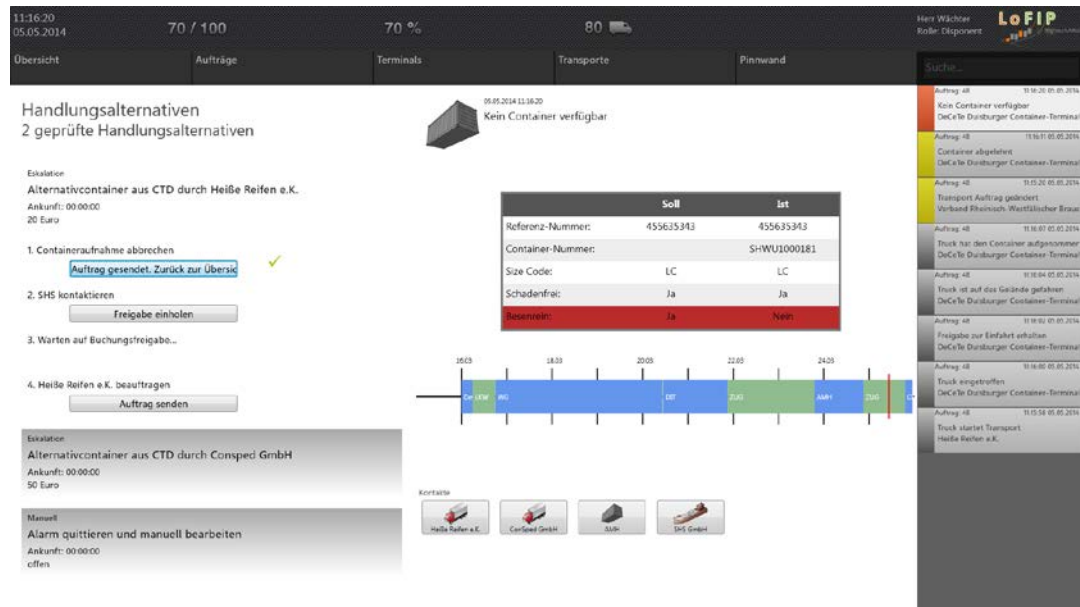


## LoFIP: Logistic Future Internet Platform

### Results

- Future Internet control tower for dispatchers
  - Supporting the dispatcher in the implementation of logistics processes
  - Provision of decision support
  - Simplified cooperation with other stakeholders in the transport chain
- Smartphone App for trucker
  - Communication with control tower (easier communication between trucker and dispatcher)
  - Support of daily tasks, e.g. reporting of delays, pickup of containers and the management of transport documents

### User interface of control tower for dispatchers:



The screenshot displays the LoFIP control tower interface. At the top, it shows system status: 11:16:20, 05.05.2014, 70 / 100, 70 %, and 80. The main navigation bar includes 'Übersicht', 'Aufträge', 'Terminals', 'Transporte', 'Pinwand', and 'Suche...'. The central area is titled 'Handlungsalternativen' and shows '2 geprüfte Handlungsalternativen'. Below this, there are sections for 'Escalation' (Alternativcontainer aus CTD durch Heiße Reifen e.K., 20 Euro) and a list of tasks with buttons like 'Freigabe einholen' and 'Auftrag senden'. A central table shows 'Soll' vs 'Ist' data for container details. A timeline chart at the bottom shows a sequence of events from 16:53 to 24:05. The right side of the interface displays a vertical list of tasks with status indicators and timestamps.

Soll	Ist
Referenz-Nummer:	455635343
Container-Nummer:	SHWU1000181
Size Code:	LC
Schadenfrei:	Ja
Bestehen:	Ja

➔ LoFIP technologies allow better monitoring and controlling of logistic processes and thus help to increase efficiency

- + **MMP** enables **easier access to intermodal transports** by a web-based analysis and planning tool
- + **LoFIP** allows a better **monitoring and controlling of logistic processes** through federated Future Internet Technologies
- + Both tools meet the challenges of transport logistics by **promoting intermodal transports** and **increasing efficiency of logistic processes**

*Let's shape your ideas!*

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