How to make international road freight transport safer – Cases from the Baltic Sea Region

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Agenda

Logistics in Hamburg and the Baltic Sea Region
Logistics Performance Index

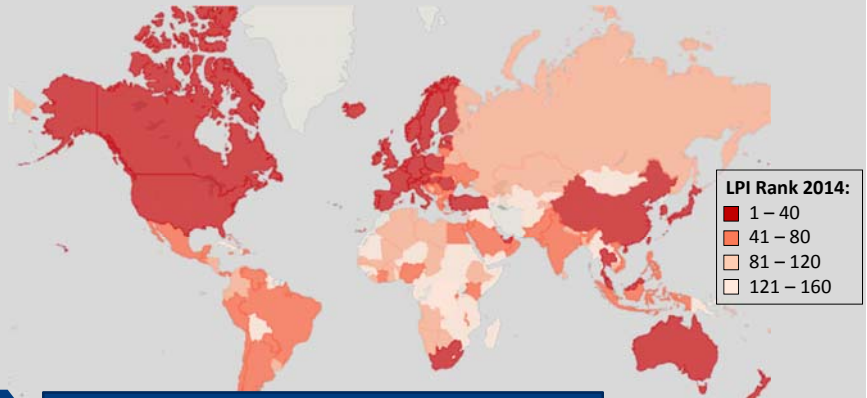
Country	Rank 2014	LPI Score 2014	LPI Score 2012	LPI Score 2010	LPI Score 2007
Germany	1	4,12	4,03	4,11	4,10
Netherlands	2	4,05	4,02	4,07	4,18
Latvia	36	3,40	2,78	3,25	3,02
Estonia	39	3,35	2,86	3,16	2,95
Lithuania	46	3,18	2,95	3,13	2,78
Russia	90	2,69	2,58	2,61	2,37
Somalia	160	1,77	-	1,34	2,16

The international LPI analysis countries in 6 components

- The efficiency of customs and border clearance (“customs”)
- Quality of trade and transport infrastructure (“infrastructure”)
- The ease of arranging competitively priced shipments (“ease of arranging shipments”)
- The competence and quality of logistics services – trucking, forwarding, and customs brokerage (Quality of logistics services)
- The ability to track and trace consignments (Tracking and tracing)
- The frequency with which shipments reach consignees with scheduled or expected delivery time (“timeliness”)

LIP report (2914) , http://lpi.worldbank.org/

Logistics in Hamburg and the Baltic Sea Region
Logistics Performance Index

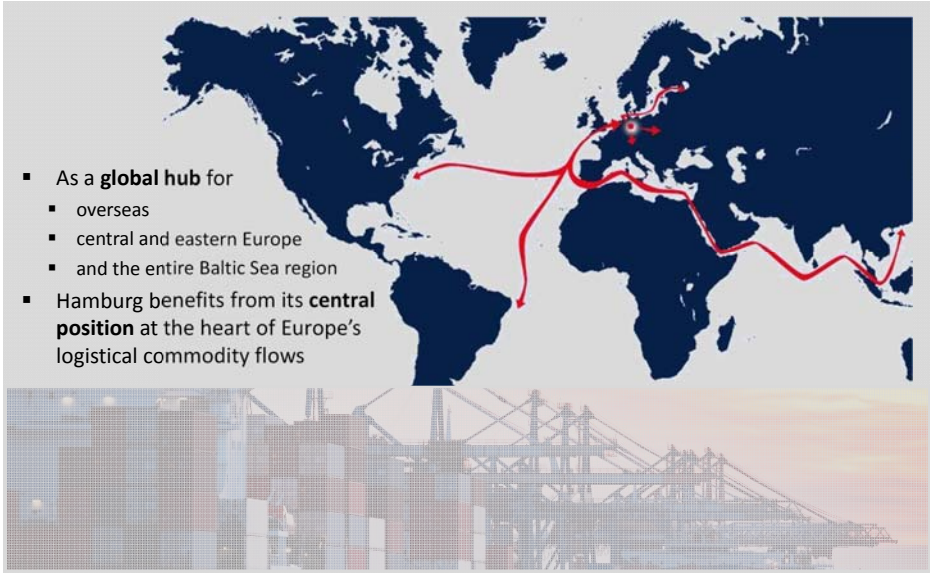


There exist a connection between logistics performance and economic development.

The level of income is one of the key factors.

LIP report (2914) , http://lpi.worldbank.org/

Logistics in Hamburg and the Baltic Sea Region
Hamburg – leading logistics hub



- As a **global hub** for
  - overseas
  - central and eastern Europe
  - and the entire Baltic Sea region
- Hamburg benefits from its **central position** at the heart of Europe's logistical commodity flows

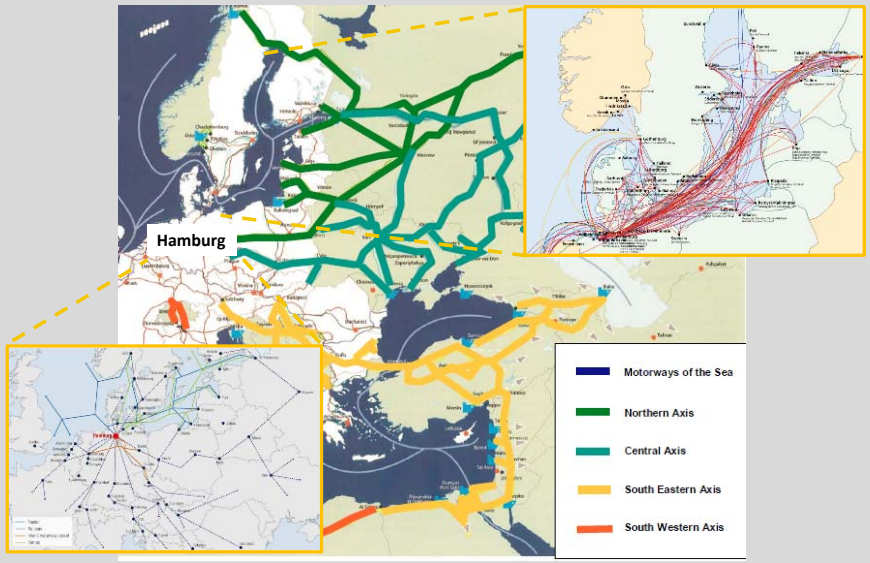
Logistics in Hamburg and the Baltic Sea Region
Hamburg – leading logistics hub

Hamburg…

- in comparison with other European ports, Hamburg is placed third when it comes to sea cargo handling and second in container handling
- It is Europe's No.1 in container rail transport
- More than 12,600 logistics firms are based in the Hamburg metropolitan region
- The logistics sector in the Hamburg metropolitan region provides work for 395,000 people

http://www.hamburg-logistik.net/fileadmin/user_upload/PDF/Standortbroschuere_2013_englisch_RL5.pdf
Foto: CC-BY 2.0 Dirk Vorderstraße, https://flic.kr/p/iXf5YN,

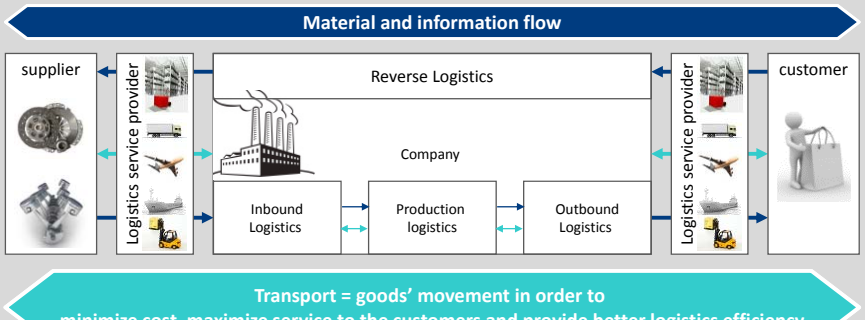
Logistics in Hamburg and the Baltic Sea Region
Transport Corridors and logistics networks



http://www.baltictransportmaps.com/contmap.html#sea/port/1337971079413-1338661554804?z=2.2&x=-263.7&y=222.75
http://www.hamburg-port-authority.de/de/presse/broschueren-und-publikationen/Documents/port-development-plan2025.pdf
https://hhla.de/fileadmin/download/investor_relations/HHLA_GB2013_D.pdf, S. 13

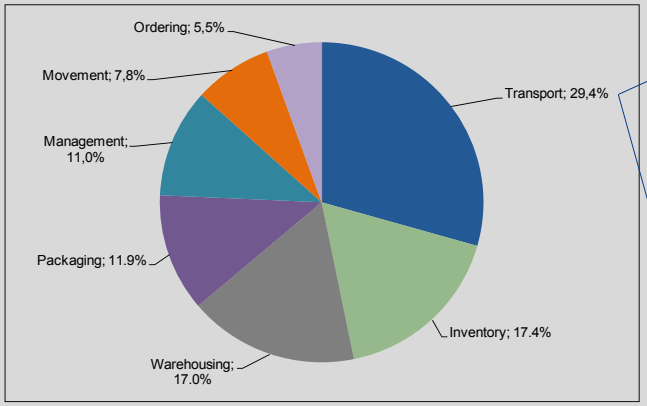
Logistics in Hamburg and the Baltic Sea Region
Logistics and Transport

Logistics is defined as "*the process of planning, implementing, and controlling procedures for the efficient and effective transport and storage of goods including services and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirement. This definition includes inbound, outbound, internal, and external movements*". (Council of Supply Chain Management Professionals - CSCMP).



Pfohl: 1994
Weber & Kummer: 1998

Logistics in Hamburg and the Baltic Sea Region
Cost ratio of logistics items

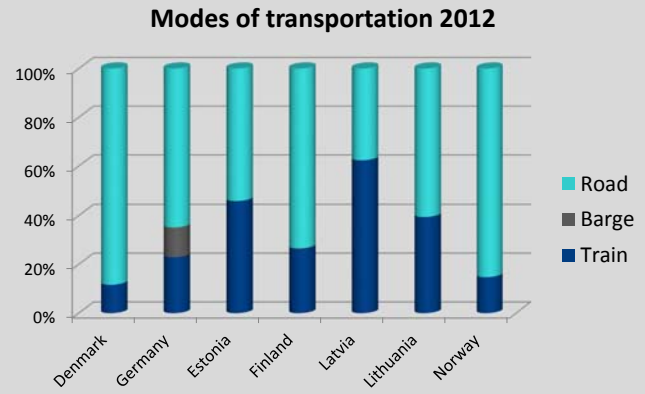


The transport costs here include the means of transport, corridors, containers, pallets, terminals, labours, and time.

- Transport is the most important economic activity among the components of business logistics. It moves goods and products at the least-cost principle and it affects the results of logistics activities and influences production and sale.
- A good transport system can provide increased logistics efficiency, it can reduce operational cost, and it can promote service quality.

Tseng, 2005, p. 1661 modified: Chang, 1998

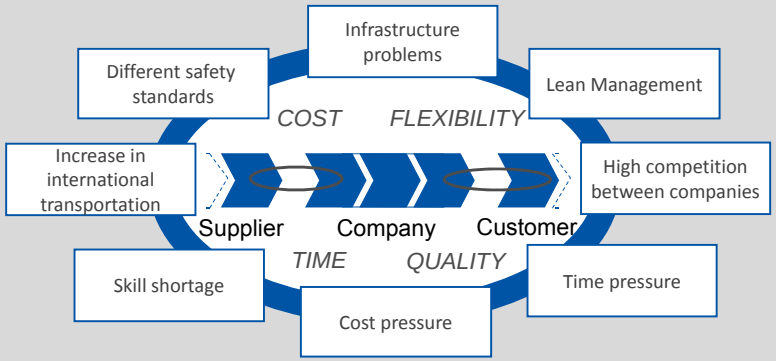
Logistics in Hamburg and the Baltic Sea Region
Modes of transportation



- Road transport is the most important mode of transport in the Baltic Sea Region
- Most of the Member States reported that more than 50% of their freight transport is international transport.

http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do, 26.3.2015

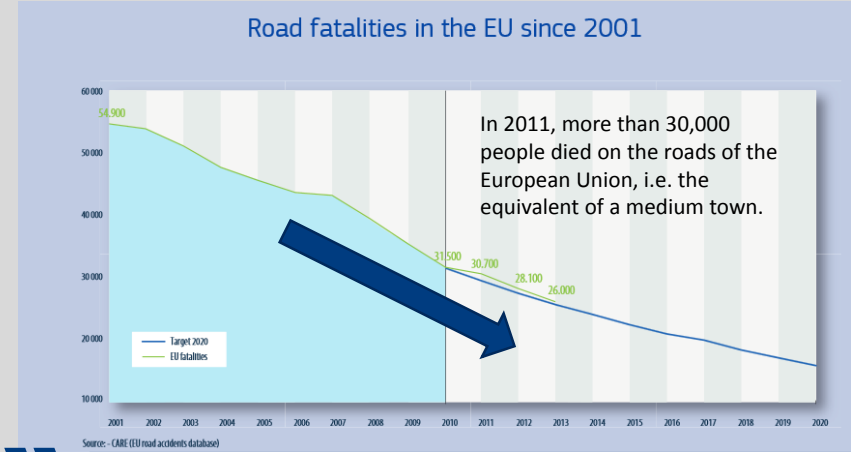
Logistics in Hamburg and the Baltic Sea Region
Trends influencing the transport sector



- With the rise of transport capacity of commercial vehicles there is a greater likelihood that incidence of accidence will rise.

In Anlehnung an Kersten (2012)

Logistics in Hamburg and the Baltic Sea Region
Fatalities per year in the EU since 2001



- The European Commission has adopted an ambitious Road Safety Program which aims to cut road deaths in Europe until 2020.
- The program sets out a mix of initiatives, at European and national level, focusing on improving vehicle safety, the safety of infrastructure and road users' behavior

http://ec.europa.eu/transport/road_safety/specialist/statistics/index_en.htm

Agenda

1	Logistics in Hamburg and the Baltic Sea Region
2	**Practical results and lessons learned from the EU-Project C.A.S.H.**
3	Summary

Practical results and lessons learned from the EU-Project C.A.S.H.
The C.A.S.H. project at a glance

C.A.S.H. main themes:

- The develop practical solutions to make international road freight transport safer in the BSR
- Harmonizing training requirements of heavy goods vehicles (HGV) and dangerous goods (DG) inspection for officials in the Baltic Sea region
- Enhancing cooperation between authorities involved in safety of border crossing HGV and DG transport
- Testing state-of-the-art safety and security equipment and IT systems to be used by relevant authorities
- Identify measures to reduce transport risks

http://www.cash-project.eu/en/

Practical results and lessons learned from the EU-Project C.A.S.H.
Work packages and partners

Project Management and Dissemination
Turku School of Economics at University of Turku (Lead Partner)

Behaviour and Training
Norwegian National Mobile Police Service

Cooperation between Authorities
Finnish Traffic Police

Equipment, Safety and Risk
Hamburg Univ. of Technology

Police Authorities:

- Denmark, Sweden, Estonia, Finland, Hamburg, and Norway

Research Institutions:

- Hamburg University of Technology,
- University of Turku, Finland (Turku School of Economics Department of Psychology; Traffic Psychology),
- Vilnius Gedimino Technical University, Lithuania,
- Latvian Transport Development and Education Association

Local authorities from Finland

http://www.cash-project.eu/en/

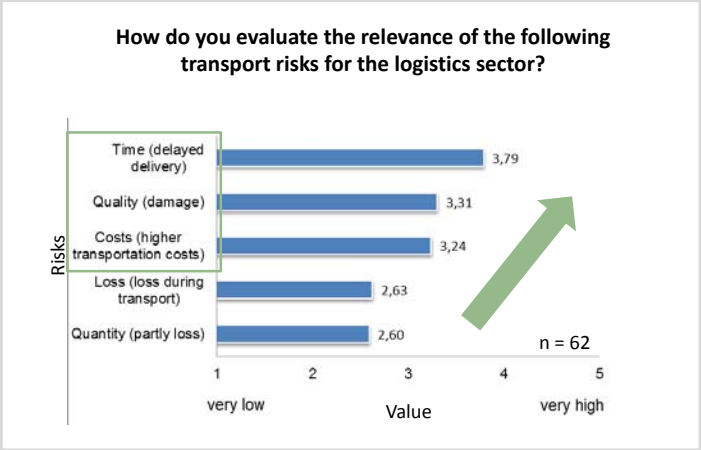
Practical results and lessons learned from the EU-Project C.A.S.H.
Activities during the project

- Organisation of **Joint exercises** (2-3 days with 20-60 participants in each of the 15 joint exercises, more than 1,000 vehicles inspected) and **staff exchange** (up to 100 persons) to build networks, to gain knowledge of working methods applied in other countries within the Baltic Sea Region and to **exchange experiences**
- **Testing of equipment** together with logistics companies (equipment for cargo securing, driving assistance systems, infrared-cameras, etc.)
- A **Training Manual was created** that contains guidelines for relevant authorities on harmonized training structure for heavy goods vehicle and oversized road transport inspections and dangerous goods inspections. The Manual is intended for harmonizing training requirements of road freight transport inspection officials in the Baltic Sea region.
- **Identification of risk and measures to make international road transport safer in the BSR**



http://www.cash-project.eu/en/

Practical results and lessons learned from the EU-Project C.A.S.H
Relevance of different transport risks



Most relevant transport risks are reflected in time, quality, and costs!

Kersten et al. (2011)

Practical results and lessons learned from the EU-Project C.A.S.H
Workshops

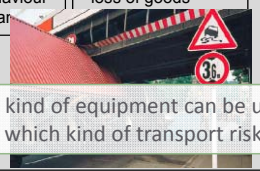
Several workshops with researchers and company representatives from Latvia, Lithuania, Germany and Finland.

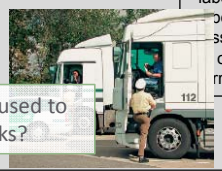
"What risks can occur during international transportation?"
" How can they be classified?"

http://www.cash-project.eu/en/

Practical results and lessons learned from the EU-Project C.A.S.H
Workshop results on transport risks (extract)

Truck Driver	Company	Truck	Environment	Political
• Mircosleeps • Misinterpretation (driving dynamics, weather, etc) • low know-how of young drivers/ lack of experience • problems during transport (police inspection) due to unknown regulations • Illness of driver • fear to lose job • use of alcohol • distraction (TV, phone etc.) • absence o coordinati partners) • inofficial ru	• non-optimal transport routing • time pressure • poor business rules • absence of information / bad information exchange among parties • reputation risk • wrong handling of goods • incorrect documentation • mindless / profit-oriented behaviour ar	• bad condition of the truck due to technical defects • loss of goods due to a disruption in the cold chain • no adequate equipment • truck failure • manipulation • no comfortable information custom system • incorrect lashing / loading • loss of goods	• bad road conditions/ decline (steep roads) • narrow roads • traffic jam • no parking spaces / no secured parking spaces • natural catastrophes (earth quake, fire, flood) • weather conditions • wild animals • theft (security)	• change in legislation in the transit countries / tax legislation • problems at border-crossing / delay due to problems with customs • delay due to different handling of police inspection • corruption • delay due to labour strikes bour restriction ss of goods due crime situation / rrorism





• What kind of equipment can be used to avoid which kind of transport risks?

Kersten et al. (2011)
Pictures taken from Dekra Automobile GmbH (2009) - Road Safety Report

Practical results and lessons learned from the EU-Project C.A.S.H
Lessons learned from researcher's and company's perspective

- It is not only the responsibility of the police authorities to counteract the different risks. It should also be the task of the driver and the driver's company to avoid these risks, e.g. by offering adequate education and having regular security checks of the trucks.
- Most measures focus on technical issues, but a holistic approach should be implemented considering technical, organizational and personal aspects.
- Especially SMEs company have problems with the implementation of a supply chain risk management approach.
- A catalogue of measures is needed that help SME to select and to apply different kind of measures.

Practical results and lessons learned from the EU-Project C.A.S.H.
Expert Interviews

No.	Company	Interviewee	Company Size
A	Logistics Service Provider	Program Manager	T/over: 51 billion EUR; Employees: 420,000
B	Logistics Service Provider	Regional Account Manager	T/over: 15 billion EUR; Employees: 91,000
C	Manufacturing Company	Logistics Director	T/over: 10 billion EUR; Employees: 6,800
D	Logistics Service Provider	Director Risk Management	T/over: 46 billion EUR; Employees: 450,000
E	Manufacturing Company	Operations Manager	T/over: 25 billion EUR; Employees: 119,000
F	Logistics Service Provider	Senior Director Operations	T/over: 6 billion EUR; Employees: 6,900

Questions about the company's understanding of road transport risk, risk management and mitigation measures

Practical results and lessons learned from the EU-Project C.A.S.H.
Clustered Road Transport Risks (Extract)

Group (Rogler, 2002)	Subgroup	Example	No. of entries: #
time			**28**
	Regulations	"delay due to problems with customs"	8
	Environment	"exterior influence (e.g. ice on roads)"	7
	Communication	"language issue abroad"	6
default/ quantitative			**23**
	Thievery	"theft of goods from lorry"	9
	Loss	"loss of goods during transport"	7
	Warehousing	"fire in warehouse"	4
	[…]	[…]	[…]
cost			**20**
	Commodity price	"fluctuation of diesel price"	7
	Supply chain partner	"cash loss due to bankruptcy of customer"	5
	[…]	[…]	[…]
quality			**18**
	damaging	"disruption of cold chain"	13

123 road transport risks were named

Risks were clustered in subgroups describing the source of risks. The subgroup were then allocated to groups which specify the type of impact of each mentioned risk.

Practical results and lessons learned from the EU-Project C.A.S.H.
Framework of Measures to Manage Road Transport Risks (Extract)

Group	Subgroup	Example	No. of entries: #
organization			**93**
	Insurance	"closing of an insurance contract"	17
	Prevention	"business continuity plan"	14
	Security	"secured parking spaces"	12
	Service providers	"supplier's audit"	10
	[…]	[…]	[…]
Human Resource			**17**
	Development of HR	"training for fuel efficient driving"	12
	Selection of Employees	"requesting the certificate of good conduct"	5
IT			**14**
	Monitoring	"proactive reporting of delayed transports"	11
	IT security	"redundancy of data"	3

- A catalogue of measures was developed that should help, especially SMEs to implement appropriate measures.
- Measures should not only focus on technical risks. The organisation as a whole as well as the employees must be considered when implementing safety measures.

Practical results and lessons learned from the EU-Project C.A.S.H.
Further steps for the companies

1. Risks have to be identified before they are evaluated
2. After assessing the risks, they need to be prioritized in preparation for risk handling
3. Company representatives may select measures from the compilation
4. Costs for their implementation and occurrence of further potential risks should also be taken into account

Agenda

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Summary

- There is a continuous increase of international trade linkages
- We have to expand international co-operations between research institutions to exchange experiences and successful research results.
- Especially SMEs must be supported in implementing safety measures during international transportation.
- Safety aspects must not only focus on technical issues. It must be deeply embedded within the organisation and the employees' behaviour.
- We have to work cross-border in the same direction to raise awareness for road safety in the Baltic Sea Region.

Thanks for your attention!

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