



**Safe and Reliable Transport Chains of  
Dangerous Goods  
in the Baltic Sea Region  
2006-2007**

# **Multiple Case Study of Transport Chains of Dangerous Goods in the Baltic Sea Region –**

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**SSE07, Athens, September 20-21, 2007**





# DaGoB Challenge & Focus

- **Over 300,000,000 tons of cargo classified as Dangerous Goods transported annually in the Baltic Sea Region (BSR).**
  - **A very small number of DG specialists at work in BSR countries; the administrative capacity is very limited.**
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- **DaGoB diffuses good practice across authorities and firms on existing regulations and competitive procedures.**
  - **DaGoB strengthens the competence of DG professionals and improves the efficiency and safety of DG transport.**



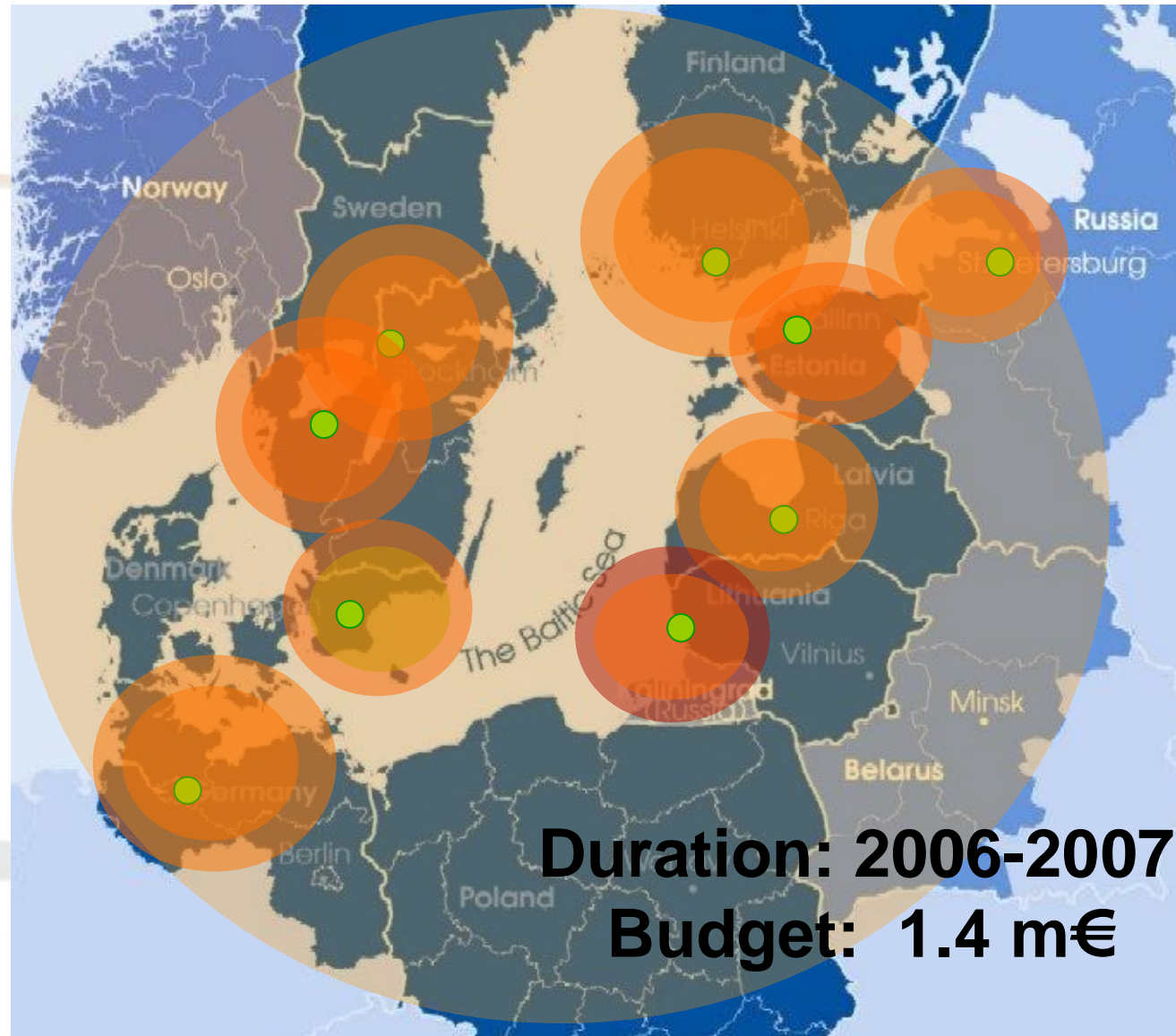
# DaGoB Scope & Partners

## BSR:

- Authorities
- Industry
- Seaports
- Academia

## Modes:

- Road
- Rail
- Maritime
- Ports
- Intermodal



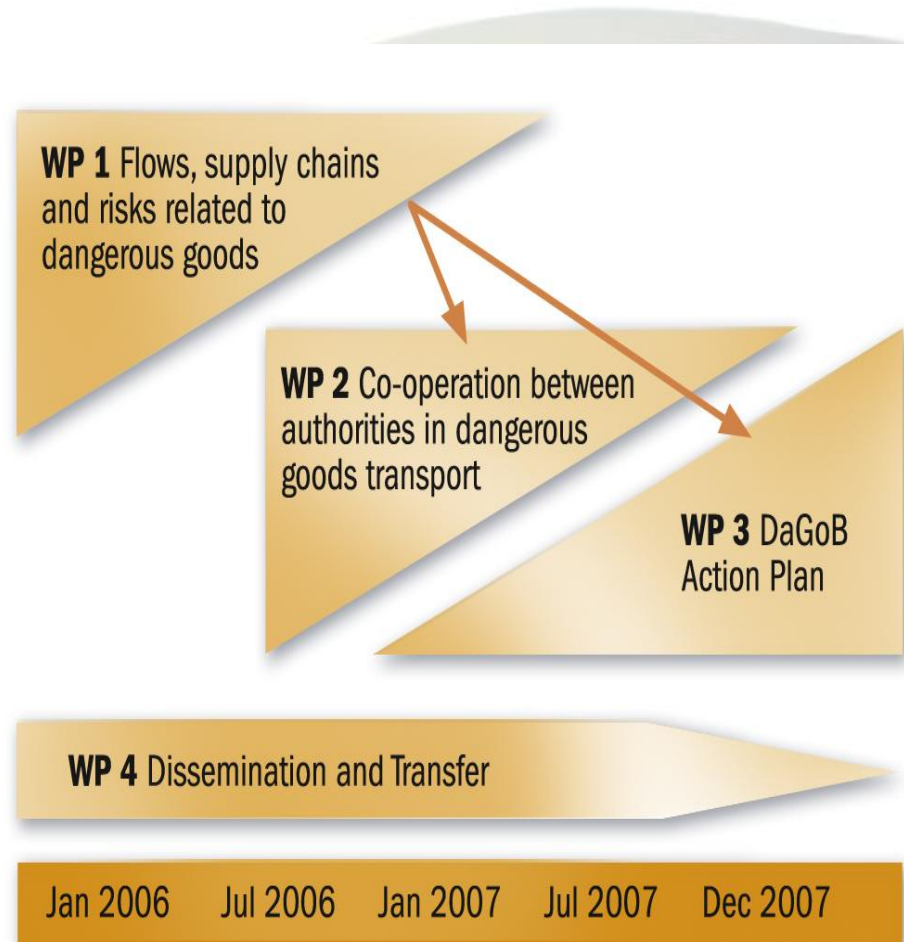


# DaGoB builds capacity by...

...up-to-date information on cargo flows, supply chain efficiency and risks related to DG transport in the BSR,

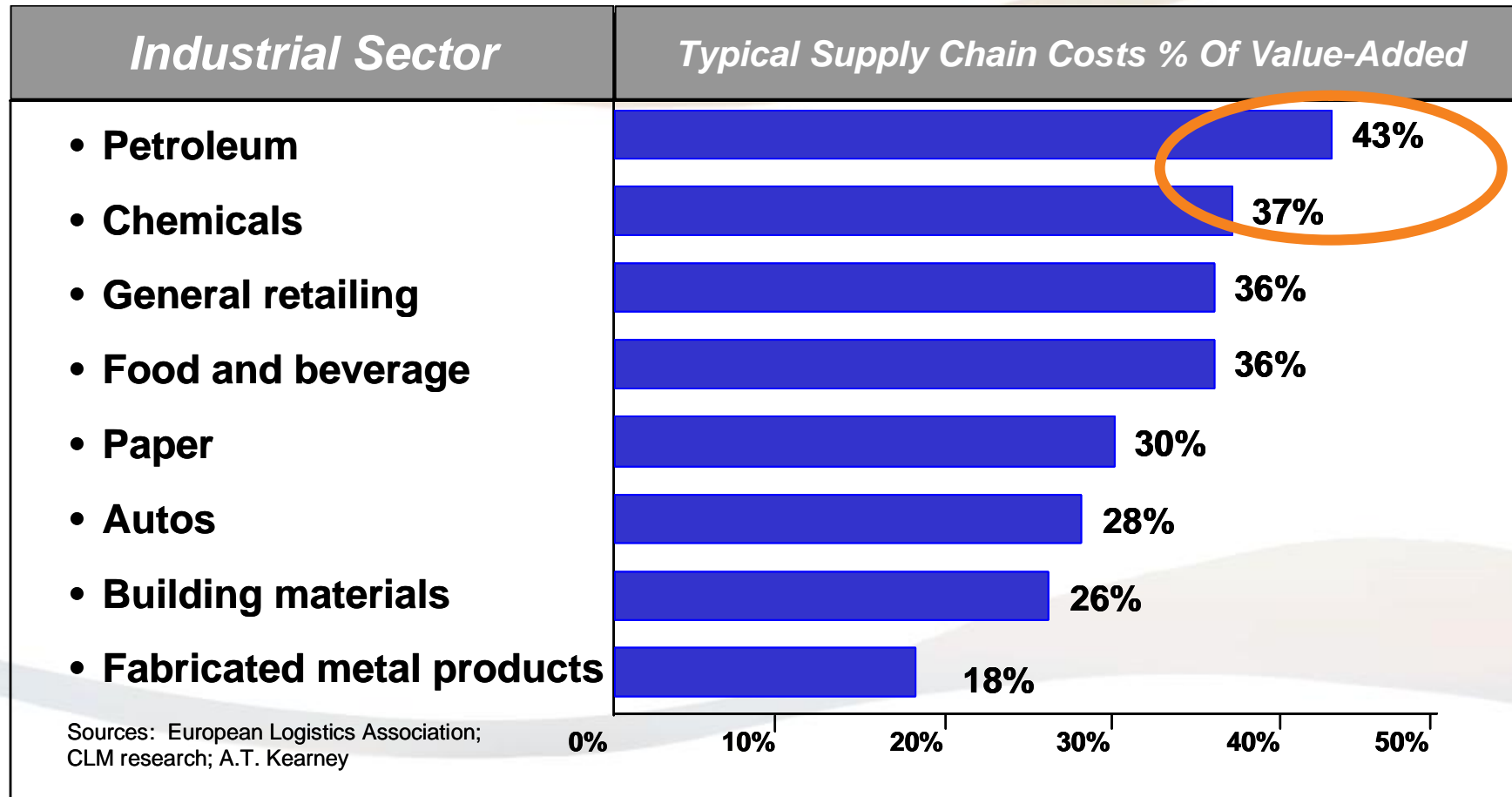
...enhancing co-operation between authorities involved in DG transport, and

...improving safety, reliability and efficiency of DG transport chains through best practice dissemination.





# Chemical Industry Concern: High Supply Chain Costs with DG





# Industry Concerns Highlighted by Prof. Alan McKinnon in 2004

## Supply Chain Excellence in the European Chemical Industry



Results of the EPCA-Cefic  
Supply Chain Excellence  
Think Tank Sessions

organised and sponsored by EPCA  
in cooperation with Cefic





# Objectives of the Case Study

**To describe DG transport chains as processes in order to identify bottlenecks or problems in operations,**

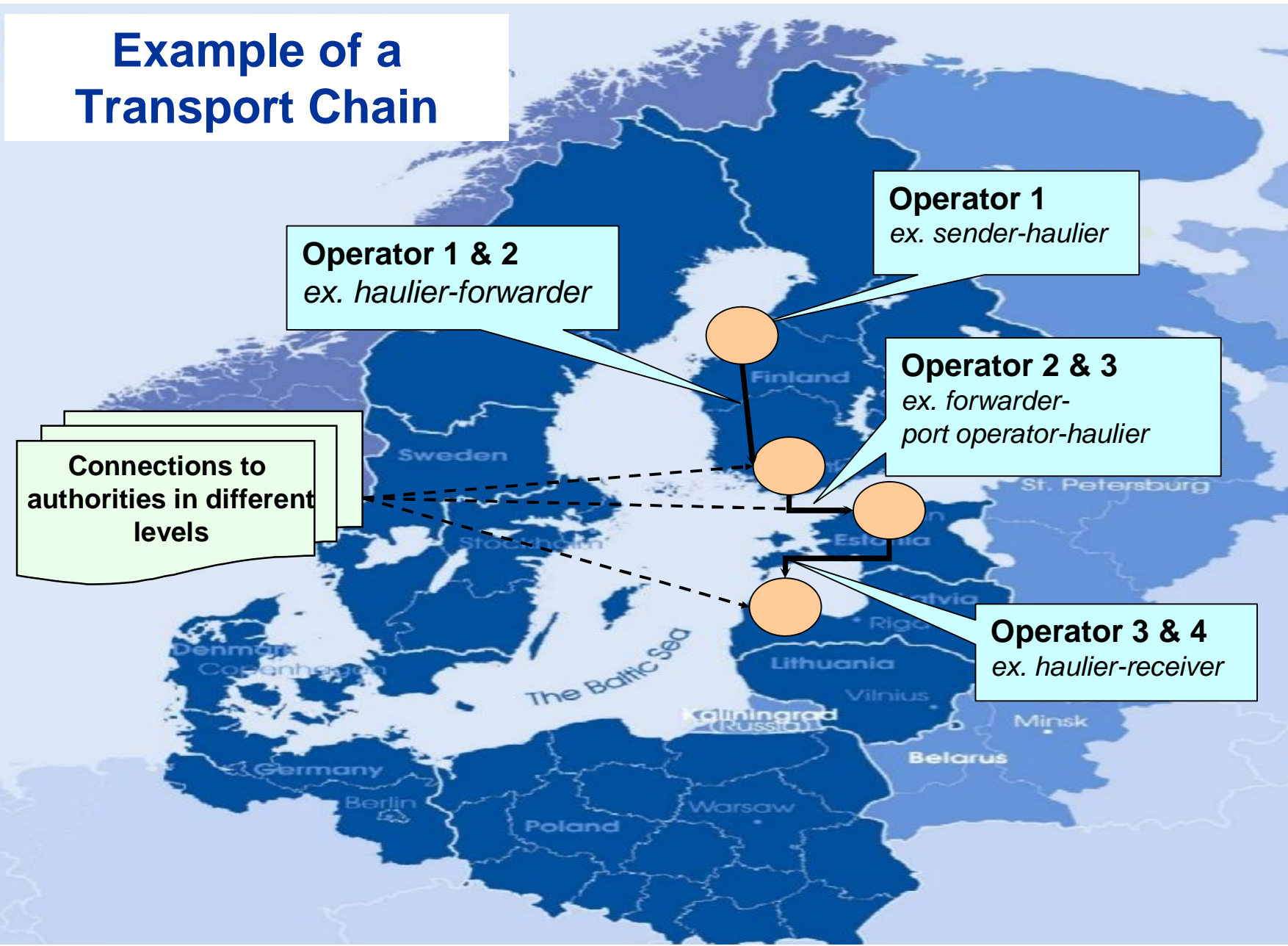
**...by applying a uniform process framework for all cases,**

**... on a set of typical DG transport chains in the BSR.**

***Cases highlight the most voluminous DG classes using multimodal transport; few bulk transports.***



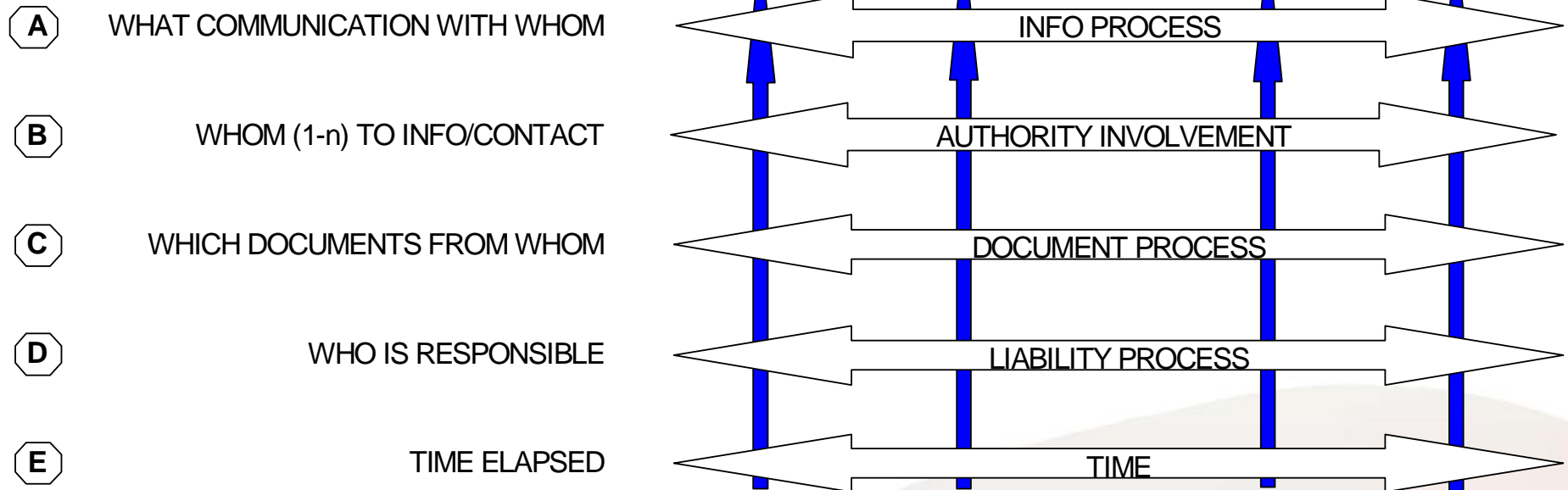
## Example of a Transport Chain







# Framework used in Single case and Cross Case Analyses





# Analysed Transport Chain cases

Case	Cargo type	DG Class	Route
1	Hydrogen	2.1	FIN -> Estonia
2	Methane (MoU)	2.1	FIN-> Sweden
3	Argon, Nitrogen & Oxygen (ADR)	2.2 (5.1)	FIN-> Russia
4	Cereclor	3 (6.1)	France -> FIN
5	Paratoluen sulphonic acid	8	France -> FIN
6	Mixed cargo (MoU)	..	FIN-> Estonia
7	Printing ink (ADR)	3	FIN-> Russia
8	Printing ink (MoU)	3	FIN-> Ukraine
9	Paint & Diacrylate (MoU)	9	FIN -> Estonia
10	Paint & Zinc dioxide	3 & 9	FIN -> Latvia
11	Paint, Isoph.diamine & Resin (MoU)	3 & 8 & 9	FIN -> Lithuania
12	Ammonia, anhydrous	2.3 (8)	Russia -> FIN
13	Fluorosilicic acid	8	FIN -> Sweden
14	Ammonium nitrate based fertiliser	9	FIN -> Estonia



# Memorandum of Understanding on Transport of Packaged General Goods in the Baltic Sea

The MoU allows transport of packaged DG on Ro-Ro ships as ADR (Road) or RID (Rail) cargo under special provisions on low wave height routes.





# Detailed descriptions in DaGoB Publications 1:2007

Case 9 (less than truck load)

Commercial actor	Port of Helsinki (FI)		Port of Tallinn (EE)				
	Consignor (FI)	Logistics provider (FI) (Carrier A)	Port operator (FI)	Shipping company (alternatives FI/EE)	Port operator (EE)	Logistics provider (EE) (Carrier B = subsidiary of A)	Consignee (EE)
Cargo flow	(1) Consignor's production unit in Vantaa (FI)	(2) Road transport (FI) Vantaa (FI)- Helsinki (FI) 30 km	(3) Port of Helsinki (FI) Loading the vessel	(4) Sea transport (FI- EE) 90 km	(5) Port of Tallinn (EE) Unloading the vessel	(6) Road transport (EE) Tallinn (EE)- Tallinn (EE) 5 km	(7) Consignee = Consignor's subsidiary in Tallinn (EE)
Average total distance 125 km							
Info process	Sales dpt of the consignor (2) Info to the carrier (FI)	(3) booking of the shipping space (4) info to the carrier B (EE)					Order to the consignor
Key authority involment							
Document process	(1) ICN + MDGF to the carrier  EIC to accompany the cargo with the driver	(2) Advance Notice of DG (24 h before the cargo's arrival at the port) + CMR waybill  (3) CMR waybill, ICN + EIC from the driver (FI) to the shipping company	Port of Helsinki		Port of Tallinn		
Liability process	Delivery terms DDU Tallinn (EE) Consignor's liability: the whole transport chain, excl. unloading (EE)			(4) CMR waybill + ICN + EIC to the driver (EE)			
Average transit time total 51- 73 hours	36 h needed before the transport Loading at the consignor's production unit in Vantaa (FI)	Road transport Vantaa (FI)- Helsinki (FI) 1- 2 h	Waiting + loading in the port of Helsinki (FI) 4- 16 h	Sea transport Helsinki (FI)- Tallinn (EE) 4 h	Unloading of Tallinn		
Frequency several times/week	1 h						



ICN = International Consignment Note  
MDGF = Multimodal Dangerous Goods Form  
EIC = Emergency Instruction Card

## Ex. Case 9



# **Cross-case analysis (A, B & C)**

## **A. Communication process**

- Lack of common language causes some problems
- Information from ferry company whether it is possible to carry DG onboard comes very late
- In long-term relationships the communication is fluent

## **B. Authority involvement**

- Some problems with the multimodal transportations, when interpreting different regulations

## **C. Document process**

- Document practice seems to be well-established and stable



## D. Liability process

- Each of the transport chain partners appeared to be well aware of the issues involved

## E. Total transport time

- Time for DG does not seem to differ from that of non-DG; in fact, on Russian-Finnish land-border DG passes faster
- Lack of temperature regulated containers can sometimes cause delays

## Other findings

- DG companies do not want to give “too much” information to the public



# DAGoB **Conclusions**

- **Differences in regulations across modes exist.**
- **DG transports call for an effective control system of operations, up-to-date equipment, well-trained personnel and an approved quality system.**
- **Especially in the summer, the number of passengers on ro-ro / ro-pax ferries limits the amount of DG cargo.**
- **No major problems occurred in the DG transport chains analysed in this study comprising 14 cases of well-known trading partners and logistics providers.**
- **Better coordination of safety authorities is needed.**



# **Suggestions for further actions**

- **Decision-makers should be actively supplied with accurate information on DG transport**
- **Maritime & port IT systems not well enough connected.**
- **Regulations adapted to BSR conditions when possible.**
- **MoU works well in the BSR; to be applied elsewhere??**
- **The human factor can be affected by up-to-date training, knowledge and the use of modern equipment.**
- **Work to improve safety of DG transport needs to continue with emphasis on preventive measures.**





# Thank you!

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