

Multi Modal Transport & Hinterland Connections



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Multi Modal Transport & Hinterland Connections



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Contents

Comparison of Transport Modalities
Multi Modal and Intermodal Transport

Comparison of Transport Modes Market Shares



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(Source Eurostat in million TKM)

Country	Road		Rail		Inland navigation		Total mio TKM
	mio TKM	%	mio TKM	%	mio TKM	%	
Germany	347200	71%	76815	16%	66465	14%	490480
Belgium	32450	70%	7674	17%	6300	14%	46424
Finland	27500	72%	10107	27%	460	1%	38067
France	266500	81%	55448	17%	7260	2%	329208
Italy	184756	89%	22817	11%	200	0%	207773
Luxemburg	2350	72%	632	19%	300	9%	3282
Netherlands	45700	50%	3819	4%	41271	45%	90790
United Kingdom	165827	90%	18300	10%	200	0%	184327
Austria	26300	58%	16299	36%	2444	5%	45043
Total	1098583	77%	211911	15%	124900	9%	1435394

Comparison of Transport Modes Cargo Development

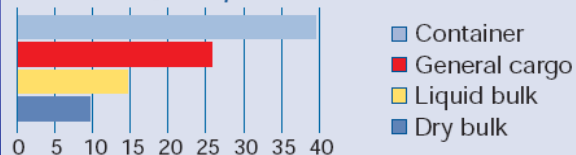


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Volumes per commodity group in mio t
in 2001, European Commission



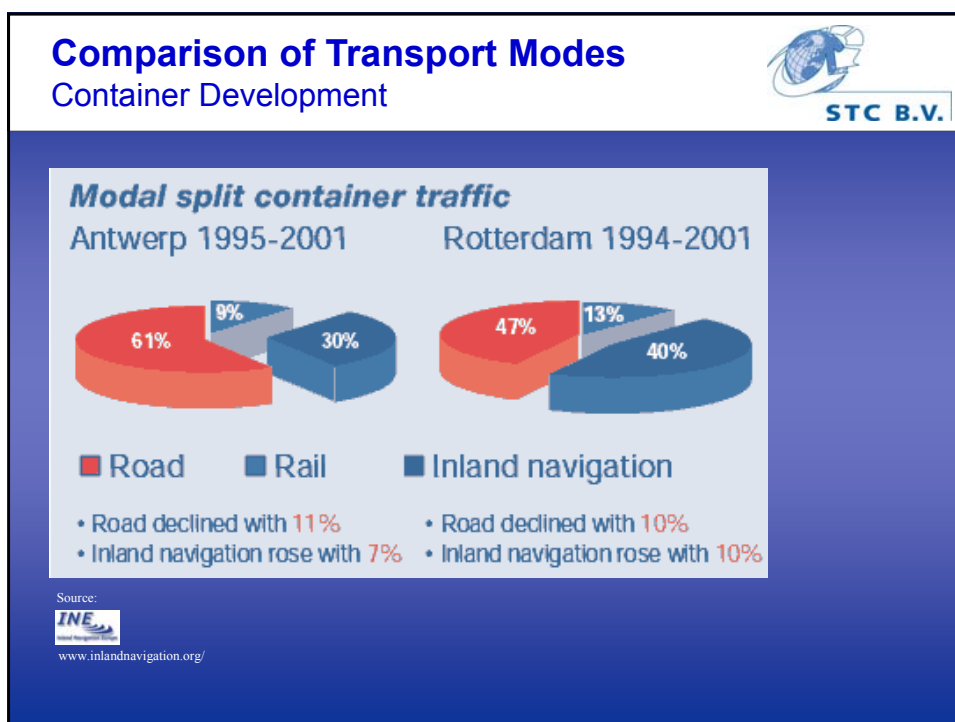
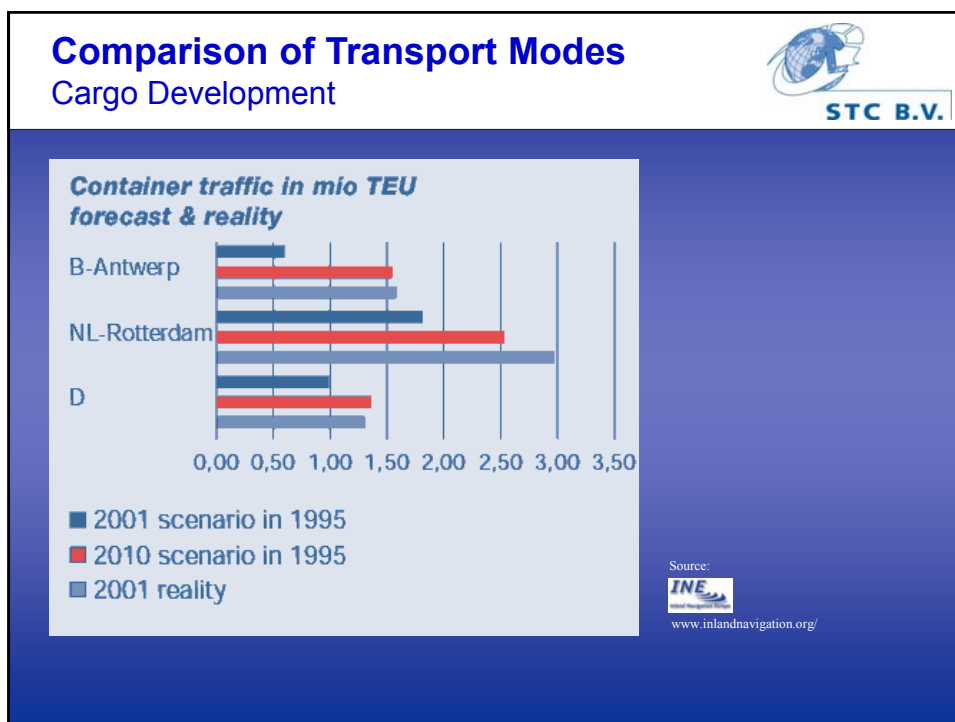
Growth per commodity in %
2002-2010, European Commission

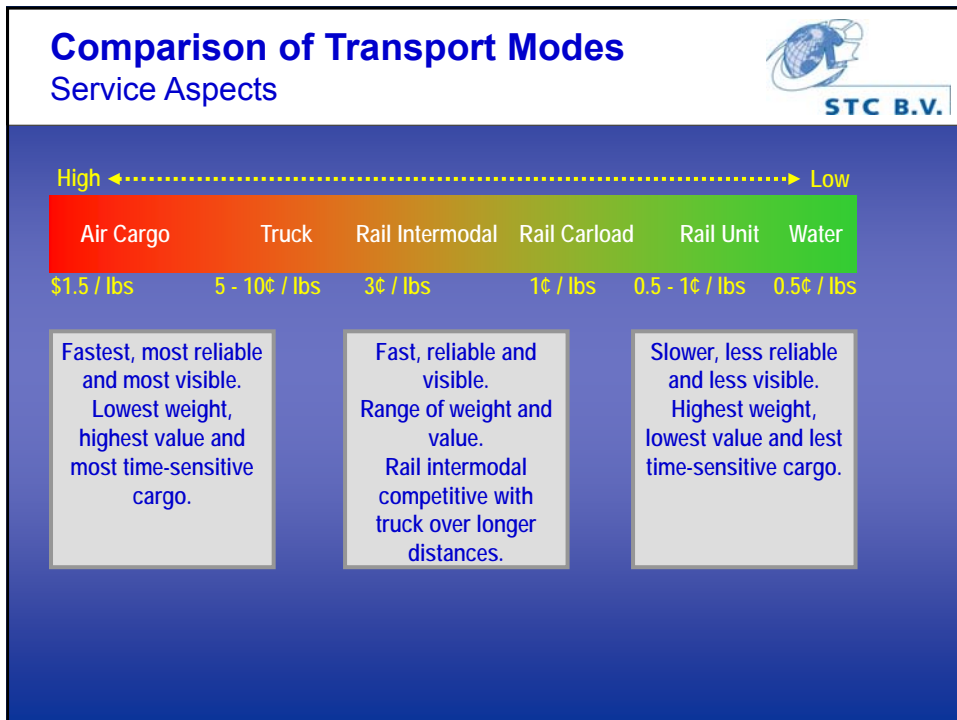
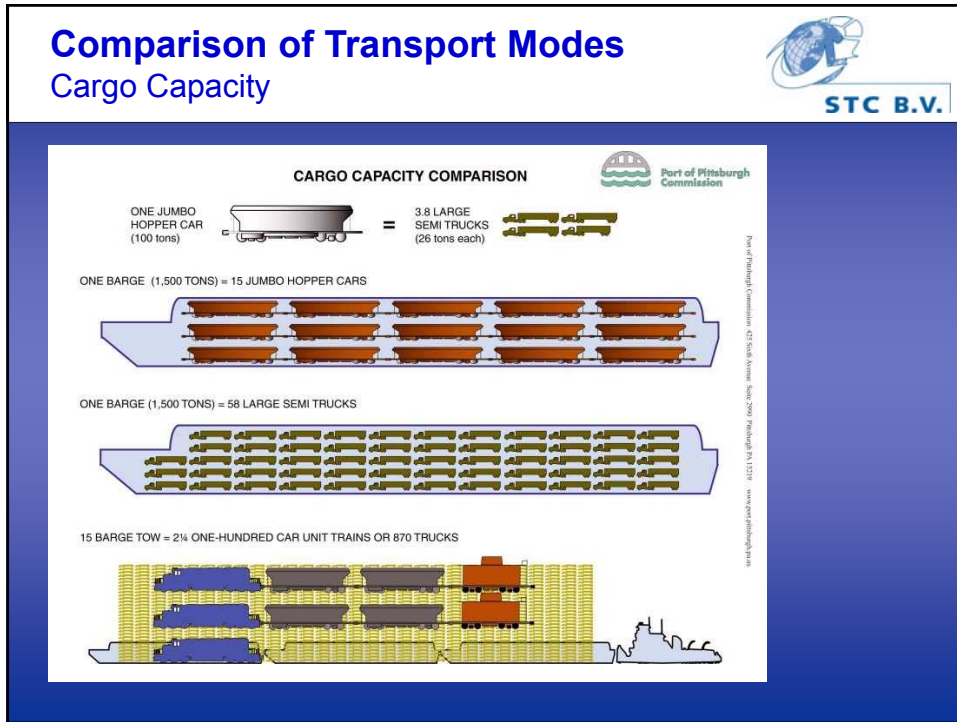


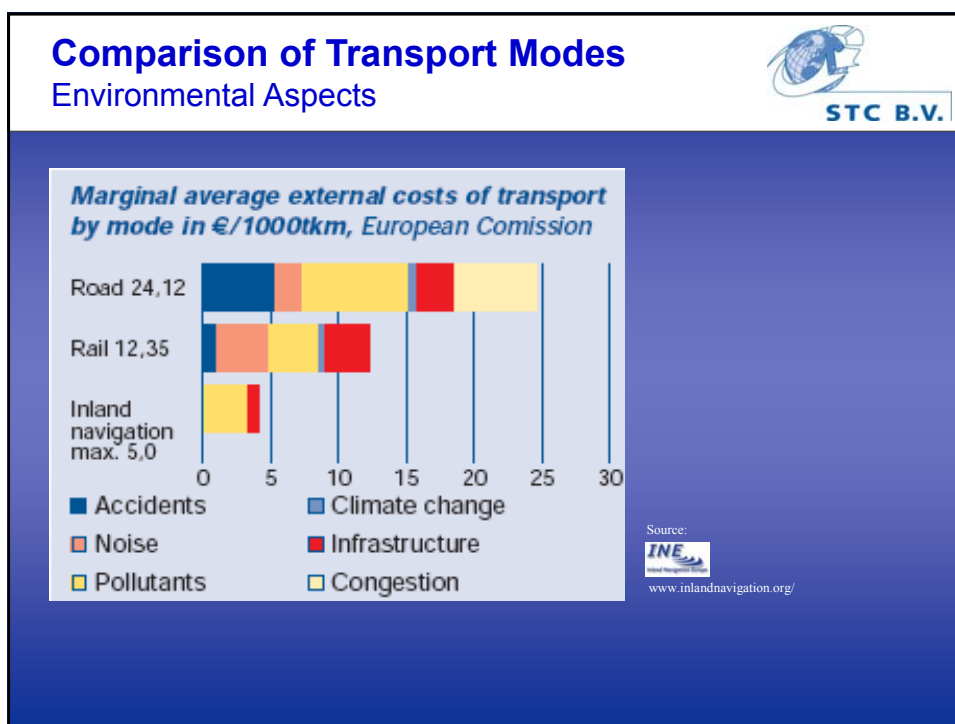
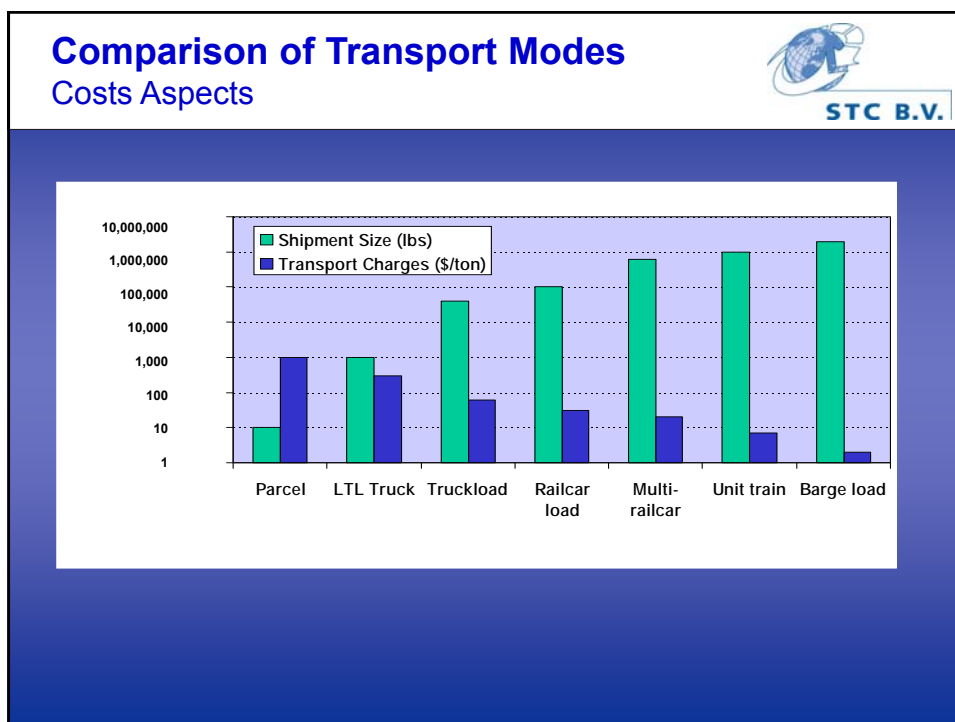
Source:



www.inlandnavigation.org/







Comparison of Transport Modes

Other Selection Criteria



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- Overall transport and handling cost
- Transit time (door-to-door)
- Consignment security
- Service reliability
- Service comprehensiveness
- Availability of real time information

Comparison of Transport Modes

Other Selection Criteria



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Modality	Costs (cents/ ton-mile)	Energy (BTUs/ ton-mile)	Air Pollution	Unit capacity (tons)	Linehaul speed (miles/hr)	Flexibility
Water	0.3 - 3.0	990	Low	1,000 - 60,000	3 - 10	range of direct service is limited to areas adjacent to a waterway
Rail	1.0 - 8.0	1,720	Medium	50 - 12,000	20 - 40	permit "door-to-door" service between many inland ports
Truck	4.0 - 15.0	3,420	High	10 to 25	10 - 60	can provide "door-to-door" service to almost any inland point

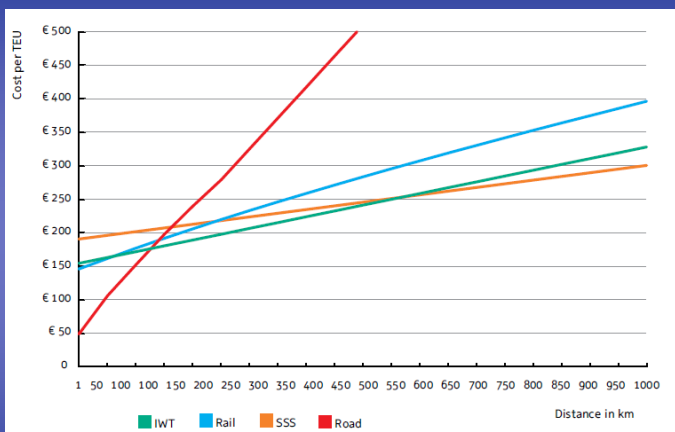
Reliability is sometimes more important than speed.
IWT is reliable and competitive in terms of costs.

Comparison of Transport Modes

Port - to - Door Costs per Container



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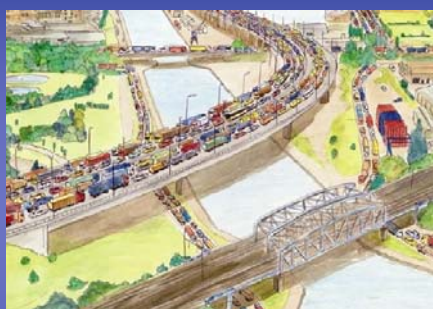
Inland vessels reach more destinations over shorter distances.
In Belgium, France and the Netherlands more than 30% of the IWT traffic is carried over a distance less than 50km.

Comparison of Transport Modes

IWT as an Alternative for Road Transport



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Comparison of Transport Modes Green Logistics



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Think green to get (g)old










Comparison of Transport Modes Green Logistics



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Fuel Economy & Carbon Footprint

<http://www.ntm.a.se/ntmcalc/Default.asp>

NTM Calc - Microsoft Internet Explorer

http://www.ntm.a.se/ntmcalc/Default.asp

Transport of goods

1. Start here ?

Choose transport mode:

Describe transport step here:

2. Selected transport chain. Click on step to set data. ?

Step 1 Lorry collect goods in Amsterdam ?

Step 2 Lorry transport goods to malmo ?

Step 3 Lorry distribute goods in malmo ?

3. Set parameters and click 'Save' ! ?

Step 1 Lorry - Description: distribute goods in malmo

Vehicle type: heavy duty lorry with trailer (43 tonne max load) ?

Engine and Fuel type: Euro 5, HD 1 ?

Distance: 10 km, urban in urban area km ?

Exhaust factor: 70 % ?

Fuel consumption: 4.9 l/100 km ?

Exhaust after treatment: Data missing ?

Input Screen

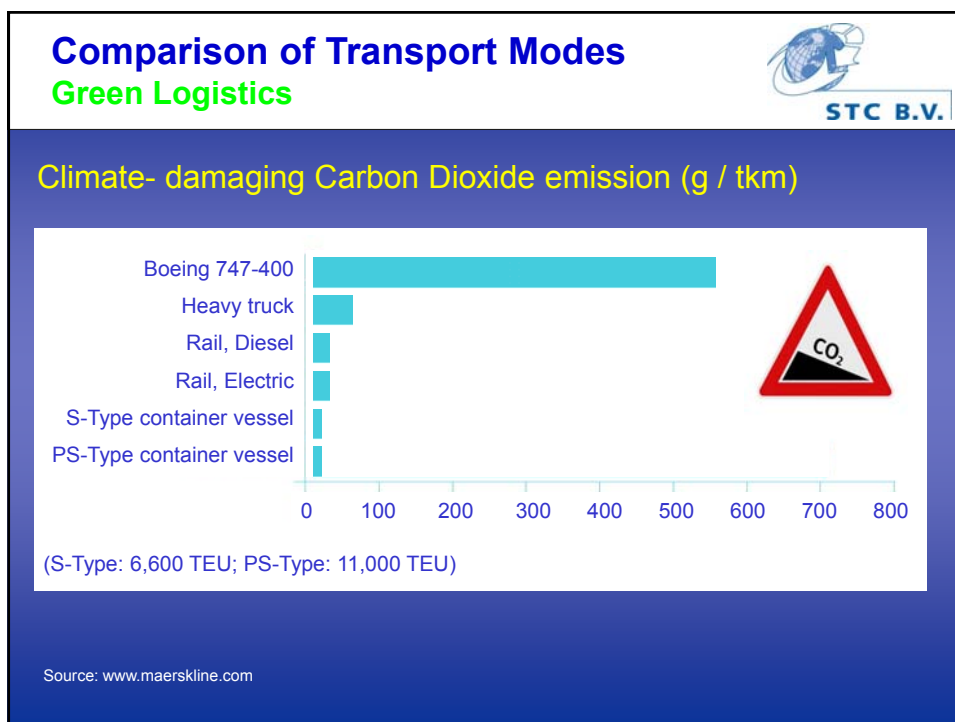
Total weight of goods: tonnes

Include data from fuel/electricity production (LEX)


Present results: per tonne

Report format: Table easy to read

NTM CALC version 1.5.9 © 2002-2009 NTM



Multi Modal Transport & Hinterland Connections



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Contents

- Comparison of Transport Modalities
- Multi Modal and Intermodal Transport
- Developments in Intermodal Transport
- Cargo Consolidation
- Hinterland Connections

Multi Modal- and Intermodal Transport

What is it?



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Multi Modal Transport:
 the movement of goods in ≥ 2 different modes of transport, using transshipment, organized by one carrier (MTO), applying one contract, one document, one liability, one price.



Intermodal Transport:
 the movement of goods in one and the same loading unit or vehicle, which uses successively several modes of transport, without handling of the goods themselves in changing modes



Multi Modal- and Intermodal Transport

What is it?



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Multi Modal- and Intermodal Transport

What is it? *UNCTAD Definitions*



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Unimodal Transport:

the transport of goods by one mode of transport, by one or more carriers.

Transport Documents:

If there is only one carrier, he issues his own transport document, e.g. a bill of lading, airway bill, consignment note

If there is more than one carrier, for example, carriage from one port via another port to a third port with transshipment at the intermediate port, one of the carriers may issue a "through bill of lading" covering the entire transport.

Depending on the back clauses of this through bill of lading the issuing carrier may be responsible for the entire port-to-port transport, or only for the part which takes place on board his own vessel.

Multi Modal- and Intermodal Transport

What is it? *UNCTAD Definitions*



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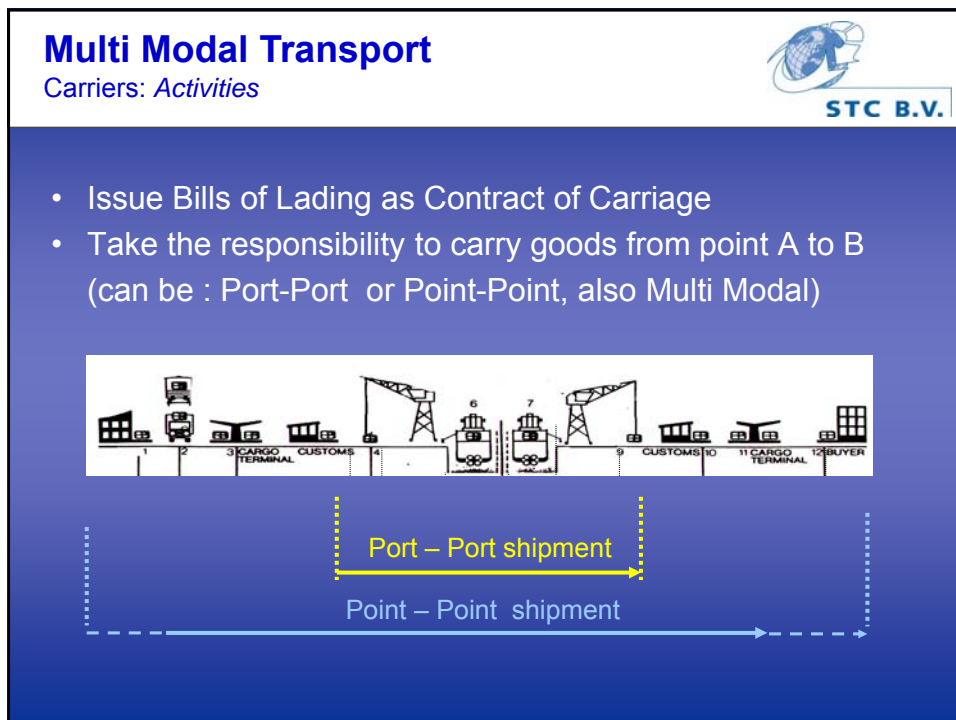
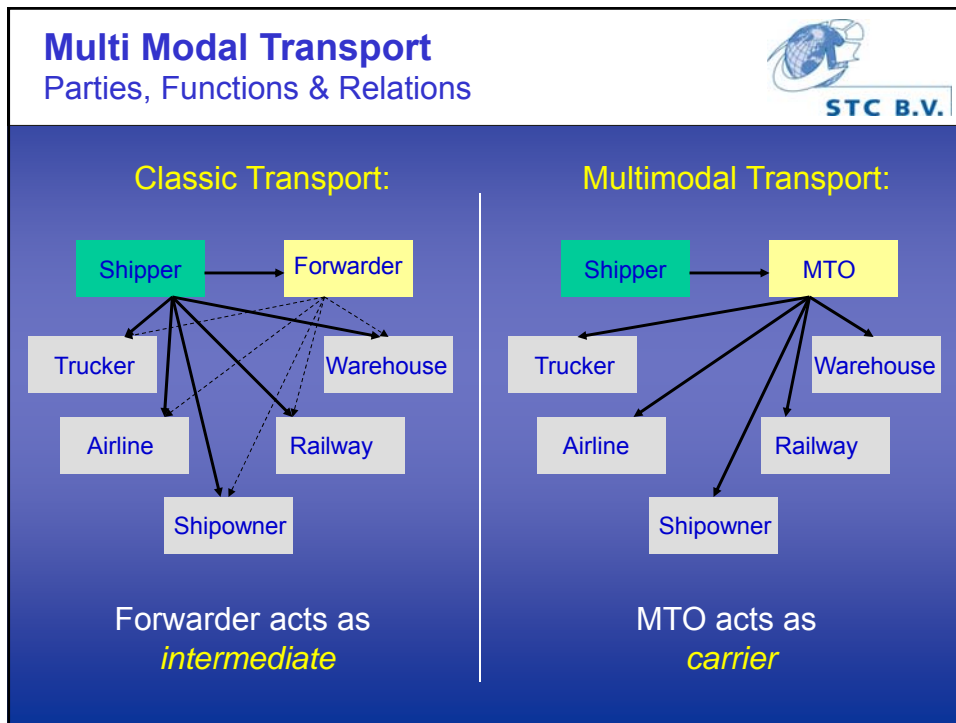
Intermodal Transport

The transport of goods by several modes of transport from one point or port of origin via one or more interface points to a final port or point where one of the carriers organizes the whole transport.

Transport Documents:


Depending on how the responsibility for the entire transport is shared, different types of transport documents are issued:

- Segmented transport - *if each carrier only takes responsibility for his own track, he issues his own transport document, e.g. bill of lading, airway bill, consignment note.*
- Multimodal transport - *if the carrier takes responsibility for the entire transport, he issues a Multimodal Transport Document.*

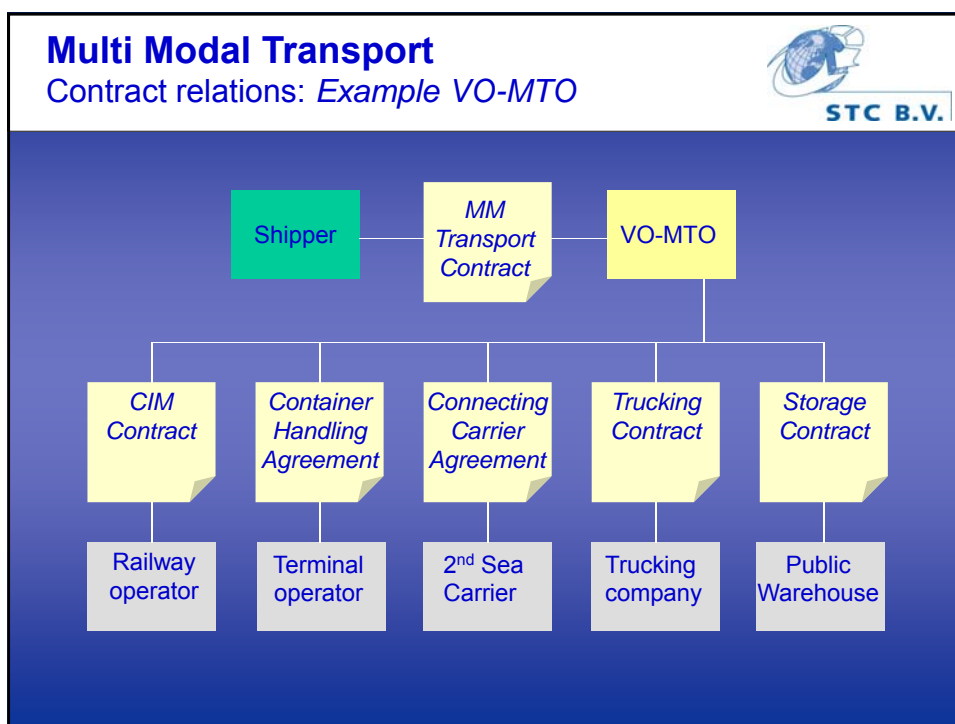


Multi Modal Transport

Carriers: *Typical MTO versions*




Possession of equipment	Possession of ships	Market share	Main activities	Example companies
Non Carrier MTO (NC-MTO): without own equipment	Non Vessel Owning MTO (NVO-MTO) or Non Vessel Operating Common Carrier (NVOCC): without own ships	40 %	Forwarder Ship's Agent Trucker Integrator Railway Terminal Operator	Kühne & Nagel PAN Agencies Federal Express CSX Port of Seattle
Carrier MTO (C-MTO): has own equipment	Vessel Owning MTO (VO-MTO): has own ships	60 %	Conference Carrier Non Conf. Carrier Inland Water Carrier	Hapag Lloyd Evergreen Lines



Multi Modal Transport Contract relations: <i>Multimodal standard contracts</i>		
Type	Negotiable	Functions
FBL FIATA Bill of Lading	Yes	Proof of Receipt Proof of Ownership Transport Contract
FCT : Forwarders Certificate of Transport	No	
FWB: FIATA Multimodal Transport Waybill	No	
Multidoc '95 Multiwaybill '95 Company-own B/L for MMT	Yes No Yes	

Multi Modal Transport Contract relations: <i>Liability of the MTO (1)</i>	
Regarding the legal and liability situation we must differentiate between an <i>internal and external part</i> .	
<ul style="list-style-type: none"> • Internal part: rules the legal relationship of an MTO with different transport operators (carriers) • External part: concerns the relation with the owner of the goods (shipper) 	

Transport Activities and Parties Contracts & Liabilities: <i>Conventions</i>				
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Sea	Air	Road	Rail	River
Hague / Visby	Warsaw	CMR	COTIF	Rhine, Danube
UN Conventions on the International Multimodal Transport of Goods (MT-convention)				

Multi Modal Transport Contract relations: <i>Liability of the MTO (2)</i>
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<p>Internal part: <i>mainly by rules per module:</i></p> <ul style="list-style-type: none"> • Air traffic: Warsaw convention • Sea traffic: Hague and Hague–Visby rules / Hamburg rules • Road traffic: CMR • Rail traffic: COTIF / SMGS <p>External part: <i>two main streams:</i></p> <ul style="list-style-type: none"> • <u>Network-solution</u>: respecting the rules and laws already developed for the modalities applied. The liability depends on the mode where the damage occurred. • <u>Uniform-solution</u>: the MTO contract is an own contract, independent from uni-modal agreements. There is one uniform liability, independent from where damage occurred.

Multi Modal Transport

Contract relations: *Liability of the MTO (3)*



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Legal framework for International Multimodal transport

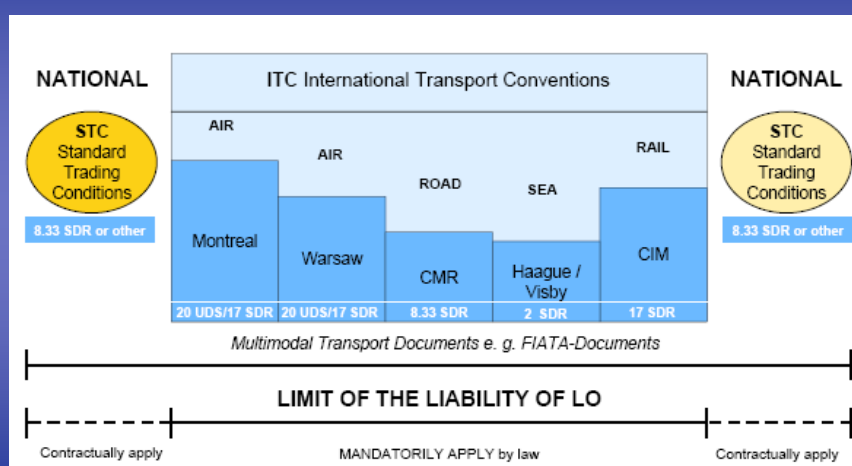
- The UN Conventions on the International Multimodal Transport of Goods (MT-convention) signed in 1980.
The MT-Convention is not in force yet!
- UNCTAD/ICC Rules for Multimodal Transport Documents

Multi Modal Transport

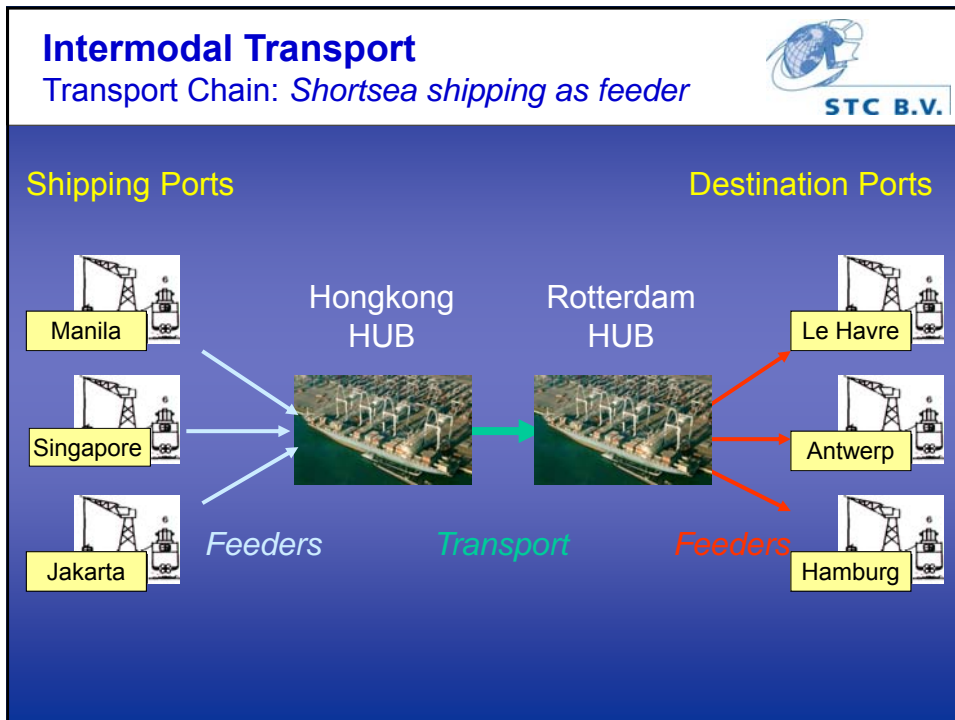
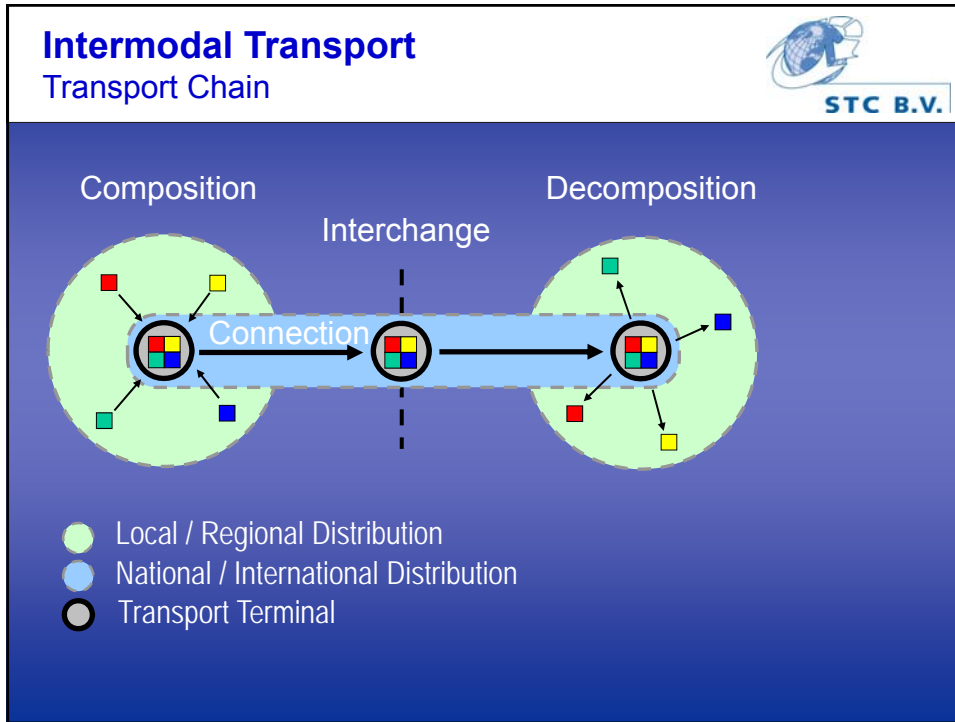
Contract relations: *Liability of the MTO (4)*

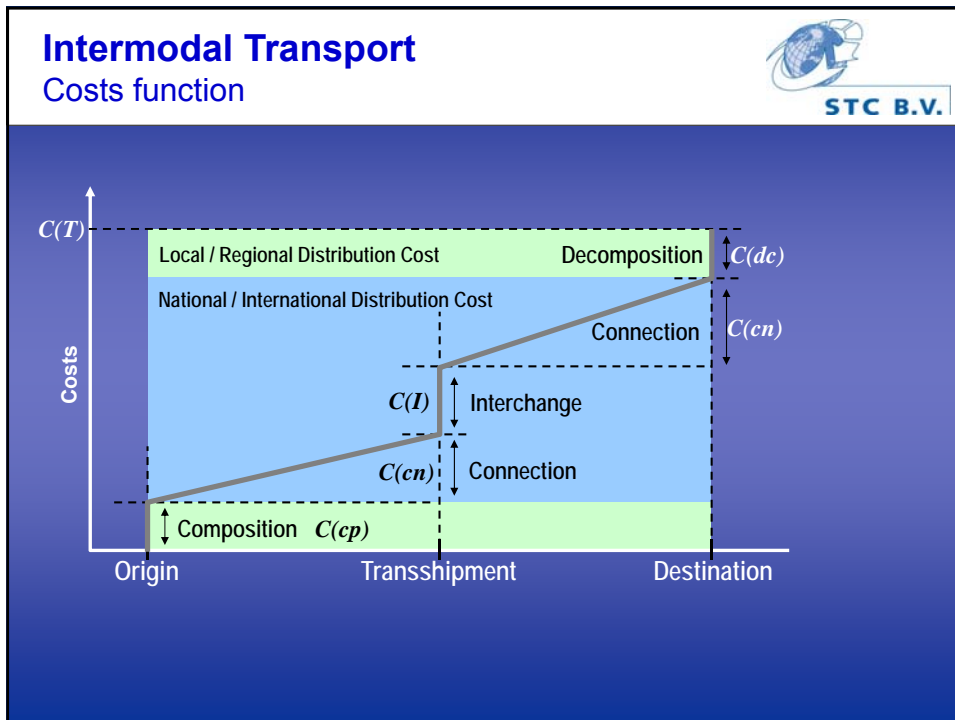


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Source: <http://www.aktiv-assekuranz.de>



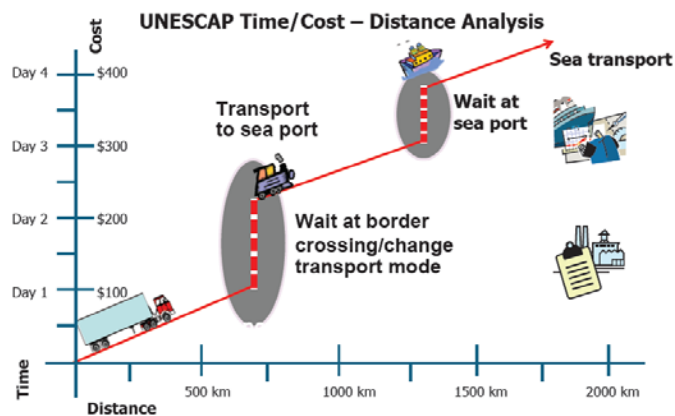


Intermodal Transport Costs function



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A Tool to Analyse Bottlenecks

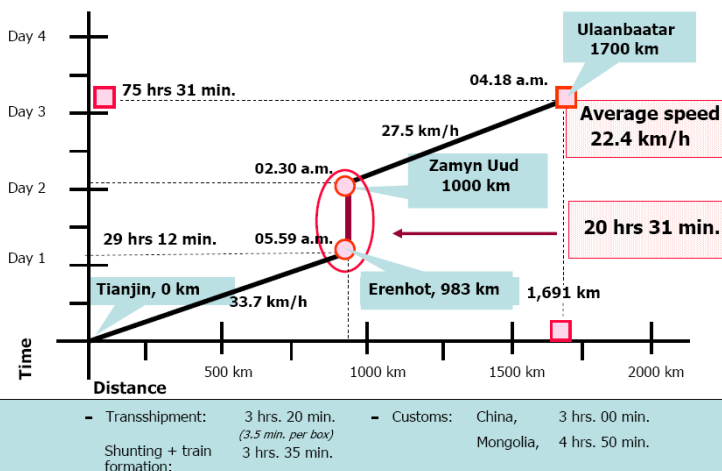


Intermodal Transport Costs function



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Example: Tianjin-Ulaanbaatar Railway link



Intermodal Transport Equipment Definitions



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- **Mode of transport:**
The method of transport used for the conveyance of goods *e.g. road transport*
- **Type of means of transport:**
The type of vehicle used in the transport process
e.g. semi trailer
- **Means of transport:**
The vehicle used for transport of goods
e.g. closed semi trailer for 22 pallets

Multi Modal Transport Combinations Benefits



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Unitization:

Reduced handling gives savings in labour, packaging and damage.

Economics of scale:

in hub- / spoke networks, large modern trucks, or seagoing vessels, or barges, or trains give increased load capacity.

Environmental effects

Through a switch from the road to more environmentally friendly modes, e.g. shortsea, rail, inland shipping.

Multi Modal Transport Combinations Conditions



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Ideal practices for the transport modes involved

Example: if customs require that all containers should fully deconsolidate, to allow for a thorough cargo check, then the concept of intermodality is violated.

Adequate terminal handling infrastructure

Sufficient capacity, fast handling, limited dwell time.

Efficient interfaces

Interoperable sea/rail/road networks, prompt information flow, effective documentation processing and customs clearance)

Integrated infrastructure and transport means

Intermodal design of the trans-European transport networks, harmonise standards for transport means, pricing, rules, exchange of information etc.