



*Towards an integrated transport system in the
Baltic Sea Region*

WP5.5. Task meeting Railway solutions for the North–South and East–West flows

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Joint WP5.3 & 5.5. Task Meeting , Oslo 31st May 2012

WP5.5.- Objectives of ILiM works

Defining conditions for establishment of regular intermodal North-South connections

Analysed aspects:

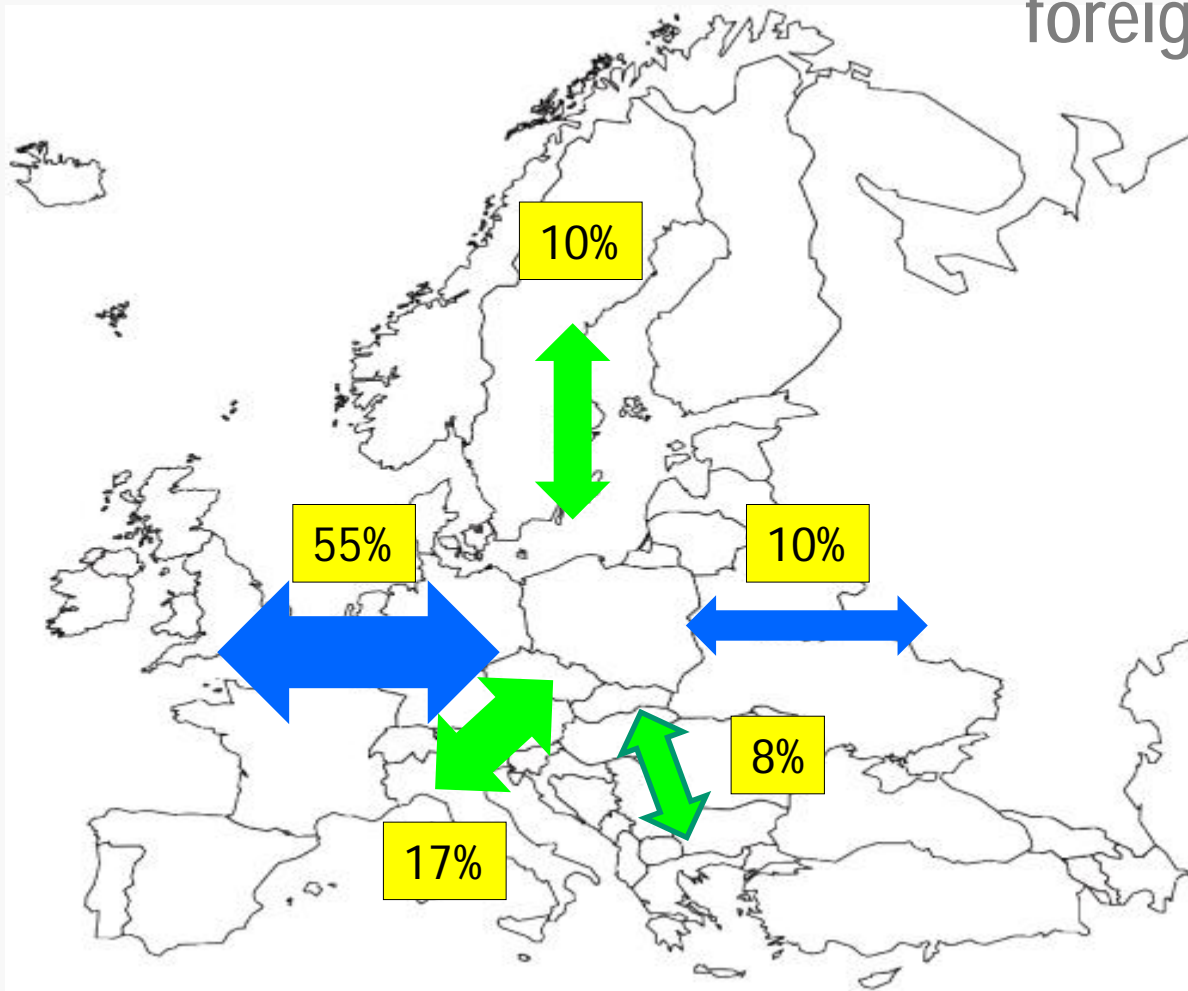
- estimated volumes
- infrastructural bottlenecks
- interoperability of railway systems
- modal competitiveness



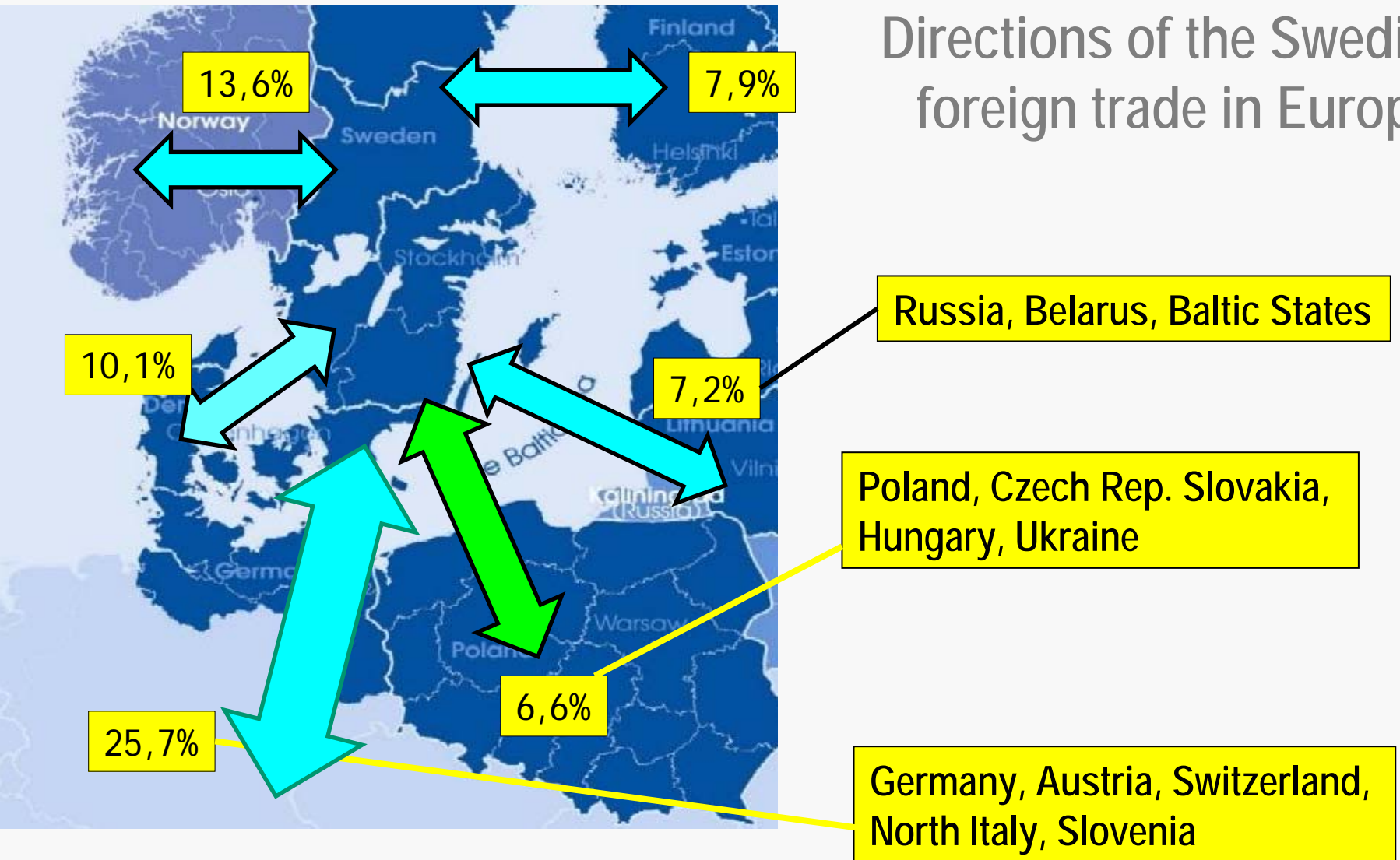
Starting point

- Domination of the "truck-on-ferry" transport profile
- Absence of containers in transport between Poland and Scandinavia
- Developed national intermodal transport networks but without effective interfaces across the Baltic Sea
- Moderate flows between Poland and Scandinavia not fully recognized in terms of geographical distribution of supplies

Directions of the Polish foreign trade in Europe



Directions of the Swedish foreign trade in Europe

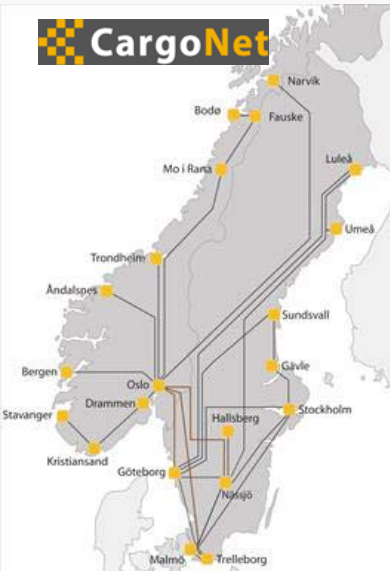


Source: www.swedishtrade.se

Comparison of intermodal markets of Sweden and Poland

Comparison of intermodal markets of Sweden and Poland			Poland	Sweden
Share of rail transports in total transports	000'tonnes	2008	18,5%	15,7%
Share of intermodal transports in rail transports	000'tonnes	2008	1,9%	8,6%
Finansing of the rail sector	k€ /1km of rail track p.a.	2002-2006	4	85
Track access charge	€ /1 track km	2007	5,18	0,48

Intermodal service in Sweden and Norway



- **Green Cargo** – Swedish state own rail operator basing on network of marshalling yards
- **CargoNet** is 100% owned by NSB .
The company operates on a number of terminals around Sweden and Norway with a fixed timetable between the destinations, mainly operated using block train setups.



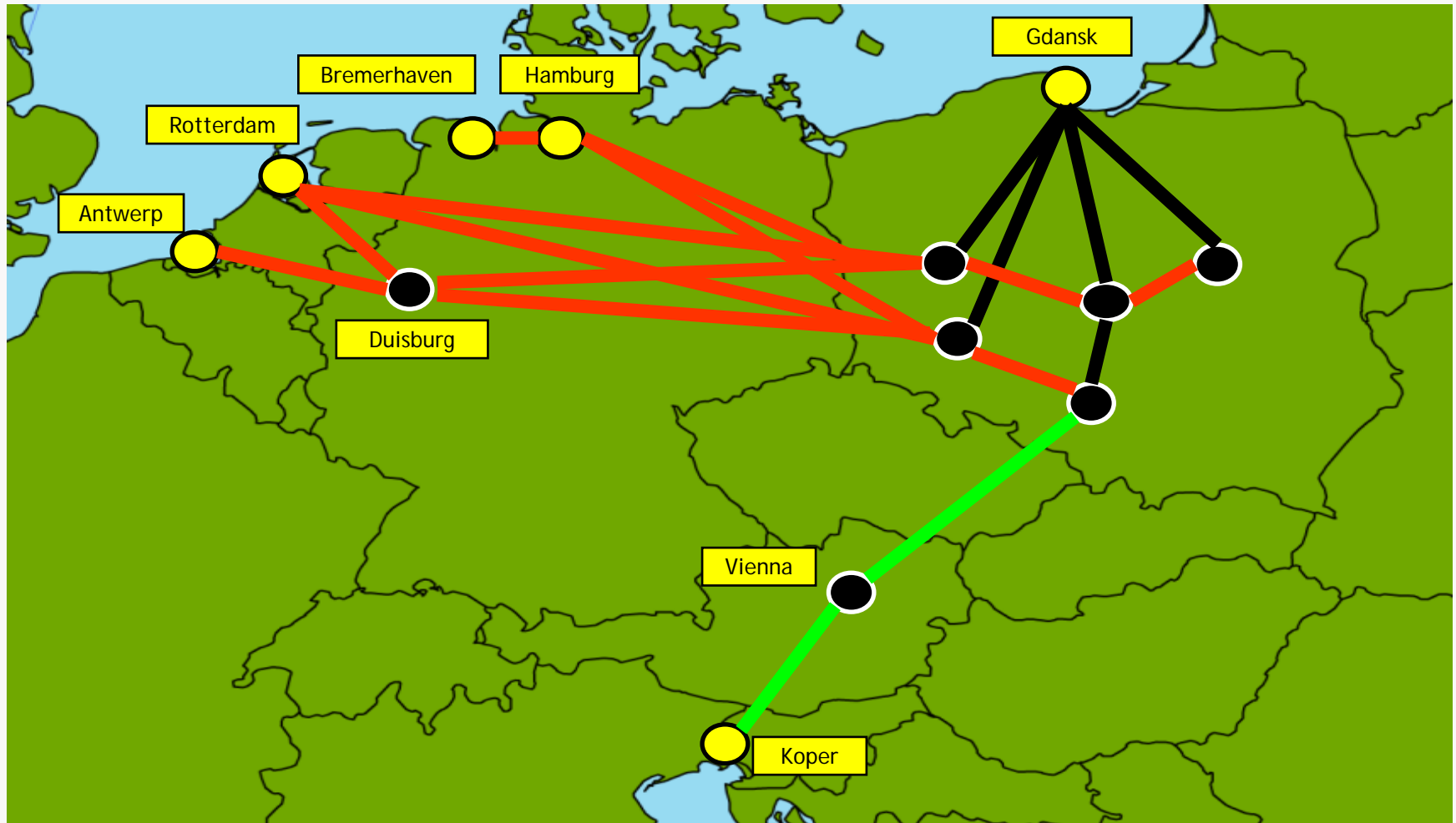
Green Cargo		Tranzit time
Oslo	Ystad	50 h 00
Stockholm	Ystad	44 h 30
Goteborg	Ystad	25 h 00

CargoNet		Tranzit time
Oslo	Malmoe	14 h 20
Stockholm	Malmoe	11 h 00
Goteborg	Malmoe	12 h 00

Source : Ramboll Sweden

- CargoNet winds up a part of service in Sweden since October 2011

Intermodal transport networks handling containerised flows to and from Poland.



Existing freight railway service between Poland and Sweden



Rail transport organisation

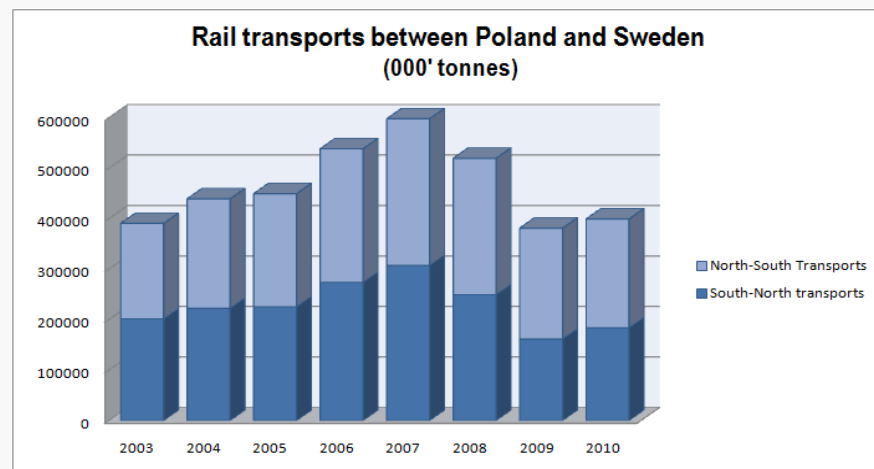
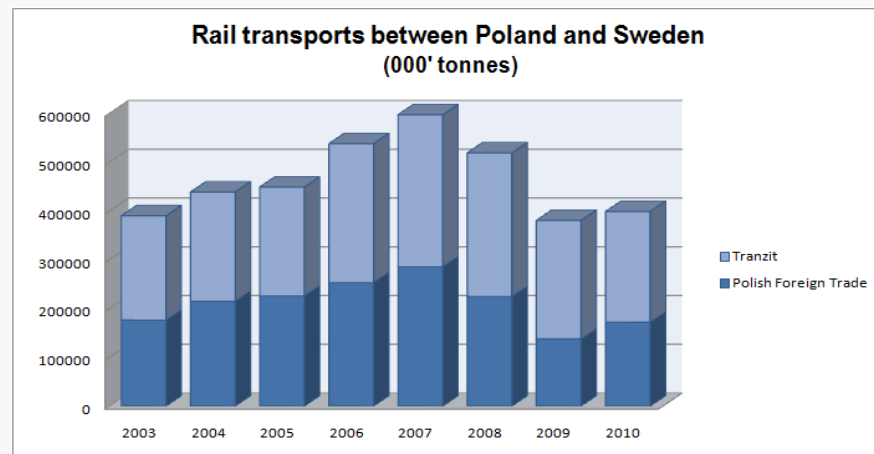
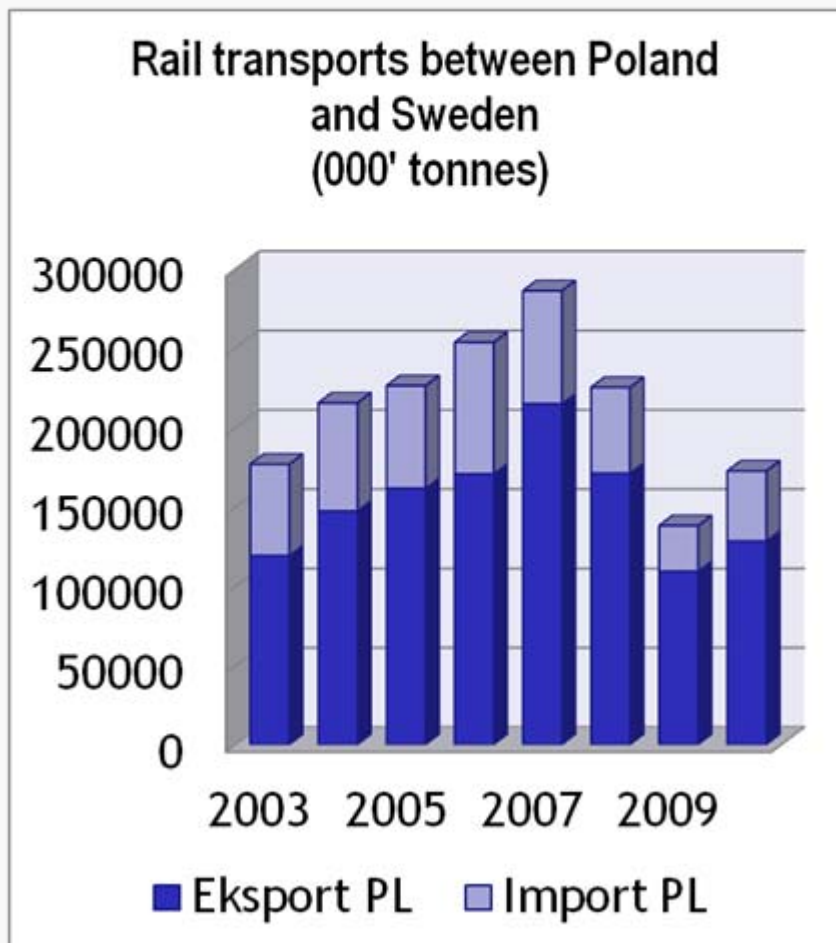
- The Świnoujście – Ystad line is the line that services train ferries between Poland and Scandinavia. It has been operating since 1974.
- The line is one of the most convenient connections between Scandinavia and Central European countries.
- Ferry train transport is part of the PKP CARGO S.A. intermodal transport system.
- PKP CARGO S.A. operates two ferries with railway decks, whose total track length equals 1200 m.
- Rail – ferry transport by PKP CARGO for the transportation of all dangerous goods allowed in international transport, also for excessively heavy as well as oversized loads.

	FERRY TRAIN Poznań – Malmö
	BATLIC TRAIN Wrocław – Świnoujście
	Szczecin P.C – Świnoujście – Szczecin
	SKANDVIKING Malmö – Wiedeń
	PORT TRAIN Świnoujście - Poznań

Source : Trade Trans S.A.



Freight rail traffic Poland-Sweden (with the use of rail ferries)



Source: PKP Cargo S.A. statistics

Potential volumes for railway transports between Scandinavia and Poland

Type of commodity	Imports from Poland (000' tonnes)			Exports to Poland (000' tonnes)			Goods susceptible to	
	Sweden	Norway	TOTAL	Sweden	Norway	TOTAL	being transported by railways	containerisation
Food and live animals	134,63	40,19	174,82	44,36	370,47	414,83		
Beverages and tobacco	21,20	1,70	22,90	1,38	0,01	1,39	+	+
Crude materials, inedible, except fuels	270,58	86,13	356,71	1 275,51	831,91	2 107,42	++	+
Mineral fuels, lubricants and related materials	267,76	158,98	426,74	518,63	307,24	825,87	++	
Animal and vegetable oils, fats and waxes			-	50,93	7,53	58,46	+	+
Chemicals and related products	95,31	29,26	124,57	245,98	28,87	274,85	++	++
Manufactured goods classified chiefly by material	390,84	231,62	622,46	678,65	198,13	876,78		
Machinery and transport equipment	224,01	214,26	438,27	91,82	100,94	192,76	+	+
Miscellaneous manufactured articles	265,85	88,45	354,30	72,89	9,25	82,14		
TOTAL	1 670,18	850,59	2 520,77	2 980,15	1 854,35	4 834,50		

Source: Own study based on GUS Statistics and Freinhofer classification

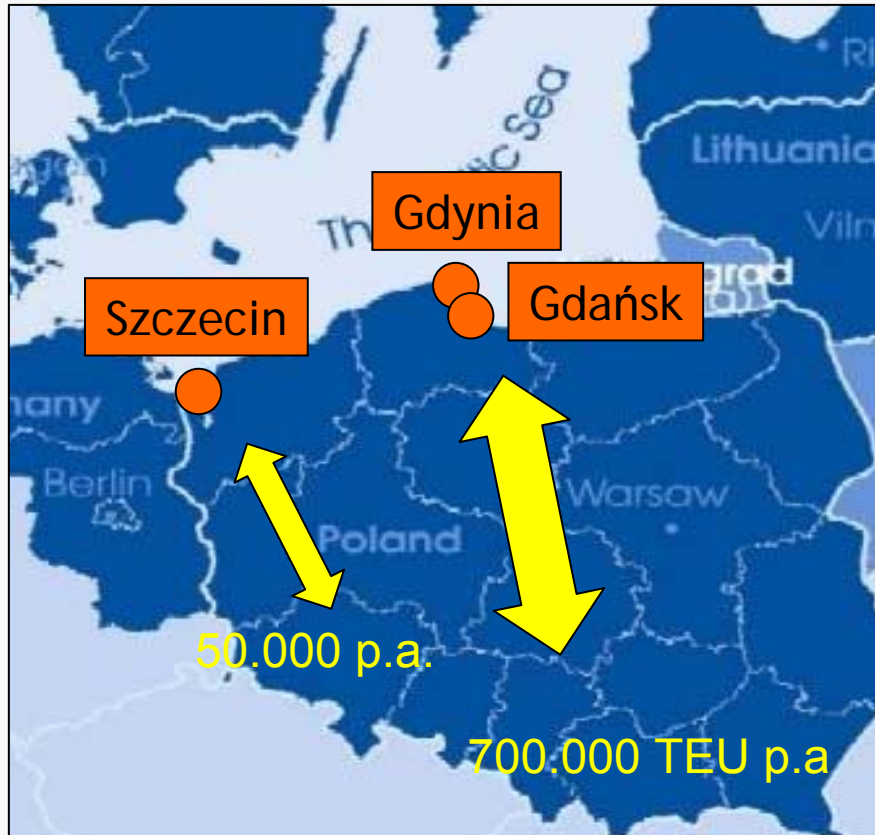
Potential volumes for railway transports between Scandinavia and Poland

Potential volumes	Imports from Poland			Exports to Poland		
	Sweden	Norway	Total	Sweden	Norway	Total
Goods susceptible for rail freight (000'to)	214,62	103,91	318,52	626,45	361,25	987,70
Equivalent of trains per week	2,06	1,00	3,05	6,01	3,46	9,47
Goods susceptible for containerisation (000'to)	80,17	38,99	119,16	215,76	102,70	318,46
Equivalent of container block trains per week	1,28	0,62	1,90	3,45	1,64	5,09

Assumptions

- 1) 30% of goods highly susceptible and 10% susceptible to lower extent may be actually sent on rails
- 2) 1 conventional = 2000 tonnes
- 3) 1 container block train = 1200 tonnes

Potential volumes for railway transports between Scandinavia and Poland

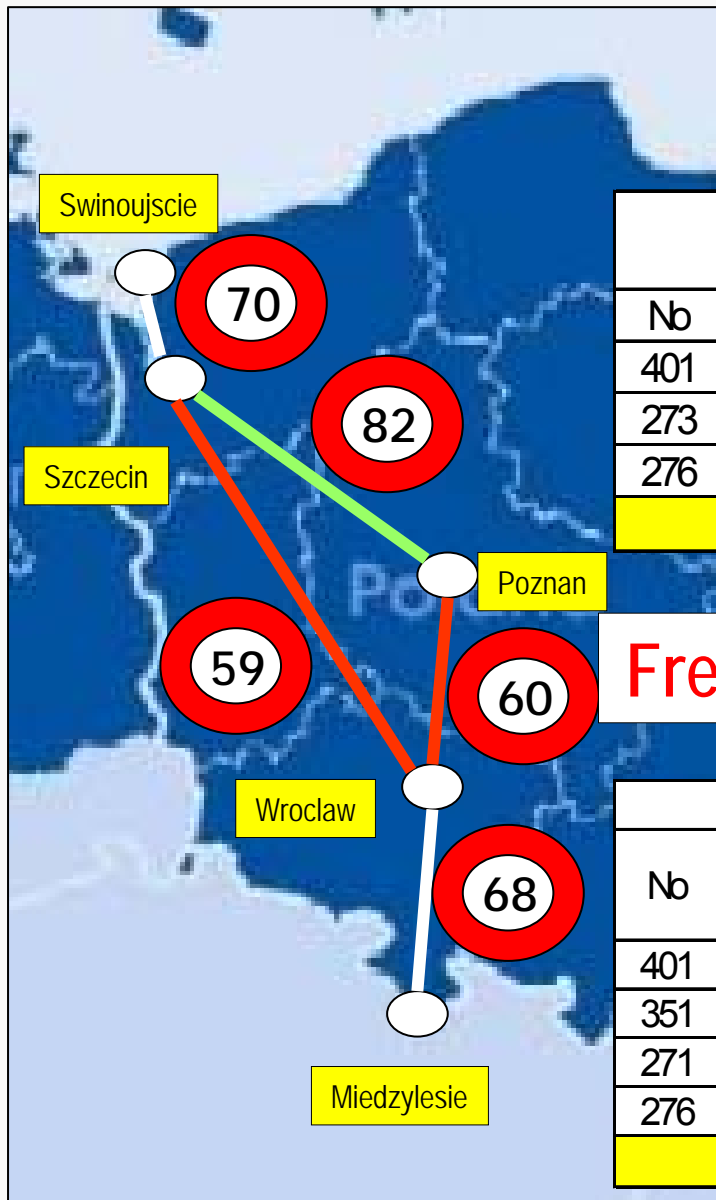


Consolidation with containers transported through Polish ports to/from domestic market

Yearly throughput - 750.000 TEU of which :

- ❑ 150.000 TEU are transported on rails (20%)
- ❑ 500.000 TEU are transported by trucks (80%)

Speed limits for freight trains on selected North-South railway routes



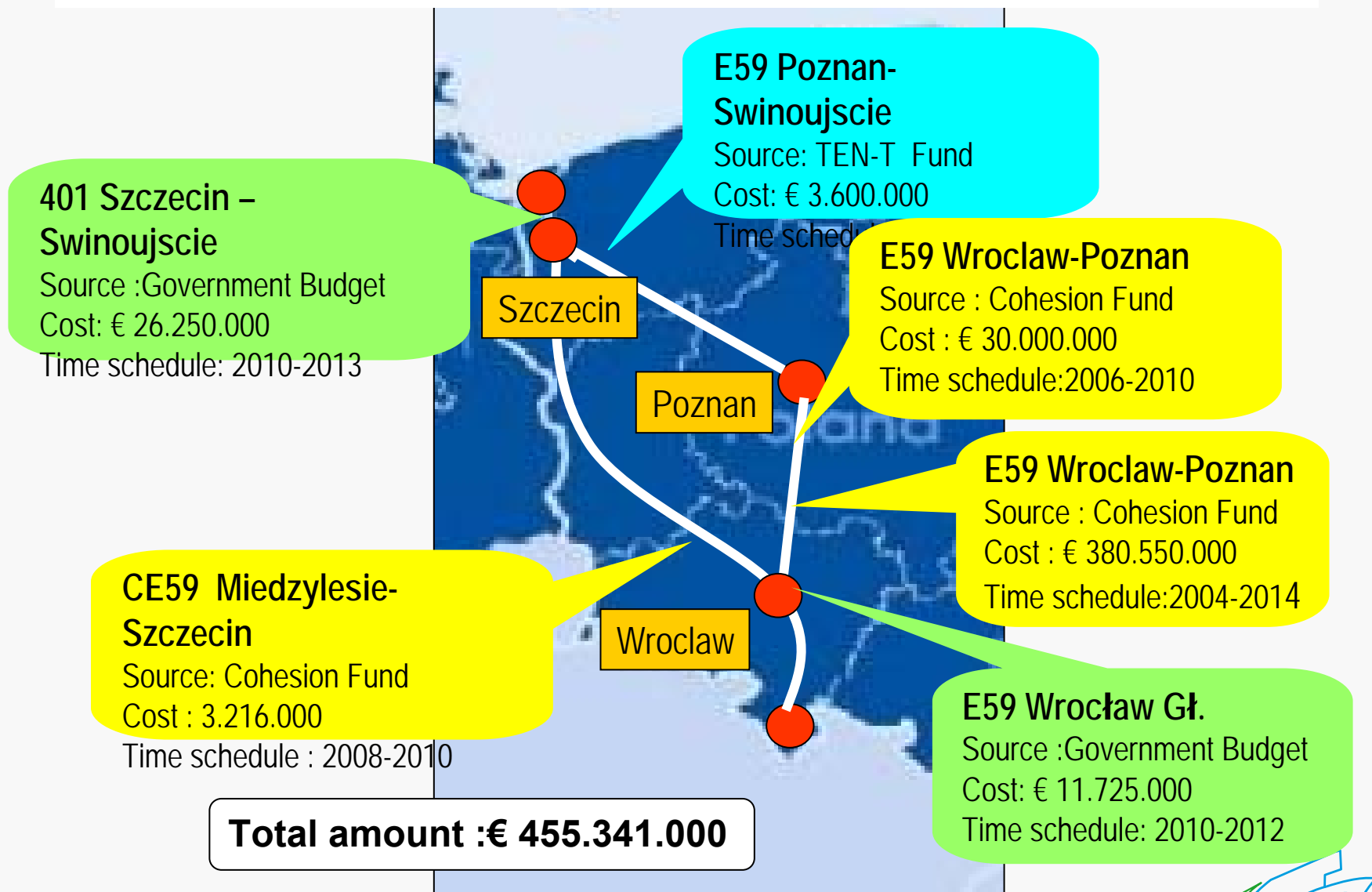
Route			km	No of speed limits /100km	% of distance with speed limits	Average speed available (km/h)
No	ex	to				
401	Szczecin	Swinoujście	101	5	100%	70
273	Wrocław	Szczecin	356	34	100%	59
276	Mędzylesie	Wrocław	138	33	100%	68
TOTAL			595	29	100%	63

Freight trains commercial speed 25-30km/h

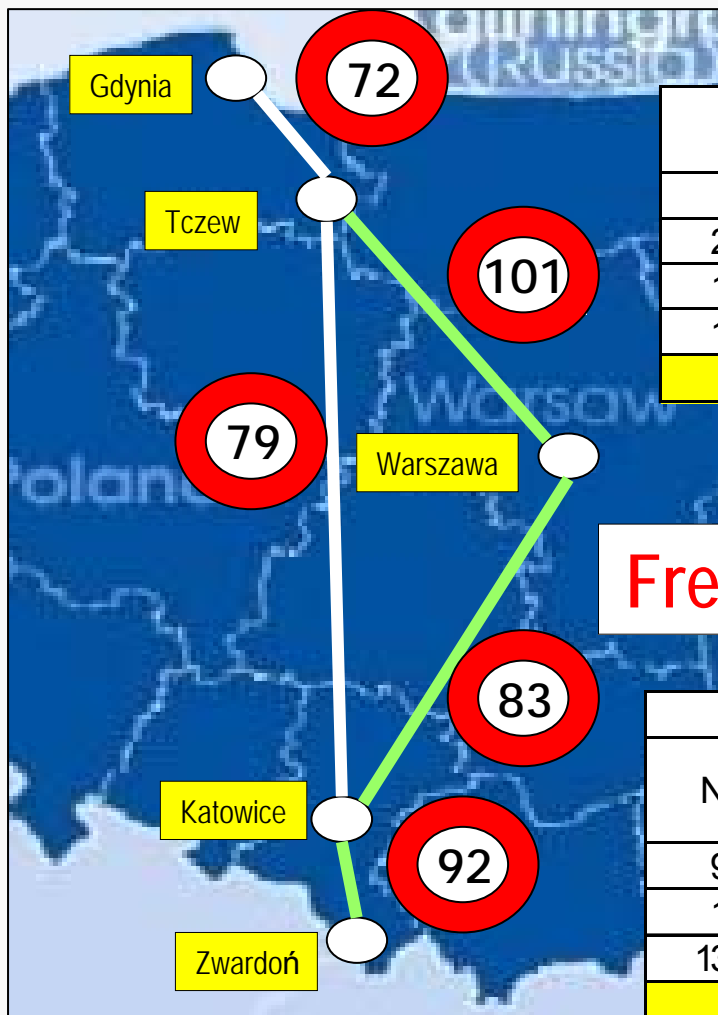
Route			km	No of speed limits /100km	% of distance with speed limits	Average speed available (km/h)
No	ex	to				
401	Szczecin	Swinoujście	101	5	100%	70
351	Poznań	Szczecin	213	19	52%	82
271	Wrocław	Poznan	164	36	96%	60
276	Mędzylesie	Wrocław	138	33	100%	68
TOTAL			616	24	82%	71

Source: PKP Cargo S.A.

Planned modernization investments in track infrastructure



Speed limits for freight trains on selected North-South railway routes



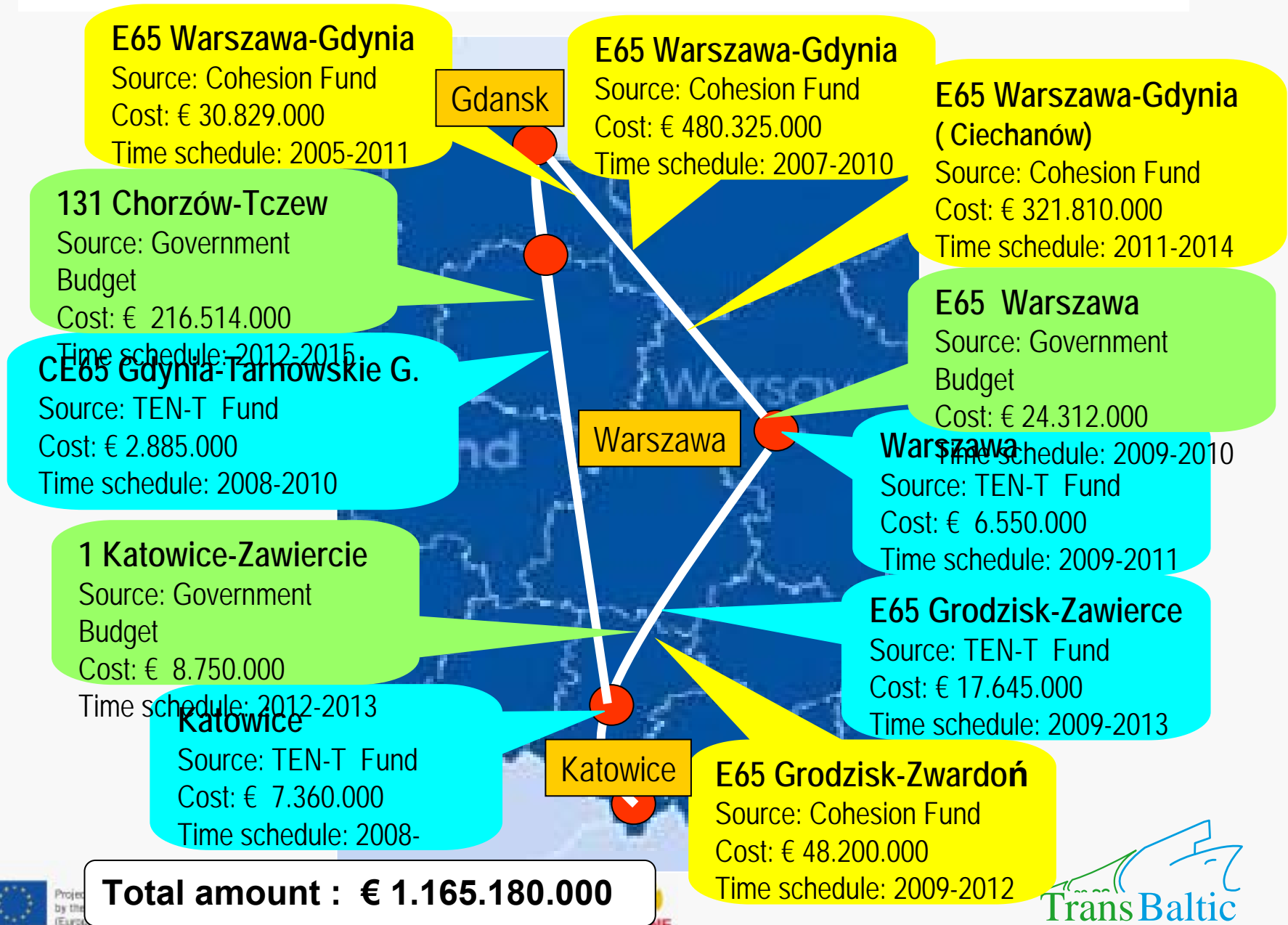
Route			km	No of speed limits /100km	% of distance with speed limits	Average speed available
No	ex	to				
201	Gdynia P	Tczew	70	16	100%	72
131	Tczew	Chorzów	492	42	49%	79
139	Katowice	Zwardoń	114	51	53%	92
TOTAL			676	41	55%	80

Freight trains commercial speed 25-30km/h

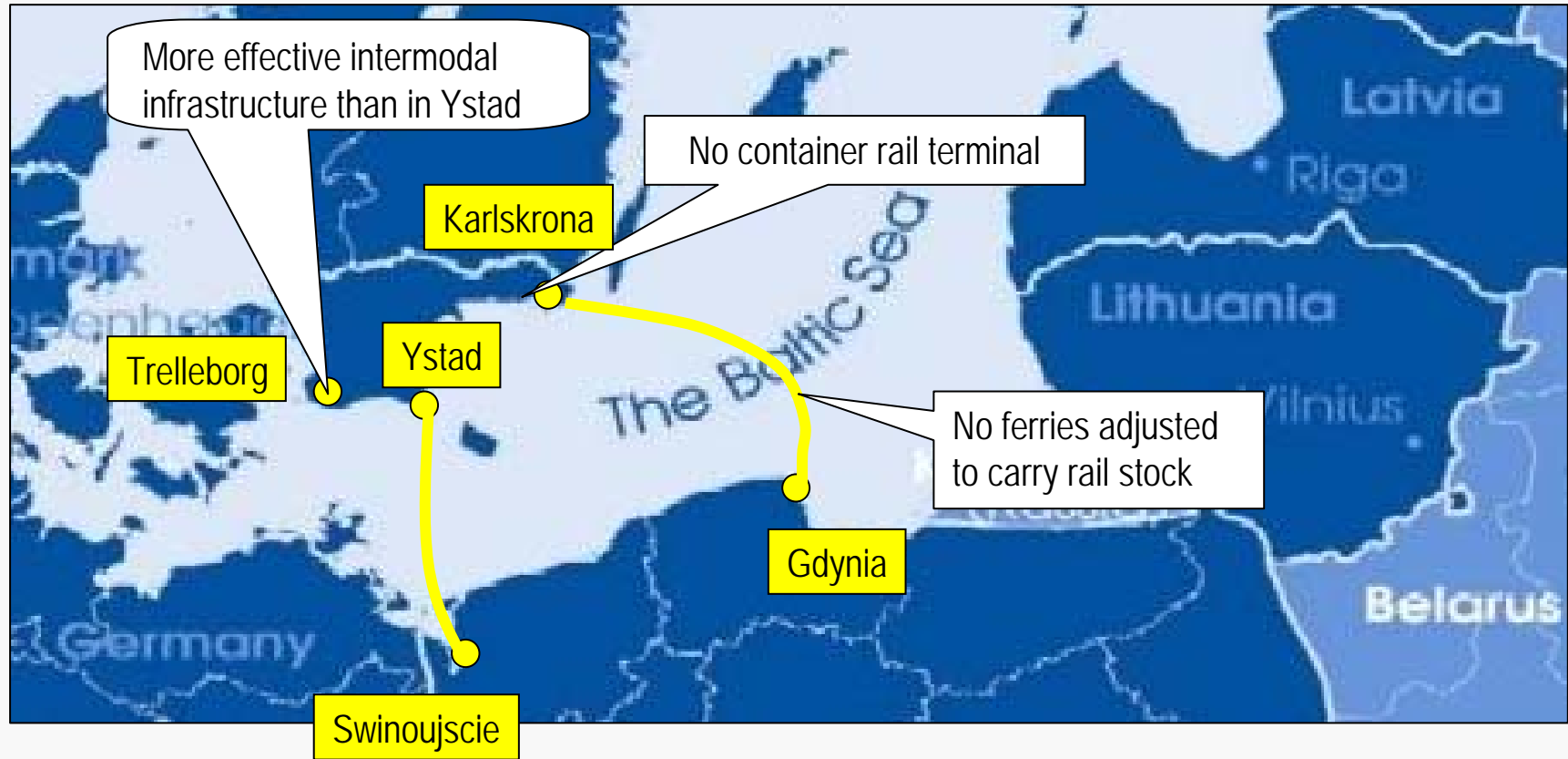
Route			km	No of speed limits /100km	% of distance with speed limits	Average speed available
No	ex	to				
9	Gdańsk	Warszawa	323	9	6%	101
1	Warszawa	Katowice	319	9	53%	83
139	Katowice	Zwardoń	114	51	53%	92
TOTAL			756	15	33%	92

Source: PKP Cargo S.A.

Planned modernization investments in track infrastructure



No efficient interfaces between intermodal transport systems





Transit time

Truck

31 h 30'

Intermodal deliveries
(40FT container)

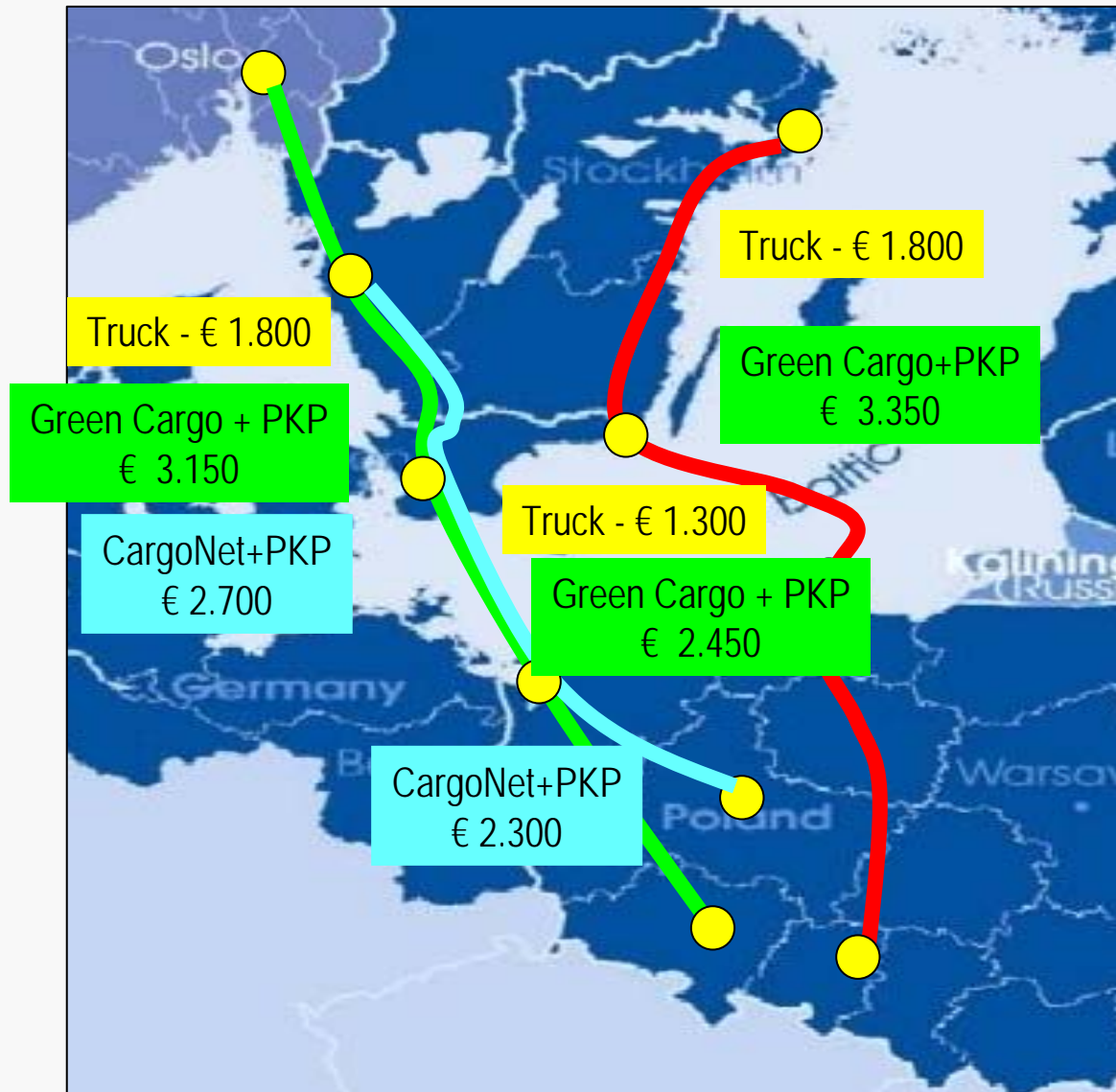
Cargo Net / PKP Cargo

79 h 18'

Green Cargo / PKP Cargo

103 h 18'

Level of the freight charges 1st part 2011



Source: Ramboll Sweden , Trade trans, Poland



Freight rates comparison based on:

- ☐ Market rates for trucks
- ☐ Hypothetical cost analysis of block intermodal trains assuming 2 departures weekly

Routes				Freight rates for trucks €/trip		Freight rate per 40FT Container €/trip *	
				One way	Round trip/2	50 TEU/train	75 TEU/train
Wrocław	Swinoujście	Ystad	Stockholm	1 900	1 375	1940	1293
Wrocław	Swinoujście	Ystad	Goteborg	1 480	1 000	1500	1000
Wrocław	Swinoujście	Ystad	Oslo	1 900	1 250	1860	1240
Poznan	Swinoujście	Ystad	Stockholm	1 780	1 200	1820	1213
Poznan	Swinoujście	Ystad	Goteborg	1 300	900	1420	947
Poznan	Swinoujście	Ystad	Oslo	1 900	1 140	1780	1187

* Cost + analysis based on block trains departing twice per week carrying 50/75 TEUs each.

Recommended Action Plan

- Deep market research to identify flows across commodities, companies, intermodal technologies) and select the most promising routes.
- Agreement with transport operators competitive rates based on mid-term return.
- Solving the problem of empty containers return.
- Completing intermodal infrastructure enabling containers to cross the Baltic sea on rails.