

Impact of Recent International Developments on Québec Maritime Industry

Communication presented at the
Institute of Chartered Shipbrokers

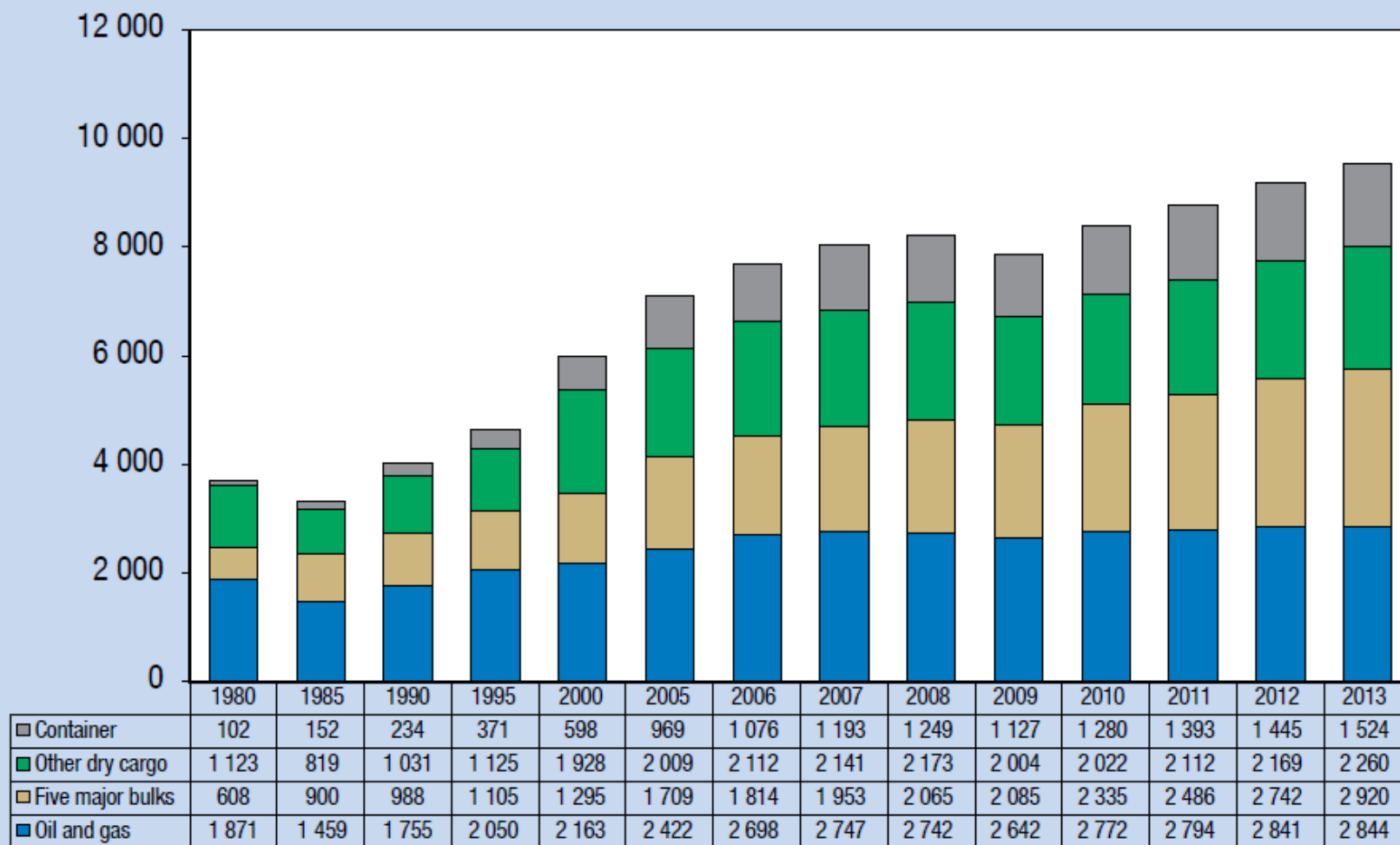
Montreal, October 28, 2015

Claude Comtois

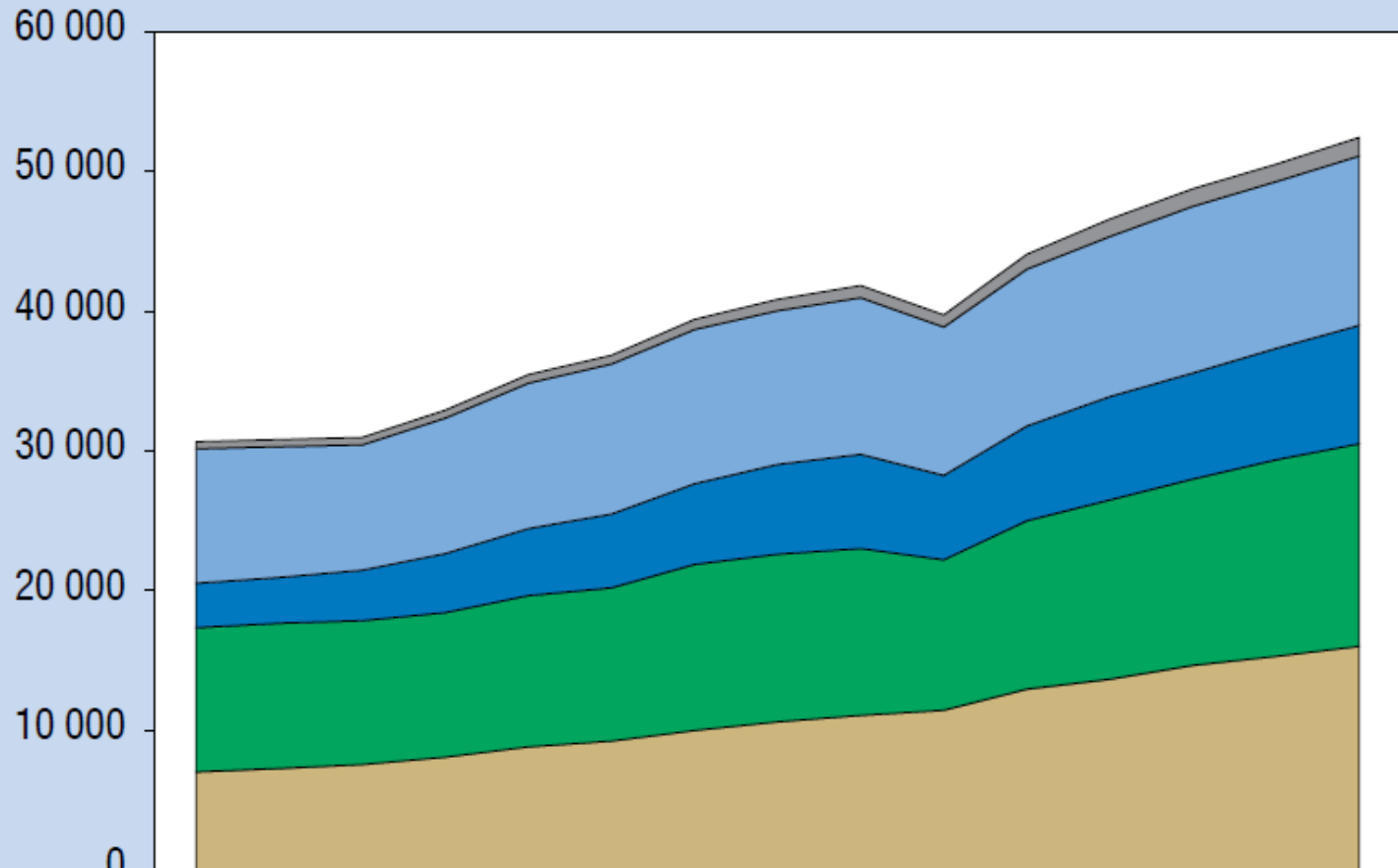
Montreal University
CIRRELT - Interuniversity Research Centre
on Enterprise Networks, Logistics and Transportation



International seaborne trade, 1980-2013 (Mt)



● Performance of seaborne trade, 2000-2014 (G ton-miles)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Gas	498	509	536	569	610	623	722	807	869	864	1060	1248	1255	1241	1330
Oil	9627	9355	8963	9693	10408	10732	11037	10997	11203	10616	11226	11452	11928	11936	12117
Container	3176	3278	3608	4221	4789	5276	5765	6424	6740	6037	6772	7388	7584	7964	8466
Other (minor bulks & other)	10319	10387	10298	10343	10815	10960	11889	11984	11925	10757	12057	12828	13340	14061	14487
Five main dry bulks	7028	7275	7553	8082	8829	9239	9988	10618	11081	11445	12942	13663	14643	15298	16018

Selected river corridors



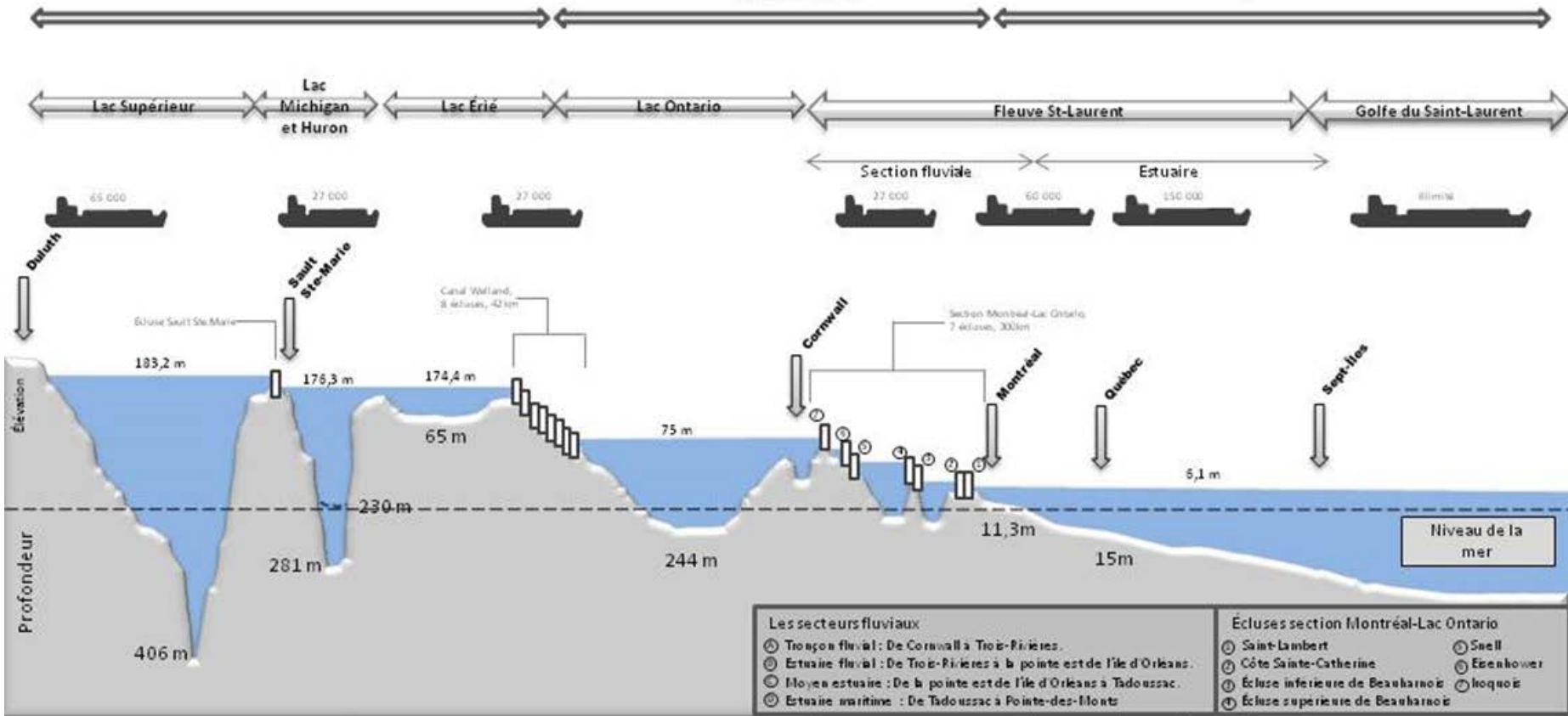


Navigable profile of St Lawrence Great Lakes System

Grands Lacs 1591 km

Voie maritime du Saint-Laurent 677 km
Fermée en hiver

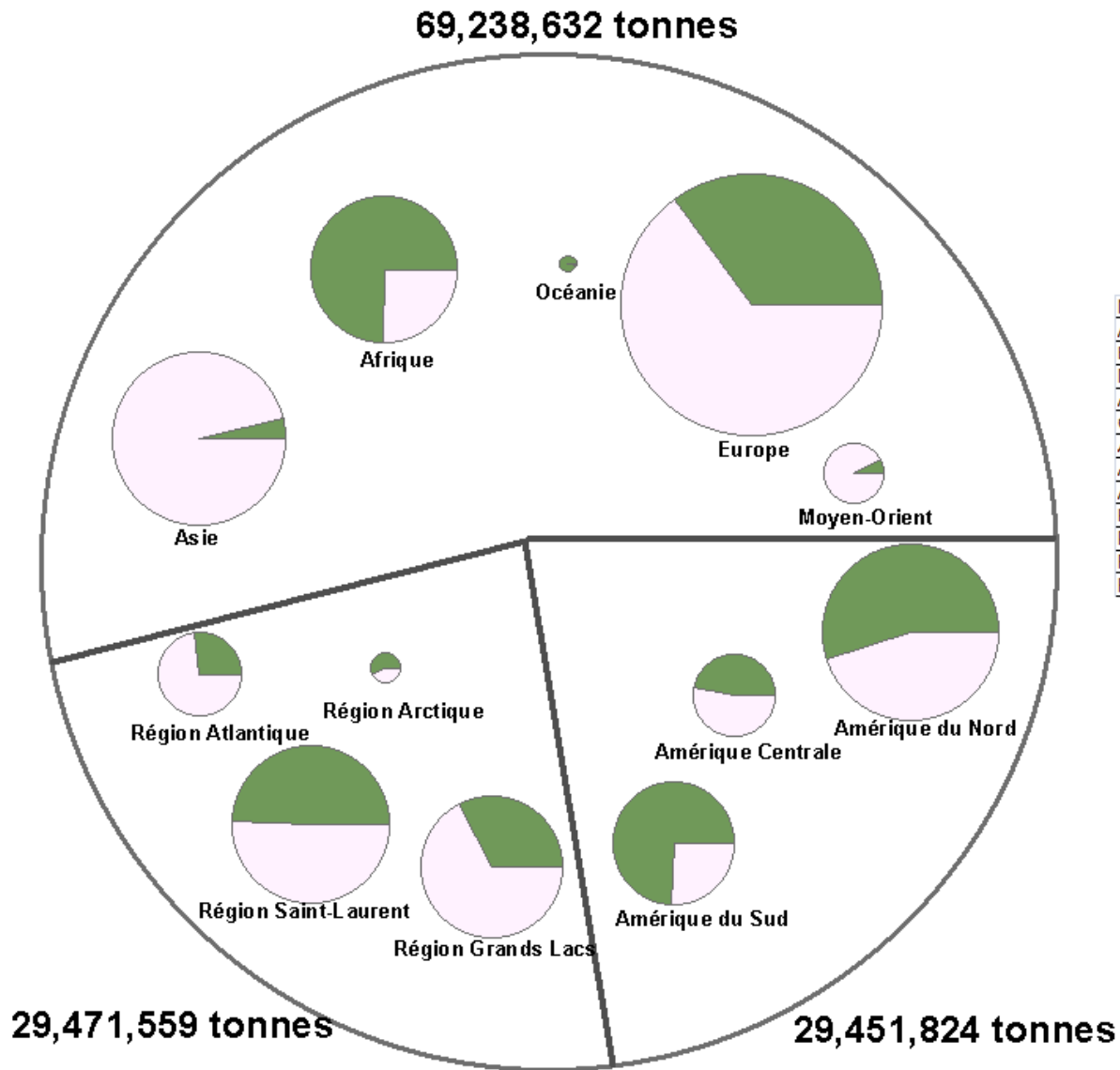
Chenal du Saint-Laurent 1600 km
Navigable à l'année



Source : Transports Québec, Service de géomatique, 2007

Graphique: Dominique Goyer

Traffic flows of the St Lawrence System, 2011

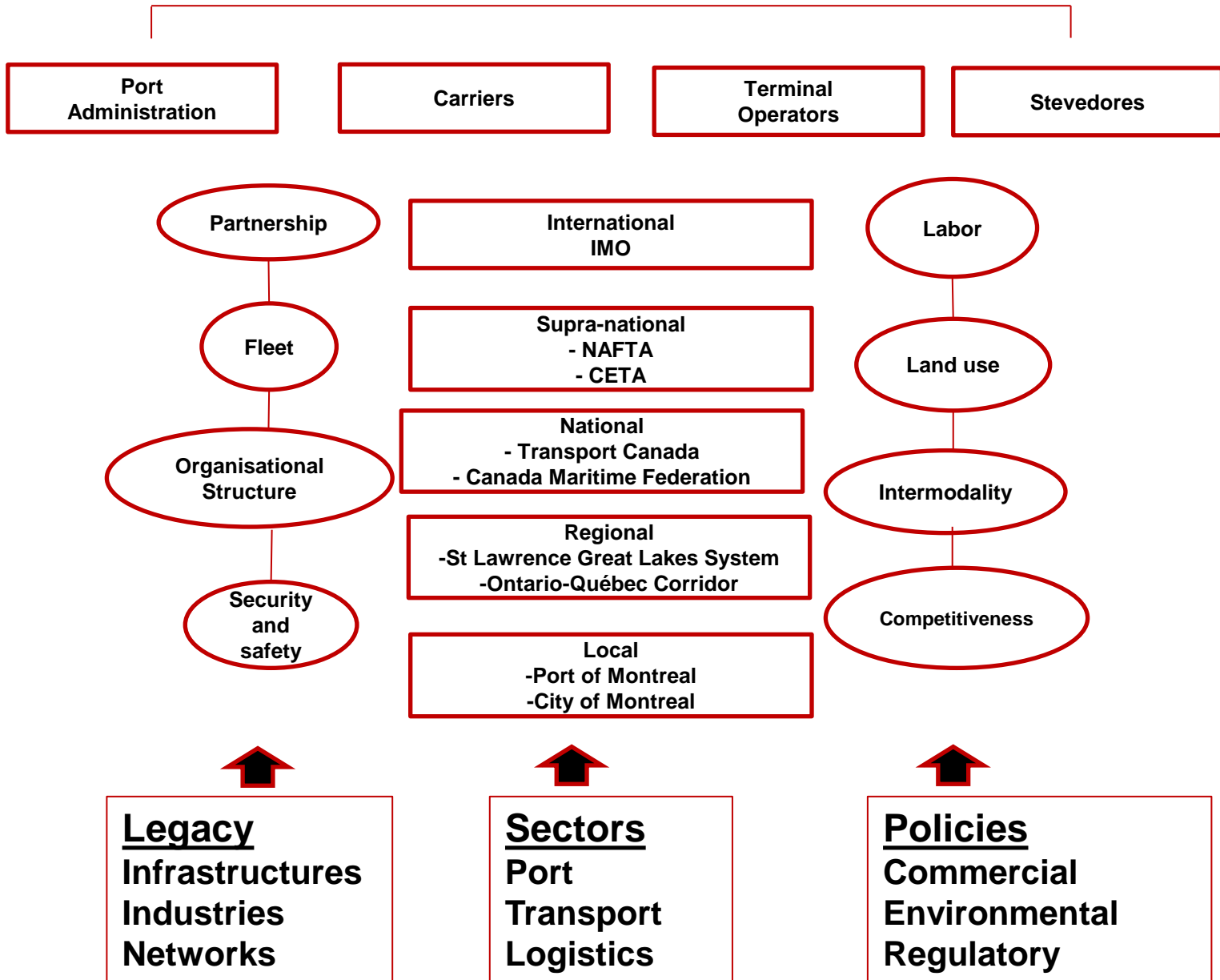


Nom	Import	Export
Afrique	9062666	3044965
Europe	13396671	24800176
Moyen Orient	151492	1854355
Asie	635800	16134738
Océanie	153733	4035
Amerique du Sud	6167393	2156027
Amerique du Nord	9504199	7807615
Amerique Centrale	1798661	2017929
Région Saint-Laurent	6834853	7002604
Région Arctique	301326	213673
Région Atlantique	1069694	2858026
Région Grands Lacs	3651091	7540292

Légende

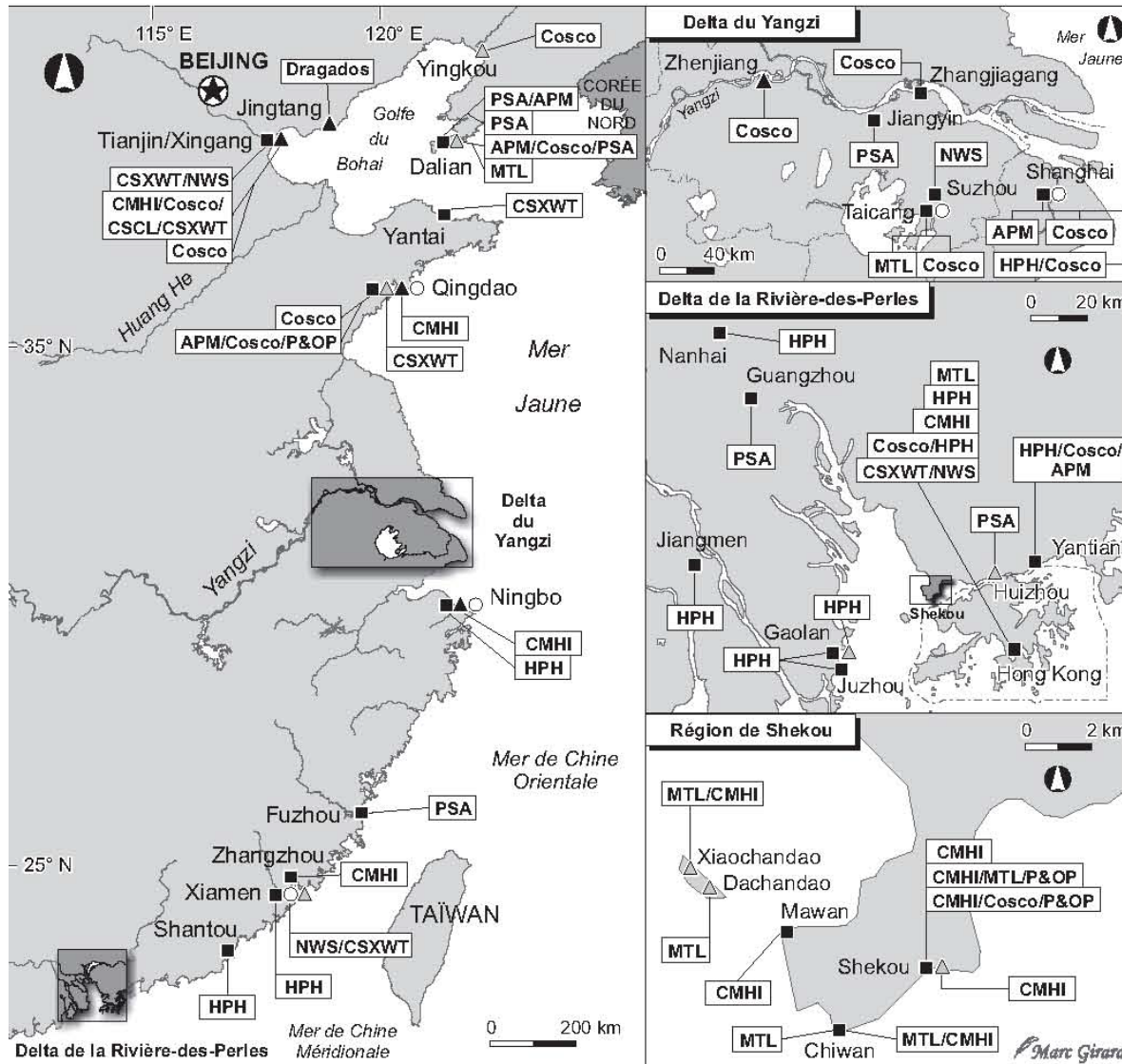


Policy making of a Maritime Strategy



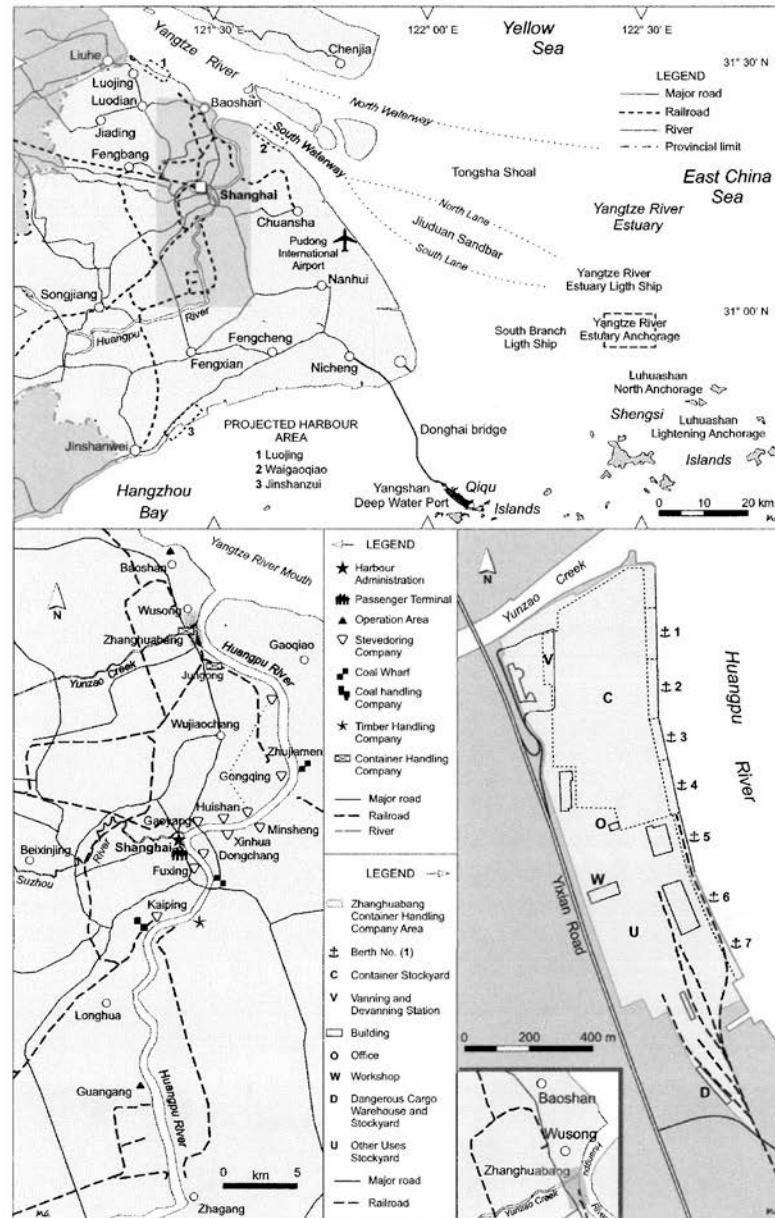


China's container terminals ownership structure





Port Terminals in Shanghai, 2015



Maersk Service: Southeast Asia – New Zealand

Tanjung Pelepas Singapore

Brisbane

Auckland

Lyttelton

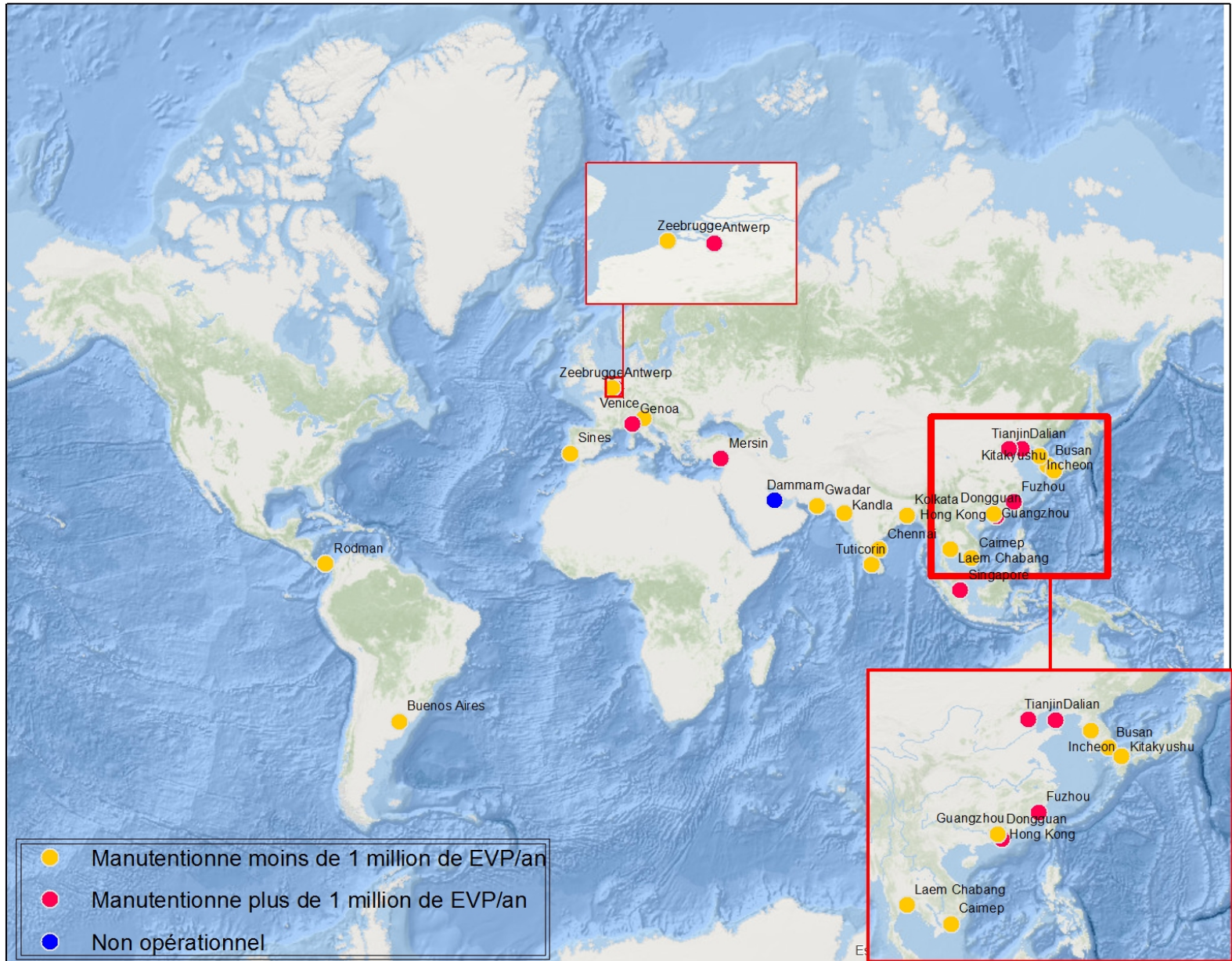
Port Chalmers



OCEANINSIGHTS

Port Rotation: Tanjung Pelepas - Singapore - Brisbane - Auckland - Lyttelton - Port Chalmers - Tanjung Pelepas

Terminals operated by Port of Singapore Authority, 2014

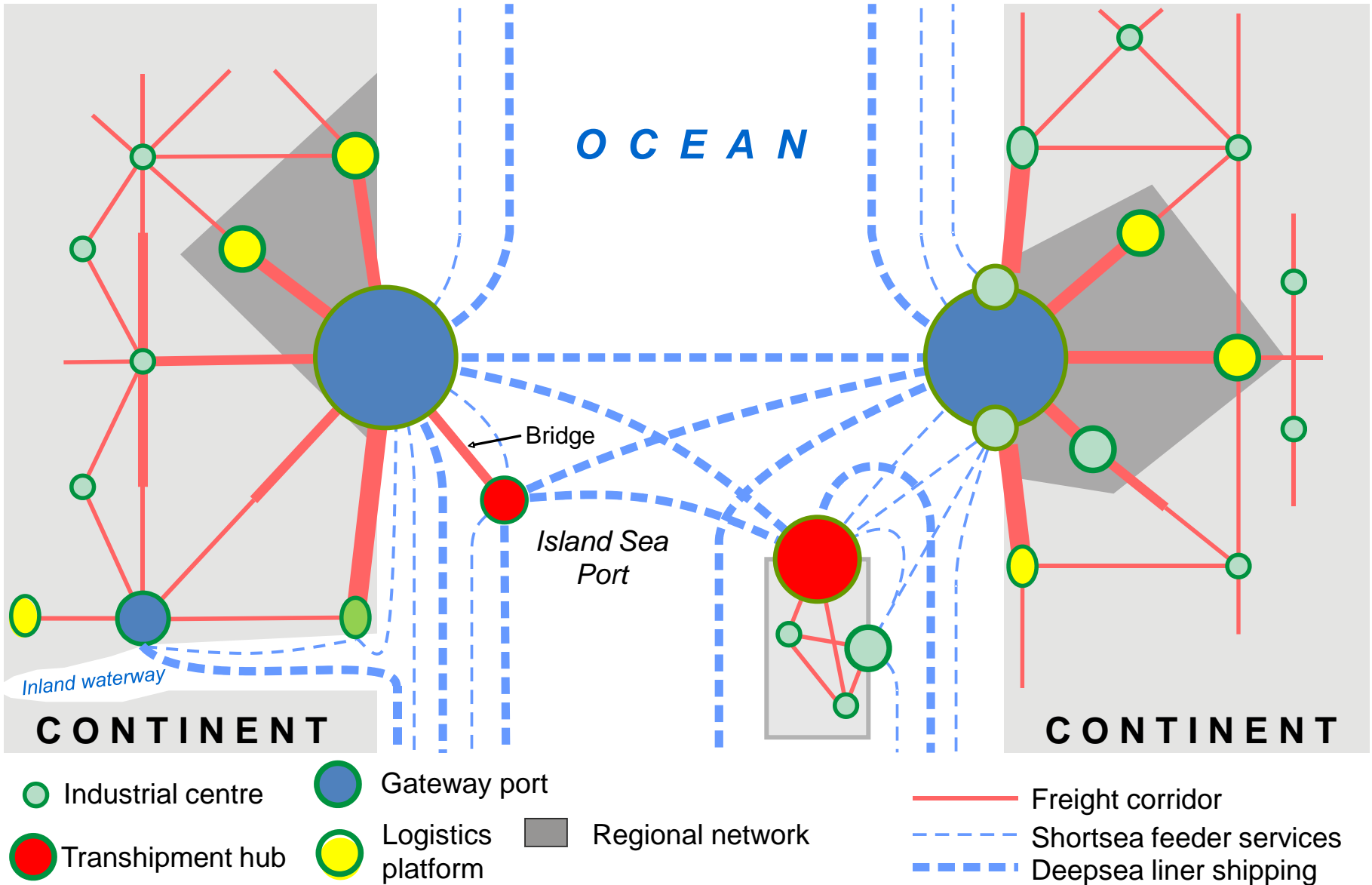


Cost-Benefits of Marco Polo 2, 2007-2013

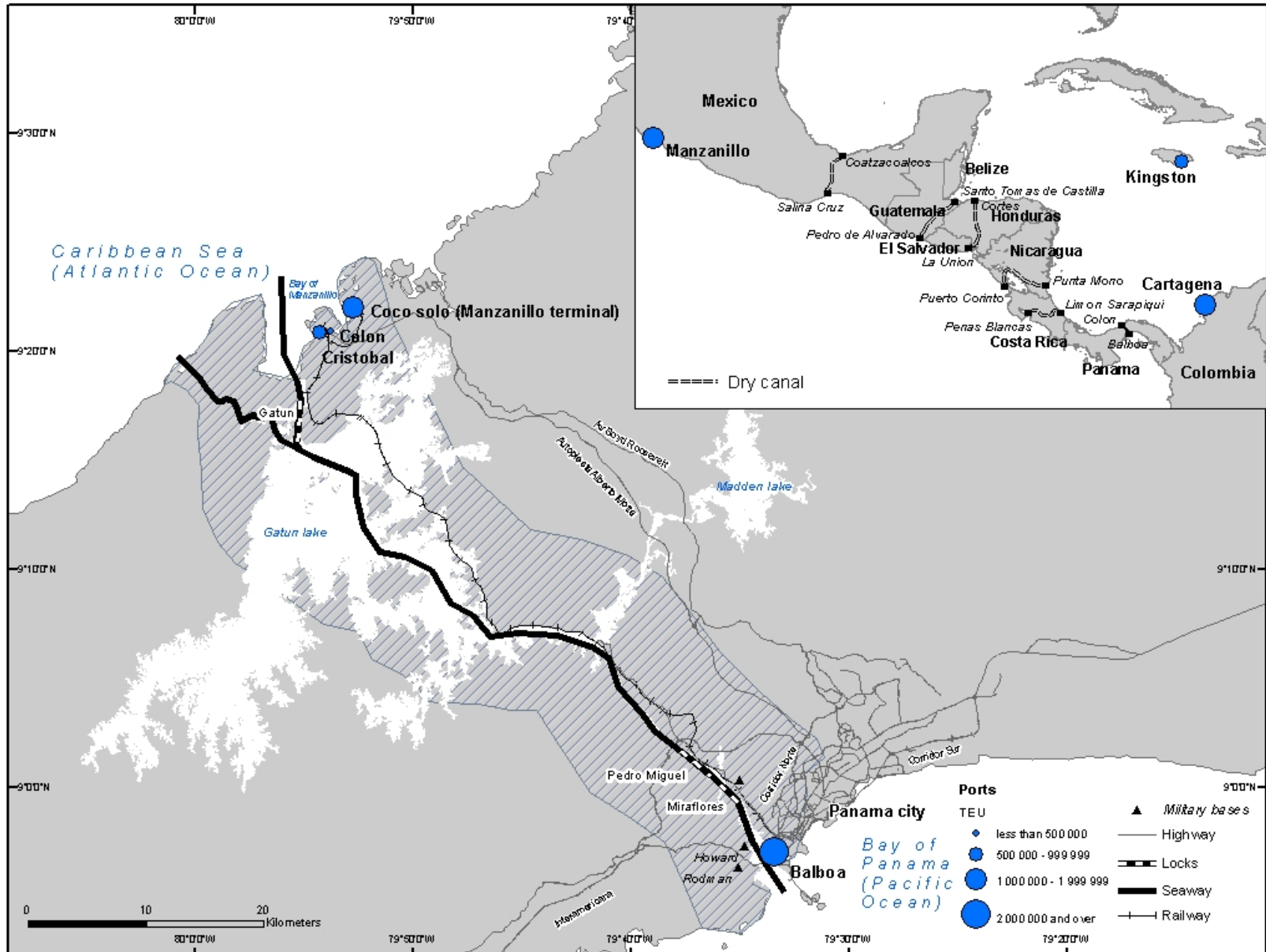
Actions	Traffic shift (billion t/km)	UE subsidies for services (€million)	UE subsidies for infrastructures (€million)
Modal shift	57,5	153,3	-
Catalyst	23,6	63	116,6
Common learning	-	15,2	-
Motorways of the sea	42	168	151,4
Rail synergies	10,5	42	61,8
Traffic avoidance	10,5	35	18,9
TOTAL	144,1	476,5	343,7

Source : Ecorys Transport

Global shipping network architecture



Panama canal and railway network, 2015



Source: Comtois, 2014



Panama Canal New Locks



Source : Comtois, 2014



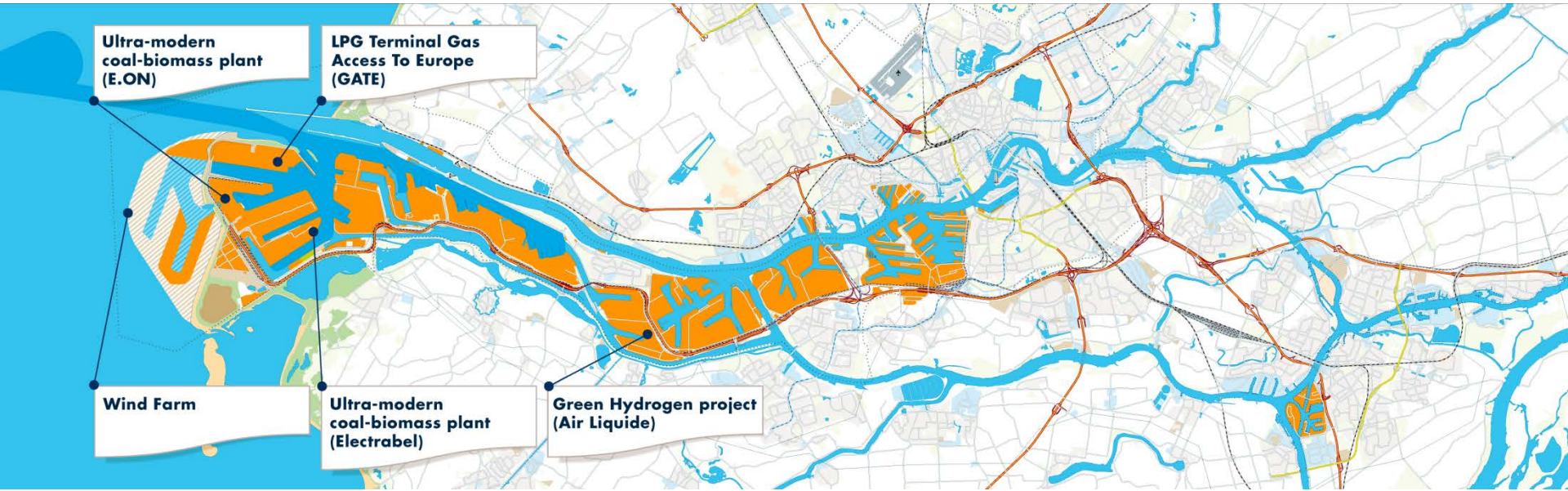
Panama Canal New Locks



Source : Comtois, 2014



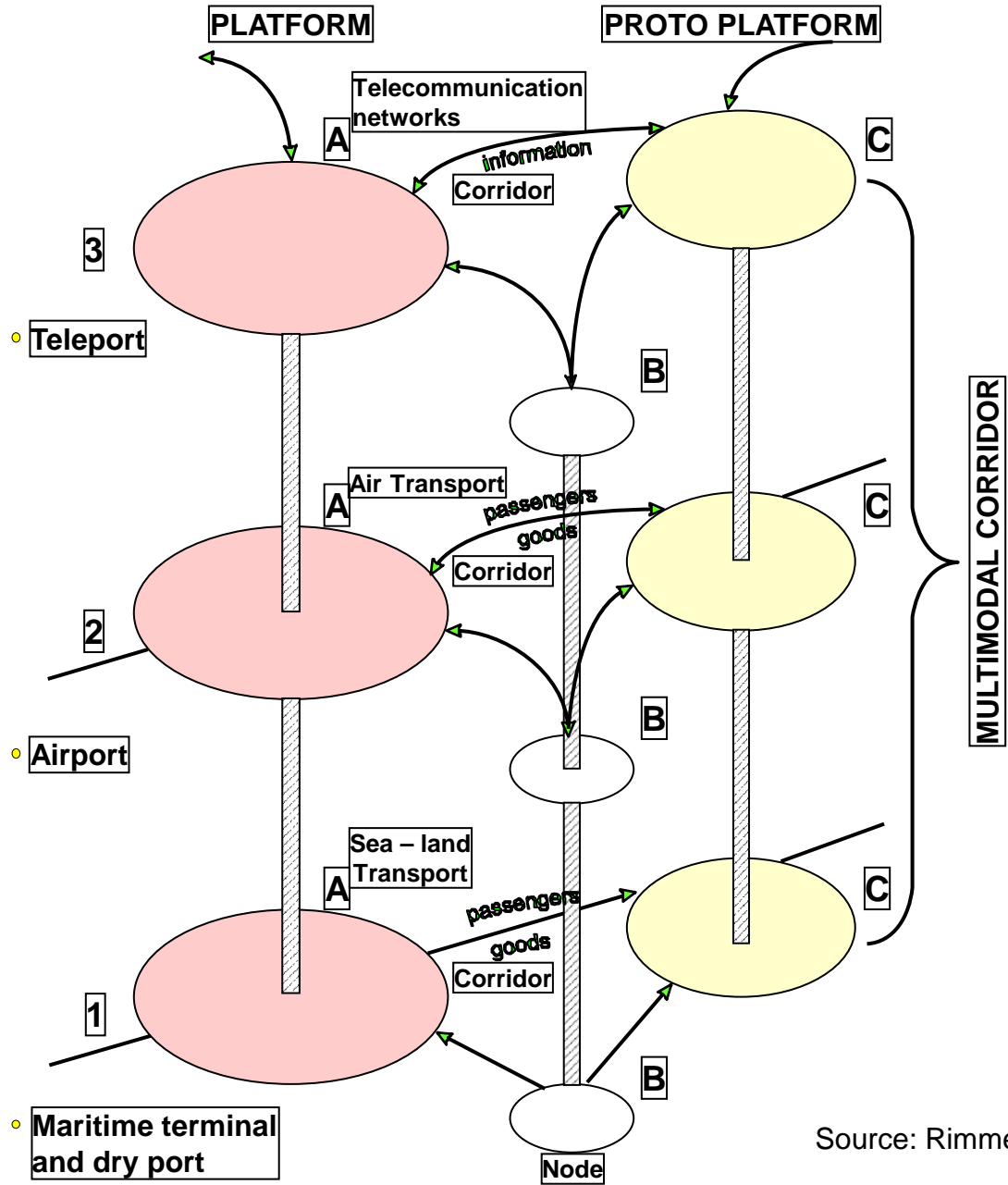
Energy terminals, Maasvlakte 2



Source : Port of Rotterdam



Multilayered hub



Source: Rimmer & Comtois

Russian Rail Network Planning, 2030



- Existing railroads
- == New freight railroads
- New railroads of social importance
- === Planned high-speed rail corridors
- New railroads of strategic importance
- Northern sea route

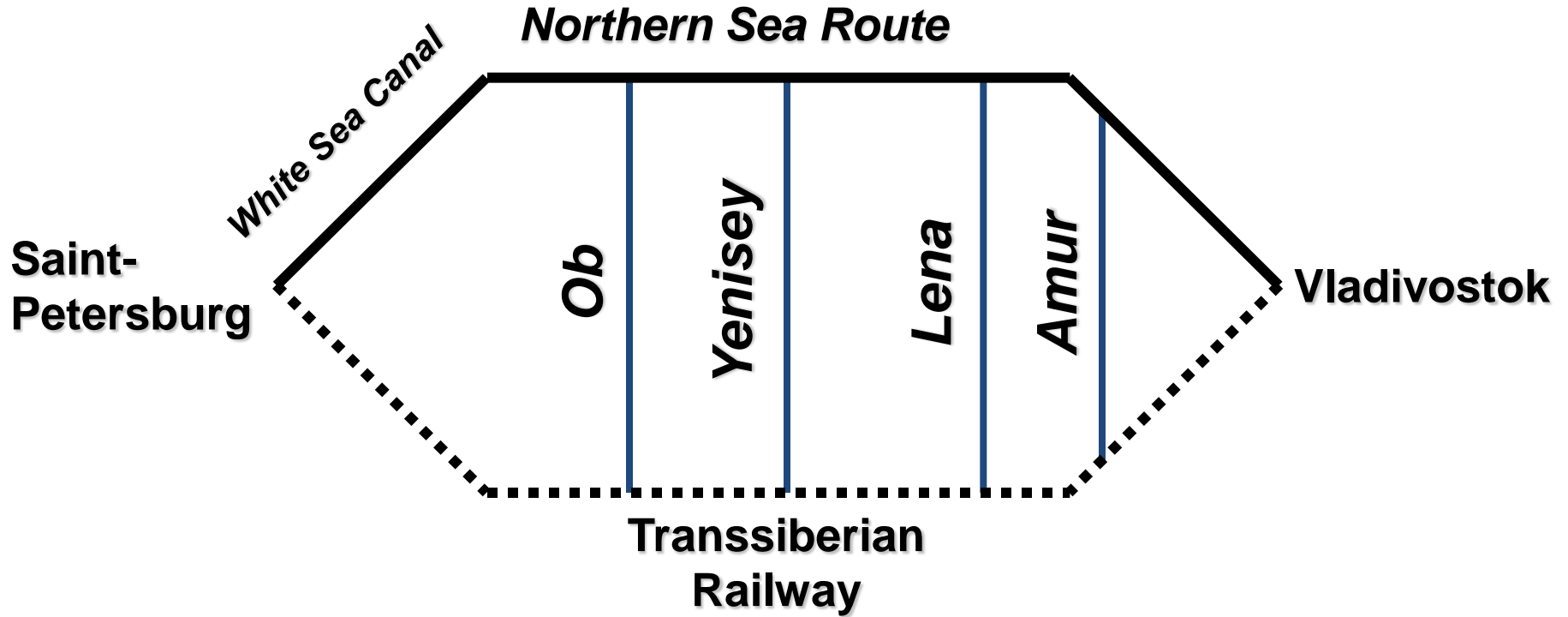


Volga navigable waterway system



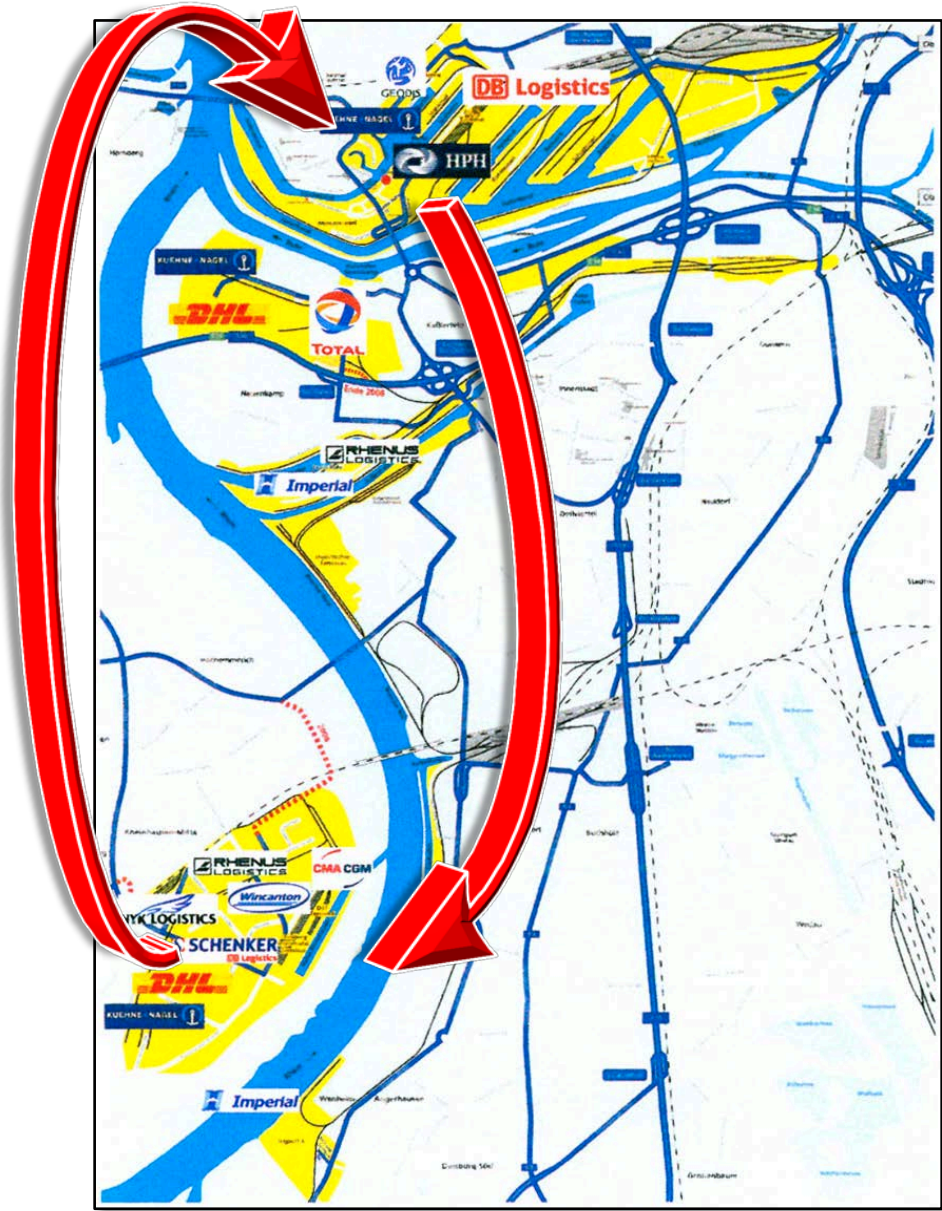


Northeast Arctic Passage and Russia inland corridors





Logport at Duisburg, Germany



NYK LOGISTICS & MEGACARRIER
50,000 m²

RHENUS LOGISTICS
40,000 m²

SCHENKER
20,000 m²

Wincanton
30,000 m²

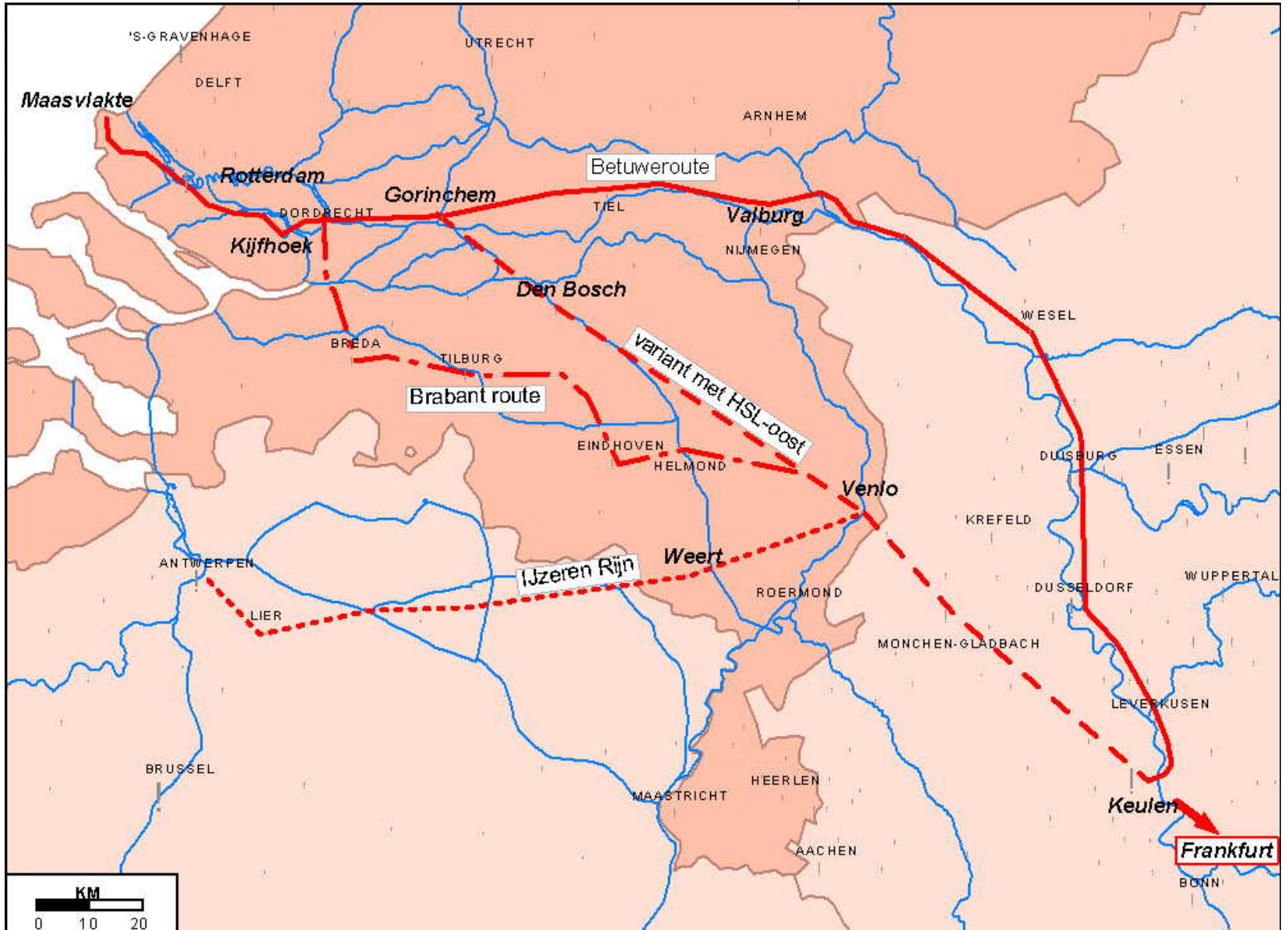
GEODIS
25,000 m²

DHL
50,000 m²

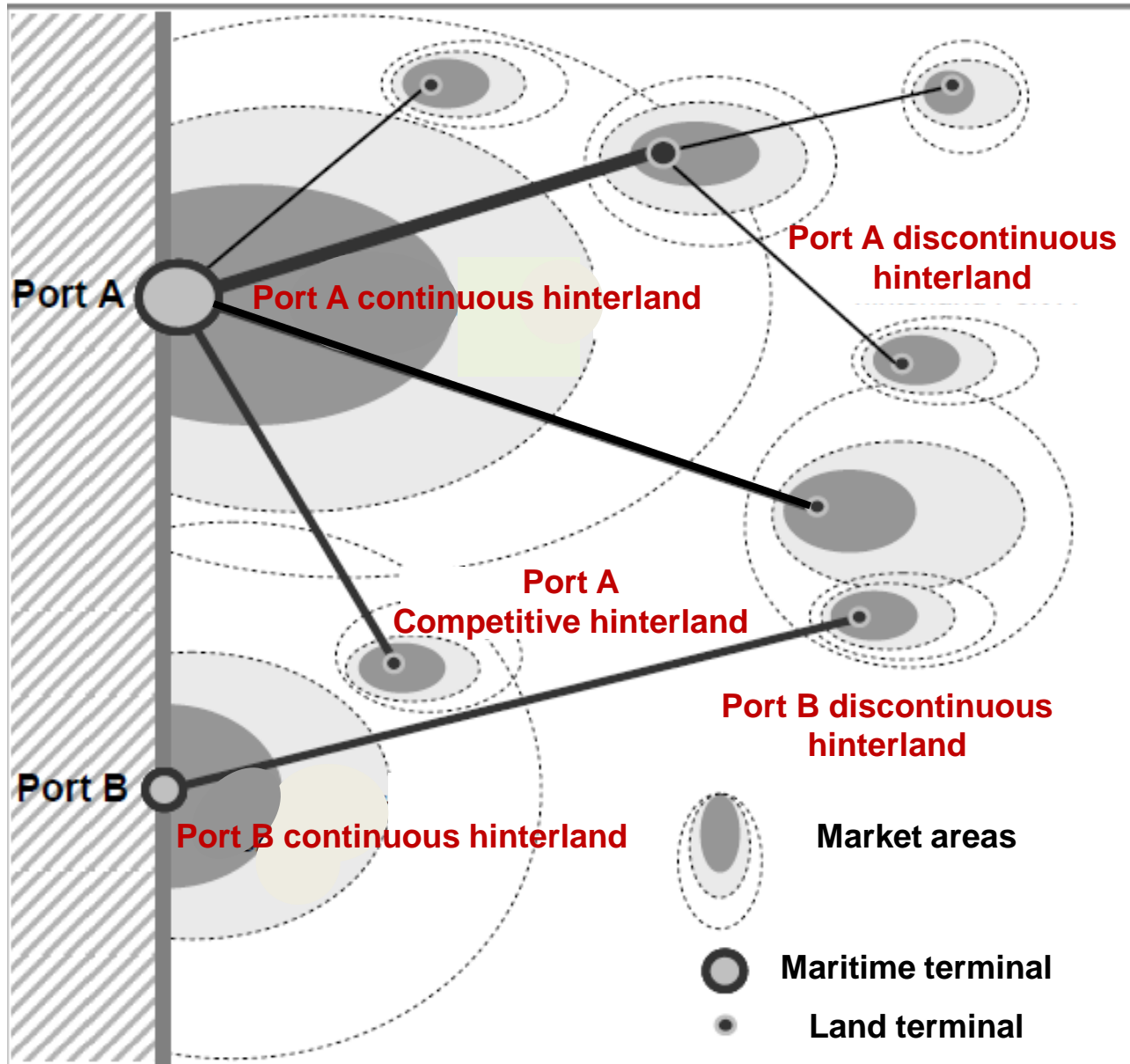
KUEHNE NAGEL
120,000 m²

Imperial
40,000 m²

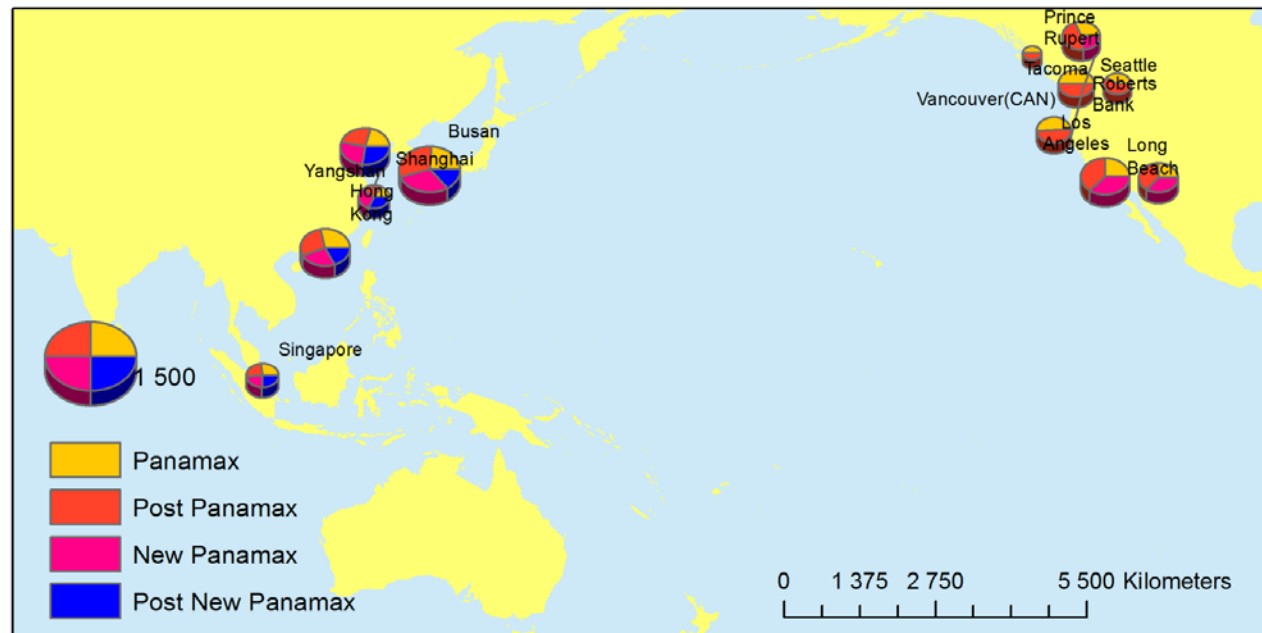
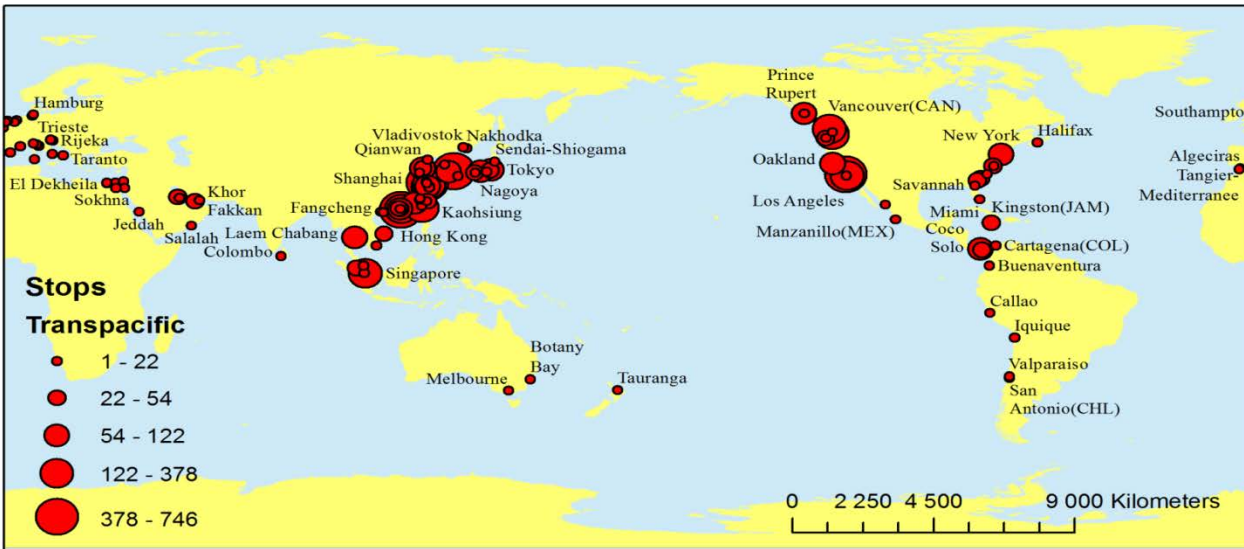
Betuweroute



Hinterland competitive dynamics



TransPacific ports of call and size of ships, 2013



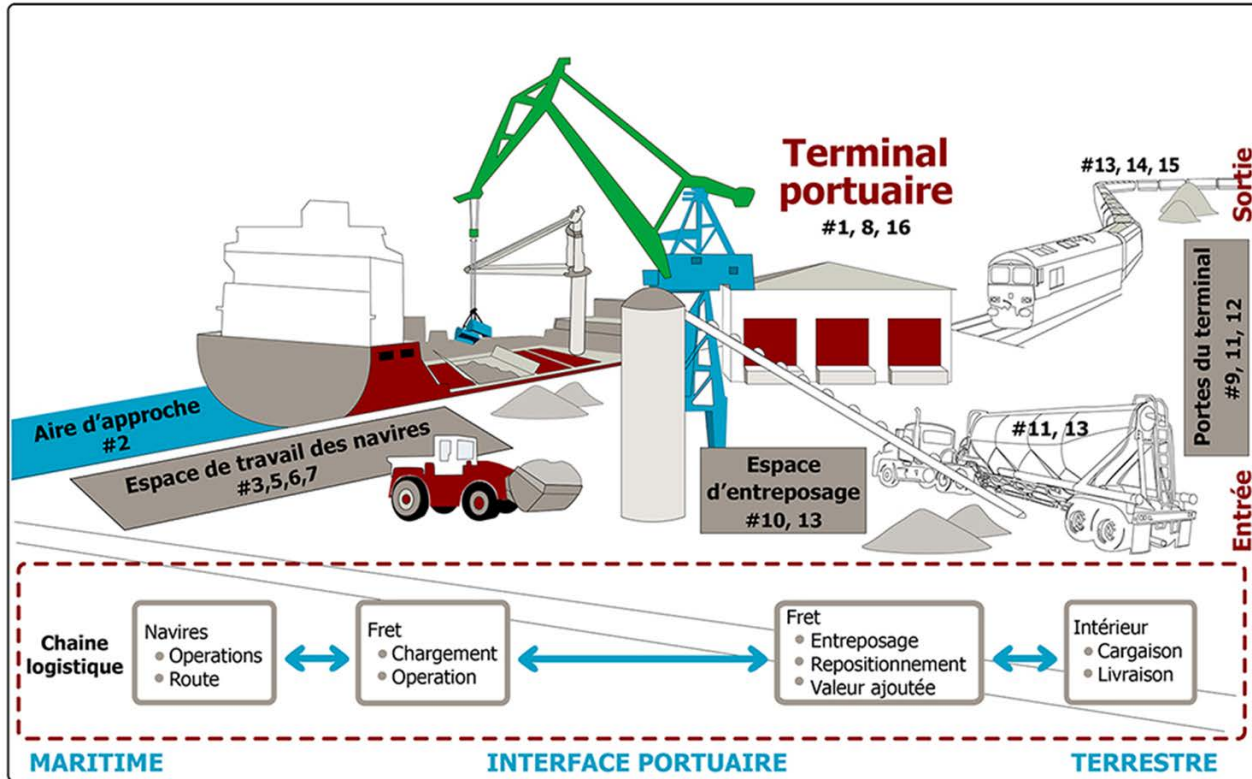
Source: Pelland & Goyer, 2014

United States West Coast port congestion surcharges

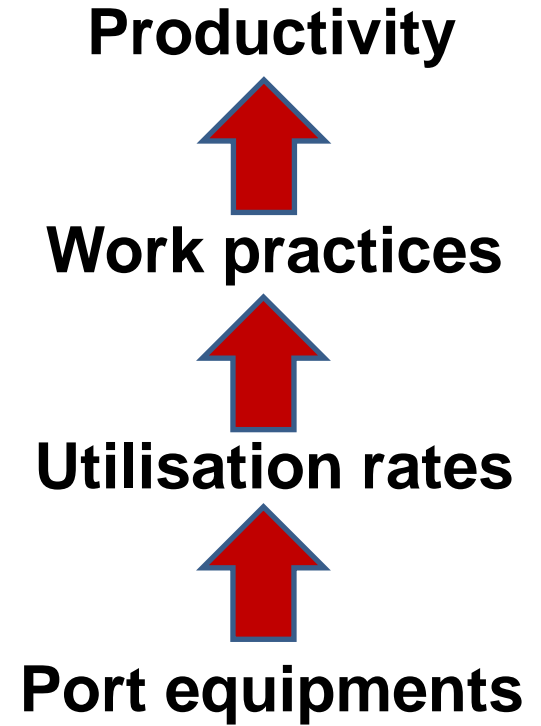
Carrier	20-foot (\$)	40-foot (\$)	40-foot high cube (\$)	45-foot (\$)
MSC	800	1,000	1,125	
CMA CGM	800	1,000	1,100	1,266
Hanjin	800	1,000	1,125	1,266
Maersk Line	800	1,000	1,125	1,266
NYK Line	800	1,000	1,000	1,000
Zim	1,000	1,000	1,000	
HMM	800	1,000	1,125	
Evergreen Line	800	1,000	1,125	1,266
OOCL	800	1,000	1,000	
APL	800	1,000	1,125	
Yang Ming	800	1,000	1,125	1,266
China Shipping	800	1,000	1,125	
MOI	800	1,000	1,125	1,000

Source: Journal of Commerce, Novembre 2014

Port functions and labor conditions

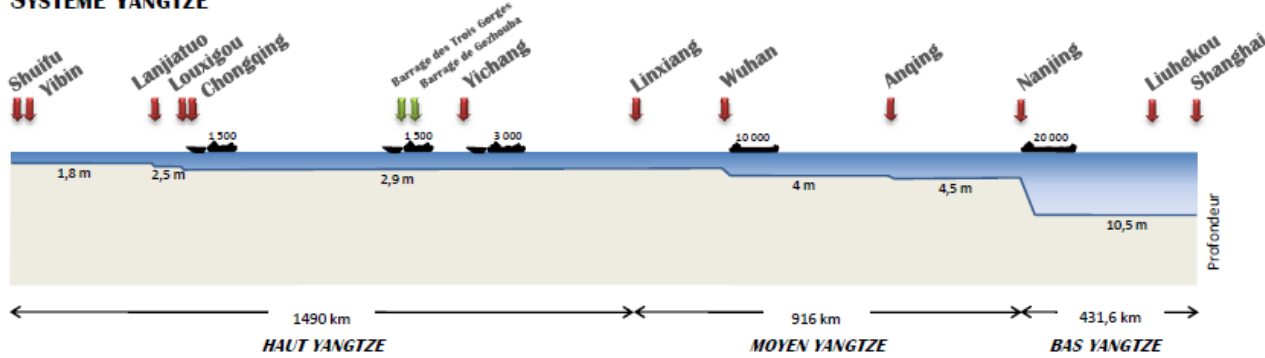


Graphique: Nathalie Desilets



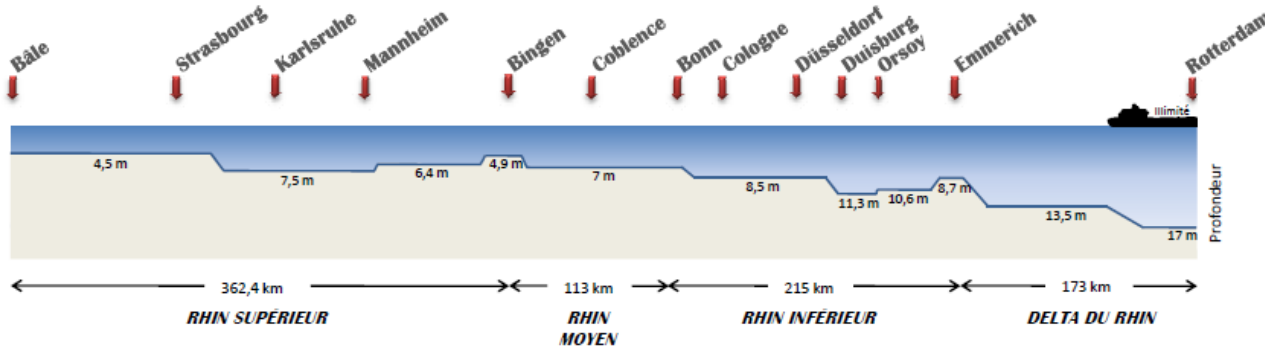
Navigation profile of Yangtze and Rhine

SYSTÈME YANGTZE



Source :

SYSTÈME RHIN

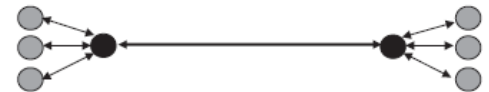


Source : Commission Centrale pour la Navigation du Rhin, 2000.

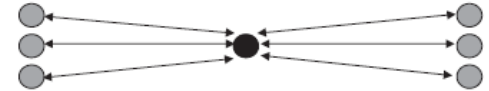
A. Point-to-point network



B. Collection-distribution network



C. Hub-and-spoke network



D. Line bundling network (symmetric*)

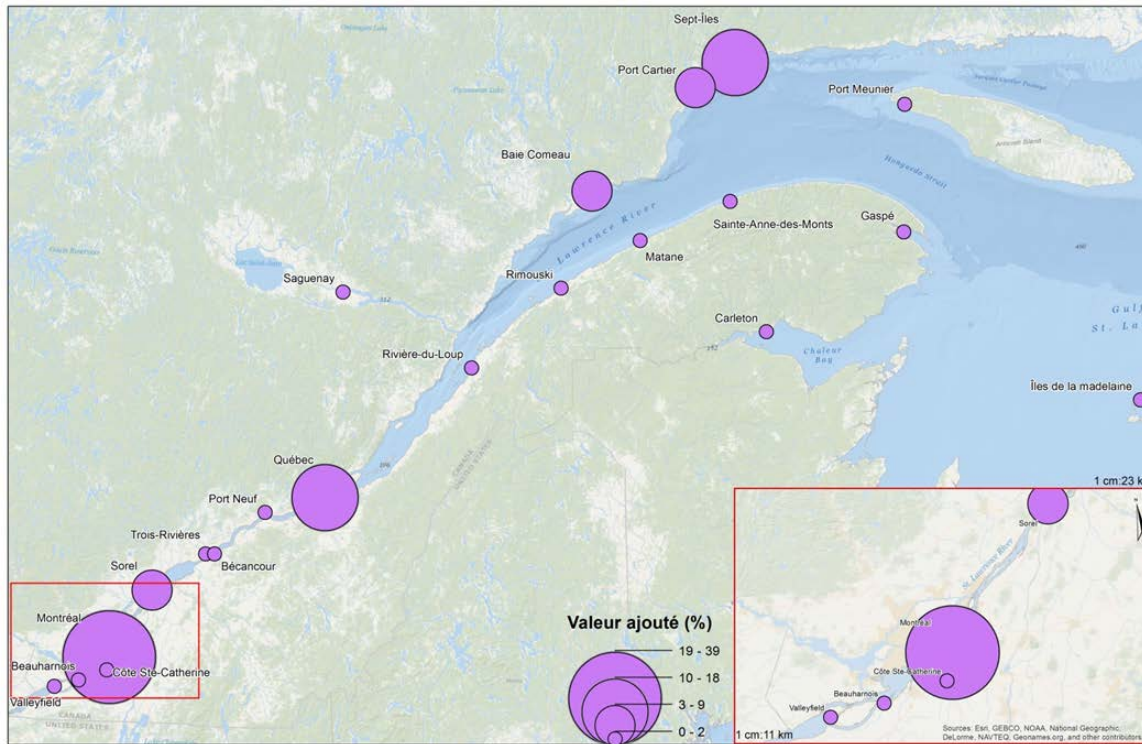


E. Line bundling network (asymmetric**)



● - Intermediate/transfer terminal

Value added St Lawrence port system

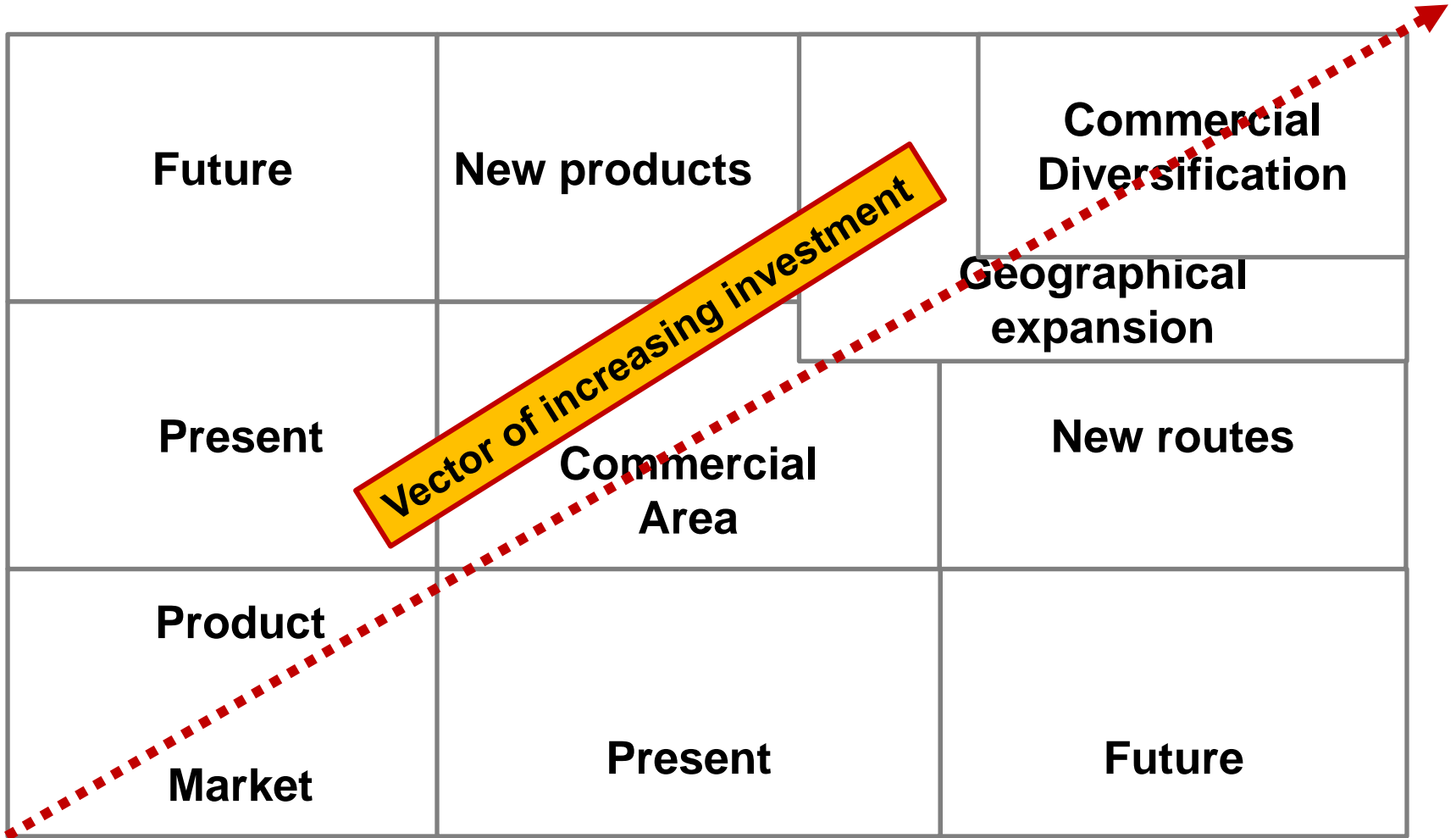


Source: Statistique Canada

Cartographie: Dominique Goyer

- + 30 ports
- + 10 000 ships
- + 110 millions tons
- + 30 000 employees
- + 2,5 billion \$/ year

Matrix of a maritime strategy



● Research agenda for port and maritime transport

