United Nations Economic Commission for Europe

Group of Experts on Euro-Asian Transport Links

UNITED NATIONS

EATL - Phase II

3rd session in partnership with the Ministry of Transport of the Republic of Turkey and the Organization of the Black Sea Economic Co-operation

Linking via the sea:
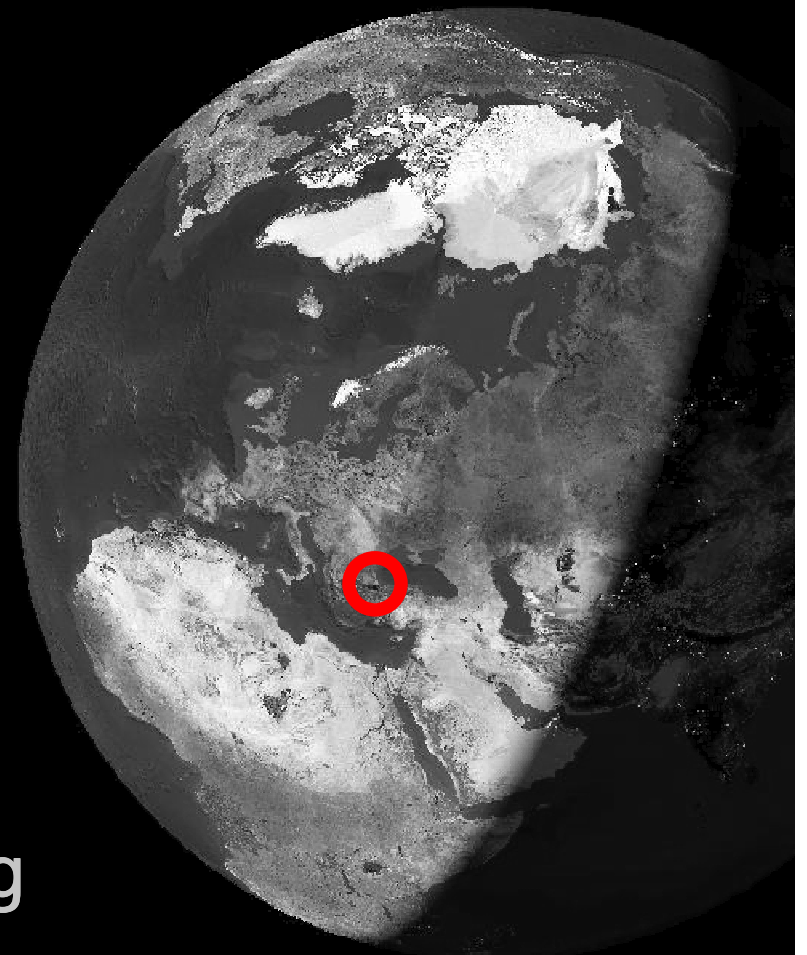## Liner shipping connectivity between Asia and Europe

Jan.Hoffmann@UNCTAD.org

Istanbul, November 2009

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

1: Demand and supply of liner shipping services

2: Global trends in liner shipping

3: Europe-Asia connections

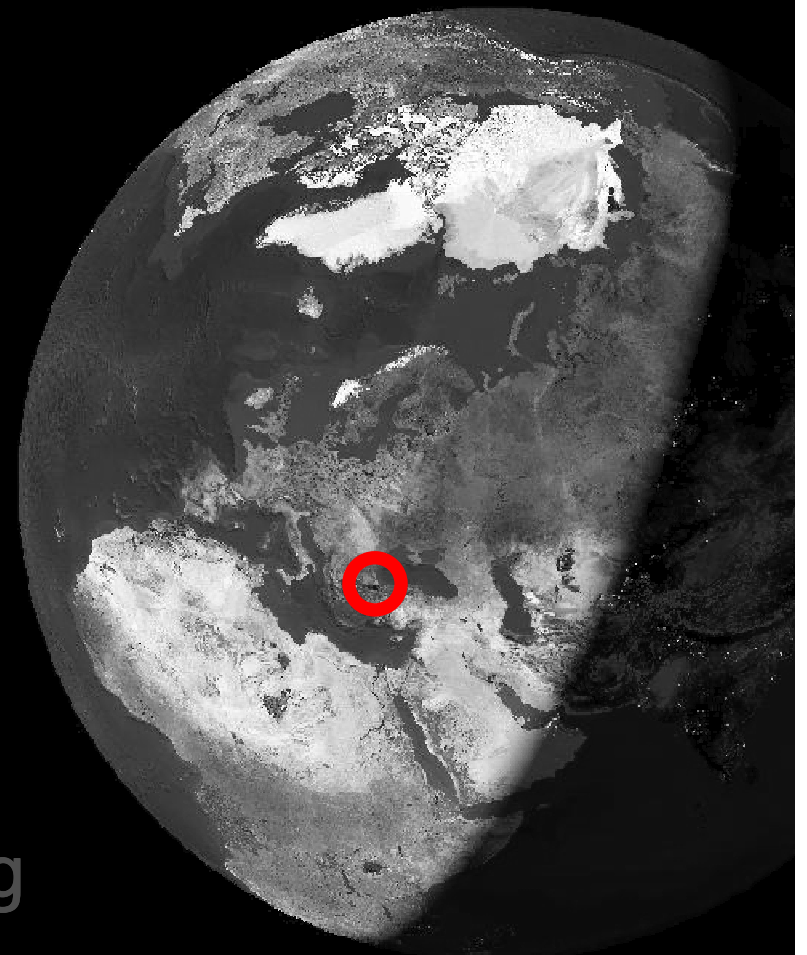Istanbul, November 2009

Jan.Hoffmann@UNCTAD.org

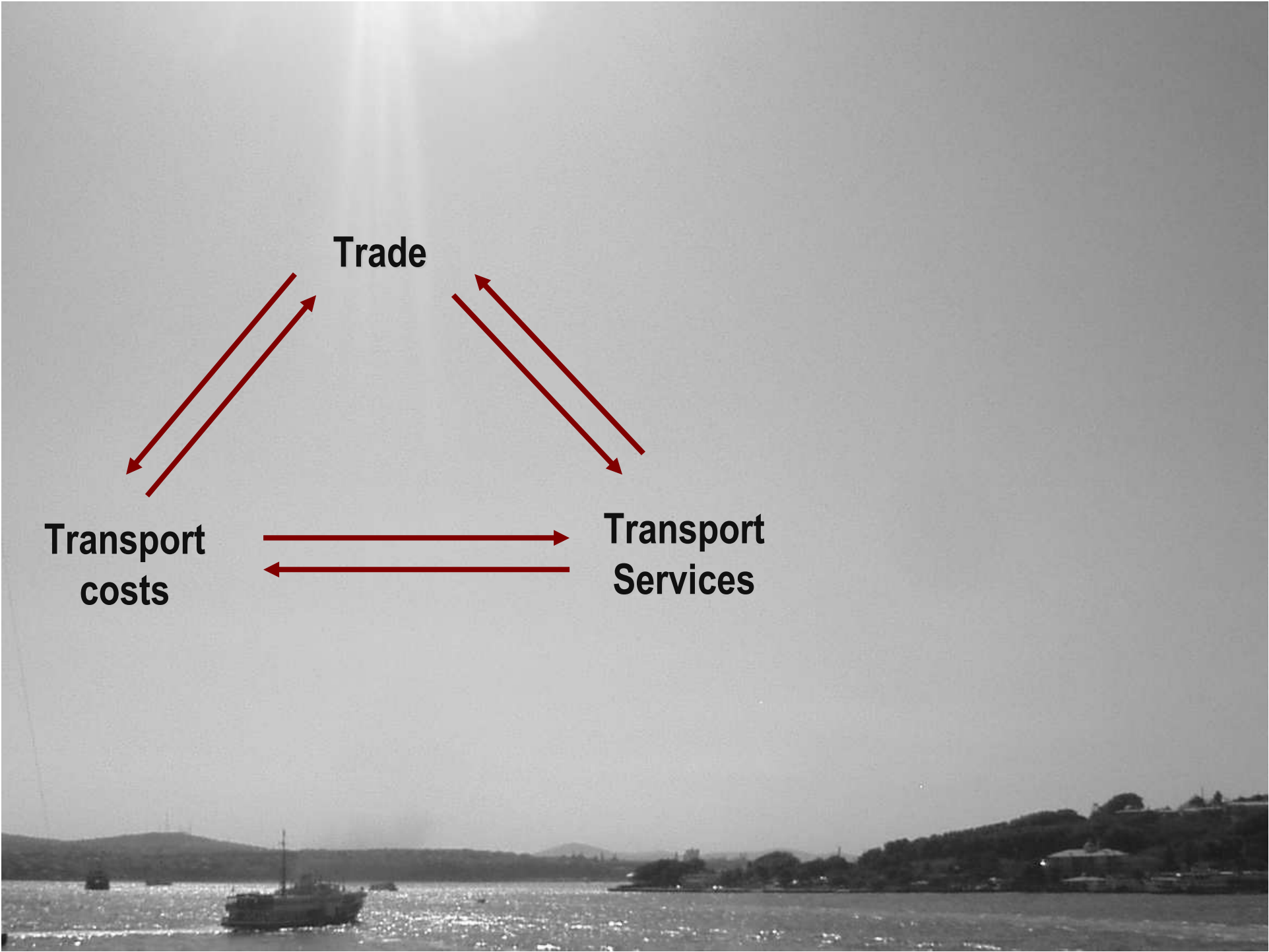# 1: Demand and supply of liner shipping services

2: Global trends in liner shipping

3: Europe-Asia connections

Istanbul, November 2009
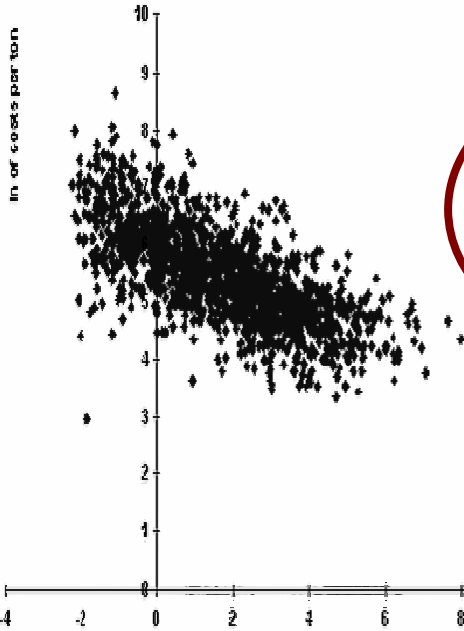
Jan.Hoffmann@UNCTAD.org

Lower Transport Costs
-> More trade
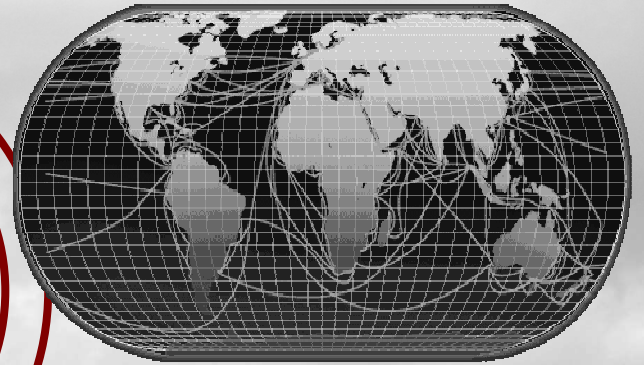-> Economies of scale
-> Lower Transport Costs

Better services
 -> More trade
 -> More income to
    finance infrastructure
 -> Better services

More income to finance trade facilitation

-> Better trade facilitation

-> More Trade

-> More income to finance trade facilitation

More trade

-> More shipping supply

-> More competition

-> lower freights

-> More trade

The challenge:

- Avoid a vicious circle, where high transport costs and low service levels discourage trade, which will further endear transport and reduce connectivity…

- Instead: Initiate a virtuous circle

?
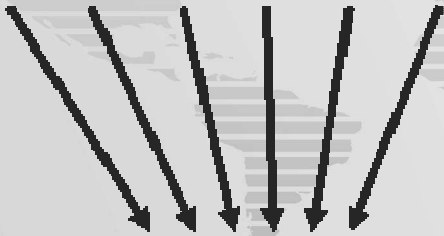
Trade
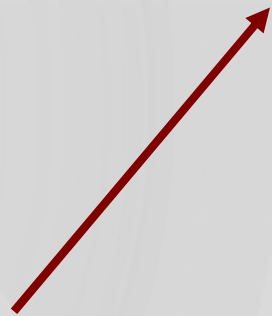
Transport costs

Transport Services

Gravity model

- Participation of country B in global imports is the basic determinant of the share of country A's exports that are destined for country B.

- Neighbouring countries can be expected to trade more with each other than those that are not neighbours.

"New Borders and Trade Flows: A Gravity Model Analysis of the Baltic States"

The objective of this paper is to provide evidence on the effects of an economic and political union by studying the trade flows of the three B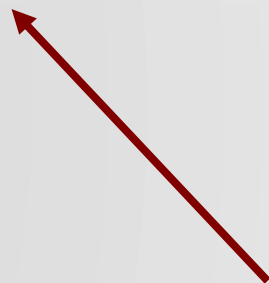altic countries of Estonia, Latvia and Lithuania after the breakup of the Soviet Union. We specify and estimate a gravity model of exports for the Nordic countries which enables us to determine the size and direction of trade flows in the Baltic states had they not been affected by the political institutions of the Soviet Union. Our results suggest that Baltic foreign trade was not only reduced significantly but also diverted to the members of the former Soviet Union. Consistent with our estimates, we also find that these consequences of the former political union are quickly dissipating, and the Baltic countries are increasing their share of exports to the European Union and the U.S.

High transport costs discourage trade in goods and services

Not as blessed as their maritime neighbours, LLDCs lie far from sea-ports. They thus incur higher transport costs during their participation in foreign trade. The cost of international transport services is a crucial determinant of a developing country's trade competitiveness. Higher trade costs reduce a country's welfare and inhibit economic growth by making imports expensive and exports uncompetitive. Developing countries that are landlocked therefore suffer a conspicuous disadvantage when competing in global markets against coastal States. It has been estimated that doubling transport costs reduces a country's trade volume by around 80 per cent. It has recently been recognized that, in many instances, more restrictive limitation

Lower Transport Costs
-> More trade
-> Economies of scale
-> Lower Transport Costs

Gravity model – what about distance?

- Distance / trade: negative correlation (as expected)
- But: the parameter for distance is not statistically significant if other variables are incorporated that capture the supply of shipping services and transport costs.
- Instead of distance:
  - number of liner shipping <u>companies</u> that provide direct services between a pair of countries.
  - Existence of <u>direct</u> liner shipping services.
  - Increase of the <u>freight rate</u> per TEU (twenty foot equivalent unit) by 1000 USD: Reduction of the share of country A's exports to country B of almost half a percentage point.

Ever more CONTAINERIZATION

- **Trade grows faster than GDP**

- **Containerized trade grows even faster than trade in general**

- **Containerized port traffic grows even faster than containerized trade…**
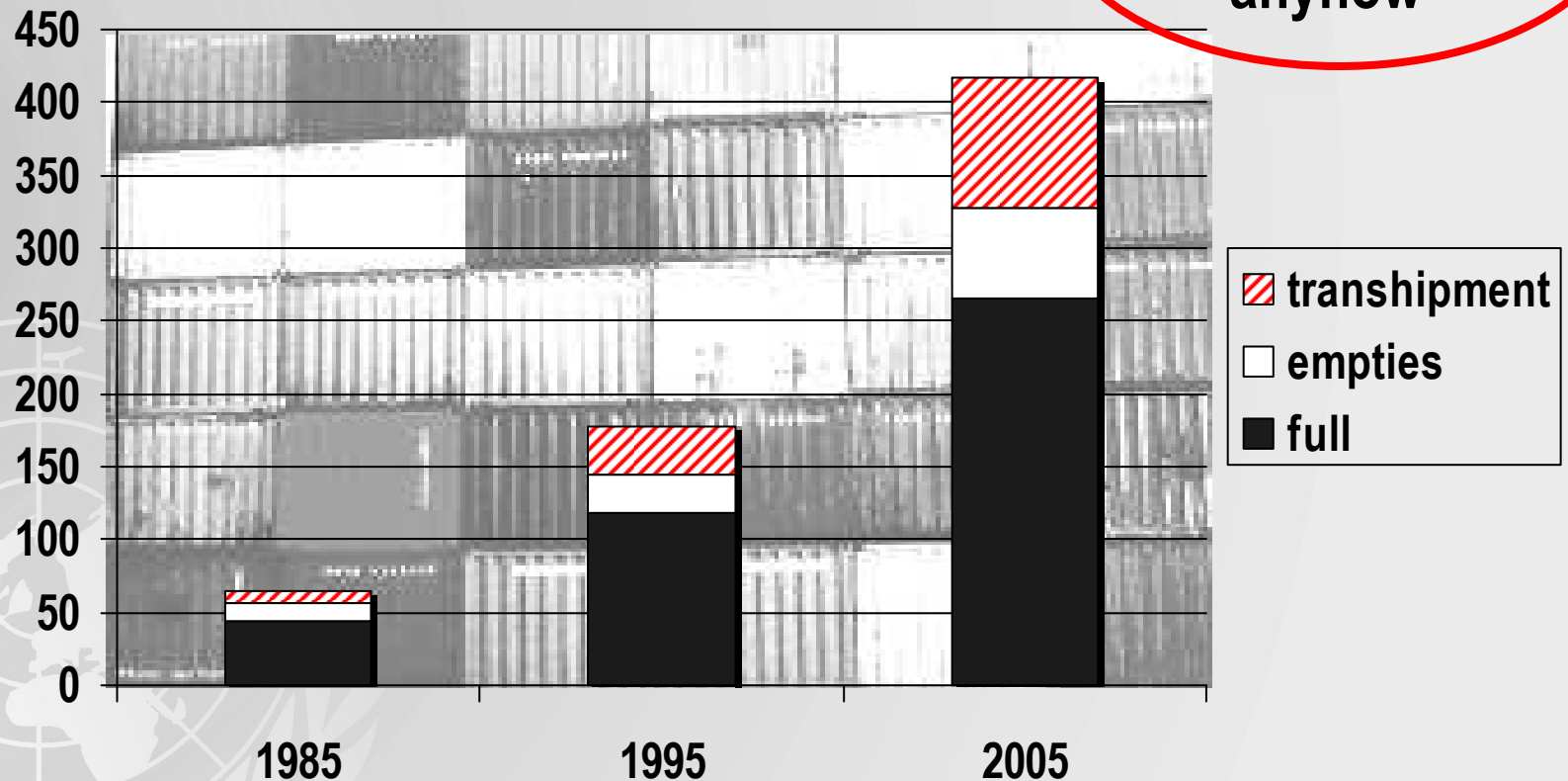
Anytime:
day and night operations

Anywhere:

Anywhere:
e.g. Tierra del Fuego in Chile

Photo: Jan Hoffmann

… Hamburg (daytime)

... the world's driest desert

Photo: Jan Hoffmann

... Luanda

... Bandar Abas

…Suez Canal

...Panama Canal

Anyhow: intermodal

Anyhow: e.g. intermodal connections in Manzanillo, Mexico

Photo: Jan Hoffmann

... Mekong River

Photo: Jan Hoffmann

Anything:

Anything:
UN cargo in Tanzania

Anything:
e.g. port library in Rio de Janeiro
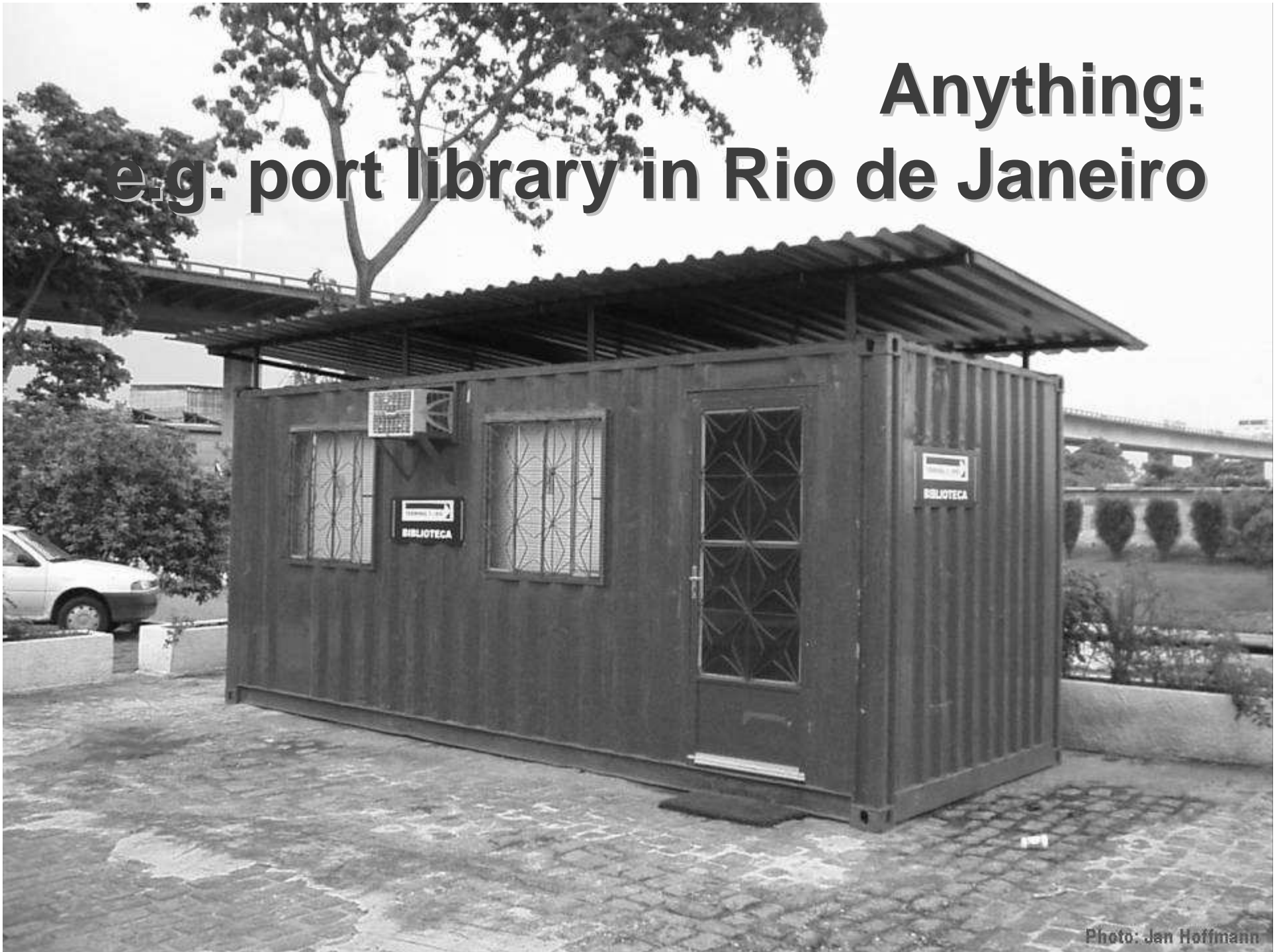
Anything:
e.g. shopping in Kabul

Containerization of trade, and access to containerized transport services are important determinants of countries' trade competitiveness

How can we measure this?

"Maritime connectivity"

An indicator for the supply of liner shipping services (containerized trade)

- Ships

- Capacity to transport containers (TEU)

- Shipping companies

- Services

- Maximum ship sizes

Benefits of a high connectivity

1. More choice for the user (importers and exporters)

2. Lower transport costs for the user (importers and exporters)

3. Higher speed and frequencies for user (importers and exporters)

4. Direct income for the port (private operator, port authority)

5. Indirect income if value added services can be sold

Competition between carriers Case study
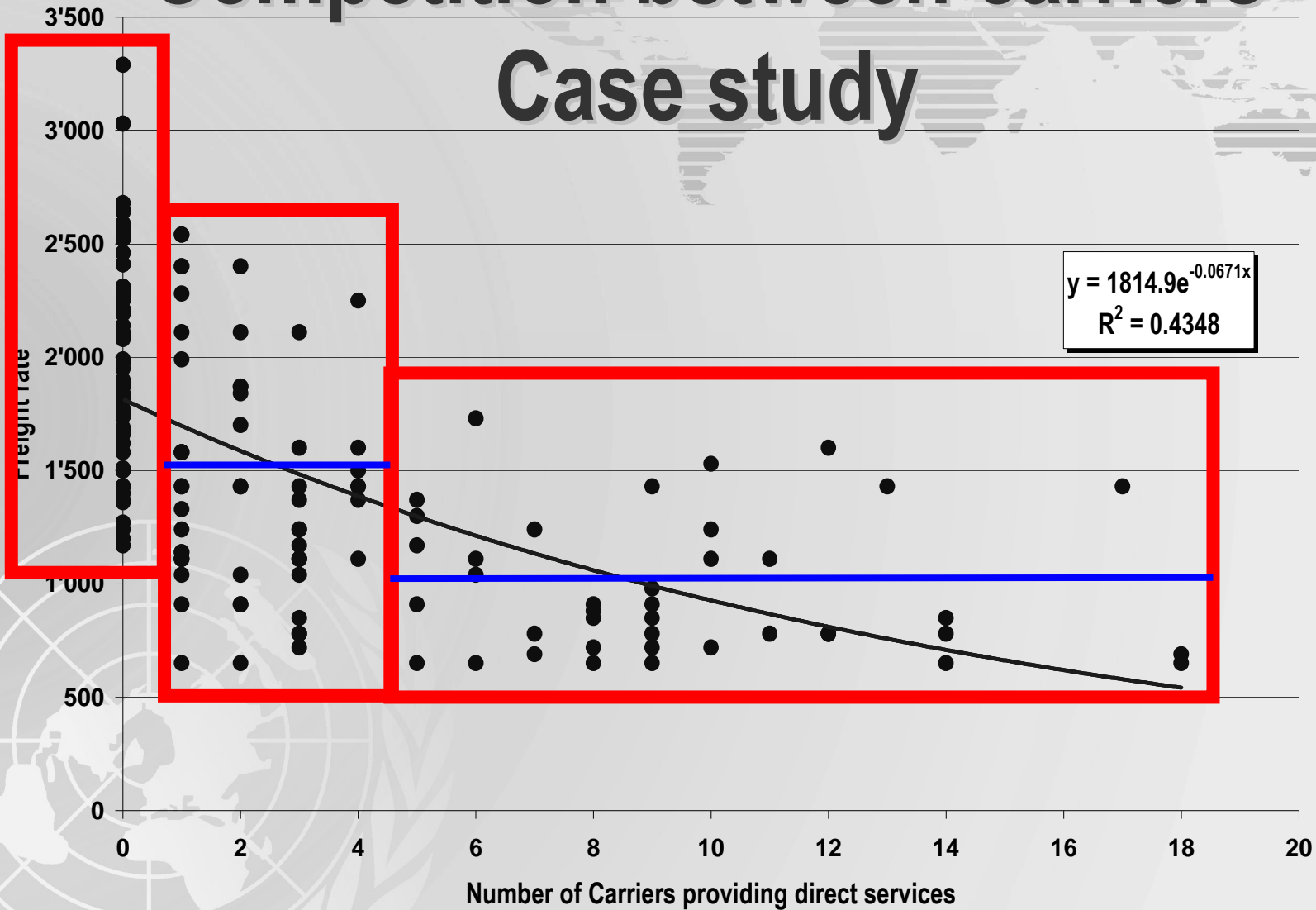
$$y = 1814.9e^{-0.0671x}$$
$$R^2 = 0.4348$$

Freight rate

Number of Carriers providing direct services

Freight rates and <u>Distance</u>

$y = 0.6206x + 1019.9$
$R^2 = 0.2058$

Freight rate (y-axis): 0, 500, 1,000, 1,500, 2,000, 2,500, 3,000, 3,500

Distance (x-axis): 0, 500, 1,000, 1,500, 2,000, 2,500
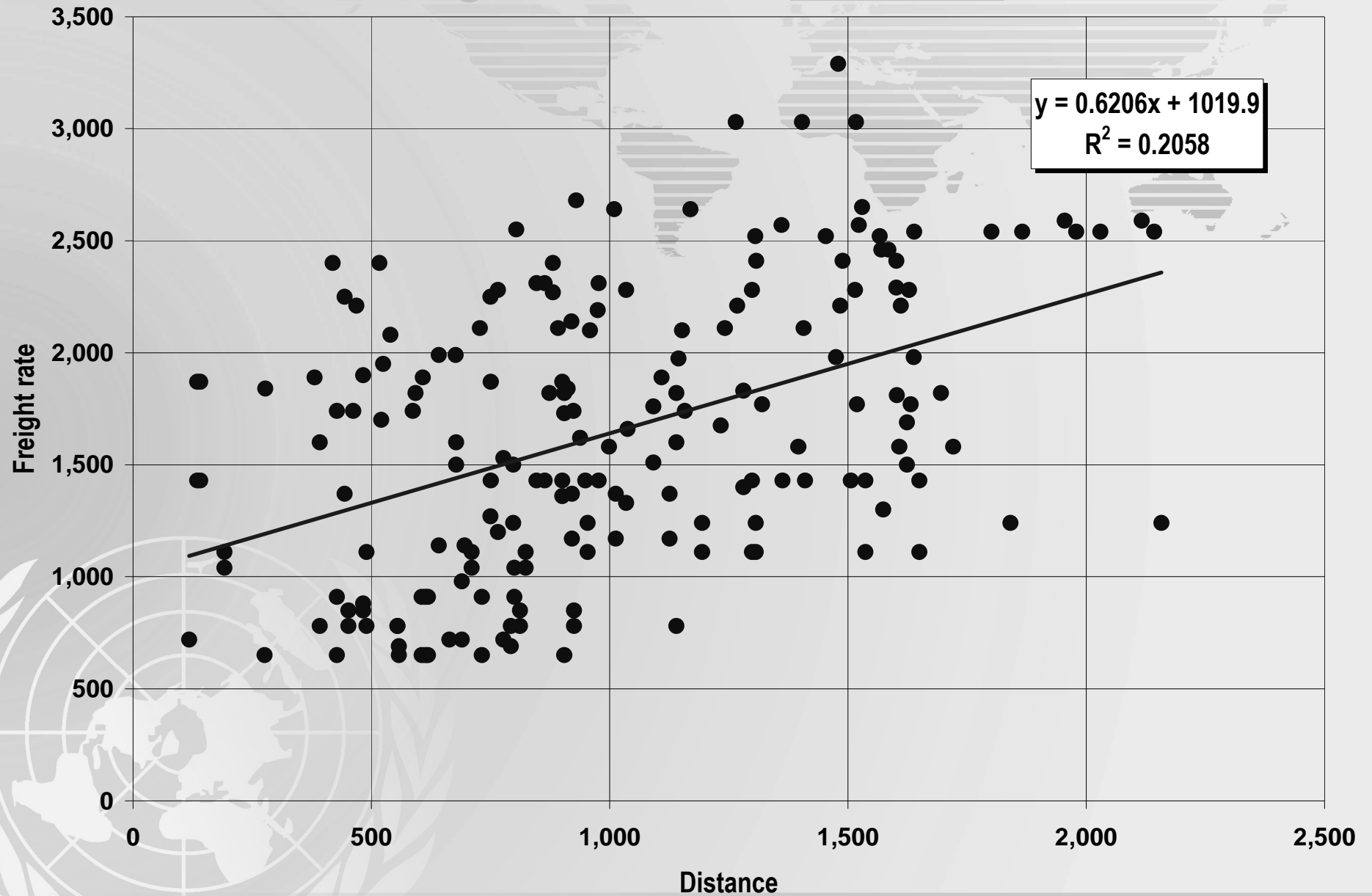
UNCTAD Transport Newsletter, 1st Quarter 2007

Containerization of trade, and access to containerized transport services are important determinants of countries' trade competitiveness

How can we measure this?

"Connectivity"

1) Per country – in a "point"

2) Per route – between pairs of countries
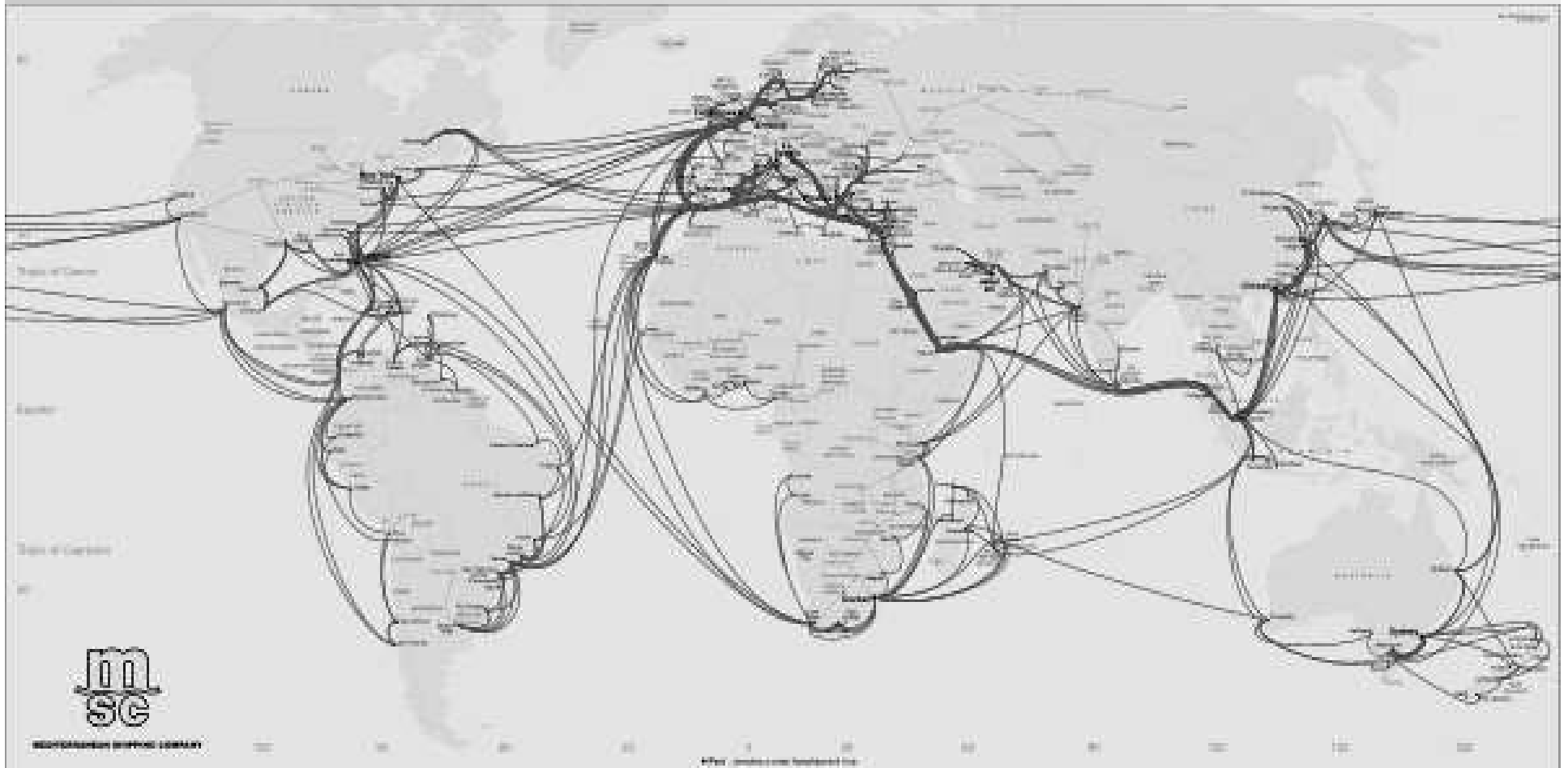
"Connectivity"

1) Per country – in a "point" (162)
2) Per route – between pairs of countries
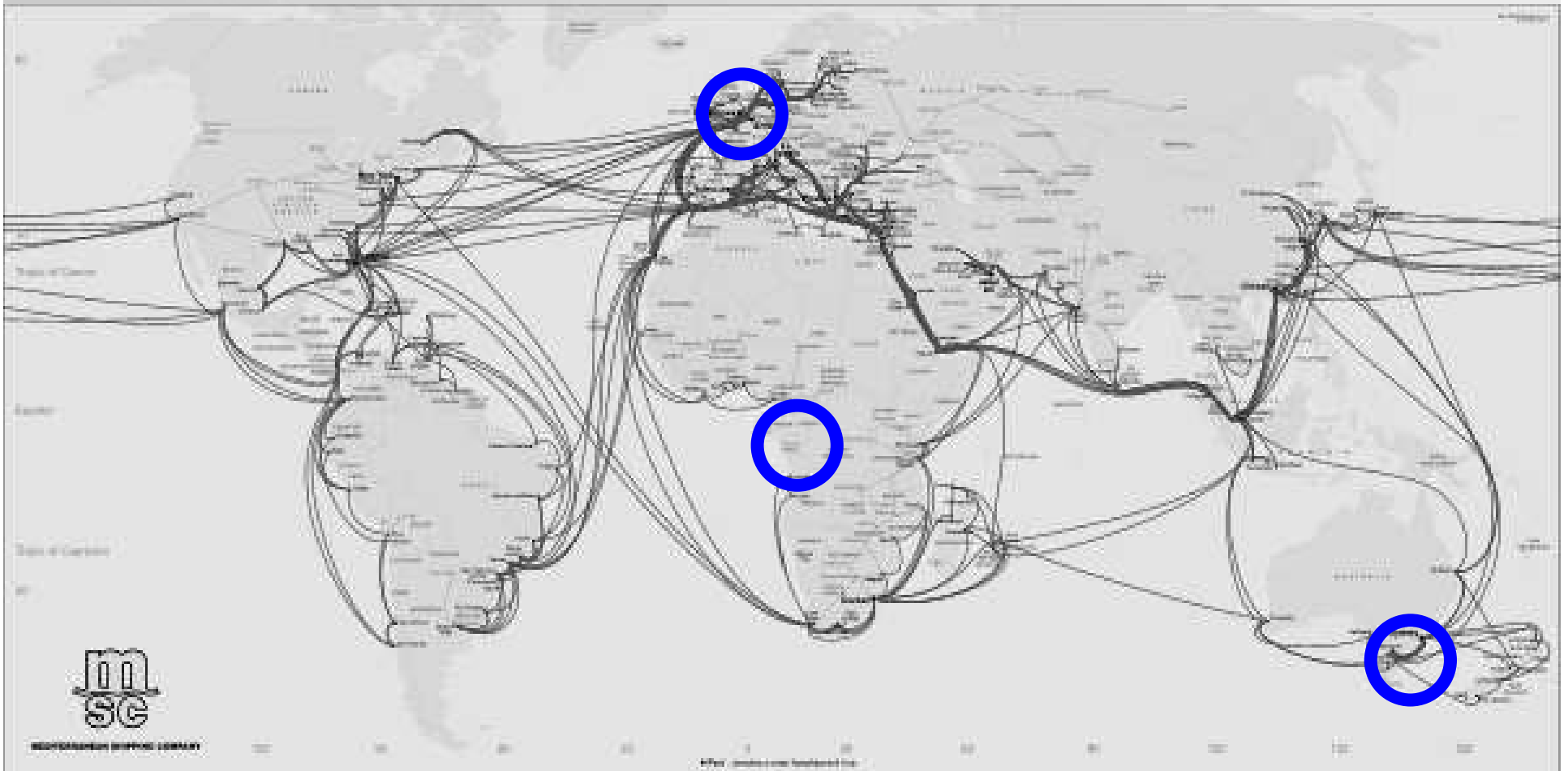
"Connectivity"

1) Per country – in a "point" (162)
2) Per route – between countries (13041)

Trade
Volumes

Transport
costs

Transport
Services

?
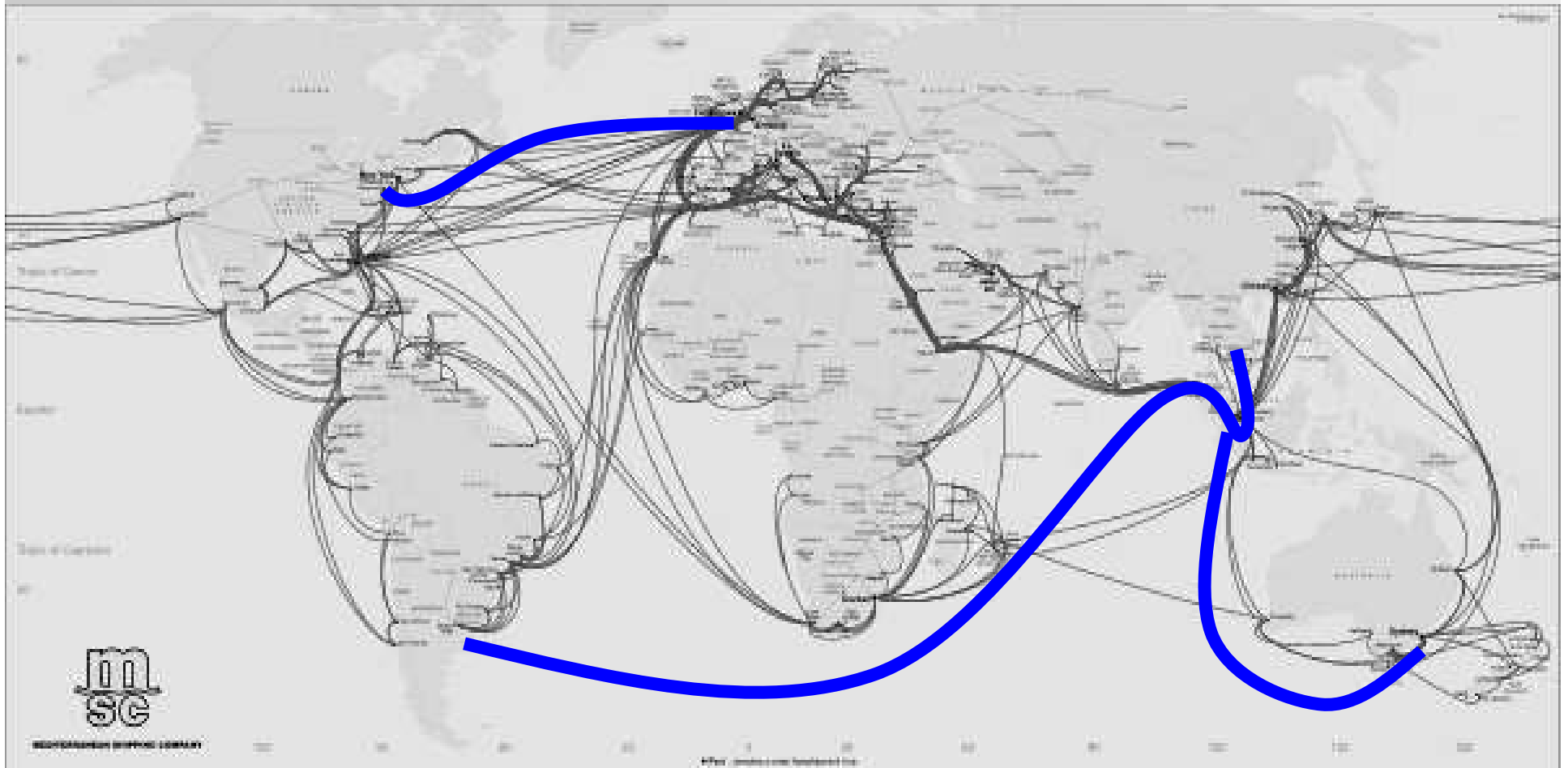
Determinants of maritime connectivity

- **Trade volumes (+)**

- **Distance (-)**

- **GDP per capita in exporting country (+)**

- **Port infrastructure (+)**

Trade Volumes

Transport costs

?

Transport Services

Differences in maritime freights depend on…

- Distances
- Type & value of goods
- Imbalances

- Competition
- Economies of scale
- Port infrastructure
- Trade facilitation in ports

Differences in <u>land</u> freights depend on…

- **Distances**
- **Type & value of goods**
- **Imbalances**
- **Competition**
- **Economies of scale**
- **Land infrastructure**
- **Trade facilitation at border crossings**

1: Demand and supply of liner shipping services

2: **Global trends in liner shipping**

3: Europe-Asia connections

Istanbul, November 2009

Jan.Hoffmann@UNCTAD.org
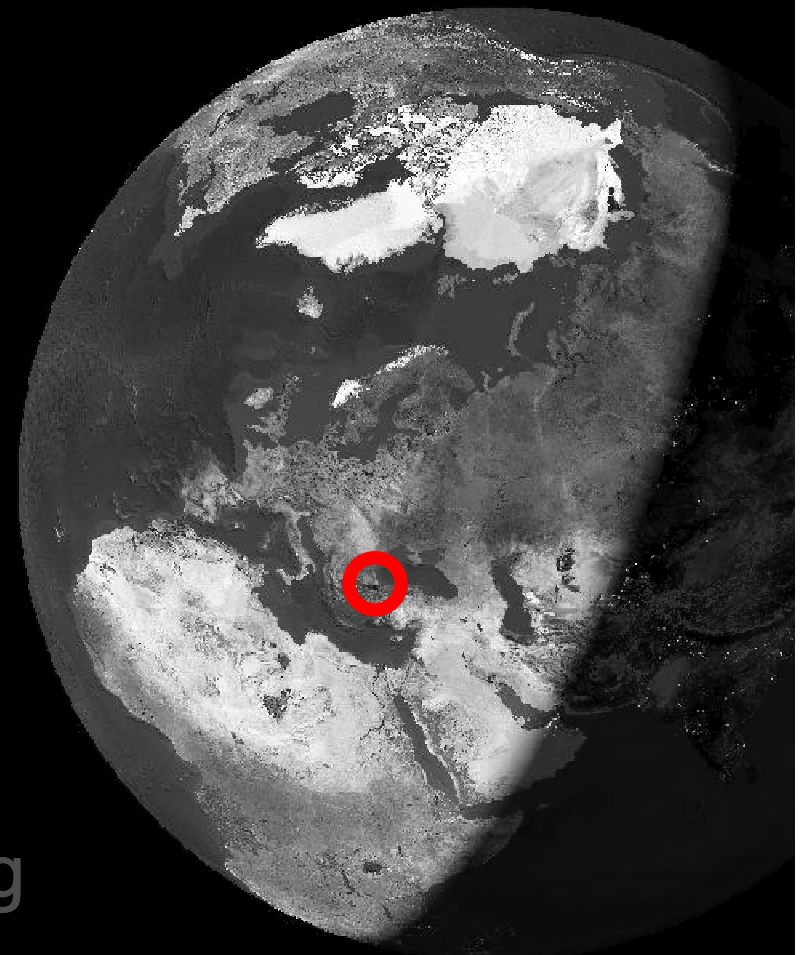
Connectivity per country

based on *www.ci-online.co.uk*

Container ship deployment 2009

1446

China	1'446
China (SAR HK)	1'051
Singapore	937
United States	913
Germany	759
Netherlands	734
United Kingdom	710
Belgium	708
Malaysia	704
Korea, Rep.	702
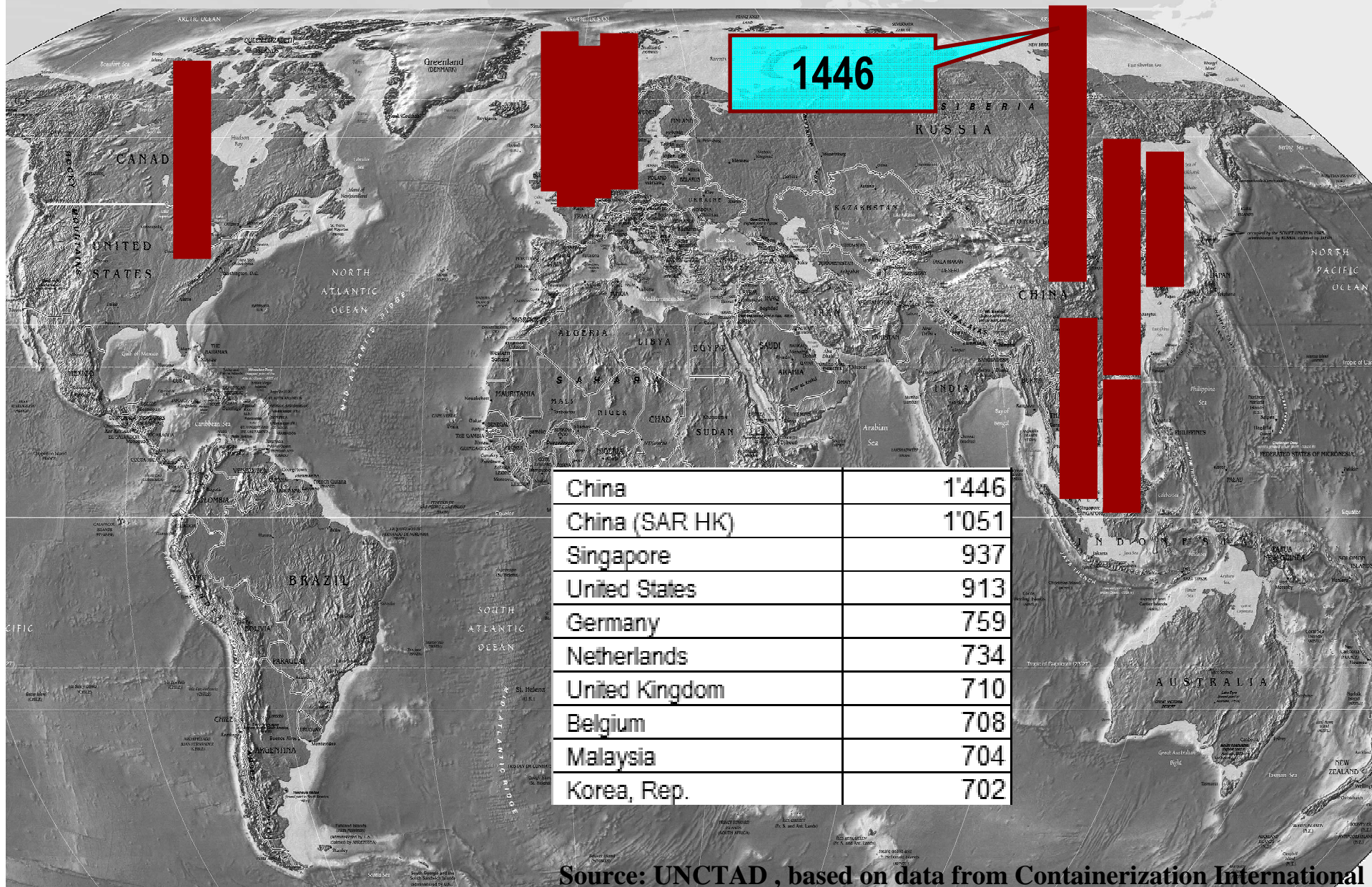
Source: UNCTAD , based on data from Containerization International

Number of companies

96

Netherlands	96
Belgium	93
China	85
United Kingdom	85
Germany	82
United States	81
Singapore	78
Korea, Rep.	67
Spain	67
Malaysia	66

Source: UNCTAD , based on data from Containerization International

The UNCTAD "LSCI"

Country	2004	2005	2006	2007	2008	2009	Rank 2009	Change 2009/2008	Change 2009/2004
China	100.00	108.29	113.10	127.85	137.38	132.47	1	-4.91	32.47
Hong Kong (China)	94.42	96.78	99.31	106.20	108.78	104.47	2	-4.30	10.05
Singapore	81.87	83.87	86.11	87.53	94.47	99.47	3	5.01	17.60
Netherlands	78.81	79.95	80.97	84.79	87.57	88.66	4	1.09	9.85
Korea, Rep.	68.68	73.03	71.92	77.19	76.40	86.67	5	10.28	18.00
United Kingdom	81.69	79.58	81.53	76.77	77.99	84.82	6	6.83	3.14
Germany	76.59	78.41	80.66	88.95	89.26	84.30	7	-4.96	7.71
Belgium	73.16	74.17	76.15	73.93	77.98	82.80	8	4.82	9.64
United States	83.30	87.62	85.80	83.68	82.45	82.43	9	-0.02	-0.87
Malaysia	62.83	64.97	69.20	81.58	77.60	81.21	10	3.61	18.38
Greece	30.22	29.07	31.29	30.70	27.14	41.91	20	14.77	11.68
Turkey	25.60	27.09	27.09	32.60	35.64	31.98	30	-3.66	6.38
Lebanon	10.57	12.53	25.57	30.01	28.92	29.55	34	0.63	18.98
Pakistan	20.18	21.49	21.82	24.77	24.61	26.58	38	1.98	6.41
Ukraine	11.18	10.81	14.88	16.73	23.62	22.81	45	-0.81	11.63
Russian Federation	11.90	12.72	12.81	14.06	15.31	20.64	48	5.32	8.73
Cyprus	14.39	18.53	17.39	18.01	11.81	13.31	71	1.50	-1.08
Lithuania	5.22	5.88	5.66	6.83	7.76	8.11	98	0.35	2.88
Bulgaria	6.17	5.61	4.47	4.83	5.09	5.78	109	0.70	-0.38
Estonia	7.05	6.52	5.76	5.78	5.48	5.71	110	0.24	-1.34
Latvia	6.37	5.82	5.10	5.87	5.52	5.18	114	-0.34	-1.19
Georgia	3.46	3.81	2.94	3.22	4.03	3.83	136	-0.20	0.37
Albania	0.40	0.40	0.40	2.28	1.98	2.30	154	0.31	1.89

"Connectivity"
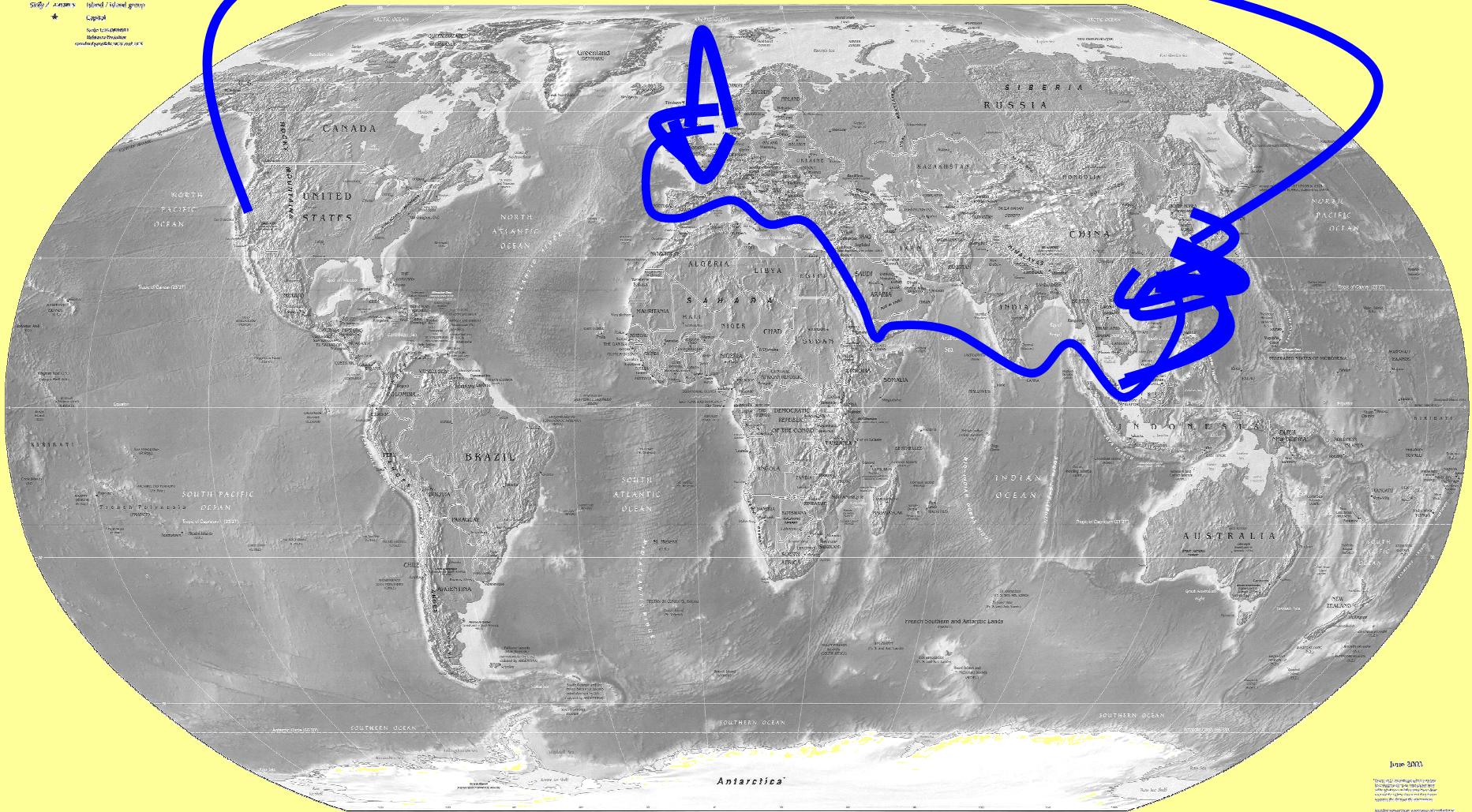1) Per country – in a "point" (162)
2) Per route – between countries (13041)

Connectivity per route

Top 25 routes (out of 13041)

Direct connectivity?

Out of 162 x 161 pairs of countries:

How many are connected by direct services?
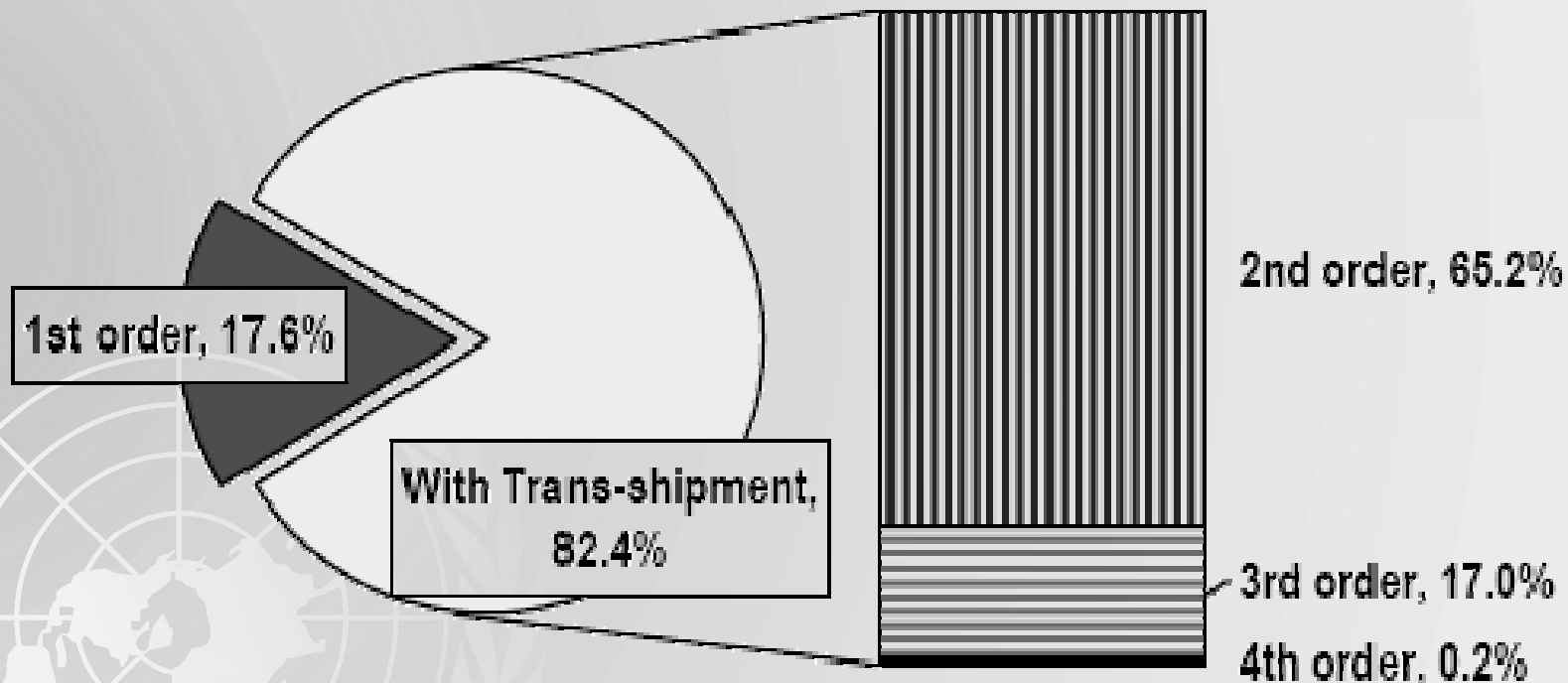
1st order, 17.6%

With Trans-shipment, 82.4%

2nd order, 65.2%

3rd order, 17.0%

4th order, 0.2%

Source: UNCTAD , based on data from Containerization International

Direct connections

	2006	2008	2009
Albania	1	3	1
Bulgaria	9	9	12
Estonia	12	13	14
Finland	18	17	17
Georgia	5	8	6
Latvia	10	11	11
Lebanon	29	29	27
Lithuania	10	11	11
Pakistan	28	31	39
Russian Federation	26	26	27
Turkey	41	42	44
Ukraine	14	17	15

Source: UNCTAD , based on data from Containerization International

The UNCTAD "LSCI" components
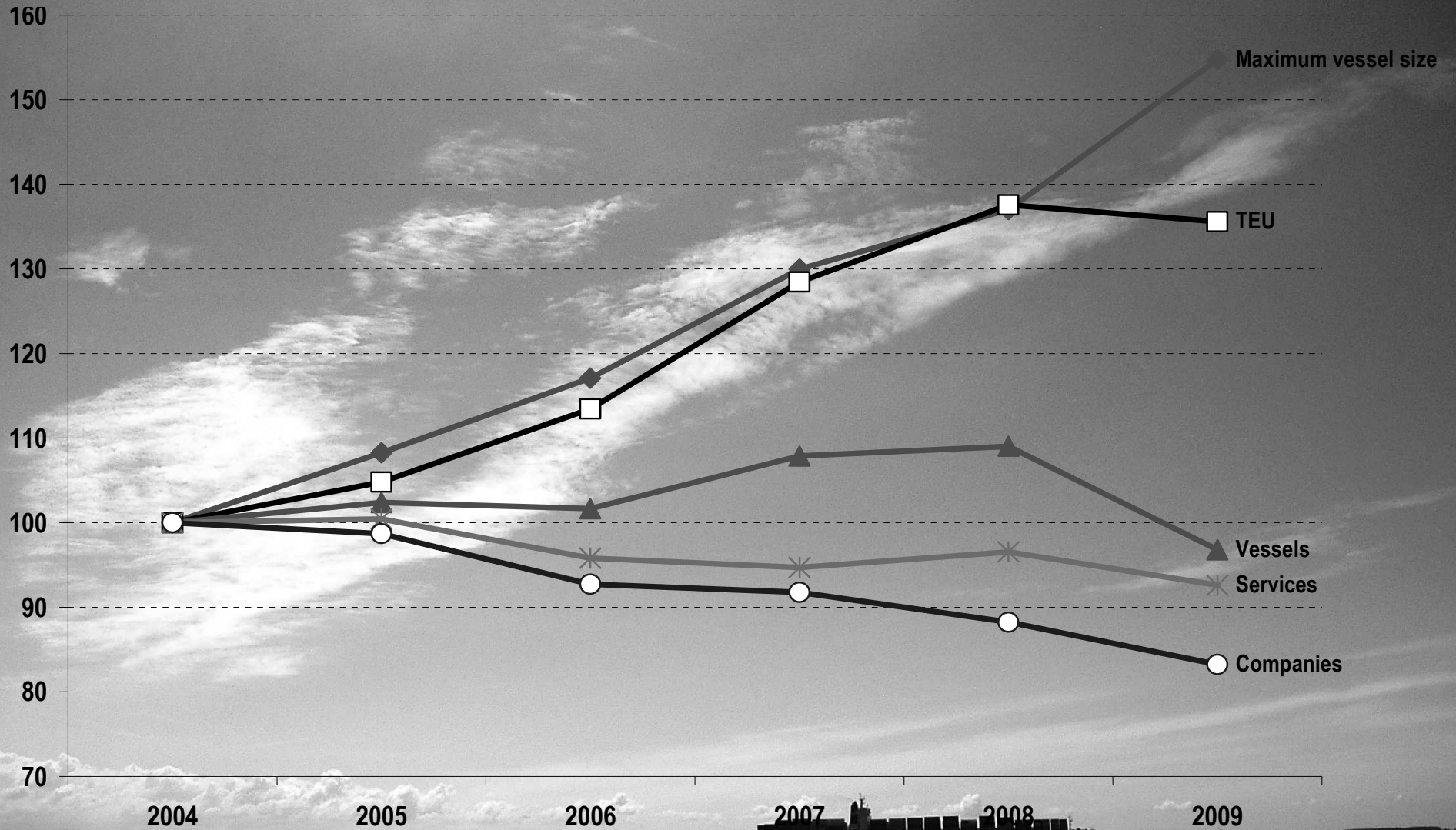
Source: UNCTAD , based on data from Containerization International

We have reached a peak

Until very recently:

- **In spite of the (global) process of concentration, the number of companies providing (local) services increased due to the expansion of global players into (so far) new markets**
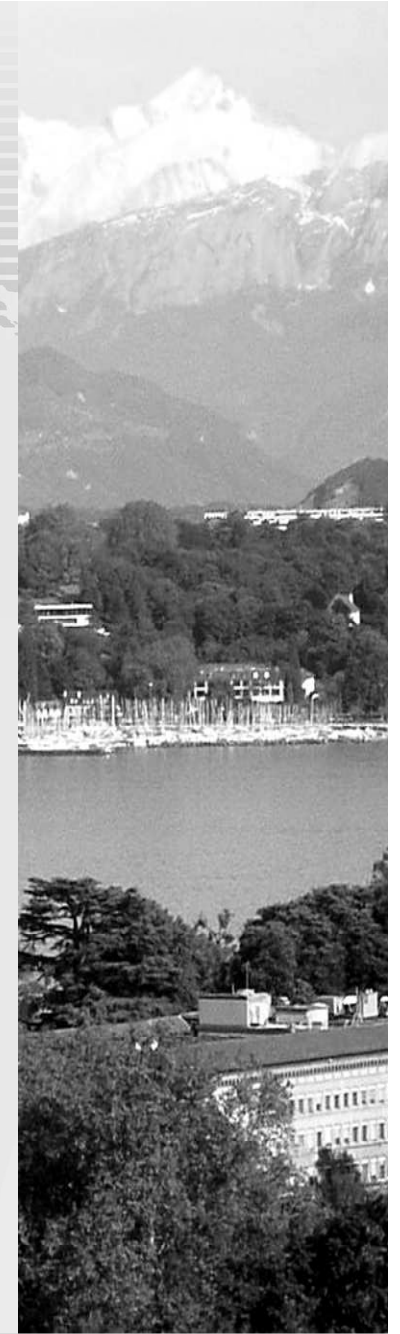
We have reached a peak

Today:

- As global players are (now) covering all regions of the world, mergers among them (start to) lead to a reduction of competition on individual routes.
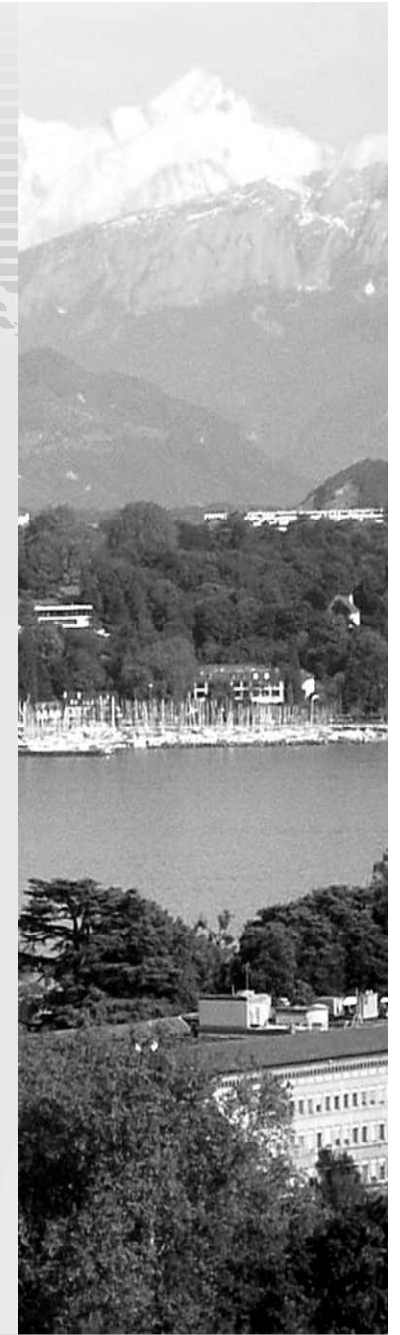
1: Demand and supply of liner shipping services
2: Global trends in liner shipping
3: Europe-Asia connections

Istanbul, November 2009
Jan.Hoffmann@UNCTAD.org
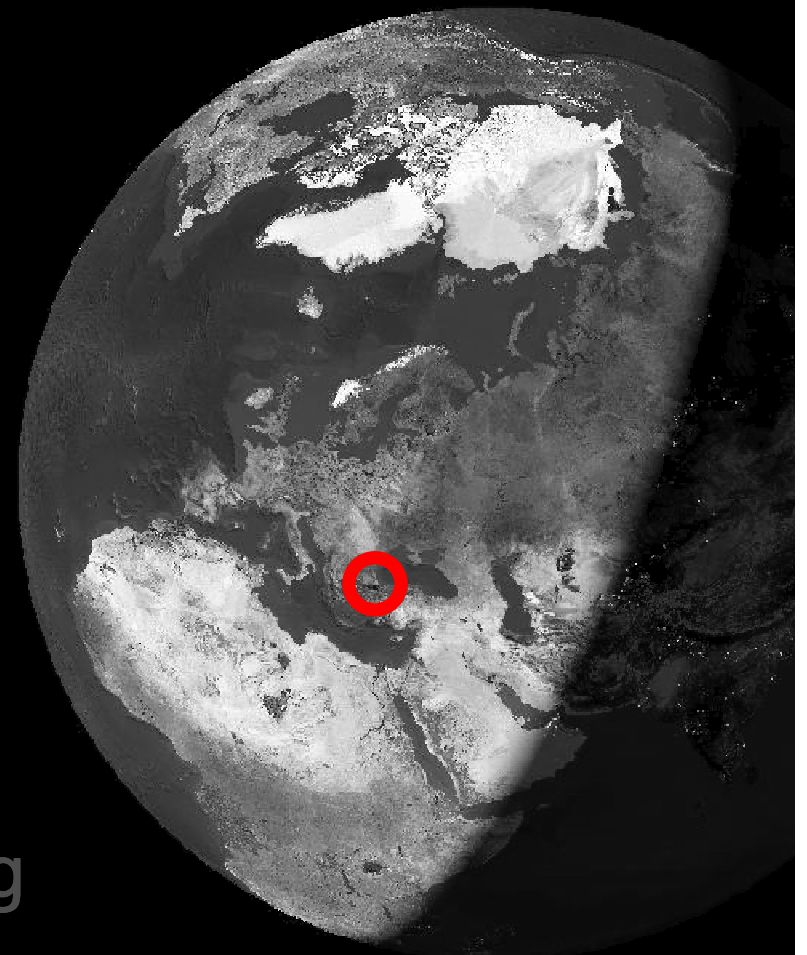
Vessel deployment on selected routes

Route		Carriers	Ships	TEU	Max Vessel
Bulgaria	Turkey	5	8	8473	1604
Bulgaria	Romania	4	7	7495	1604
Bulgaria	Ukraine	3	4	4957	1604
Bulgaria	Italy	1	2	3133	1604
Bulgaria	Georgia	1	3	2538	907
Bulgaria	Malta	1	3	2538	907
Bulgaria	Russian Federation	1	3	2538	907

Source: UNCTAD , based on data from Containerization International

Route		Carriers	Ships	TEU	Max Vessel
China	Hong Kong, China	58	944	4522735	13800
China	Singapore	44	524	2582170	13800
China	Korea, Rep.	28	579	2415752	9200
China	Italy	21	156	886228	9200
China	Malaysia	20	432	2317094	12508
China	Germany	20	250	1770152	12508
China	United Kingdom	19	191	1423902	13800
China	Belgium	19	152	1091461	13800
China	Netherlands	18	241	1825720	13800
China	France	18	172	1209431	11400
China	Spain	17	123	842698	13800
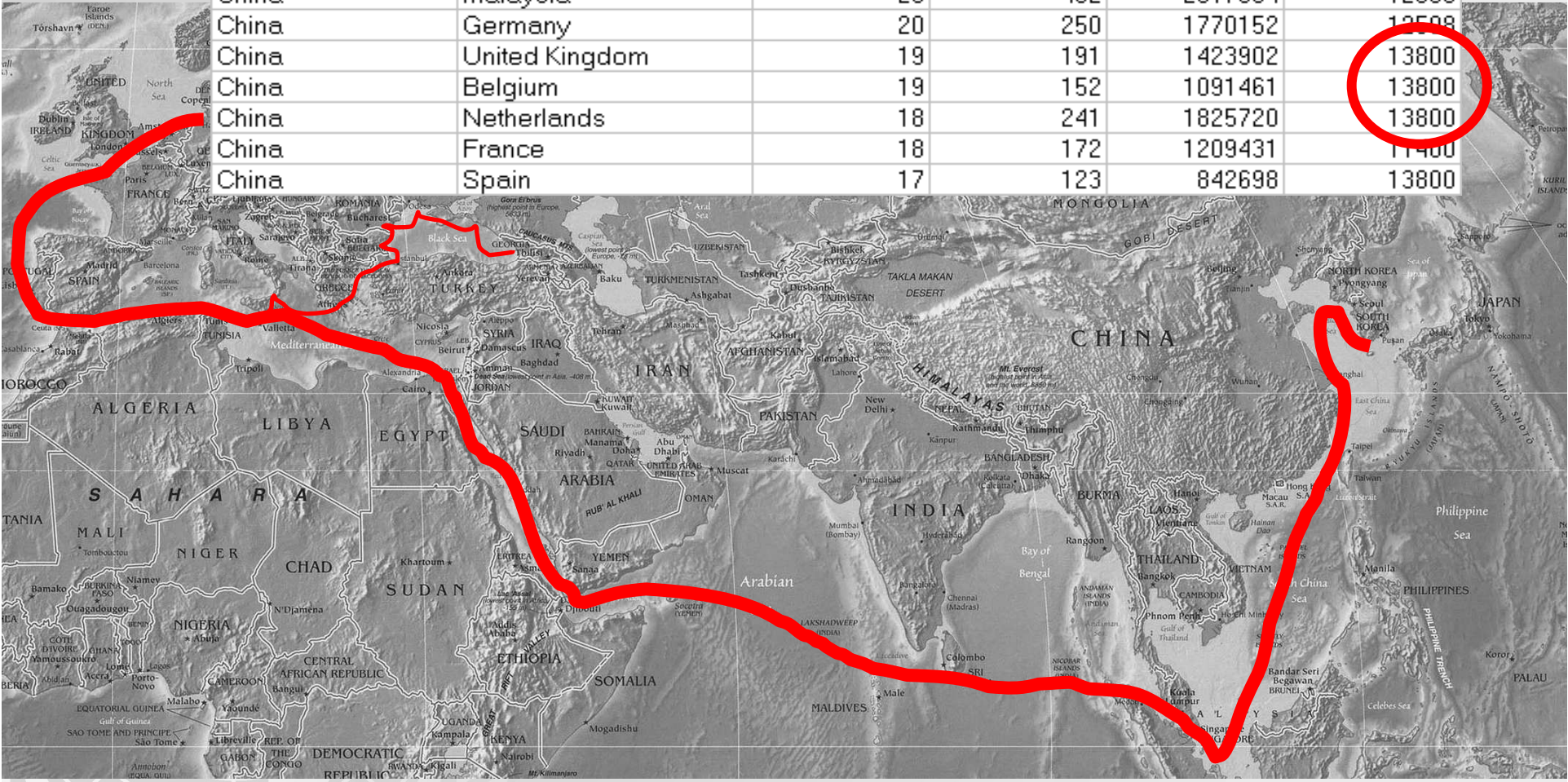
Source: UNCTAD , based on data from Containerization International

Route		Carriers	Ships	TEU	Max Vessel
Estonia	Finland	5	13	5189	858
Estonia	Germany	4	10	6592	1440
Estonia	Netherlands	3	8	4162	1440
Estonia	Belgium	2	7	4724	1440
Estonia	United Kingdom	2	6	1418	266
Estonia	Denmark	2	5	1341	366
Estonia	Sweden	2	5	1163	366
Estonia	Russian Federation	1	2	2744	1440
Estonia	Poland	1	5	1980	564
Estonia	Lithuania	1	3	798	266
Estonia	Latvia	1	2	543	366
Estonia	Norway	1	2	543	366

Source: UNCTAD , based on data from Containerization International

Route		Carriers	Ships	TEU	Max Vessel
India	Singapore	33	117	277590	5888
India	United Arab Emirates	29	150	475639	6978
India	Malaysia	29	102	267418	5888
India	Pakistan	28	101	301911	4506
India	Sri Lanka	27	102	283915	5888
India	China	21	78	241810	5888
India	Saudi Arabia	20	88	299742	6978
India	Hong Kong, China	14	49	140210	5888
India	Iran	13	46	155918	6978
India	Italy	12	64	226978	6742
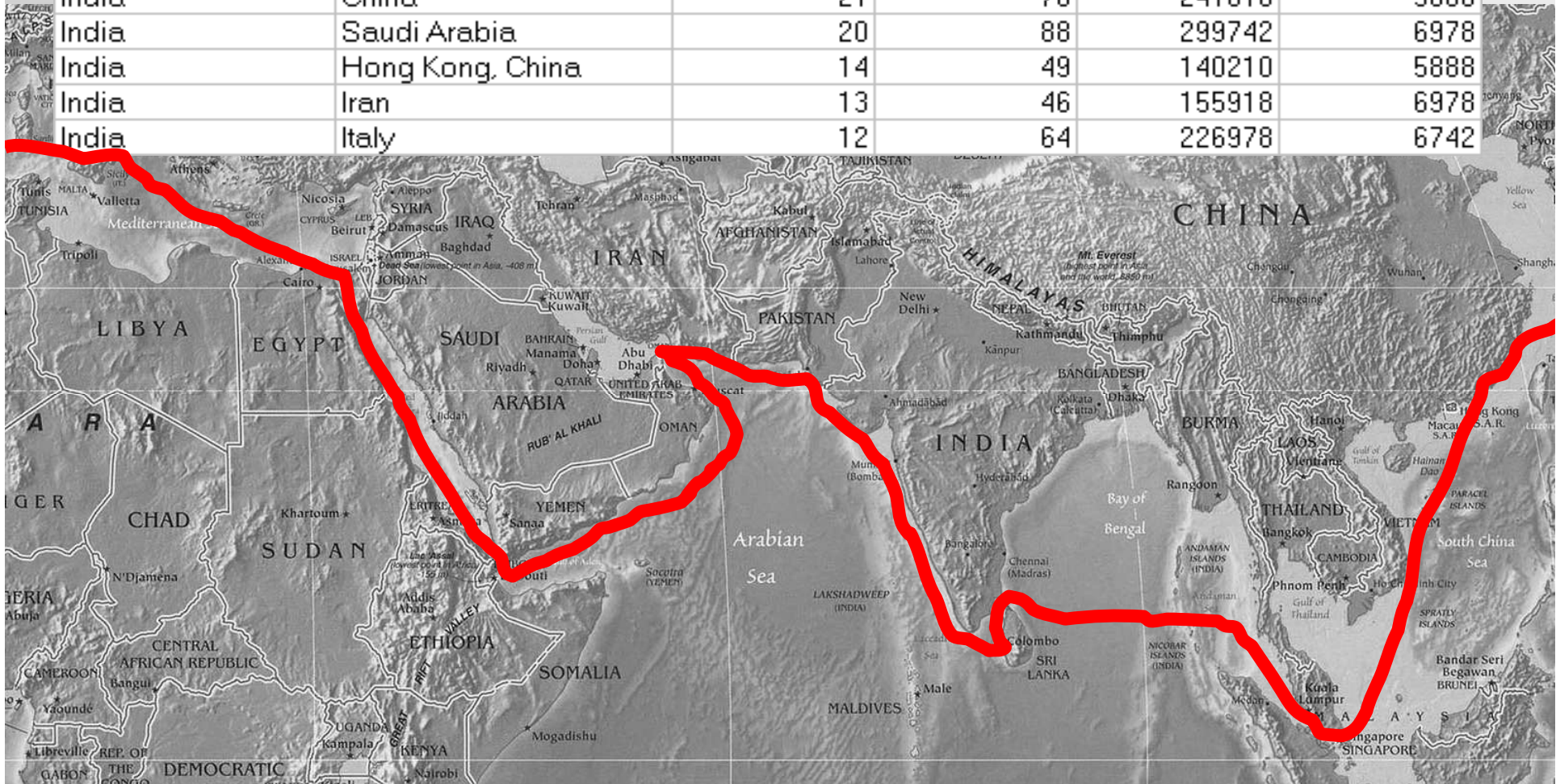
Source: UNCTAD , based on data from Containerization International

Route		Carriers	Ships	TEU	Max Vessel
Turkey	Algeria	2	8	4995	729
Turkey	Belgium	8	63	127140	5060
Turkey	Bulgaria	5	8	8473	1604
Turkey	China	10	45	261221	9200
Turkey	Cyprus	10	37	54206	5060
Turkey	Denmark	3	10	16254	2840
Turkey	Dominican Republic	1	4	2639	677
Turkey	Egypt, Arab Rep.	24	100	273751	6978
Turkey	Finland	1	1	380	380
Turkey	France	5	21	53504	5060
Turkey	Georgia	3	6	5139	976
Turkey	Germany	7	37	56475	3501
Turkey	Greece	9	65	139657	9200
Turkey	Guatemala	1	4	2639	677
Turkey	Hong Kong, China	1	9	73600	9200
Turkey	India	1	10	42515	4253
Turkey	Ireland	2	9	6972	972
Turkey	Israel	11	51	101560	5060
Turkey	Italy	16	110	214507	9200
Turkey	Jordan	2	10	62193	6978
Turkey	Korea, Rep.	4	29	178308	9200
Turkey	Lebanon	10	38	132259	9200
Turkey	Libyan Arab Jamahiriya	2	10	6240	840
Turkey	Malaysia	9	36	187621	6978
Turkey	Malta	2	10	11241	2917
Turkey	Mexico	1	4	2639	677
Turkey	Netherlands	4	23	27992	3501
Turkey	Portugal	3	21	28069	3501
Turkey	Romania	11	45	198057	6978
Ukraine	Romania	13	33	152881	6978
Turkey	Russian Federation	6	23	55817	4253
Turkey	Saudi Arabia	2	18	132300	9200
Turkey	Singapore	1	9	73600	9200
Turkey	Slovenia	3	11	13973	2098
Turkey	Spain	7	44	82314	5060
Turkey	Sri Lanka	1	10	42515	4253
Turkey	Sweden	4	11	16634	2840
Turkey	Syrian Arab Republic	13	30	41570	2917
Turkey	Taiwan, prov of China	2	10	62193	6978
Turkey	Tunisia	2	5	2937	729
Turkey	Ukraine	12	36	152660	6978
Turkey	United Arab Emirates	1	9	73600	9200
Turkey	United Kingdom	7	59	127304	5060
Turkey	United States	2	8	7229	1155
Turkey	Venezuela, RB	1	4	2639	677

Source: UNCTAD , based on data from Containerization International
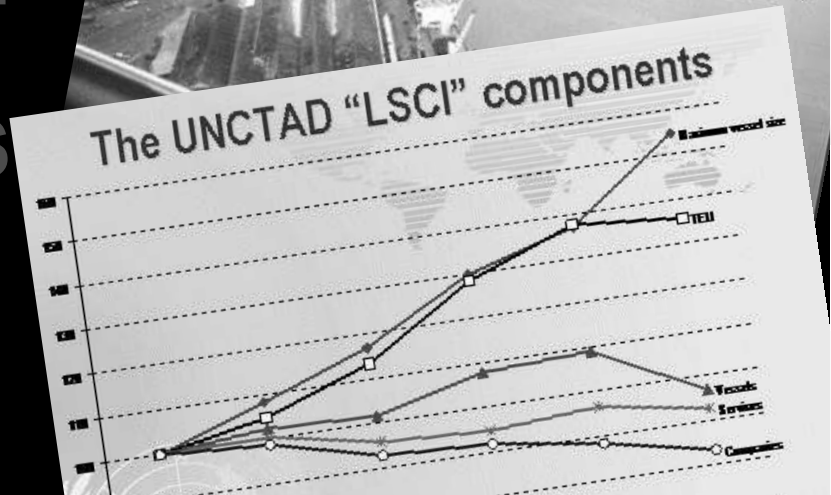
Trade Volumes

Transport costs

Transport Services

?

Determinants of maritime connectivity

- **Trade volumes (+)**

- **Distance (-)**

- **GDP per capita in exporting country (+)**

- **Port infrastructure (+)**

1: Demand and supply of
   liner shipping services
2: Global trends in
   liner shipping
3: Europe-Asia
   connections

- *Review of Maritime Transport* 2009
- Quarterly *Transport Newsletter*
- Expert Meetings on transport and trade facilitation, in Geneva, 10-13 December

www.UNCTAD.org

Jan.Hoffmann@UNCTAD.org