Port-centric Logistics
Opportunities for Ports?

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1. Setting the (changing) scene

2. What is logistics?

3. Trends in the maritime transport sector

4. Port-centric logistics

1. Setting the (changing) scene: developments in global supply chains

According to Haralambides:

- Ports, and in particular container terminals, are becoming crucial nodes in complex transport networks

- Ocean carriers are being transformed into logistics service providers through vertical integration and investments in information technology

Setting the (changing) scene: Ports and competition

According to Goss and others, ports are subject to five different forms of competition:

- competition between whole ranges of ports or coastlines
- competition between ports in different countries
- competition between individual ports in the same country
- competition between the operators or providers of facilities within the same port
- competition between different modes of transport.

The days of ports being able to rely on ‘captive’ traffic are becoming less and less.

Furthermore, it is anticipated that future competition will not be between ports and individual transport carriers *per se*, but between a handful of 'total logistics chains'.

Which chains will you be part of?

2. What is Logistics?

Logistics has evolved from being regarded as just ‘trucks and sheds’ to …….

Logistics – the ‘8 R’ definition

Logistics involves getting, in the right way, the right product, in the right quantity and right quality, in the right place at the right time, for the right customer at the right cost.

The Evolution of the Supply Chain Approach

Key Drivers……

- Reduced transport intensity of freight
  - minituarisation
  - material substitution
- Deregulation of transport
- Productivity improvements
- Emphasis on inventory reduction

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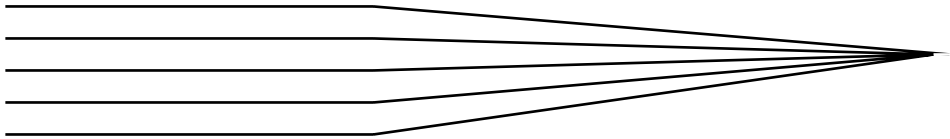
Fragmentation (1960s)	Evolving Integration (1980s)	Total Integration

Various Separate Functions
- transport
- warehousing
- purchasing
- marketing
- finance

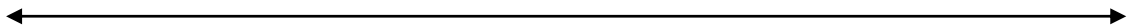


Supply Chain

Upstream

The Integrated Supply Chain

Downstream



Material, Information and Financial Flows

Best practice logistics & supply chain management yields *cost* and *value* advantages:

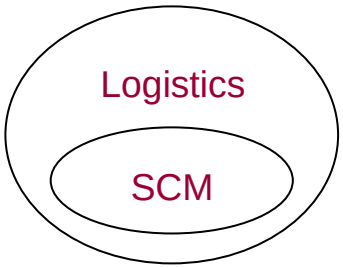
- lower end-to-end delivered cost
- superior customer value through enhanced service

Now it is increasingly supply chains,
and not individual firms/products, which compete

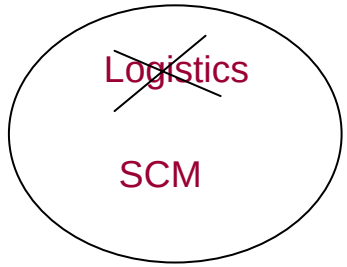
Distribution: ‘The last frontier of competitive advantage’

Four Perspectives on Logistics versus Supply Chain Management

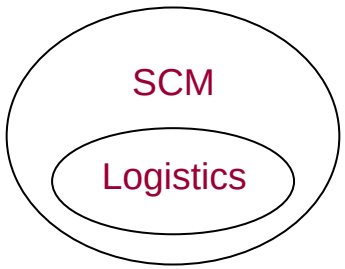
Traditionalist



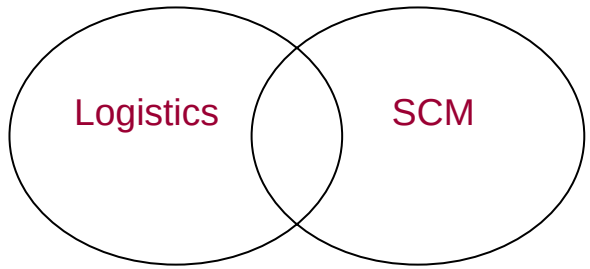
Re-labelling



Unionist



Intersectionist



Source: Larson, P. and A. Halldorsson (2004), Logistics versus supply chain management: an international survey, *International Journal of Logistics: Research and Applications*, 7 (1) 17-31.

Logistics is part of SCM; SCM is a wider, intercompany, boundary-spanning concept, than is the case with logistics.

The role of a port in a supply chain can vary from that of simple transshipment hub to important logistics node, and this in turn is heavily dependent upon the supply chain strategies of those who use these ports.

3. Trends in the maritime transport sector

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New York, 1912

Suez Canal, 2007

The World Bank Port Reform Toolkit (2007) identified five key changes predicted to radically influence port operations in the 21st Century:

1) Intensification of global competition

2) New technology

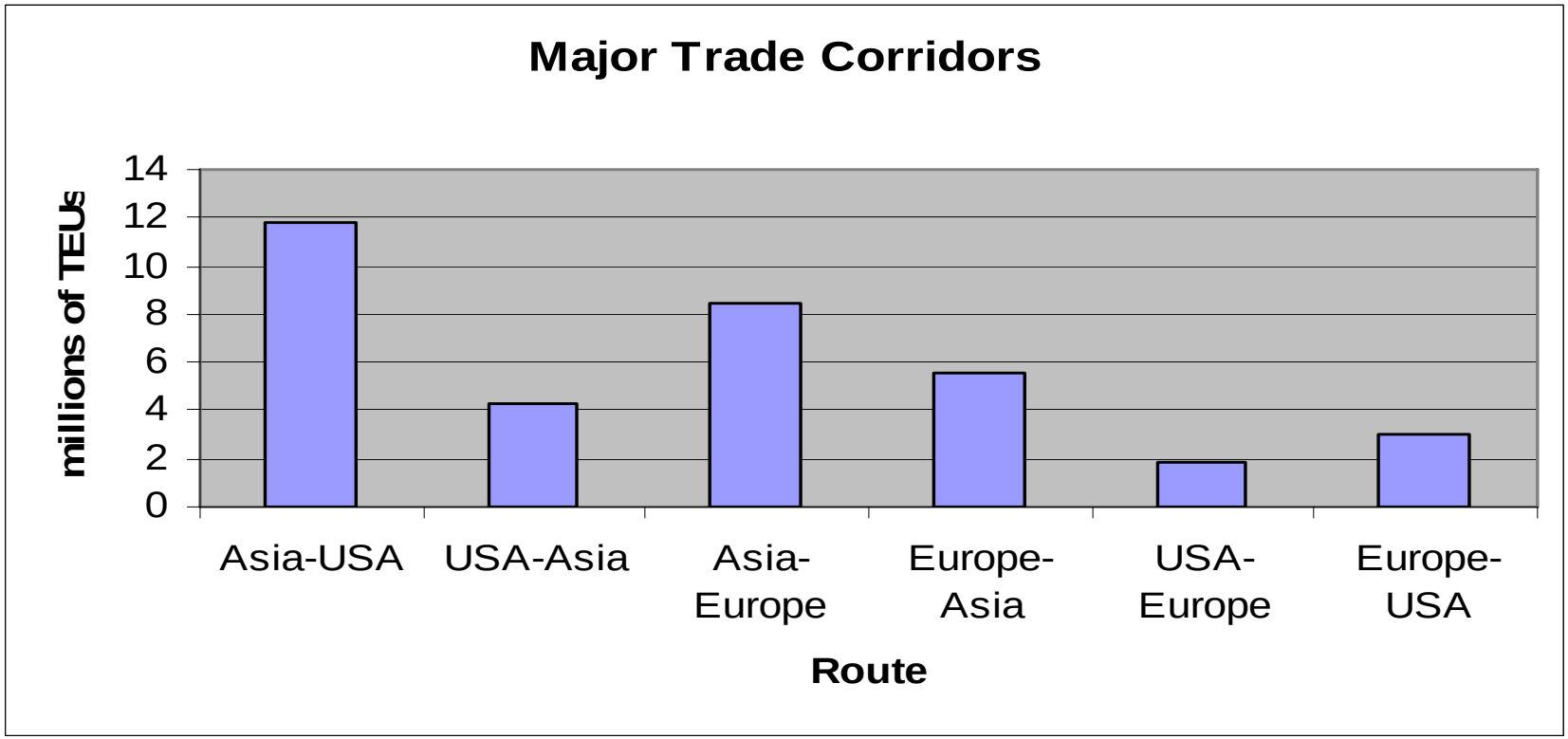
3) Changing distribution patterns

4) Environmental, safety and security concerns

5) Shifting bargaining power due to realignments /consolidations

Trends in Maritime Freight Transport

- Increased traffic driven by increased exports as a share of GDP
- Growth in particular of container traffic (and in vessel size – ‘Gigantism’)
- Development of hub-and-spoke shipping networks
- Directional imbalances
- Demand for ‘new builds’
- Environmental and security regulation



According to A.P. Moller – Maersk:

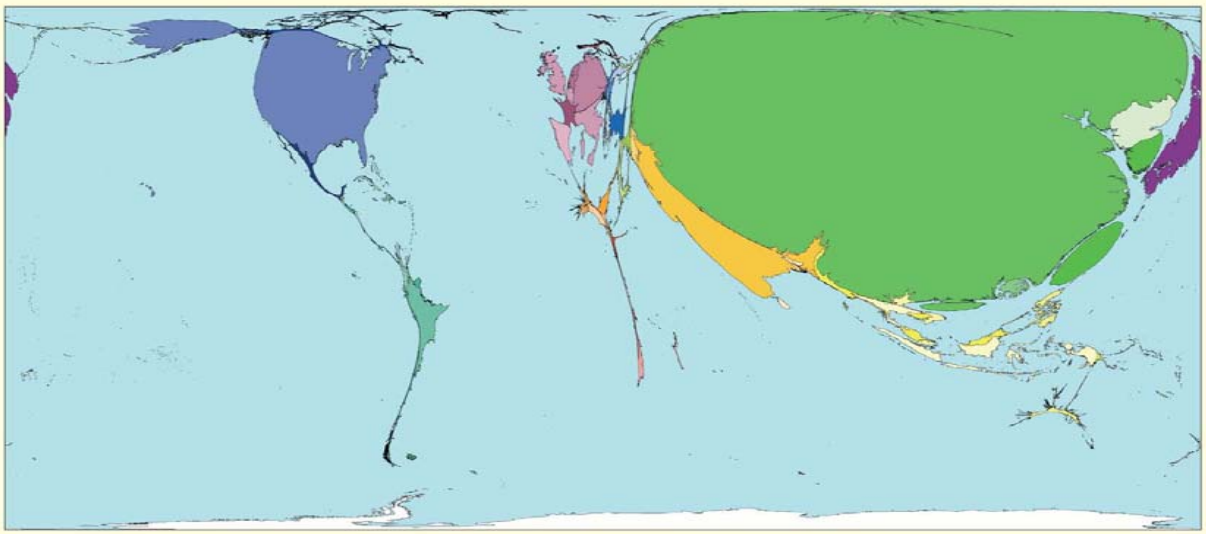
- If all the containers in the world were lined up, it would create a container wall with a length of 108,000 kilometres. This is a third of the way to the moon, equivalent to 18 times the length of the Great Wall of China, or 2.7 times around the Earth at the Equator.

- The volume of freight that can be held in one standard forty foot container is quite significant: 200 dishwashers, 350 bicycles or 5,000 pairs of jeans.

- The shipping cost per unit is thus quite low: Maersk estimate for freight coming from Asia to Europe it costs £9 per dishwasher, £5 per bicycle and just £0.35 per pair of jeans.

Container Ports

Produced by the SASI group (Sheffield) and Mark Newman (Michigan)



There are more shipping containers loaded and unloaded off the coasts and rivers of China, than travel to or from all other territories put together. It is in China that more than three-quarters of this activity takes place. The majority of China's shipping by implication appears to be 'domestic'. The rest of the world put together only handles a third of what China handles. Thus at least half of all container shipping in the world involves China. The ships may bring goods to serve the domestic Chinese market, they may transport part-finished goods along the Chinese coast or down-river, or goods could simply be being transferred between container ships in a Chinese port.

Territory size shows the proportion of all shipping containers being loaded and unloaded there.

Land area

Technical notes

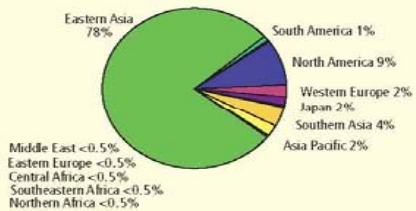
- Data source: World Bank, World Development Indicators, 2005. Data are from 2003-2005.
- *47 landlocked territories had no container port traffic.
- A shipping container is a twenty foot equivalent unit (TEU), which is the standard size.
- The movement of empty containers is counted, as are tranfers of cargo between ships.
- See website for further information.

MOST AND LEAST CONTAINER PORT TRAFFIC

Rank	Territory	Value	Rank	Territory	Value
1	China	62	144	Dominican Republic	0.48
2	Taiwan	60	145	Honduras	0.47
2	DPR Korea	60	146	Trinidad & Tobago	0.44
2	Hong Kong (China)	60	147	Mauritius	0.38
5	United States	33	148	Yemen	0.38
6	Greenland	23	149	Morocco	0.35
7	Singapore	18	150	Algeria	0.31
8	Japan	15	151	Uruguay	0.30
9	Republic of Korea	13	152	Lebanon	0.30
10	Germany	11	153	Poland	0.26

*shipping containers per person per year**

DISTRIBUTION OF SHIPPING CONTAINERS



"Mao claimed that China's industrial output could overtake that of the United States and Britain within fifteen years."

Jung Chang, 1991

Trends in the Ports Sector

- Increased emphasis among researchers and others on rethinking the nature, boundary and role of the port
- Increased recognition of the link to economic growth and the key role which ports play in country competitiveness
- Changes in port ownership and the emergence of Global Port Operators
- Increased competition between port ranges
- Development of port clusters and port-centric logistics

4. Port-centric logistics

Analytiqa and PD Ports: the ‘next big thing’ in the supply chain

In these recessionary times operations are being reviewed, this can have opportunities for ports.

What is it?

The provision of distribution and other-value adding logistics services at a port.

At present, most route choice decisions are abdicated to the LSPs.

Ports need to challenge this and assert their role in the supply chain.

Other issues:

- where to locate RDCs?
- congestion and sustainability issues

Examples ……

- Asda-Walmart and Tesco distribution centres at Teesport in the UK
- Sainsbury / BAP Group at Felixstowe
- NYK Logistics at Thamesport
- HKG, Singapore and Busan developing facilities for value adding activities to stem competition from ports such as Shanghai and Shenzhen
- PD Ports owned ‘PD logistics’ servicing clients such as Lidl and Corus Steel

Sainsbury and the BAP Group

Imported containers were previously taken to an inland RDC, but now the containers are stripped at the port, eliminating a return leg of empty containers.

They estimate that this saves 700,000 road miles for every 5,000 TEUs handled.

Advantages [1]

- Usually less congestion at ports than at inland RDCs
- Available land and labour, lower cost
- Improved inventory visibility and velocity, lower end to end unit logistics costs
- Empty running between the RDC and the port eliminated
- No need to worry about landside weight restrictions on imported containers allowing containers to be filled to capacity
- Faster repositioning of ‘empties’
- Lower demurrage fees and less use of ‘floating warehouses’
- Reduced carbon footprint
- Opportunity for port operators to diversify
- Value added services such as bonded warehouses
- Some research [2] indicates that it provides ports with an opportunity to justify higher charges given their ability to now ‘capture’ certain traffic

[1] Mangan et al, IJLM, 2008

[2] Song and Panayides, MPM, 2008

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