

# Achieving supply chain integration: the role of ports and shipping

Professor John Mangan  
The University of Hull Logistics Institute

[j.mangan@hull.ac.uk](mailto:j.mangan@hull.ac.uk) / ☎ 0044 1482 463427

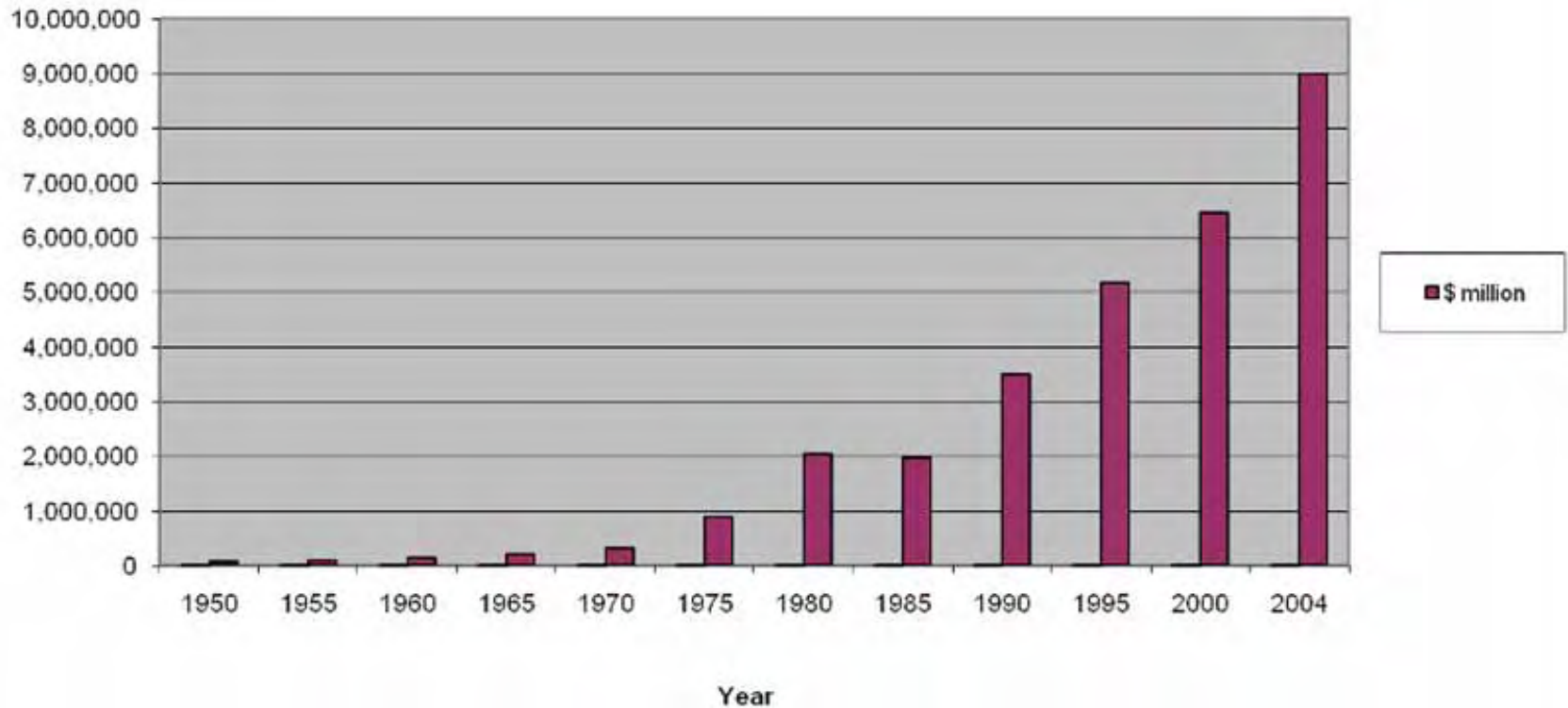


1. Supply chain integration
2. The role of ports and shipping
3. Future challenges

# 1. Supply chain integration



Figure 2.1 - Total World Merchandise Exports 1950-2004



## New York, 1912



## Suez Canal, 2007



# 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



Annual turnover of \$351 bn

- Wal-Mart's innovations in retail logistics in the 1980s and 1990s led to an ***innovation race*** with suppliers and other retailers also seeking to enhance their productivity.
- This in turn led to a rapid rise in productivity in the US economy as a whole.



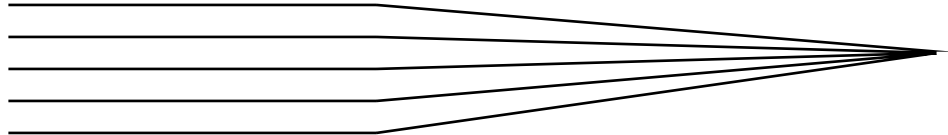
**Fragmentation  
(1960s)**

**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***

# Defining Supply Chain Management

Supply chain management (SCM) is the management across a network of upstream and downstream organisations of material, information and resource flows that lead to the creation of value in the form of products and / or services.

Mangan *et al*, 2008

**“These days, building the best server isn’t enough. That’s the price of entry.”**

Ann Livermore, Hewlett-Packard



**Ford: “Vehicle brand owner” (“design, engineer, and market, but not actually make”)**

Source: The Company, John Micklethwait & Adrian Wooldridge



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

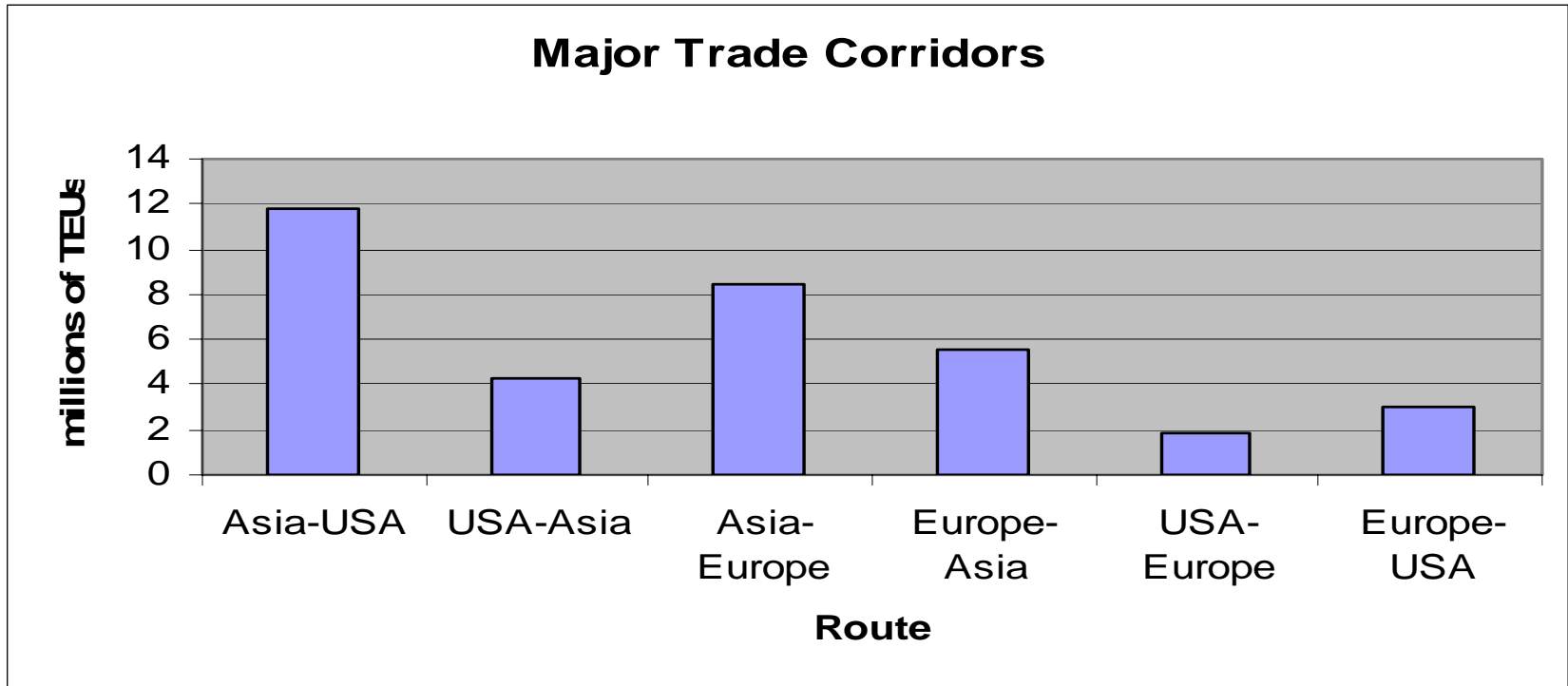
- lower end-to-end delivered cost
- superior customer value through enhanced service

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

Distribution: 'The last frontier of competitive advantage'



## 2. The role of ports and shipping

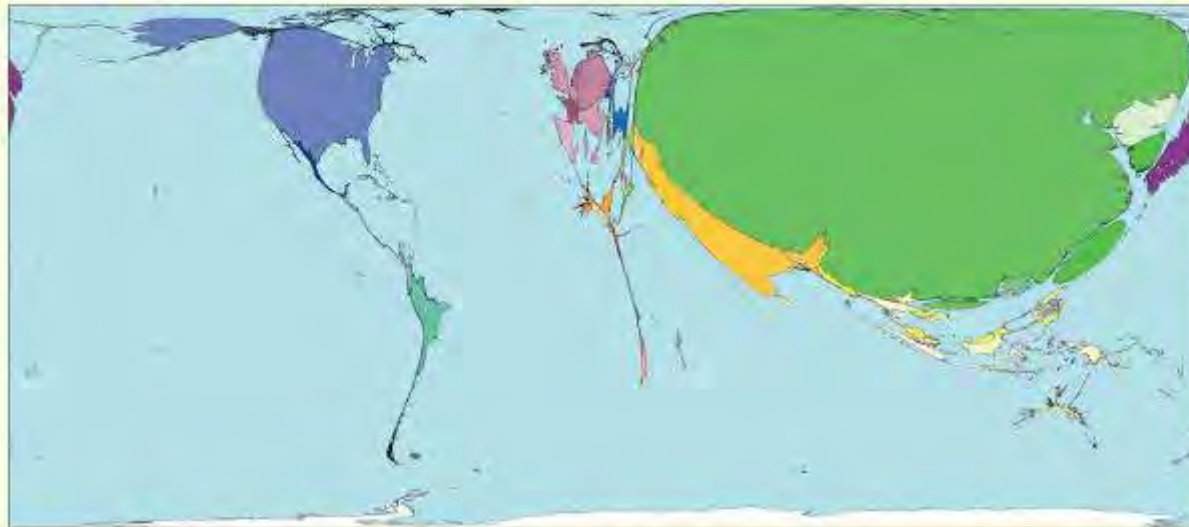


© Wiley Publishing / Mangan, Lalwani and Butcher (2008)

## 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



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**

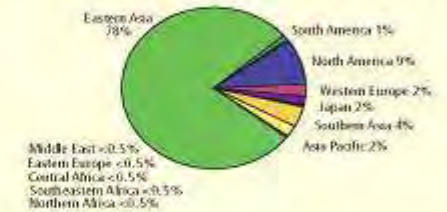
- Data source World Bank, World Development Indicators, 2005. Data are from 2003-2005.
- 42 landlocked territories had no container port traffic.
- A shipping container is a twenty-foot equivalent unit (TEU), which is the standard size.
- The movement of empty containers is counted, as 20 TEUs of cargo 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	23	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

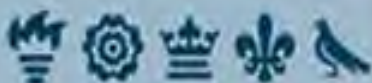
shipping containers per person per year\*

### 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



The World Bank Port Reform Toolkit (2007) identified five key changes predicted to radically influence port operations in the 21<sup>st</sup> 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 the Ports Sector

- Linked to economic growth and play a key role 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
  - Asda-Walmart distribution centre at Teesport in the UK
  - HKG, Singapore and Busan developing facilities for value adding activities to stem competition from ports such as Shanghai and Shenzhen
  - Bring RDCs back to the port e.g. Sainsbury / BAP Group at Felixstowe .... faster repositioning of empties to other ports, reduced empty running of return loads, non-road bound containers can now be filled to capacity

# The Ports Sector in the UK

Continued significance of ports and maritime transport to UK economy:

- 95% of UK's international freight tonnage handled at UK ports
- 30% of UK GDP derived from international trade in goods
- 6% of UK GDP is derived from the freight & logistics industry

UK logistics industry worth £55bn to the economy and employs 1.7m people

# Changing ownership of UK ports

Ports increasingly viewed as assets in a global economy

Port operators attractive targets for investors due to stable income streams, large property portfolios and buoyant shipping markets

Led to a series of mergers and take-over activity in port/shipping sector:

- ABP acquired by Admiral Consortium for £2.8bn in 2006
- P&O acquired by DP World for \$6.8bn in 2005
- PD Ports acquired by Babcock & Brown for £337m in 2005
- Mersey Docks acquired by Peel Holdings for £771m in 2005

# Inter-port Distances



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## 3. Future Challenges



# The drivers behind the increased emphasis on green issues

Legislation

Cost  
Reduction

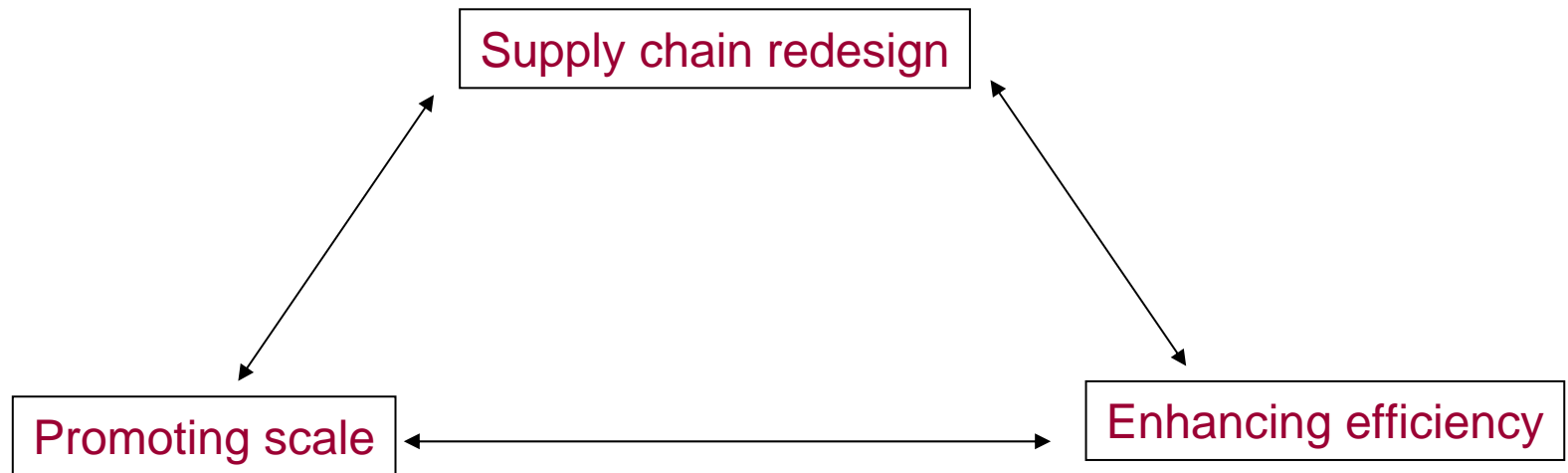
Social Responsibility  
(Environmental Impact)

Market  
Pressure

Source: Kevin Ord, Scarborough Campus, The University of Hull



# Sustainable Logistics and SCM



## Twelve trends impacting integrated supply chain designs ....

1. Increased sourcing alternatives and expanded logistics reach
2. Changing distribution patterns and considerable directional imbalances
3. Virtual organisations, OEMs and CMs
4. Identifying opportunities for both cost reduction / waste elimination *and* value improvement
5. The need to combine lean *and* agile approaches in supply chain design
6. Energy costs and sustainability (carbon footprints, food miles)

7. Reverse logistics
8. Technology developments such as RFID: 'bar codes on steroids!'
9. Supply Chain Vulnerability, Risk, Robustness and Resilience : sense and respond, anticipate and lead, event management
10. Security, emergence of CCAs
11. Growth of humanitarian logistics
12. HR issues including skills deficits and gender imbalances



## Questions ?



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