

# Rethinking port services: Added value, efficiency and productivity in intermodal transport systems

Trial Lecture

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# Agenda

- Introduction - Traditional port services
- Why we should rethink port services
- Value added port services
- Practical examples:
  - Larvik
  - London
- Conclusion

# Traditional port services

<p>Service to vessels</p>	<ul style="list-style-type: none"><li>○ Approach channel and navigation aids</li><li>○ Berthing / unberthing</li><li>○ Pilotage, Towage, Mooring gangs</li><li>○ Supplies, Bunker, Water, Waste reception, Repairs</li><li>○ Cargo transfer, e.g. opening/closing of hatches</li></ul>
<p>Service to cargo</p>	<ul style="list-style-type: none"><li>○ Cargo handling on ship and quay</li><li>○ Transport to/from storage</li><li>○ Storage/warehousing</li><li>○ Surveying</li><li>○ Customs</li><li>○ Connection to inland transportation</li></ul>

# Traditional port services

## Port users include:

- Shipping lines
- Shippers
- Trucking firms
- Railroad firms

## Service providers in ports:

- Port authority
- Terminal operators
- Freight forwarders
- Stevedores
- Customs
- Ship agents
- Line handlers (mooring)
- Pilots
- Towage
- Bunker suppliers

(Alderton, 2005)

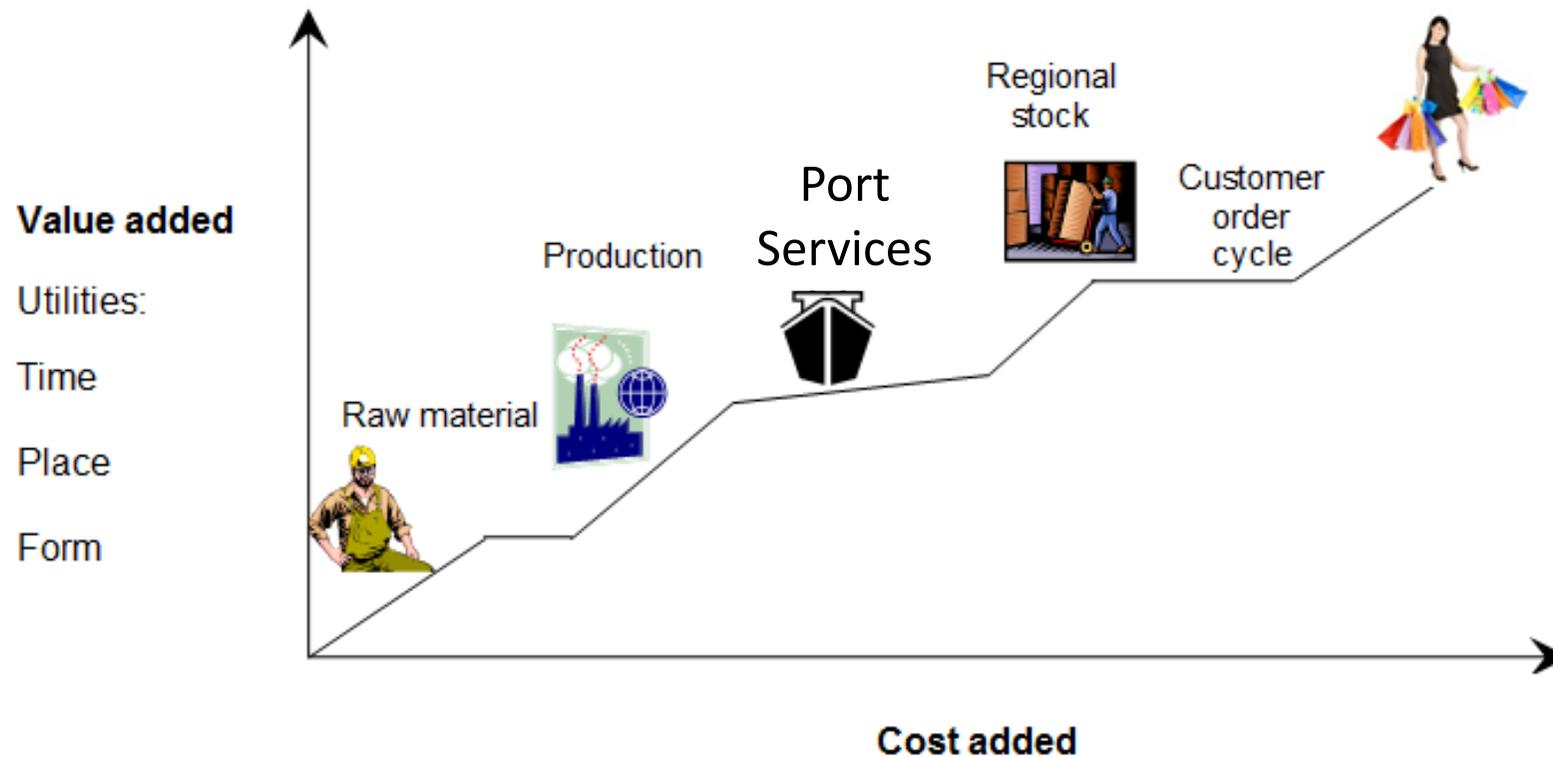
# Rethinking traditional port services



**Automated mooring technology  
eliminating conventional mooring lines**

[www.cavotec.com](http://www.cavotec.com)

# Why we should rethink port services



Production, storage and transport costs, including the time cost of money

Globalized supply chains makes it attractive for shippers to outsource value adding services to logistics service providers at strategically placed nodes – e.g. **Ports**

(Christopher, 2005; Paixão and Marlow, 2003; Robinson, 2002)

# Rethinking port services

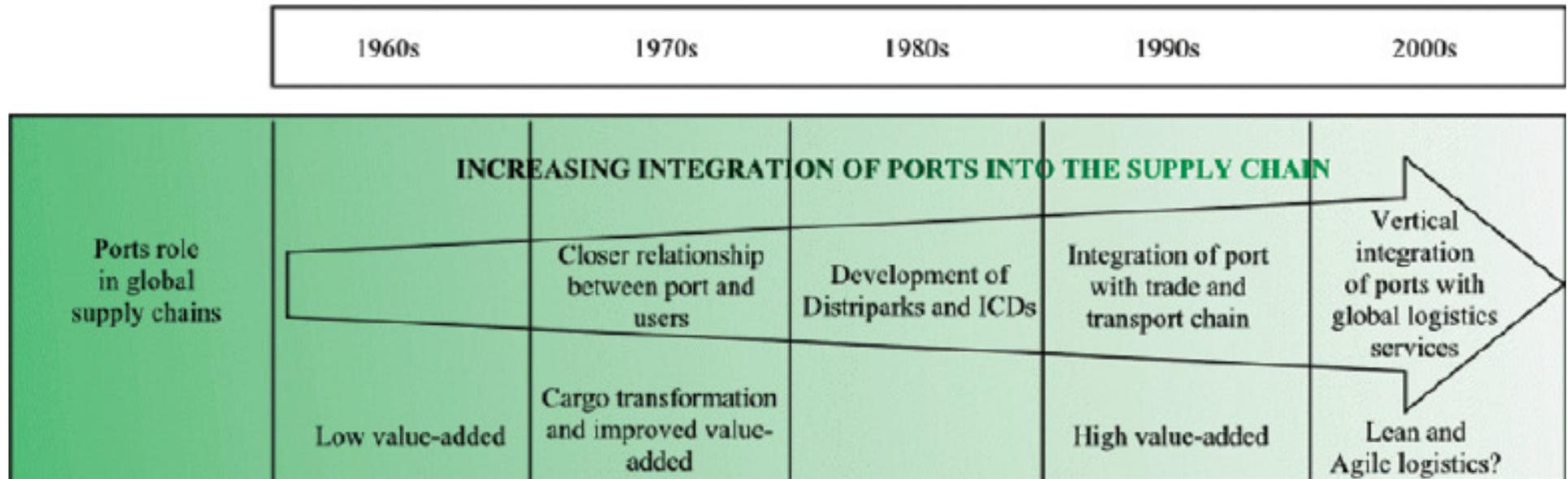


Figure from: (Pettit and Beresford, 2009)

# Rethinking port services

**Traditional “Low value added”    Logistics platforms “high value added”**

- Cargo handling
- Vessel servicing

Distribution centres (DC):

- Temporary storage space
- Inventory management
- Cargo consolidation and deconsolidation
- Packaging
- Labelling

(Pettit and Beresford, 2009)

# Third-party logistics (3PL)

The services may include:

- Demand forecasting
- Instructing customers
- Order receiving
- Order picking
- Invoicing
- Payment control
- Trace and track
- Product testing
- Product repair
- Product installing
- Product assembling
- Product countrylizing
- Spare parts logistics
- Warranty handling

(Christopher, 2005)

# Intermodal transport system

- Various modes of transport are utilized in the sequential movements of goods in **one and the same loading unit** (e.g. container) without handling of the goods during transfers between modes (UNECE, 2001)



- TEU = Twenty-foot Equivalent Unit
- Ports are nodes in intermodal transport system
- Information systems (IS) are key in intermodal transport systems

# Transport modes

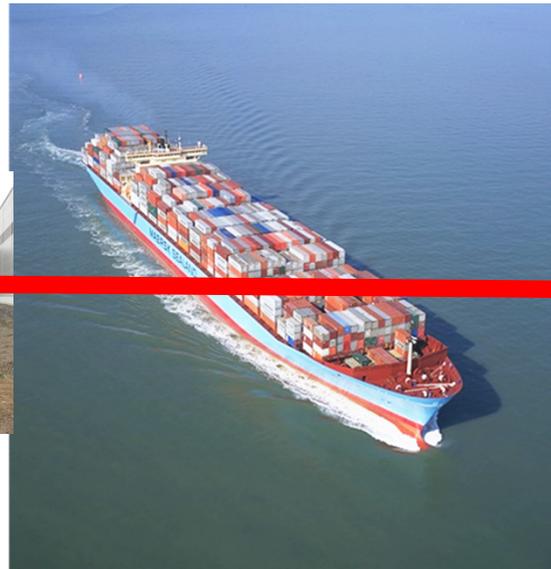
Truck



Rail



Shipping



Truck



(INLOG, 2009)

# Container discharging / loading



Photo: Halvor Schøyen

# Key issues in intermodal transport systems

- Increased demand and imbalances in freight flows
- Vertical and horizontal integration among actors seeking increased market power to:
  - Fulfil demand requirements
  - To achieve gains from economies of scale and economies of scope
- Logistics information systems and implementation challenges

(Bø, 2012; Maersk, 2006; Notteboom, 2002)

# Port service productivity and efficiency

<b>Component</b>	<b>Description</b>	<b>Internal facing</b>  <b>Do the <b>thing</b> <b>right</b></b>	
Productivity	Absolute measure Output/Input		
Efficiency	Relative measure Benchmarking		

# Port service added value

Component	Description	
Productivity	Absolute measure Output/Input	Internal facing Do the thing right
Efficiency	Relative measure Benchmarking	

**Value added**

# Creating value for who?

Creating added value for:

- Supply chain
- Port actors & partners
- Port stakeholders



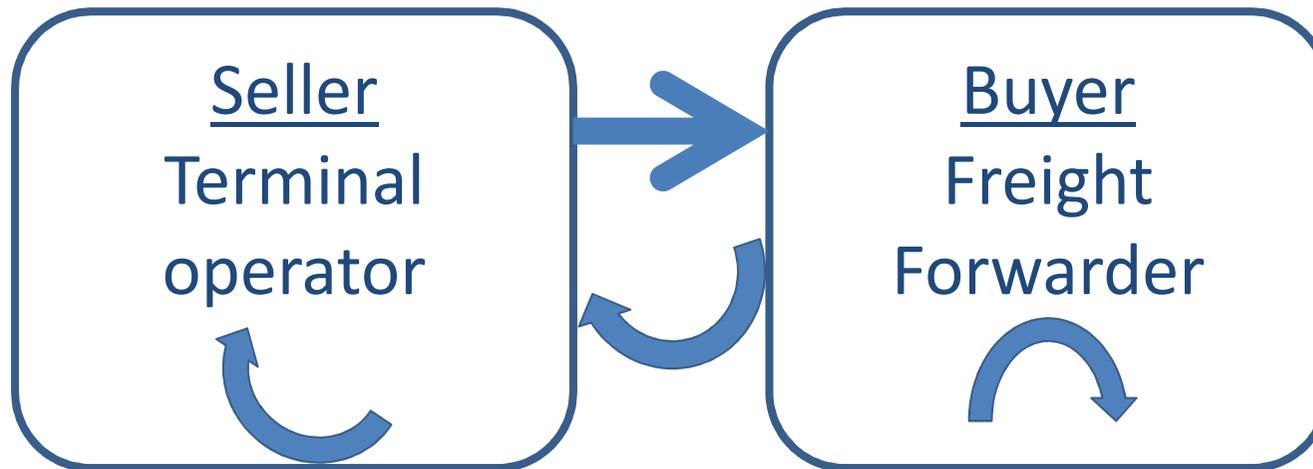
Port stakeholders:

- Neighbours & local municipality
- Port environmental matters
- Sustainable development – e.g. coastal ecology

(Alderton, 2005)

# Value is created in relationships

- Intra-firm relationships
- Inter-firm relationships



(Derived from Vitsounis and Pallis, 2012)

# Creating value: Educated labour force

## Skills needed:

- Port marketing
- Port operations
- Port logistics – 3PL
- Port engineering
- Port safety
- Port security



Photo: Øivind Berg

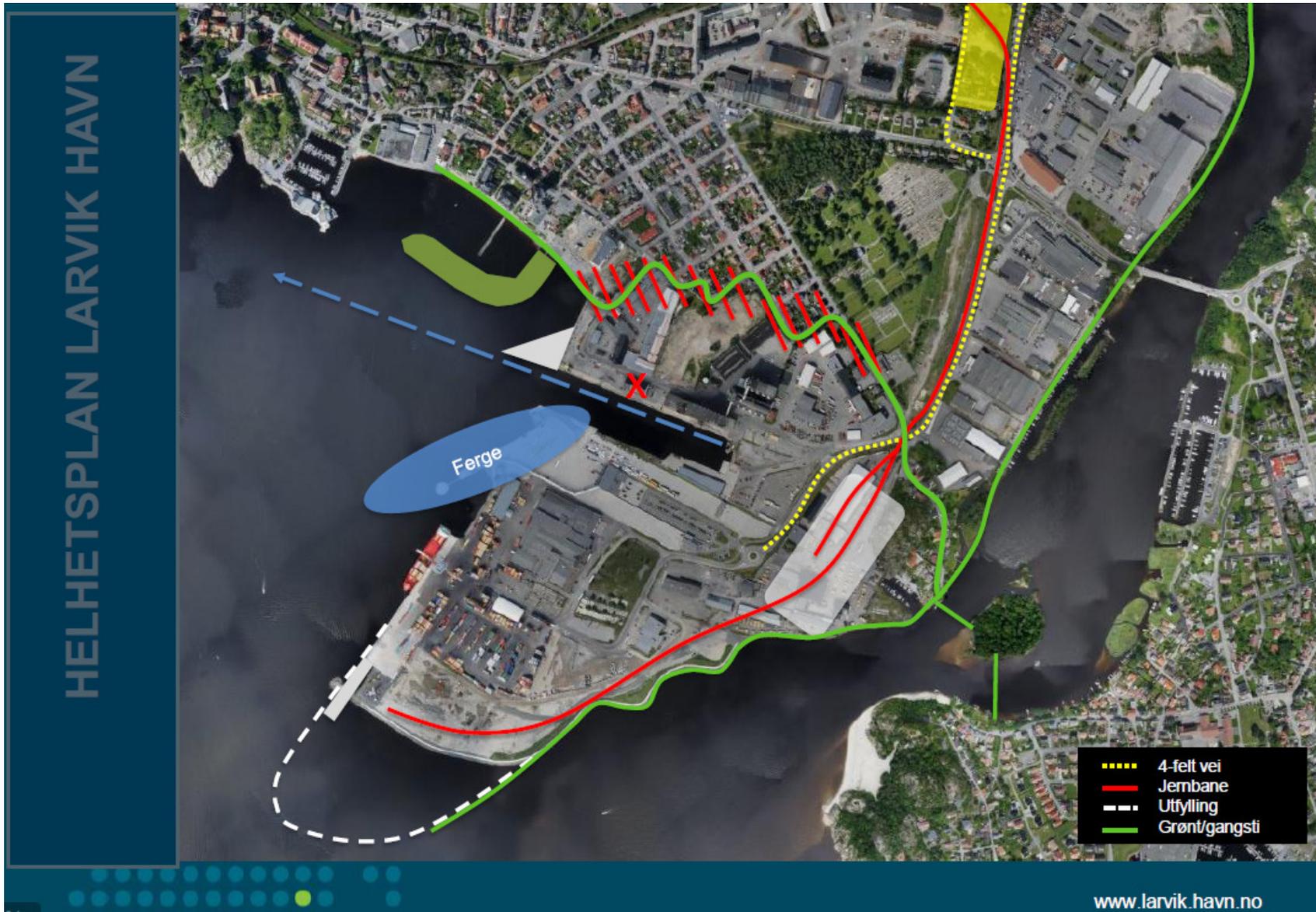
(Thai, 2012)

# Example I: Larvik container port

- A small gateway container port – and 2<sup>nd</sup> largest container port in Norway
- North Sea and Baltic container pendulum services
- Exports of granite (Larvikitt) and imports of consumer goods
- Long lasting relationships between port actors:
  - Family businesses
  - “Team Larvik”
- Port productivity: Measured as quay cranes no. of container moves per hour

Hatteland (2010)

# Rethinking Larvik's port services



# Larvik container port



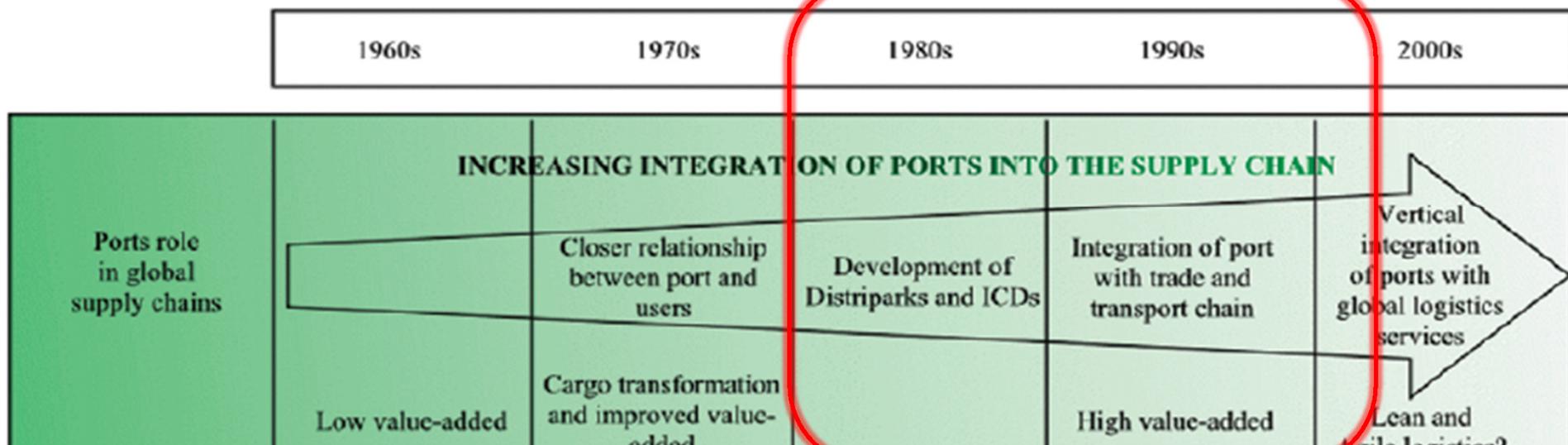
# Creating added value



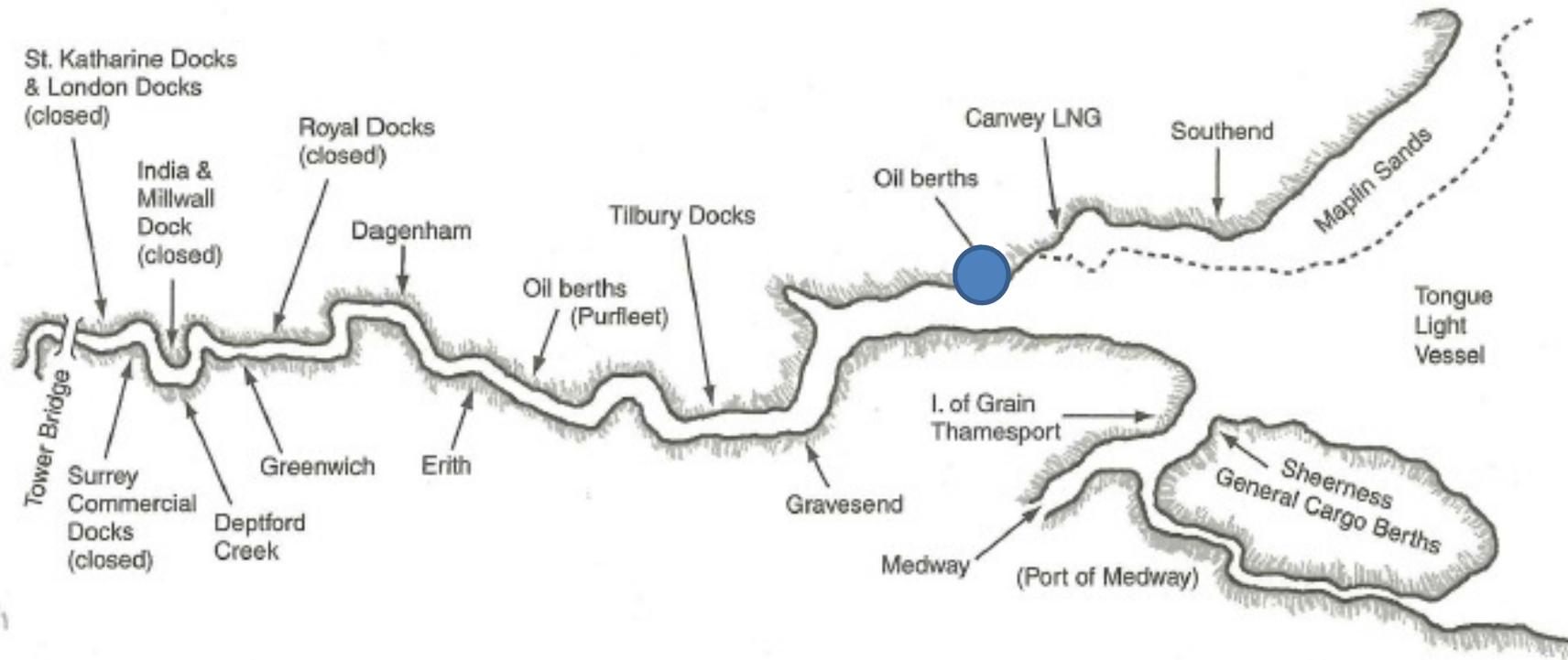
Photo: Halvor Schøyen

# Reflecting over Larvik container port services

- Value added services are developed in incremental steps:
  - Investments in port facilities and new services
  - Logistics park and rail terminal in the port area ?
- Larvik struggles to find its positing in integrated supply chains , cf. Pettit and Beresford (2009)
- Seemingly long term and strong relationships between port actors



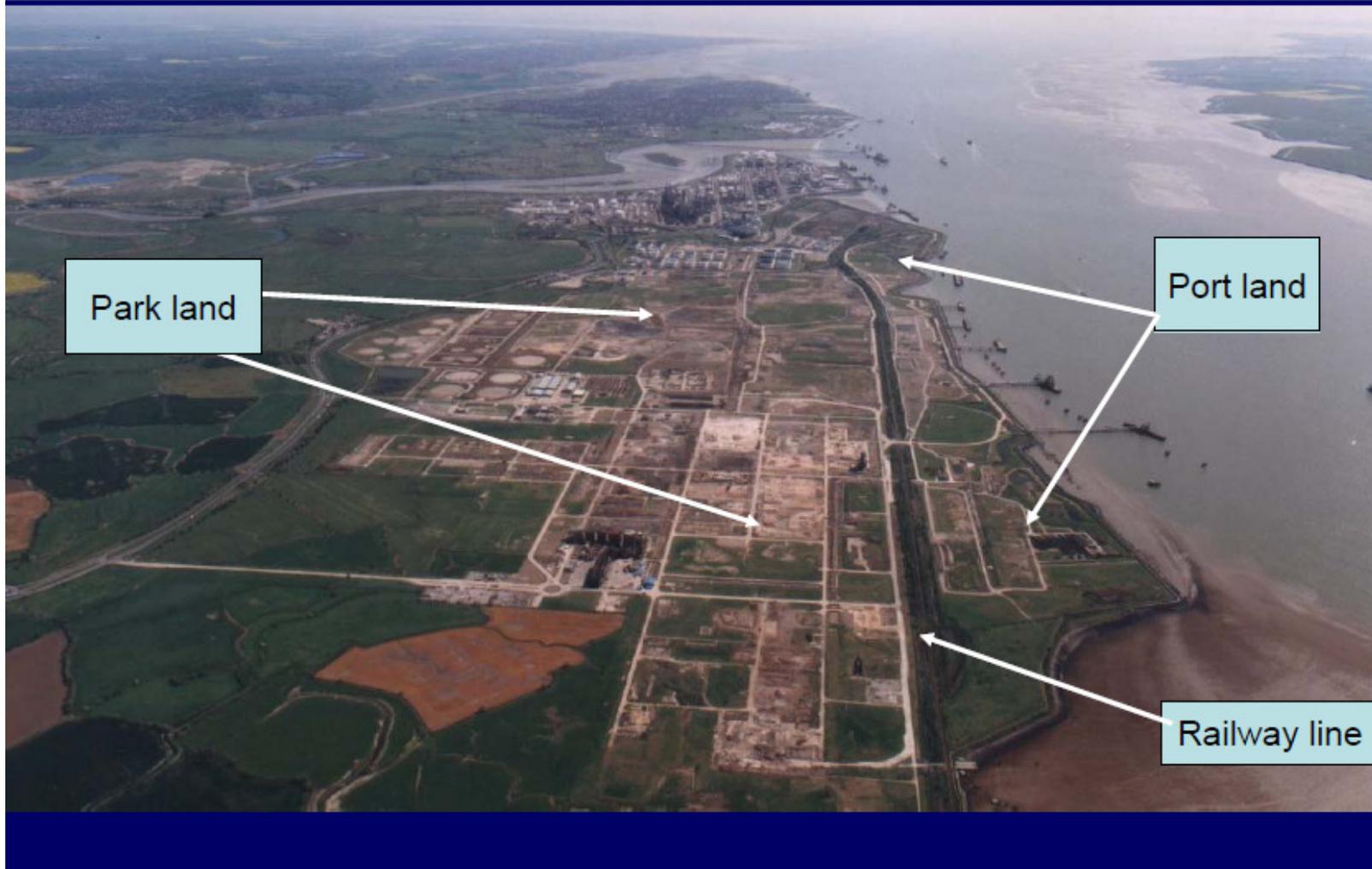
# Example II: London container port



There has always been a rethinking...

(Alderton, 2005)

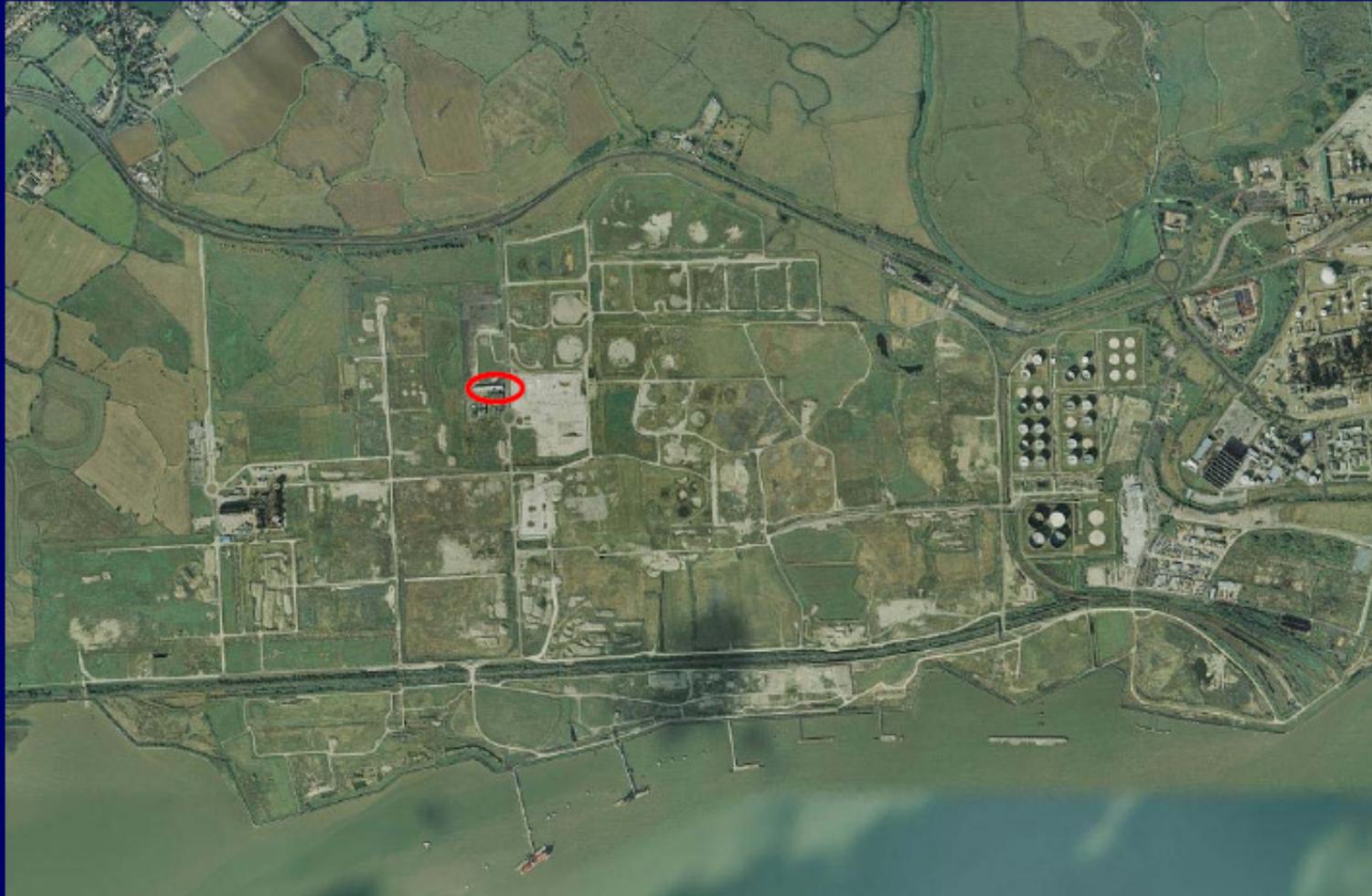
# London Gateway





DP WORLD

## London Gateway site





DP WORLD

# London Gateway



(DP World, London Gateway, 2013)

the game **changer**

# London Gateway value-adding services



- 3PL activities in logistics park adjacent to the container terminal
- Reduced trucking to service the London consumer markets - Environmental benefits
- Rail terminals in both the port and the logistics park
- Overweight containers between the port and the park allows containers to exceed UK road weight restrictions
- Feeder vessels for transporting goods to other locations around the UK, Ireland and Continental Europe



DP WORLD

To give you an idea of the size of some of the ships that will visit London Gateway...



(DP World, London Gateway, 2008, 2013)

# Economies of scale in shipping



# The population and their income

## Total Population

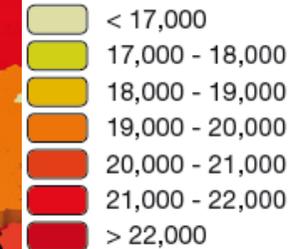
The total population of each county is indicated by its extruded vertical height.

Source: Office for National Statistics.  
Mid-2008 to Mid-2009 Population Estimates

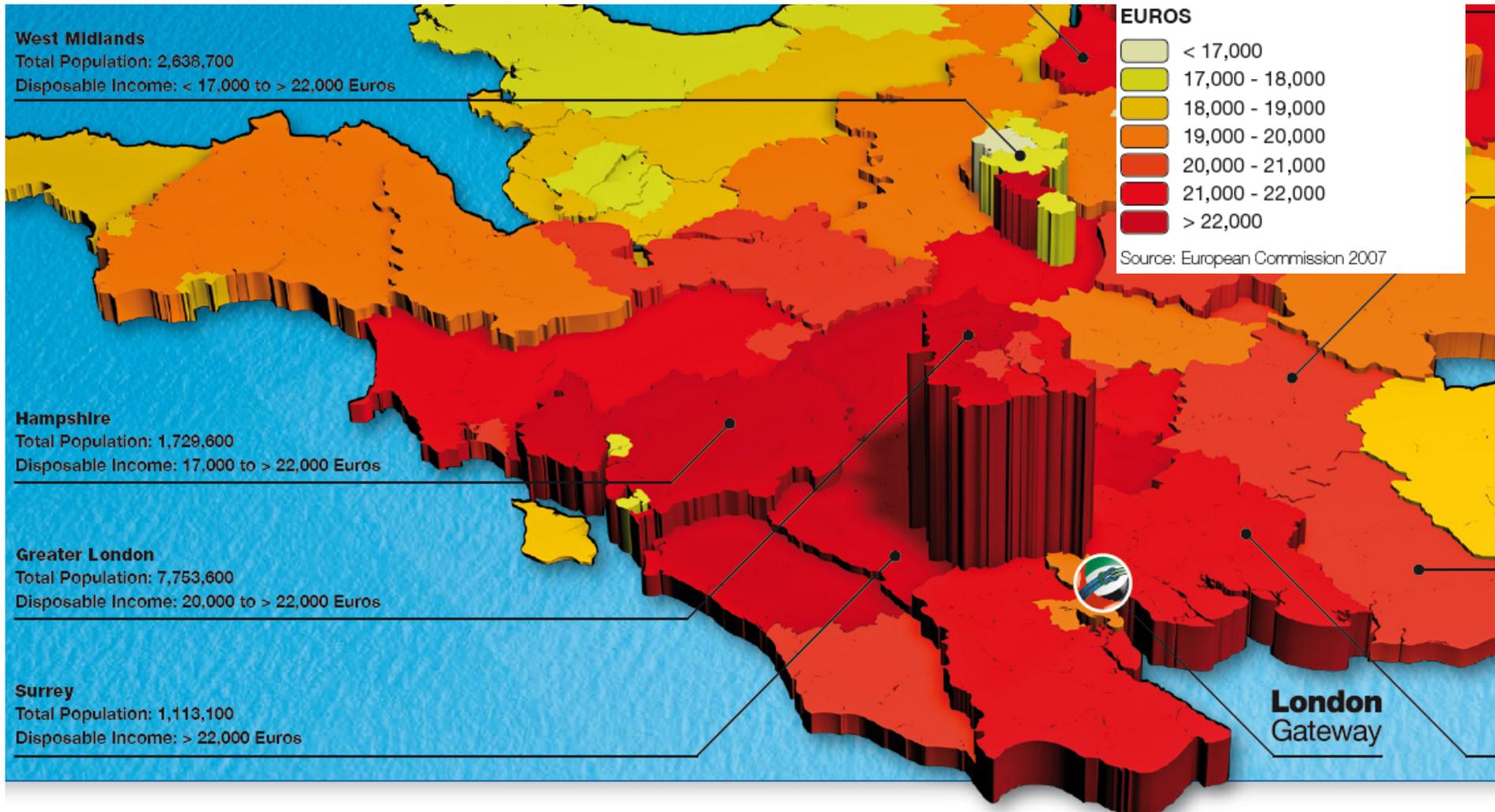
## Disposable Income

Disposable income is indicated by the following colour-coding:

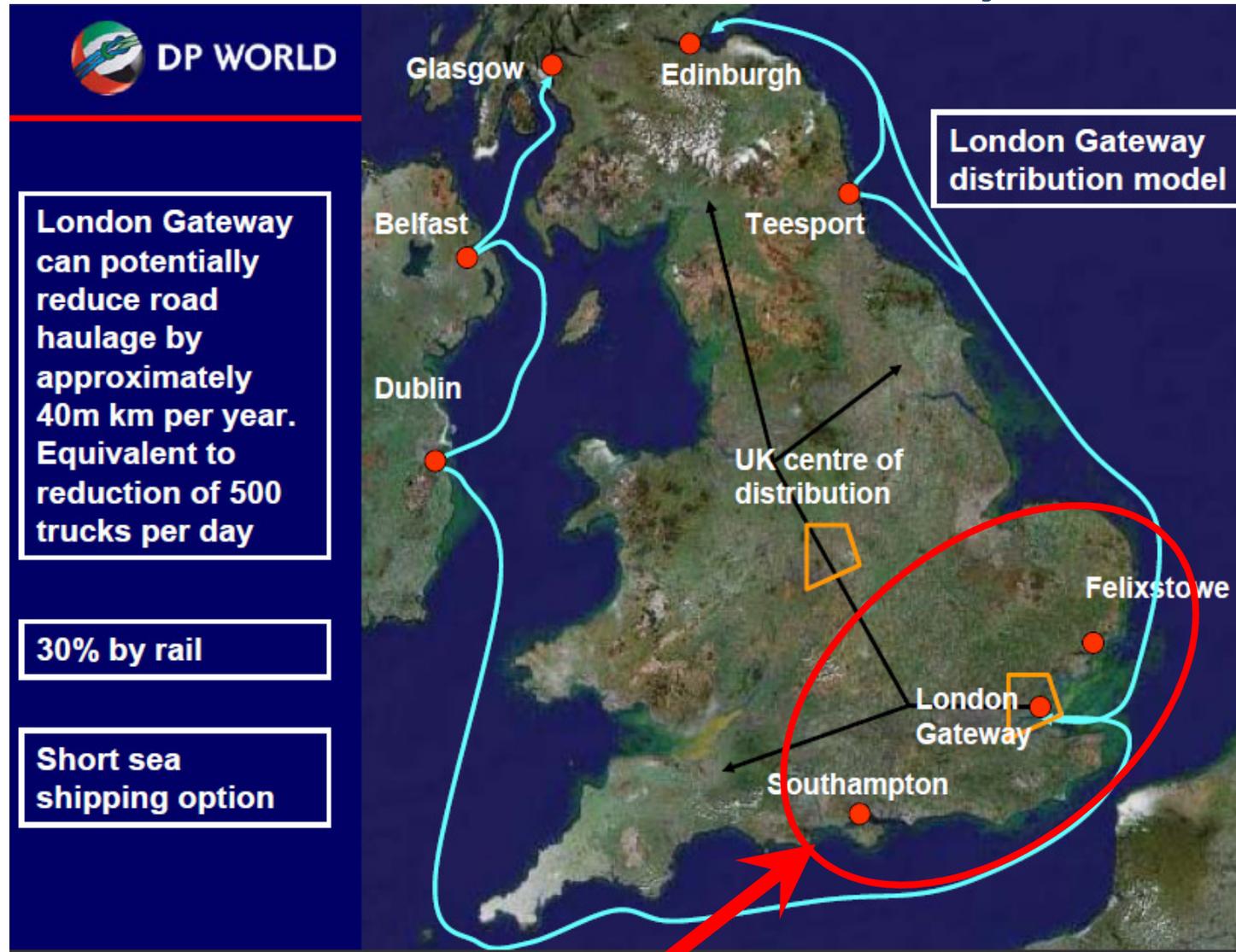
### EUROS



Source: European Commission 2007



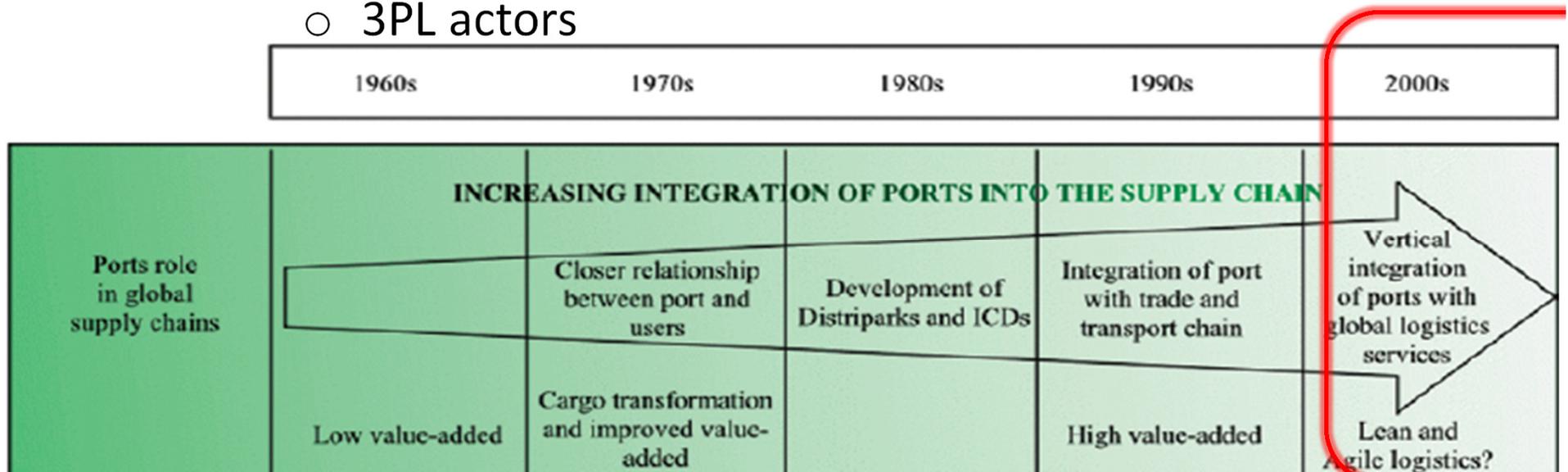
# London Gateway



(Notteboom, 2010)

# Reflecting over London Gateway

- In-balance in UK demand and supply for port services
- Port service differentiation: Logistics Park and quay cranes' productivity
- To which extent are actors willing to commit in interdependencies in order to create value?
  - Global shipping container liners
  - Global terminal operators
  - 3PL actors



# Conclusion

- Ports have to compete to be locations for logistics services
- Every port has its own natural situation and logistics hinterland, hence value-added services for one port is different to another
- Creating value lies in close relationships between actors
- Challenge to examine 'value' in relationships
- Great imbalance in power and bargaining positions in some port settings makes the development of closer relationships more difficult

Thank you for your attention!

# References

- Alderton, P. M. (2005) *Port Management and Operations*. Lloyd's Practical Shipping Guides, London.
- Barber, E. (2008) How to measure the “value” in value chains. *International Journal of Physical Distribution & Logistics Management*, 38(9), p. 685- 698.
- Bø, O. (2012) Implementation and application of Logistics Information Systems in international supply chains – challenges and effectiveness gains. *Phd-trial lecture*, Molde University College. Available at: <http://brage.bibsys.no>.
- Christopher, M. (2005) *Logistics and supply chain management: creating value-added networks*. Pearson Education, Harlow, UK.
- DP World (2008) *Presentation of DP World and key attributes of London Gateway- a new deep sea container port*. Presented by CEO Simon Moore, Key Account Manager Philip Grewock and Rail Advisor Bob Ingham. Study trip Vestfold University college 29 January, 2008.
- DP World (2013) *Homepage DP World London Gateway*, [internet] Available at: <http://www.londongateway.com> [read: 16 April, 2013].
- Hatteland, C. J. (2010) *Ports as Actors in Industrial Networks*. Dr.Oecon thesis. Norwegian School of Management (BI).
- INLOG (2009) *Introduction to logistics lecture*, Vestfold University College.
- Larvik Havn (2013) *Homepage Larvik Havn*, [internet] Available at: <http://www.londongateway.com> [read: 16 April , 2013].
- Notteboom, T. E. (2002) Consolidation and contestability in the European container handling industry. *Maritime Policy & Management*, 29(3), p. 257-269.

Notteboom, T. E. (2010) Concentration and the formation of multi-port gateway regions in the European container port system: an update. *Journal of Transport Geography*, 18(4), p. 567-583.

Paixão, A. and Marlow, P. (2003) Fourth generation ports - a question of agility? *International Journal of Physical Distribution & Logistics Management*, 33(4), p. 355-376.

Pettit, S. J. and Beresford, A. K. C. (2009) Port development: from gateways to logistics hubs. *Maritime Policy & Management*, 36(3), p. 253-267.

Robinson, R. (2002) Ports as elements in value-driven chain systems: the new paradigm. *Maritime Policy & Management*, 29(3), p. 241-255.

The Economist (2011) *Dockers' return - Quietly, a huge new port is being built close to the capital*. Available at: <http://www.economist.com/node/21541456> [read: April 19, 2013].

Thai, V. V. (2012) Competencies required by port personnel in the new era: conceptual framework and case study. *International Journal of Shipping and Transport Logistics*, 4(1), p. 49-77.

UNECE (2001) *Terminology on combined transport*. New York and Geneva, United Nations. Available at: <http://live.unece.org>.

Vitsounis, T. K., and Pallis, A. A. (2012) Port Value Chains and the Role of Interdependencies. In: Song, D.-W. and Panayides, P. M. (Eds.) *Maritime Logistics: Contemporary Issues*, p. 155 - 173. Emerald Group Publishing.

Wang, T.-F., Cullinane, K. and Song, D.-W. (2005) *Container Port Production and Economic Efficiency*. Palgrave-Macmillan, New York.