Chapter 9 Global Terminal Operators

Introduction

This is the ninth chapter in the module Logistics Management and Practice. This chapter deals with the development of global terminal operators.

The aim of this lecture is to

- Define global terminal operators and private global transport systems
- Describe development of global terminal operators, and their contribution to the development of private global transport systems.
- Discuss alternative integration strategies for global terminal operators, liner shipping companies and logistics service providers.

The structure of this chapter is as follows.

First, the development of globalization and the impact on the power distribution in the transport industry will be discussed. This is followed by an overview of port competition. Thirdly, the development of global terminal operators is described and illustrated. Finally, an important potential development of private global transport networks is introduced.

Globalisation and shifting powers

![Graph showing globalization impact on transport and logistics](image)

Figure 1: globalization impact on transport and logistics

In a previous lecture, this graph by Christopher (1998) was introduced. It shows the logistic effects of globalisation of business: longer transport and more transport costs, less production costs, and so on. This picture does also show that there is a favourable
balance between saving on production costs and spending a bit more on transportation costs. As a result of this developments, internationalisation of business operations has become a dominant feature in recent years.

International transport, and the reliance on an international distributed network of business processes creates great challenges: longer lead times, more unreliability, more choices and less security. These challenges need to be mitigates, either by businesses themselves, or through the partners they work with. More specifically, these challenges are:

- Extended lead times of supply
- Extended and unreliable transit times
- Multiple consolidation options
- Multiple freight mode and cost options
- Multi communications options
- Safe and secure transport

Solutions to implement global logistics are:

- Structure and control: central and decentralised decisionmaking
- Customer service management (local tastes and global guidelines)
- Out-sourcing and partnerships
- Logistics information (information management)

More in particular, the solutions are to be found in the above list. More structure and control of processes will create a balance between centralised and decentralised decisionmaking, as well as more insight in what is going on. Improved service management will bring the business closer to the customer, and that will create more awareness of local differences between customers. Outsourcing and partnerships is another solution to maintain control over an increasingly complex network of business activities. Finally, logistics information management, such as planning, tracking and tracing, and the use of all kinds of electronic devices will help automate many repeated actions.

Developments in International transport that can be recognised are:

- International (de-)regulation
- Consolidation of cargo
- Service quality monitoring
- Partnering and alliances: shifts in bargaining power
Improving documentation and information flows

There are consequences of these processes, however. These are stated here. (Many of these consequences also trigger new solutions, so it is difficult to establish the exact causal relationship.)

Businesses that operate in an international environment are confronted with international regulation, and also with (relative) changes in international regulation. Sometimes these are triggered by their own actions, and sometimes, they are just imposed. Given that more markets need to be reached, but costs have to be saved at the same time, many logistics operations are strongly based on consolidation of loads for long stretches. Another important development is that with increased internationalisation and partnering with local players, but also as a result of outsourcing, service quality monitoring is becoming more and more an issue. Partnerships become more open and transparent, and quality performance accordingly to a mutually agreed standard is becoming the norm. A further result is that as a result of partnerships and alliances, bargaining positions of parties are shifting. Due to an alliance with other large parties, a company’s bargaining position may be favorable improved, but on the other hand, a supplier of this company may also have joined a partnership and improve its own bargaining position. Finally, due to increasing complexities in the arrangements of transport and trade, but also due to increased harmonisation, documentation and information flows are constant at the attention of internationally operating enterprises.

**Containerisation**

A very dominant factor in the development of globalisation for the transport and logistics community is the development of containerisation. This will be discussed in detail in the next module, but some advance remarks follow here.

The developments in world trade have already been mentioned. What was not discussed yet, is that trade is also largely facilitated as a result of a great unitisation effort: containerisation. The container facilitates handling of cargo in port, and thus improves port productivity enourmously compared to break bulk handling. Furthermore, the container also facilitates interchange of cargo between different modes, resulting in efficient network connections.

Containerisation does require specialised parties, equipment, assets and infrastructure. The result of this is increased capital intensity of international transport.

Containerization of world trade:

- **Focused manufacturing** → scale and cost advantages
- **Expanded logistic reach** → more market/customers
- **Increased sourcing alternatives** → more markets/vendors

Container transport has become a global business. The emergence of global terminal operators is illustrated by the development of their market share from 26% in 1999 to
40% in 2003. Similarly, global logistics service providers have emerged such as Kuhne & Nagel, Danzas and DHL.

As a result of the capital intensity and the specialised nature of container transport, specialised parties have emerged that transport and handle these containers. First there were the shipping companies, who invested in special ships to carry containers, and later came the specialised stevedores who invested in special equipment. This development runs parallel with the development of global logistics service providers, global forwarders and global integrators.

The development towards global terminal operators will be discussed in a bit more detail.

While terminals have been specially equipped to handle containers for decades, they were not part of global terminal networks until several years ago. This development was preceded by a wave of privatisation processes in ports.

Originally, most port facilities, especially in non-Western countries were owned or controlled by governments, municipalities and other public parties. At some point at the end of the nineteen eighties, these parties were no longer able to keep up with the developments in international business and the growing demand for their facilities. To raise investments and professionalize operations, many of these public terminals were offered to private parties to improve and operate them. A few of these investors specifically targeted port terminal investments: P&O Ports Australia, AP Moller terminals, and so on.

As a result, in some parts of the world, a number of strategically important terminals came into a the hands of a few players only. The liner shipping industry reacted almost at the same time with a wave of mergers and alliance formation.
Port competition

This section establishes in a bit more detail to strategic position of terminal operators in the context of the part they are located in. It will deal with the development of global terminal operators, and the way these global terminal operators will play an important role in the future of international transport and logistics. The lecture will first address some relevant developments in globalisation of business and the resulting shift in relationships between players. That is followed by a section that zooms in on the consequences for ports. A third section introduces the global terminal operator and gives some background on the companies that fulfill this role. Finally, the lecture poses a question for further discussion: are global terminal operators, or other parties, for that matter, aiming to develop full global networks?

Assessing Port Competition

The competitiveness of ports is determined by these four features.

Transport options:
- technical capabilities of the ports, available inland connections, overall transport system costs

Operational performance:
- Berth occupancy, ship waiting time and berth utilization ratio assess the supply/demand balance

Tariff comparisons
- with historical rates, with rates at other ports in the same country and with theoretical rates based on “model port” costs.

Financial performance:
- financial profit should not be “abnormally” high. Return on equity and return on assets relate it to investment.

Furthermore, these factors play an important role in the success of a port as a transport node.

Vessel access

Sufficient depth, approach channels and berth access

Terminal capacity

Extend of terminal facilities efficiency of container handling operations, attractive cargo-handling rates

Availability of frequent feeder services
Port-inland connections:

Truck, Barge and Rail

This figure illustrated the various factors that determine the interest of stakeholders for the case of the port of Rotterdam.

![Figure 3: port stakeholder overview](image)

Container terminals operate in this context. They are always confronted with the balance between their own interests and the interest of the port as a whole. At the same time, terminals face some of their own problems as well. These are listed here.

Problems terminals face:
- Increasing competition (Price and Service)
- Capacity adjustment to seasonal demands
- Lower income from Terminal Services Charges
- Growing environmental concerns:
  - noise, pollution, regulations
- Safety concerns:
  - IMO, Stowaway’s, Safe Trade, C-TPAT

Terminal operations (1): Outsourcing or …?

The key characteristics of a global terminal operator:
- Terminal operation is the prime focus of their business.
- Terminals are run as profit centers.
- Greater efficiency is gained by implementing common systems across the terminal network to improve productivity.
• Extensive networks spread investment risk.

On the other hand, the key characteristics of a global carrier’s terminal operation:

• Container shipping is prime focus of business.
• Terminals are often run as cost centers.
• Greater efficiency is gained by integrating the terminal with the wider service network.
• Extensive networks supports the shipping activities / strategy.

This list gives an overview of the characteristics of the global terminal operators and of global carriers. Both of these parties currently engage in the operation of container terminals, also clearly their focus is different. This overview gives the evaluation of outsourcing terminal operations against developing in-house terminal management capabilities. An example of the first is Hapag Lloyd and of the second Maersk SeaLand.

So the alternative could be running your own terminal?

**Strategic reasons**

Insurance access to a market and controlling access to a market by excluding other’s access by controlling terminal capacity.

**Economic reasons**

Control an increasingly important component of container shipping costs.

**Operational reasons**

Enhancing control over service delivery and equipment control.

These are the reasons for developing in-house terminal management capabilities from a transport operator’s perspective. If this choice is made depends obviously on the importance that is attached to these strategic, economic and operational reasons.

**Development of global terminal operators**

This lecture will deal with the development of global terminal operators, and the way these global terminal operators will play an important role in the future of international transport and logistics. The lecture will first address some relevant developments in globalisation of business and the resulting shift in relationships between players. That is followed by a section that zooms in on the consequences for ports. A third section introduces the global terminal operator and gives some background on the companies that fulfill this role. Finally, the lecture poses a question for further discussion: are global terminal operators, or other parties, for that matter, aiming to develop full global networks?
This list are the companies that currently engage in specialised terminal management (on the left) and on terminal management in the context of a liner shipping operation (on the right). The global terminal operators are ranked more or less by size. Hutchinson Port Holdings, for instance operates 36 terminals worldwide.

<table>
<thead>
<tr>
<th>Independent Terminal operators</th>
<th>Carrier Terminal operators</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hutchison Port Holdings; Hong Kong</td>
<td>• Maersk; Copenhagen</td>
</tr>
<tr>
<td>• PSA Corp.; Singapore</td>
<td>• APL; Singapore</td>
</tr>
<tr>
<td>• P&amp;O Ports; Sydney</td>
<td>• Evergreen; Taipei</td>
</tr>
<tr>
<td>• Eurogate; Bremen</td>
<td>• Hanjin; Seoul</td>
</tr>
<tr>
<td>• SSA; Seattle</td>
<td>• P&amp;O Nedlloyd; Rotterdam</td>
</tr>
<tr>
<td>• CSS World Terminals; Charlotte</td>
<td>• NYK; Tokyo</td>
</tr>
<tr>
<td>• Dubai Ports Authority; Dubai</td>
<td>• MSC; Geneva</td>
</tr>
<tr>
<td>• ICTSI; Manilla</td>
<td>• OOCl; Hong Kong</td>
</tr>
<tr>
<td>• HHLA; Hamburg</td>
<td></td>
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</tbody>
</table>

**Figure 4: GTO development**
The figure illustrates the development of Hutchinson from a local terminal operator to the company that it is now. The picture shows a steady expansion on the basis of the identification of prime locations all around the world.

This table contains an indication of the volumes of containers handled by the global terminal operators.

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hutchison</td>
<td>12.1</td>
<td>32.0</td>
<td>19</td>
<td>26.8</td>
<td>25.3</td>
</tr>
<tr>
<td>PSA Corporation</td>
<td>9.3</td>
<td>24.6</td>
<td>29</td>
<td>19.1</td>
<td>19.7</td>
</tr>
<tr>
<td>APM Terminals</td>
<td>6.7</td>
<td>17.5</td>
<td>16</td>
<td>15.3</td>
<td>13.3</td>
</tr>
<tr>
<td>P&amp;O Ports</td>
<td>4.5</td>
<td>11.8</td>
<td>20</td>
<td>9.8</td>
<td>8.3</td>
</tr>
<tr>
<td>Eurogate</td>
<td>3.6</td>
<td>9.5</td>
<td>11</td>
<td>8.6</td>
<td>7.7</td>
</tr>
<tr>
<td>Total top 5</td>
<td>36.1</td>
<td>95.4</td>
<td>20</td>
<td>79.6</td>
<td>74.2</td>
</tr>
<tr>
<td>Global volume</td>
<td>100.0</td>
<td>265.0</td>
<td>8</td>
<td>243.7</td>
<td>233.5</td>
</tr>
</tbody>
</table>

Source: Dynamar
Figures in italics are provisional / estimates.
All figures are in million TEU.

**Figure 5: GTO particulars**

**Question:** what could be the reason they grow faster than global container volume?

Below is another figure that illustrates the market concentration of the global terminal operators. In a relatively short period of time, some of the larger operators have managed to handle a sizable chunk of container traffic.

**Figure 6: main parties involved**
**Question:** to what extent is this market concentration a problem? Do you think container terminals have developed great bargaining power towards liner operators?

**Global container operators: Who are the main parties involved?**

Hutchison Port Holdings

Launched its global expansion in 1991, utilizing the experience and capabilities it developed operating container terminals in Hong Kong. It now operates container terminals in more than 17 ports and handles more than 32 million TEU annually.

AP Moller Terminals

Now manages 32 terminals worldwide and is involved in 36 other terminals, most of which conveyed with the acquisition of Sealand. Algeciras is generally seen as the prototype of a modern APM terminal that has been designed to play the role of a global or at least a regional hub. One of the company’s most impressive investments has been the new transshipment terminal in Salalah which is a joint venture with the government of Oman.

P&O Ports

Based in London, manages more than 20 ports worldwide and handles about 6 million TEU annually. The company recently acquired International Terminal Operating Company, giving it an extensive terminal operating presence on the US Atlantic and Gulf coasts.

PSA Corporation

In the mid-1990s embarked on a major effort to develop international presence in Port operations, utilizing its experience in Singapore. PSA now operates terminals in Singapore, Yemen, Portugal, China, Italy, India and Brunei. In 2002 PSA handled 24.6 million TEU, 7 million of which was from foreign ventures. The Corporation’s mission statement explicitly mentions that PSA over the next ten years aim to operate a string of ports overseas, handling some 10 million TEU and managing up to a third of its port, logistics and related business overseas.

**Market share analysis**

In order to determine how concentrated the industry is i.e. whether the number of suppliers is restricted, the Herfindahl index can be used. The index that ranges between 0 and 1 is a useful indicator of fewness. The larger the H-Index the fewer the number of companies supplying the industry. A value of 1 represents a monopolistic situation with a supplier having 100% market share. The outcome of the Herfindahl index depends on:

1. The number of suppliers and
2. Their individual market shares
Question: Calculate the concentration rate of the top 5 global operators. How many equal size companies are needed to reach the same concentration?

**Private global transport systems**

The **Big Question** is: Will global terminal operators, liner operators or another party eventually develop complete global transport networks?

The above discussion has shown that there are two broad strategies towards terminal management: specialised, and connected to a liner shipping business. Even companies that do both activities, however, at this stage spend little time in obtaining the synergies from integrated operations of ships and terminals. The question addresses the direction into which the companies involved will develop.

Arguments on the one hand are that companies have established their strategies, and all the good terminal locations are taken. Therefore few liner companies will expand into terminals more than they are doing now. They will probably put their focus on further integration and optimization in the operational area.

Arguments on the other hand are that globalisation will continue and charterers are less and less interested in transport and logistics issues, and more and more in optimising their global supply chains. This means that they will increasingly see transport of containers as a commodity business, where they do not want to make choices and decisions anymore. This calls for parties that offer complete worldwide networks. Parties that already control all the assets involved are then best positioned to develop such a role.

\[
H = \sum_{i=1}^{N} s_i^2 = s_1^2 + s_2^2 + \ldots + s_N^2
\]

*Figure 7: the herfindahl index formula*