

**THE LINER SHIPPING INDUSTRY
STRATEGIES FOR SURVIVAL**

by

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ABSTRACT

Liner shippers maintain regular services between specified ports according to schedules advertised well in advance. This industry has always been regulated by "conferences" which are cooperative arrangements for economic oligopoly. The U.S. Congress passed the Shipping Act of 1984 which affected the traditional function and role of liner conferences particularly those that trade in the U.S. The bill permits competitive ocean freight rates and services. In spite of the new regulation, carriers have reached new rate agreements in their main routes. Carriers involved in rate agreements have 85% market share in Atlantic and Pacific trades.

Traditionally, unless there is a competitive challenge from outside by the introduction of a "revolutionary" new technology, which would menace the very survival of conference carriers such as they experienced marine containerization first appeared, they are rarely motivated to invest in any such revolutionary technology, which would cancel the competitive strengths of their existing fleets.

There are two technological factors that are currently reshaping the industry: intermodalism and information systems. This thesis examines how shipping companies are reacting to these new technologies. I analyzed six top companies in the world market: Sea-Land and American President Companies, from the U.S, Nippon Yusen Kaisha from Japan, Evergreen Marine from Taiwan, Maersk Line from Denmark, and Hapag-Lloyd from Germany. This thesis highlights the relevant role of conferences and rate agreements among companies. This thesis also analyzes the partnerships involving shipping companies, highlighting the limited scope of these partnerships.

Thesis Supervisor: N. Venkatraman
Title: Associate Professor of Management

To Alicia

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INTRODUCTION

Over the last thirty years the shipping industry has seen the emergence of the container-liner as the dominant mode of transportation for global trade. Container-liner service consists of ships operated on regular schedules and routes to transport the standard 20ft.(twenty-foot equivalent unit 'TEU') and 40ft. cargo containers (forty-foot equivalent unit 'FEU'). A multitude of companies with varying services and strategies serve this burgeoning trade market, which is characterized by intense capital investment, increasing competition, and backbreaking cyclicity. This thesis examines the competitive strategies espoused by the main companies in the industry, in the context of the machinations of the industry and trends in the global economy. These evolving strategies have at times converged and at other times diverged. The motivation for changes in strategy, their specifics, and how each company benefited (or suffered) are described within five main categories. These are:

- 1) Geographic Emphasis and Target Markets
- 2) Government Regulation and Conference/Cartel Effects
- 3) Capital Investment, and Financing
- 4) Reorganization and Financial Performance
- 5) Value-Added Services: Intermodal, Logistical, and Information Systems

Finally, an evaluation is made about the future, based on current strategies and industry conditions.

I have chosen as the center for analyzing the whole industry the United States of America, which is by far, the country where international trade and therefore the shipping industry is most relevant.

To do a through analysis of the industry I studied six different companies, two from the U.S.: **Sea-Land Service** and **American President Lines (APL)**, two from Asia: **Nippon Yusen Kaisha (NYK)** (Japan), and **Evergreen** (Taiwan), and two from Europe:

Maersk (Denmark) and **Hapag Lloyd** (Germany). These companies are the main competitors and their strategies are shaping the future of the Liner Shipping Industry.

CHAPTER 1

INTERNATIONAL TRADE AND SHIPPING

INTERNATIONAL TRADE

The pattern of seaborne trade and shipping is determined by a multitude of factors, economic, geographic and political. Nations trade in order to increase their wealth. The role of international transport is to bridge the spatial separation of trading countries. Shipping is by far the most important mode of transportation of international trade. In terms of weight something like 90% of all international trade move by sea. In terms of money, the proportion is smaller but relevant.

Asia, USA, and Europe are the world's busiest trade lanes. Growth in demand for containerized shipping is closely correlated to the GDP growth of the markets. U.S. imports and exports in 1991 were \$509 bn and \$422.2 bn respectively¹. The US waterborne imports and exports in the same year were \$268.1 bn and \$160.4 bn respectively². From that data, we get that 53% of imports and 38 % of American exports are moved by sea.

These figures are worldwide trade. It is important disclose them between the most important trade routes. Seventy-seven per cent of international trade in 1991 is made

¹ International Monetary Fund, *International Financial Statistics Yearbook 1992*

² The Journal of Commerce, *Shipping Review & Outlook, January 11, 1993*. In that issue of the Journal of Commerce, the figures for January through September 1991 are 201.1 for waterborne imports and 120.3 for waterborne imports. To compare I multiplied for 4/3. This is not accurate but useful for comparison.

among 21 countries, three in North America, the EC countries, and six in Asia. (See Table 1.1).

Table 1.1

International Trade, \$bn 1991

	<u>Exports</u>	<u>Imports</u>
World	3441.7	3549.4
North America	576.6	663.8
EC	1370.5	1455.1
East Asia	<u>690.9</u>	<u>610.8</u>
Total	2638.0	2729.7
% of World trade	77%	77%

Source: International Monetary Fund, *International Financial Statistics Yearbook 1992*

Although in term of dollars the amount of goods moved by sea is less than 50%, it is important to determine the amount moved among the main trade routes and what is its value. Next table 1.2 shows some important data. Japan is the most important exporter to United States while the European Community is the most important importer in terms of dollars. Seventy-six per cent of the Japanese exports to United States and 28 % of U.S. exports to rest of the world are moved by sea. That figure is so small because small quantities, large distances and above all a bad service of shipping transportation. Japan's percentage is high in spite of the sophisticated goods and tough time requirements. That fact is due to a good developed marine transportation service. The most important shipping companies call in Japanese ports. Therefore the service is so good that air transportation service is only competitive for some perishable, small packages, express mail or very high valued goods.

Table 1.2

US Waterborne International Trade, 1991, \$bn

	<u>Waterborne exports</u>	<u>Waterborne imports</u>	<u>Total exports</u>	<u>Total imports</u>	<u>Waterborne exports %</u>	<u>Total imports %</u>
Japan	29.1	72.0	48.1	95.0	60%	76%
East Asia	30.3	56.4	51.9	82.1	58%	69%
EC	40.5	44.4	102.2	89.1	40%	50%
Rest of the World	60.5	95.3	220.0	242.8	28%	39%

Source: International Monetary Fund, *International Financial Statistics Yearbook 1992* and The Journal of Commerce, *Shipping Review & Outlook*, January 11, 1993

Polarization of World Trade

The recent trend is the polarization of world trade. There are three different poles, North America, European Community and the named Pacific Rim. As Europe and North America move toward regional trading blocks, Asian nations are beginning to look at a similar move. These poles represent, as I described before, seventy-seven per cent of the world trade. This percentage is increasing. Next table (Table 1.3) shows the trade within the regions was 40% in 1980 and increased to 48.2% in 1990. It was also an increasing among the poles in the same period of time.

Table 1.3

The Tripolarization of World Trade

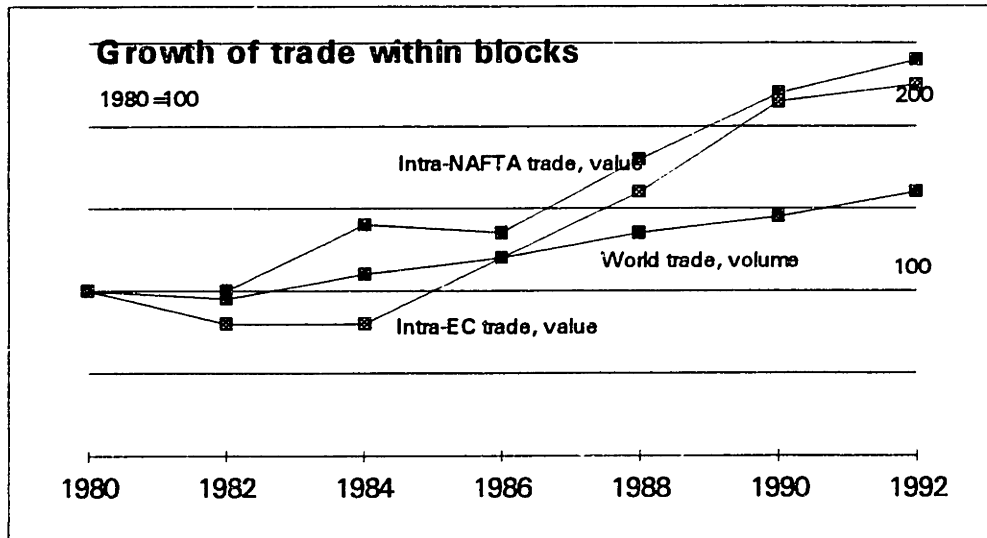
Percentage of world imports of goods

	<u>1980</u>	<u>1990</u>
I. Within the Tree Poles		
OECD Europe	28.0	33.2
North America	5.9	6.5
East Asia	6.1	9.5
Subtotal (within)	40.0	48.2
II. Among the Three Poles		
Europe-North America	7.7	8.0
East Asia-North America	7.1	10.5
Europe-East Asia	4.6	8.8
Subtotal (among)	19.4	26.5
III. All other	40.6	25.3

Source: Ernest H. Preeg, *The U.S. Leadership Role in World Trade: Past, Present, and Future*. The Washington Quarterly, Spring 1992

This trend, so bad for the rest of the world outside those regions, is even increasing. Figure 1.1 shows the growth of trade within blocks. Since January 1, the intra-EC trade will show a stronger growth. Once the European countries recover from the recession the growth of trade between countries would be bigger than last rate of growth.

Figure 1.1



Source: The Economist Publications, *The World in 1993*

Table 1.4 shows the trade flows within regions. It is possible to see the large figures that represent the trade within and among the three poles. Also it is important to notice that these trends may affect negatively to the shipping industry. The growing intra-EC trade, in spite of being coastal countries, would be the cause of development of land transportation. Nevertheless, congested highways and very fragmented railroad industry in Europe benefit to the shipping industry. Given that facts, the most important shipping companies are doing movements to develop the short-sea routes within the European countries.

Table 1.4

World Trade Flows, 1989 \$bn

	from\to	NA	EC	A	RW	Total
North America	NA	165	95	125	95	480
European Community	EC	95	660	80	255	1090
Asia/Pacific	A	210	120	300	70	700
Rest of World	RW	115	265	70	400	850
	Total	585	1140	575	820	3120

Source: The Economist, *Trade made the ship to go*, January 11, 1992

LINER SHIPPING

A classification of the shipping industry is appropriately made from the demand-side. Apart from the geographical division of the total demand for sea transport, differences in the inherent characteristics of goods in seaborne trade, differences in the packages of goods, and differences in the preferred size of shipments, are all important causes of the existing differentiation of the supply of shipping services. The simplest way to classify the shipping industry from the demand side is to set a division of the total market for sea transportation between, a) markets for sea transportation of *less-than full shiploads*, and b) markets for sea transportation of *full shiploads*. Shippers of less-than-full shiploads are primarily served by shipping lines maintaining regular services between specified ports according to schedules advertised well in advance - in short, by *liner shipping*. Shippers of full shiploads rely on the ship charter market. They can either enter a long-term charter agreement or they may enter a single-voyage charter agreement, and make use of the spot charter market. The name of this activity is *bulk shipping*.

The main difference between both kinds of activity is the cargo. Liners include packaged goods, containerized or palletized, or another kind of goods in an unpacked

shape as cars or logs. Bulk shipping includes oil products in tankers, gas, dry bulk and minerals.

This thesis deals with the Liner Shipping Industry, by far the most important way to move goods among the developed countries. Before the 60s, ships dedicated as liners were conventional and flexible to load different kinds of general cargo. The beginning of containerization was a revolution for the shipping industry. This revolution set a new way to compete. In fact containerized shipping is a new industry. Shipping companies that didn't adopt the new technology disappeared.

The Liner Shipping Industry conforms to the definition of industry: "An industry can be defined as a group of firms offering products or services which are close substitutes of each other."³ Products offered by companies that adopt the container technology haven't close substitutes. After the container revolution, companies that didn't adopt the new technology couldn't compete anymore in liner shipping. Containerization not only represented a complete departure from the traditional concept of liner transport, but would ensure an insurmountable competitive edge over conventional liner service and, consequently, a solid position in the market. Only the best companies were able to maintain their trades by adopting quickly the new technology.

³ Hax, A.C. and Majluf, N.S., *"The Strategic Concept & Process. A Pragmatic Approach"*, Prentice Hall 1991

CHAPTER 2

INDUSTRY STRUCTURE

The containerized liner shipping industry is following a traditional life cycle. (See Figure 2.1). The beginning of containerization happened in 1956. **Sea-Land**, led by its capricious founder John Mc Lean, was the first to devise the concept of container shipping in 1956 by loading trailers to the deck of its freighters on runs from New Jersey to Texas. He realized that he would save money doing that. He reduced the operations both in loading and unloading. It is easily understood that the road transportation in the 1950's was difficult and sea transportation was very competitive.

DEVELOPMENT OF CONTAINERIZATION

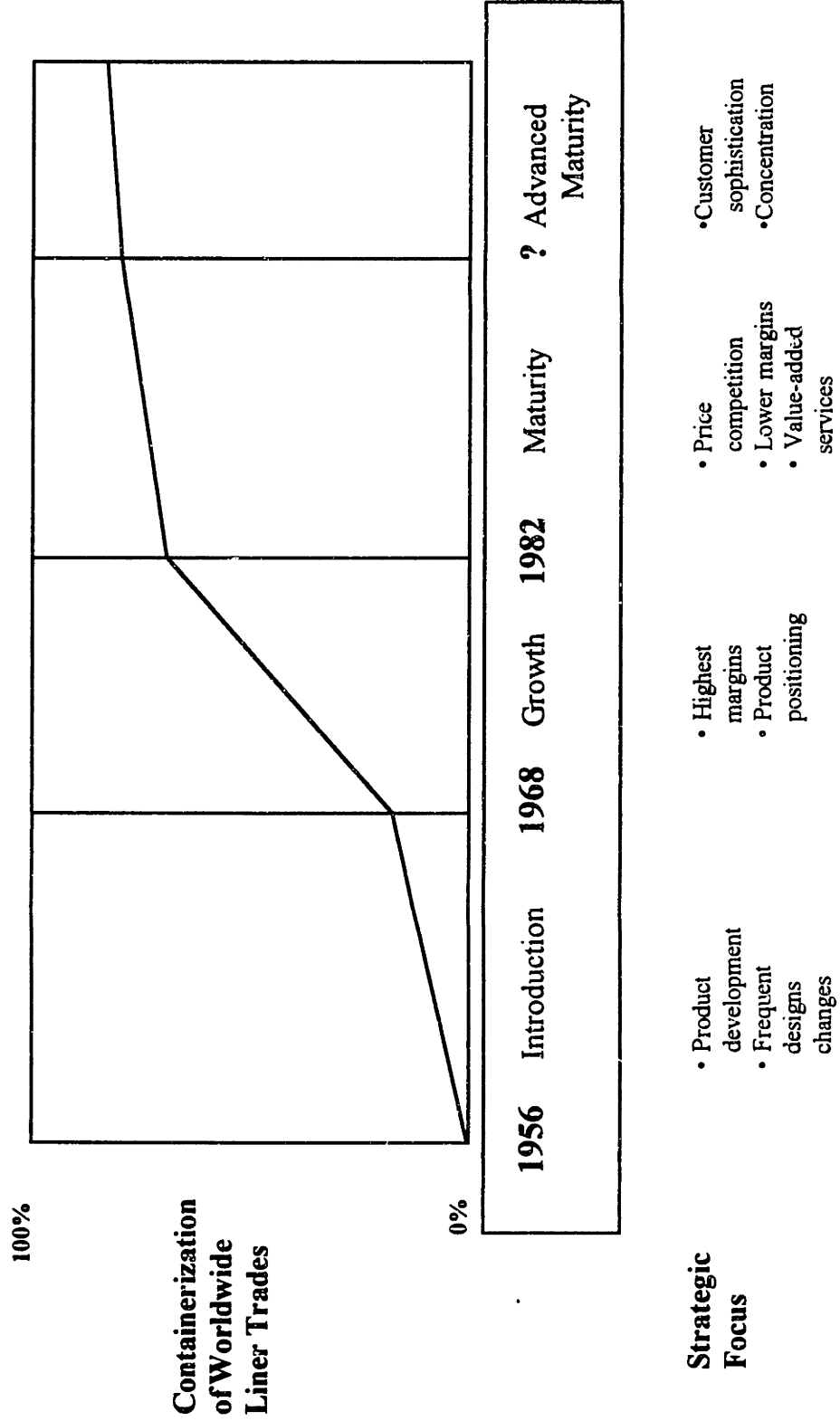
Introduction of Container Technology

The 60s were characterized by the introduction of the new technology. It was frequent design and size changes, 20ft, 30ft, 35ft, etc. Carriers worked to adequate the ships for the new technology. Crane manufacturers, ports, and shipyards had to work hard to accommodate themselves to the container technology. Everything was oriented to increase the operations efficiency. In addition to technical reforms in the transportation sector, containerization also invited transformations in the productive force structures and management forms of shipping lines and port facilities and, through them, far-reaching changes in the liner market as well in pertinent legislative institutions.

The Liner Shipping Industry Is Following a Traditional Life Cycle

Figure 2.1

Container Shipping Life Cycle



Growth in Containerization

The 70s saw two countered trends. The OECD economic growth slumped to an average 2.5% per annum over the period 1973/1980. The growth within the major OECD economies averaged an annual 5% per annum over the period 1960/1973.

As the economic growth slumped, the world seaborne container traffic volumes increased five fold over the period 1970/1980, rising rapidly from 47m tons to over 255m tons at an annual average 21% per annum. This growth was due primarily to a superior service and economic advantages over breakbulk technology. The demand was very high, bigger than the supply of containerships and containers and this was matched by highest margins.

In the US, the government encouraged the investments in new ships and subsidized the operators. The Merchant Marine Act of 1970 enlarged the Capital Construction Fund for American ship operators and extended favorable tax treatments to non subsidized as well as subsidized operators.

The Situation in the 1980's

The development of shipping transportation was constrained by the conferences' rules. The American government issued a new shipping legislation, the Shipping Act of 1984. This unilateral legislation affected the traditional function and role of liner conferences particularly in the trade of the US.

The Shipping Act of 1984 deregulated the sector, driven by the shipowners' desired immunity from the antitrust provisions of U.S. shipping law. The FMC is no longer authorized to disapprove agreements between lines. The bill permits conferences greater latitude in their commercial activities, and addresses American shippers' concern for competitive ocean freight rates and services. The bill permits the shippers to sign "service

contracts" with conferences. The conferences may not prevent members from engaging in independent action. The Shipping Act of 1984 was intended to deregulate ocean transportation in the same way the Staggers and Motor Carrier Acts brought a free market approach to railroads and trucking. American shippers have universally lauded the deregulation in 1984.

The most important feature of the Shipping Act is the "Right of Independent Action." It is designed to restrain conferences' power over shippers by giving individual member lines flexibility to deviate from conference transportation rates. This deregulation has been the reason for rapid increase of price competition. The competition also has pointed to lower margins for the shipping companies.

Like in the US, foreign governments have supported to shipping operators, sometimes have created state owned shipping companies, and subsidized for construction of new vessels. This common policy for governments trying to encourage their international trade, has given rise to a growing overcapacity.

Overcapacity and partial deregulation forced ship lines to become more aggressive in the battle for market share. Rates declined 15.9 percent from the beginning of 1984 to the end of 1988. This decline is not only for overcapacity, but also because of economies of scale. Carriers can keep the prices because they are taking advantage of a better and bigger fleet. Simultaneously, there are agreements that allow the carriers to charter space on competing carriers' vessels. **Sea-Land's** Peter Finnerty says that the 1984 Act's greatest effect has been a more competitive, open operating environment that has led to substantial improvements in efficiency, cost reduction, and service enhancements. Nevertheless, the strong competition for the increase in shipping capacity has forced container rates in some trades to decline almost 50%.

The increased competition has lead to the operators to look for differentiation. There are two means to achieve that differentiation, to provide logistic services to the shippers with the aim of increasing efficiencies in the distribution process and applying the new

opportunities that information systems provide. Shipping companies are involved in those projects as we will see ahead.

The Present Situation

Has the shipping industry reached the last step of a traditional life cycle? I would answer no. Although, the customer requirements are higher, they are very sensible to prices. There is not concentration, as some companies are quitting, other are entering. Companies are involved in a strong competition. They are involved in a price war. The rate agreements succeed one to another. Nevertheless, companies that don't follow the agreements have their field to work. Customers change easily its carrier for a competitor. The reason is savings in cost if it provides enough service. I will return over that topic later.

In spite of that price war, there are companies that keep ordering new ships. The total newbuilding cellular container tonnage delivered during 1992, was 3.23 dwt, an effective increase of ten per cent in terms of the fleet, which now totals 31 dwt. This growth followed a 2.5 dwt increase in newbuilding tonnage delivered in 1991, and a further 4.5 dwt is already contracted for delivery between 1993 and 1995.⁴

Therefore the containerization supply is increasing. With little scrapping, there are very few old containerships, aggregate growth in demand must top eight per cent to absorb this influx. If OECD projections for world trade growth of 3.5% per cent in 1993 and five per cent in 1994 turn out to be accurate, the war between carriers is sure, only those that are able to design strategies for survival will be the winners.

⁴ Fairplay, *Special Report: Container Trades*, February 11, 1993, pp 32

CHAPTER 3

INDUSTRY ANALYSIS

Companies in the Liner Shipping Industry are affected by three broad factors:

- Economic and Governmental Factors, such as global economy, regional and national economics, government regulations, conferences, and subsidies.
- Competitive factors such as competition and supply and demand, economies of scale, asset stickiness, market share, and joint ventures, and
- Technological factors such as intermodalism and information technologies.

Some of these factors are not easy controllable for the carriers as economic and governmental factors. Other depend on carrier strategy and its technology development. Along the Thesis I will analyze these factors, how the shipping companies are reacting to changes, and what are their strategies for survival.

GOVERNMENTAL FACTORS: REGULATION

The Role of Conferences

There is a factor that influences in the market notably: the existence of conferences. In the Rochdale Report, from the Committee of Inquiry into Shipping, in London, 1970, a conference is defined as "any type of formal or informal agreement between shipowners that restricts competition." At a minimum, conferences fix freight rates on particular trade routes. A conference is thus a cartel that eliminates price competition among its members. As expressed by one industry authority: "There are several practices in order to maintain

or increase the cartel's market share: rebates to shippers, restrictions on admissions by undercutting outsider's rates until the competition is destroyed, rationalization, and pooling and joint services."⁵

The American companies have traditionally held a weak position within the conferences, where the Japanese, Europeans, and national companies dominate. In 1971, the U.N. set up the UNCTAD Code of Conduct which rules⁶ the conferences and limits the previous practices. The UNCTAD Code of Conduct reserves up to 80 percent of liner cargoes to exporting and importing nations and prohibits some kinds of conduct, such as rebating or diminishing rates below the outsider's rates.

An important fact in the industry was the American deregulation in 1984. The Federal Maritime Commission (FMC) is no longer authorized to disapprove agreements between lines. The Shipping Act permits conferences greater latitude in their commercial activities, and addresses American shippers' concern for competitive ocean freight rates and services.

The bill permits the shippers to sign "service contracts" with conferences, but these may not prevent members from engaging in independent action. The Right of Independent Action is designed to restrain conferences' power over shippers by giving individual member lines flexibility to deviate from conference transportation rates. The most important effect of the Right of Independent Action was the birth of rate agreements among companies. The Shipping Act of 1984 was intended to deregulate ocean transportation in the same way the Motor Carrier Act brought a free market approach to railroads and trucking. American shippers have universally lauded the deregulation in 1984.

⁵ A. Cafruny, *Ruling the Waves. The Political Economy of International Shipping*, University of California Press, 1987

⁶ UNCTAD, *United Nations Conference of Plenipotenciaries on a Code of Conduct for Liner Conferences*, Vol II, 1979, Final Act No. E.T.S.II. p. 12

The most important rate agreements are related with the most important trades, the Pacific and North Atlantic. The Transpacific Stabilization Agreement (TSA) joins twelve carriers. Together, TSA members are estimated to control 80-85 per cent of the transpacific market. The main goal of the TSA is to control the capacity. Nevertheless, it is difficult to believe that the question of rates does not also raise at its meetings.

Most important companies, except **Evergreen** and **Yangming**, both from Taiwan, constitute Asia-North America Eastbound Rate Agreement (ANERA), and Transpacific-Westbound Rate Agreement (TWRA). The sphere of control of those groups is the rate setting. In the Atlantic, there is another carrier association seeking rate stability. Trans-Atlantic Agreement has 11 members **Sea-Land**, **Maersk**, **Hapag-Lloyd**, **P&O**, **OOCL**, **Nedlloyd**, **ACL**, **DSR/Senator**, **Mediterranean**, **Polish Ocean Lines**, and **Cho Yang**. Having incurred in cumulative losses of as much as \$400 million. TAA members control about 85% of the cargo volume in the North Atlantic. This high controlling market share has encouraged them to increase their rates until 50% in some cases. Companies that are not members of conferences have their own rate policy. Their rates usually are lower than conferences' members.

Subsidies

Widespread government practice, subsidies aim to support shipbuilding, an industry that provides a lot of jobs and creates a great demand for steel. For example, in the US, the Federal Maritime Commission (FMC) funded the American companies to offset the higher costs associated with the US. shipyards, and crews. The Construction Differential Subsidy (CDS) and Operating Differential Subsidy (ODS) promised to pay shipowners the difference between their costs and those of a "typical" market (overseas) competitor. The continuing justification for these subsidies was the alarm that the proportion of US. trade carried by US. flag ships has been held at only 4% during the seventies.

American companies claim that their most important competitors are subsidized by their governments. That might be true in case of companies in countries strongly interested in developing the liner shipping industry. Nevertheless, **APL** has an amount of subsidies bigger than its direct competitors such as **Sea-Land**, **Maersk**, **NYK**, and **Hapag-Lloyd**. **APL** subsidies in 1991 raised to \$70 million⁷. Its net profit was \$54 million. This trend to a decrease of the Government support is good if every country would follow it. The industry would play with the same rules. The market would define which competitors would be successful.

COMPETITIVE FACTORS

The Chase for EOS:

Economies of scale stem from the improved ratio of enclosed space to steel hull as size increases, and from improved productivity in motive power and crew numbers. If operators employ new bigger ships, they can reduce their investment and operating cost per container. The major constraints for ship sizes are the number of ports prepared to deal with big vessels, and the need to maintain high frequency in the routes serviced. The key to the strategy of cutting costs by increasing capacity is, of course, the ability to keep the cavernous new ships constantly fulfilled with paying cargo.

The Stickiness of Assets:

It is not easy to sell the ships or change the routes when the demand fluctuates or when there is capacity over-supply. Most of the carriers forecast the market demand in a

⁷ Baakkonen, R. Fernandez, M and Harada, M., *A Financial Performance Analysis of the Shipping Industry (APL, NYK, and Maersk)*. 15.535 Term Project April 1993.

three-year horizon before ordering new ships. Due to the long lead-times involved in shipbuilding, when these ships are ready, the market conditions may be adverse to the carriers, or other players may already launched new vessels. Not having alternative uses for the ships, overcapacity is automatically built.

The Battle for Market Share:

The only way, other than partnerships, to increase market share in this industry is by increasing fleet capacity or number of vessels. Every company has made huge investments, supported by their governments (see the subsidies' section), to increase their fleets in the fight for capturing market share. The consequence again is overcapacity building. For example, with the trade increase in the Pacific area, the Asian companies deployed more ships to gain market share. The result is that capacity has grown far more rapidly than worldwide shipping demand.

Joint Ventures - Space Sharing

Overcapacity and partial deregulation (see the Government factors) forced ship lines to become more aggressive in the battle for market share. Rates declined 15.9% from the beginning of 1984 to the end of 1988.

Realizing that price cuts were only destroying the market profitability and were not effective in conquering market share, some companies agreed to offer better service to their clients. The major problem in the service offered by a single carrier is the low frequency that it can serve a port or route. To overcome this limitation, agreements were established between competing shipping companies that allow one carrier to charter space on other carriers' vessels. In a typical partnership arrangement, ocean carriers share space on their vessels with each other. Because two carriers are supplying cargo to the ship,

operating costs per carrier are lower. At the same time, each carrier can offer a wider range of services with greater frequency.

The agreement usually involves vessel schedule coordination, port of call coordination and vessel space sharing. The benefits are more frequent service, more ports of call, and better transit times. The simplest arrangement is the "space charter" formula. Each participant secures a certain amount of cargo space for its own use in others' containerships through the exchange of equal spaces among the containerships owned and operated by other participants, and booked cargo in its own responsibility to fill the space allocated to it.

This is the way the carriers meet the growing demand of more sophisticated customers without increasing capacity. Nevertheless, there are new issues brought by this integration. K-Line's Theodore Prince describes the barriers to be overcome after the integration: "Because neither party has full control over the combined operation, it is more difficult to take corrective action for any failures and harder to expedite cargo. The difficulties arising from incompatibility between two different EDP systems are self-evident. Customers can become confused when dealing with two entities who were previously direct competitors. and the administrative overhead increases due to all of these problems, especially the inability to communicate directly and effectively."⁸ Answering a question after his speech, he said that the I T integration was critical for the success of the agreement.

Except **Evergreen**, main companies are involved in partnerships. Given the importance of this topic I analyzed in deep the partnerships in chapter 6.

⁸ T. Prince, *Carrier Integration. International Intermodal Expo'92*. Atlanta, GA - April 30, 1992

TECHNOLOGICAL FACTORS

There are two technological factors that are shaping the Liner Shipping Industry. I will explain briefly the concept of intermodalism, but I will emphasize the role of IT in chapter 5

Intermodalism.

Intermodalism is the concept whereby goods can be transported using different transportation modes without the need to do any operations with the goods themselves.

The advancement of containerization induced the shipper to mainly base its decision on the total transport cost and transit time. As a result, there was a significant increase in the importance of not only the transport service by containerships themselves but also the intermodal through transport system including the means of overland transport to be linked to them.

Intermodal providers speak frequently about their "seamless" service. Carriers make better use of technology for tracking, especially on the inland portion. Ocean carriers know where a container is in their terminals, and they are better at handling "hot" containers that must be moved quickly. The seams are where traffic is handled off from one operator to another. Lines operate solid trains of container to inland points. Most of the time, a forwarder will set up a movement, a container will move from a factory to a port, be placed on a ship, arrive in a port, move to a train, then be drayed to its final destination, and there won't be any problems. To that shipper, the system appears seamless. He dealt with one transportation provider and had one bill to pay. Make the customer's job easier to do by alleviating him having to deal with several service providers.

Carriers recognized that sea trade could no longer be regarded as the beginning and end of its business. There has been an important switch in the mind of the operators from

port-to-port service to door-to-door service. An intermodal network entails a network of ships, rail (usually new double-stack trains), and tractor-trailer trucks.

I call it "Vertical" Integration because is a concept similar to the traditional vertical integration. Some carriers integrated with companies specialized in inland operations, such as rail companies, truck companies and forwarders. The most important integration in the industry has been the integration of **Sea-Land** in **CSX Corporation**, giant American railroad company. Other carriers did not increase their size acquiring or merging with other companies, but use agreements to keep control of goods from the inland origin to the final inland destination.

The US. is the most important market for intermodalism, and firms such as **Maersk**, **NYK**, **Mitsui OSK**, **K Line**, and **OOCL** have implemented their own train services in direct competition with American companies. The result of this competition is a constant fighting to increase, or simply maintain, market share by improvement of the services on the part of competing carriers. The trend is to establish information services in order to enable the customers to keep track of their goods. The more sophisticated customer demands to know where its freight is, whether it has control over potential changes in routing, and what is the lowest possible rate. Global shippers seem more willing to rely on an intermodal carrier like **American President Lines**, **Sea-Land Service**, **NYK** and **Maersk Line**, or a neutral third party with good connections. The companies are trying to create bargaining power over the customer with these premium services.

CHAPTER 4

KEY PLAYERS

TOP CONTAINERSHIP LINES

Table 4.1 shows what are the main containership lines with international traffic through U.S. port, and its growth from 1991 to 1992. This is an industry very fragmented. More than 100 companies move containers from/to U.S.

First five companies are global companies **Sea-Land**, **Evergreen**, **Maersk**, **APL**, and **NYK**. It is important the amount of Far East companies that are moving containers from their countries to U.S.. They are Hanjin and Hyundai from Korea, Orient Overseas Container Line from Hong-Kong, Mitsui OSK and K-Line from Japan, China Ocean Shipping from China, and Yangming from Taiwan. **Hapag-Lloyd**, second European company is the number 17 of the list.

From the table, it is possible to get conclusions about what companies are growing and what companies are losing market share. **American President Lines** and **Sea-Land** moved a lot of cargo during the Gulf War in 1991, so the growth rate for 1991/1992 is lower than competitors. **NYK** also appears as negative rate, because the containers moved in 1991 include Nippon Liner System's market. **NYK** bought NLS in 1992 and lost some of its customers. Growth figures for Hanjin, Hyundai and Yangming are big, the main reason is that these companies are not members of conferences and they fix aggressive rates to increase their market share. The main decrease was Crowley Maritime, American company that has its main market in the Caribbean Gulf area.

Table 4.1

Top Containership Lines

International traffic through US ports, 1992 vs 1991 (TEUs)

	1992	1991	Growth
Sea Land Service	1,029,869	1,023,624	1%
Evergreen Group	859,052	801,632	7%
Maersk Line	730,061	694,224	5%
American President Lines	688,670	767,480	-10%
NYK	491,193	530,436	-7%
Hanjin Shipping	476,232	400,727	19%
Orient Overseas Container	434,199	421,328	3%
Mitsui OSK Lines	385,794	382,194	1%
K-Line	357,052	397,376	-10%
China Ocean Shipping	329,522	305,440	8%
Yangming Marine	321,889	236,624	36%
Hyundai Merchant Marine	309,704	277,936	11%
Crowley Maritime	249,310	300,003	-17%
Hapag-Lloyd	230,785	228,670	1%
Zim Israel Navigation	218,524	197,199	11%

Source: Journal of Commerce

BRIEF SUMMARY OF ANALYZED COMPANIES

Although I enclose an appendix with data about companies analyzed, it follows a brief description of its features.

Sea-Land (USA)

It has been the most innovative operator. It was the first to devise the concept of container shipping in the 1950's by lashing trailers to the deck of its freighters on runs from New Jersey to Texas. During long periods it has been outside the conferences, establishing cheaper prices than the competitors.

In 1986, **Sea-Land**, the U.S. largest containership operator, was bought by CSX Corporation, the largest railroad holding company in U.S. This fact was important for **Sea-Land** quickly adoption of the intermodal strategy. **Sea-Land** has formed several

shared services with other companies such as **Maersk** and **P&O Containers**. In addition to the main routes, it has two niche markets Alaska and Hawaii.

After a loss of \$15 million in 1990, it had profits of \$27 million in 1991. Due to the strong competition and existent recession it is reorganizing its operations. Its partnership with **Maersk** is working well, and they are increasing its scope to more trades.

American President Lines (APL). (U.S.A)

The present corporation, **American President Companies (APC)**, Ltd., is a long-time maritime power, with roots stretching back to its founding in 1848. Based in Oakland, California, American President was taken over in 1977 by its majority shareholder of 25 years, Natomas Co. Natomas is a San Francisco firm engaged in petroleum exploration, production, and marketing.

APC was spun off by Natomas in 1983 due to weak returns, and has been a public independent corporation ever since. After a \$60m loss in 1990, **APC's** first loss in several decades, John Lillie replaced Seaton as CEO and a radical reorganization to streamline the organization was undertaken. Earnings have rebounded to \$53.8m through 1991, largely on the strength of improved trans-pacific demand and revenues from Operation Desert Storm. Its market is the Pacific although it is trying to expand to the Atlantic.

Evergreen (Taiwan)

Evergreen is not a member of conferences whose goal is to agree on rates. **Evergreen** set its own rates. It did not join other carriers to share ships or slots. Alistair Osborne writes in Port Development International "**Evergreen** has the clout -or perhaps the nerve- to fly solo." It has worldwide services, so it can tailor a solution for each customer. Its sea transportation business is very good and reliable. It has the best fleet of vessels in the industry. Nevertheless, its land services are not good as its competitors'.

In fact, **Evergreen** is a diversified company in business such as airlines, hotels and real estate. I just have been able to collect its financial data for 1990. For the whole group in 1988 they have a shocking profit of 16% of total revenues. This margin has been decreasing to be 3.6% in 1990. In any case that figures are higher than its competitors.

Nippon Yusen Kaisha (NYK) (Japan)

The origin of NYK, an original member of the Mitsubishi group, is rooted in the Japanese government's policy for its shipping industry. The Japanese government has always sought to facilitate its international trade through a strong national shipping industry. It announced in 1986 its plan **NYK 21** that defines its future strategy. "Though shipping remains the backbone of NYK services, the NYK Plan emphasizes development of comprehensive land, sea, and air transport and logistics services on an integrated, systematic basis. The plan also covers improvement of technological research and development capabilities and enhanced training and education program for employees."

NYK is the largest Japanese carrier with a net unconsolidated income of 5148 million of yens. Income in 1991 was only 66% of earnings in 1990, owing largely to the beginning of the Japanese recession and increased competition from non-conference Taiwanese and Korean carriers.

Maersk Line (Denmark)

Maersk Line is a semi-private Danish shipping company. Founded by A.P. Moller at the beginning of this century, the company's main businesses are shipping, shipbuilding and gas and oil exploration. The company's structure is complex. Two twin companies, A/S Dampskibsselskabet Svenborg and Dampskibsselskabet af 1912 A/S, each own 50% of the group's companies. These two parent companies, in turn, are closely held by parties related to the heirs of the Moller family. The combined market value of the parent companies is DK25,468m, making them the 80th largest European company in terms of market capitalization.

Maersk offer top services. For instance, it received several service awards during the recent Asian Freight Industry Awards ceremony in Hong Kong. Maersk received "Best Shipping Line Asia/Europe," "Best Shipping Line Transpacific" "Best Shipping Line Intra-Asia" and "Best Multimodal Operator" awards. The awards were based on surveys of some 13,000 shippers in Asia. It is working in partnership with Sea-Land and they are increasing day by day the scope of their services. In 1991, it doubled the 1990 earnings in spite of recession and increased competition.

Hapag-Lloyd (Germany)

This company is second to **Maersk** in Europe. Founded in 1848, it focused in good marine services. Its main market is the Atlantic and all water service from Europe to US West Coast. It is involved in partnerships with competitors. The **Hapag-Lloyd's** partnership with **NYK** and **Neptune Orient Lines (NOL, Singapore)**, will mark its return to the Pacific and complete its global network.

But while forging new partnerships and operating in all the major east-west trades, Hapag Lloyd is still losing money from shipping. Although the whole group would report a profit for 1992, the liner shipping division would show a loss of between DM50 M and DM 60M. The company, which also has extensive tourism-related business, made a profit of around DM40 million from liner shipping in 1991.

The liner shipping business accounts for 57% of total revenues. In addition to shipping, **Hapag-Lloyd** is involved in other activities such as airlines, and tourism that account for 43% of its revenues.

ASSESSMENT OF MAJOR COMPETITORS IN THE INDUSTRY

Table 4.2 shows my assessment of the six companies I analyzed in this Thesis, competing in the industry and probably they will survive. The further analysis of these companies' strategies will help to understand the variables that are shaping the industry.

Main variables I took into account to do the assessment are markets, conference memberships, strategic partnerships, intermodalism, information technology capabilities, vertical integration, and company diversification.

Table 4.2

Summary Assessment of Six Major Competitors in the Liner Shipping Industry

KEY DIMENSIONS	COMPANY					
	Sea-Land	APL	NYK	Evergreen	Maersk	Hapag-Lloyd
Markets	Global	Pacific	Global	Global	Global	Global
Conferences Membership	Yes	Yes	Yes	No	Yes	Yes
Partnerships	High	Low	High	No	High	High
Intermodal Carrier	High	High	Medium	Low	High	Low
IT Development	High	High	Medium	?	High	Medium
Vertical Integration	High	High	Low	No	Medium	Medium
Diversification	Low	No	No	High	Medium	Low

I define as companies involved in global markets, that companies that compete in main trades around the world. I can not classify **APL** as global because its niche market is the Pacific, although it is trying to expand to other markets through partnership or acquisitions.

Intermodalism covers the companies' strategy to expand the scope of their operations to inland U.S. or integrate with railroad or trucking companies in seamless operations.

Vertical integration happens when companies integrate, acquire or merge, with other kind of companies offering services that increase value added for their operations. Mainly the vertical integration of these companies is forward and has the goal to satisfy customer needs. For instance, integrate with logistic service companies. Some companies, such as **Maersk, Evergreen,** and **Hyundai** are also backward vertically integrated. One important component of their parent groups' business is shipbuilding. Although, I don't analyze the company diversification, I assess the degree of diversification of analyzed companies. Information technologies and strategic partnerships are concepts that I analyze deeper ahead.

CHAPTER 5

THE ROLE OF I/T IN RESHAPING THE LINER SHIPPING INDUSTRY

The goal of this chapter is review the role of I/T in the industry. N. Venkatraman⁹ defines five levels of I/T induced business reconfiguration: two evolutionary levels: localized exploitation and internal integration, and three revolutionary levels: business process redesign, business network redesign and business scope redefinition. As every business, liner industry has potential to seek a complete business scope redefinition. I will describe this process. My feeling is that this process is taking a long time because the tough competition on price that aggressive independent companies are applying (mainly **Evergreen**), and traditional reluctant to changes.

I am motivated to transcript paragraphs of an article written in 1975 that defines clearly what can be happening right now. “Liner operators participating in an international cartel, which is a cooperative arrangement for economic oligopoly, can set freight rates ensuring the minimum desired profits by mutual agreement, ..., Therefore, unless there is a competitive challenge from outside by the introduction of a “revolutionary” new technology, which would menace the very survival of conference carriers as they experienced at the beginning of marine containerization, they are rarely motivated to invest in any such revolutionary technology, which would cancel the competitive strengths of their existing fleets. As a matter of fact, until then, their main objects of renovating investment were at most slight increases in sailing speed to attract more cargo from

⁹ Venkatraman, N. *IT-Induced Business Reconfiguration*, M.S. Scott Morton (Editor), The Corporation of the 1990s, Oxford University Press. p.122

shippers or automation to modestly reduce cost. The inevitable consequences of these investing behaviors in the liner market were the loss of flexibility in the structure of productive forces and the resultant reluctance to rationalize or modernize.”¹⁰

EARLY APPLICATIONS OF I/T IN THE LINER SHIPPING INDUSTRY

The first applications of I/T in the liner shipping industry aimed to increase overall efficiency of the established business system. The two major areas were administrative process speedup, and terminal/bay planning.

The administrative workload in this business was enormous. For one single transaction, the number of interfaces requiring information made paper processing a nightmare for the companies. Clients, Customs, Port Authorities, forwarders, origin and destination warehouses were the minimum number of people to deal with. For hazardous or "ecological" materials, another number of state and federal agencies could be involved.

Considering that each transoceanic containership carries in average 2,500 containers, and that at each trip it stops in at least three ports, the error probability in the paperwork is very high. These errors can delay not only the discharge and forwarding of a container, but also the total stay of the ship in that port. The result is the delay of all cargoes aboard that ship, and losses for all their owners.

Early computer applications were developed to decrease the amount of errors in the paperwork. For each cargo being transported, a whole database register was created, and consistency checks were ran to assure the validity of all documents. Automatic forms print out were also implemented. The error margin narrowed significantly, but all the papers had still to be handed in for all interfaces.

Another issue for shipping companies was the optimization of their fleet usage. The American market deregulation in 1984 promoted a squeeze in margins and forced

¹⁰ Oda, Masao, Kaiun Keizairon. *A theoretical study on the marine transport economy* 1975

companies to seek more efficient use of their assets; in the other hand, there was more freedom in choosing where and how to operate.

With the development of the logistics science, new algorithms and methods of terminal and bay planning were made available. The aim of these algorithms was minimize the overall time spent in ports on a ship route. These algorithms also considered due dates, priority customers, and vessel capacity. The output generally was a three dimensional map of container location in the ship bay and in the terminal. If this map was followed, the consequence was the faster unload/load process in each port.

At that point in time, the shipping companies were still in the very elementary stage of localized exploitation of I/T. Information systems were viewed as mere tools to speedup and assure integrity of functional activities, like paperwork and bay/terminal planning, both critical to the performance of the companies.

INDUSTRY EVOLUTION AND IMPACT ON I/T PRACTICES

Three sources of change promoted a general review of I/T role in the shipping industry: customers, customs/port authorities, and industry restructuring.

The Customers Revolution

The implementation of Just-In-Time techniques and the electronic integration among suppliers and customers in many industries affected drastically how manufacturing companies viewed their transportation services.

Instead of building larger and larger warehouses for raw material or finished goods to assure timely production and delivery, these companies decided to rely on their transportation partners. All cargoes were viewed as "moving inventory." To assure the tight control of these cargoes, large manufacturing companies rationalized the number of

transportation companies serving them and built huge transportation management departments.

The transportation companies chosen to serve these manufacturers were those that could provide reliable and complete information on the cargo location and conditions, in a timely manner. The manufacturers then built internal tracking systems, updated frequently by phone calls to the carriers.

At the same time, these manufacturers had become more "I/T sophisticated," establishing wide EDI networks with their major suppliers and clients. All transactions among these players were made electronically, from product ordering to billing and fund transfers. Transportation companies operating within these networks had to be able to communicate with all parts involved in each transport transaction.

The Customs and Port Authorities Revolution

Other evolution that took place and influenced the shipping companies was the rationalization process conducted by the customs and port authorities worldwide.

As the globalization process evolves, not only companies are competing worldwide, but also locations. Countries, regions and cities all over the world engaged in a competition for being the most attractive locations for the establishment of plants, offices or distribution centers. One crucial factor in this competition is the service efficiency of the established infra-structure in supporting the fast flow of raw materials and finished goods to and from the plant location.

Conscious of this need, many local and national governments started promoting programs to improve ports and customs speed in dealing with cargoes. The U.S. Customs ACS (Automated Commercial System), the installed systems in Singapore, Hong Kong, and Bremen, and the co-joint efforts between UK Customs and ports are all examples of this effort.

The most amazing example probably is the Singapore port. It has a partnership actively led by government. The Tradenet System of Singapore manages the world's largest port. The Singapore government spent more than \$50 million to link all brokers with relevant government agencies at the port: freight forwarders, shipping companies, banks, and insurance companies with customs officials and immigration officials. Leaving the port, which used to take a vessel two to four days, now takes as little as ten minutes. This startling reduction has halved the time any ship has to remain in port and is the key to ensuring that Singapore remains a port of choice in the Far East where the competition is growing.

The major characteristic of these systems is the pre-process of all paperwork and the preparation of port logistics before the vessel arrives with its cargo. The local Customs' house determines the cargo sample that is going under physical checking, and the one that can be immediately forwarded. The Port Authority prepares all the equipment and storage space necessary, and also the special treatment for hazardous or perishable materials. Some ports achieved a degree of efficiency so high that shipments that usually took two or three days to be processed, now can take as few as a couple of hours.

The Industry Restructuring Revolution

The third major evolution driver for I/T in the liner shipping industry was the industry restructuring itself. In order to achieve better competitive positioning, major players in the industry "forward"-integrated their operations into inland transportation. Almost every major player has developed its land transportation network.

This move was made in synchronism with customers transportation base rationalization. Shippers wanted to deal with one single company per transaction, from their factory door to their retail distribution channels. It demanded from the shipping

companies a higher accuracy in cargo tracking, faster responses for freight quotations, and higher compromise with on-time delivery.

In the internal side, the additional complexity of dealing with a much larger number of vehicles with higher traveling frequency demanded the development of much more sophisticated tracking system than their clients (already sophisticated), and planning systems that embraced wider variety of transportation modes.

NEW I/T USES AND ROLES

In order to cope with all these new challenges, the major shipping companies developed huge I/T systems. These systems aim better planning of their fleet and route structures, and more accurate delivery time forecasts. Everything is based on the data from a database. They started to look at their cargoes as analysis units for planning, not only as mere consequences of customer transactions.

These systems are based in three core elements: real-time container tracking system, broad EDI capabilities, and widespread communication capabilities.

Real-Time Container Tracking System

Main companies have spectacular tracking systems for their containers. Reefer containers are continuously measured. Electronic gauges continuously calibrate the climate conditions of the cargo (temperature, humidity), and an antenna installed in the truck, train, or ship, transmit these measures, together with the location of the vehicle, through a satellite monitoring system to the central Data Processing Installations.

At any moment, any cargo can be localized, and its physical conditions evaluated. Customers can use this information to redirect any of its cargoes to a new destination, due to last minute change in plans. The shipping companies can immediately evaluate the new delivery time and cost, and the client is able to make a decision promptly.

Broad EDI Capabilities

The Information Systems in place now in the major liner shipping companies have broad EDI capabilities. These systems allow access to its databases to an enormous number of interested parties. Beside allowing clients to track their cargoes, the system has other capabilities.

Manufacturing and trading companies can check deliveries and bill their clients through the shipping company system. Forwarders and transportation management companies can get instant quotations from different companies and intermodal routes.

They can communicate with Customs and Port Authorities' systems to obtain early clearance of cargoes and fast port processing. This works for cargoes transferred from ships to trains/trucks and vice versa.

The EDI question mark: To take advantage of these services, the shipping companies developed their own EDI system and established electronic links with the different ports and customs. These links must be established in two levels: physical connection, and communication protocols. The physical connection and low-level communication protocols are supplied by VANs (Value Added Network), a service offered by IBM, GEIS, and some telephone companies. The players interested in having access to the information available must connect to these networks.

The problem appears in the high-level communication protocols. When one shipping company wants to realize transactions between its system and a certain port, development teams from both sides must sit together and built a common protocol for that specific link. This has led to high expenditures in using EDI among the players in this industry.

In order to minimize the total cost of these links, international standards have been proposed for most of the electronic transactions. The U.N. is supporting the EDIFACT standard, but due to the delay in transactions' definition, maybe the ANSI standards prevail.

Widespread Communication Capabilities

The tracking system would be useless if the company could not access promptly their ships, trains, and trucks, to reissue travel plans. Depending on client demand, or weather conditions, or even other vehicles problems, the shipping companies can redirect their drivers, machinists, and pilots to different courses or destinations.

This is implemented through very complex communication networks, involving satellites, radio, optic cables, and cellular phones. Some companies installed their own microwave links. Others, like CSX, made agreements with telecommunication companies to manage its business.

I/T Roles Today

These last developments of I/T usage in the shipping companies show a rapid evolution in its role inside the organizations.

From localized exploitation, I/T evolved to integration enabler. Strategic and operational planning, marketing, and accounting, are fully integrated to the basic operations management.

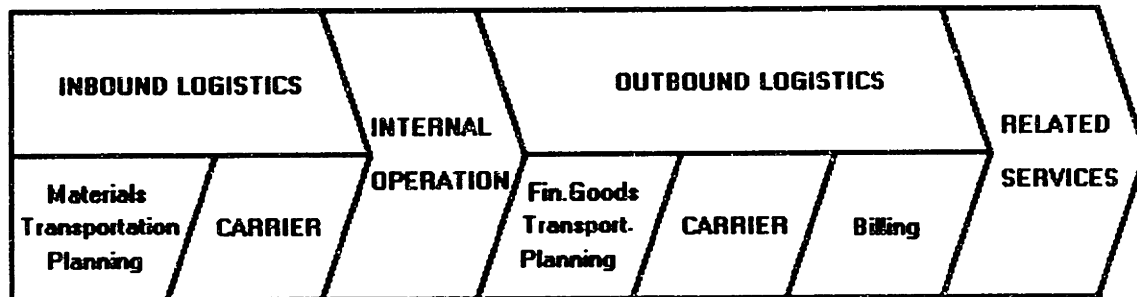
But I/T also started redesigning the business process. From specific and rigid transportation transactions, shipping companies are evolving to more flexible, custom tailored services. The possibility of redirecting the cargoes redefines the role of the shipping company as a real moving inventory operator, instead of a simple transportation business.

OPPORTUNITIES AND THREATS RELATED TO I/T USE

The opportunities and threats related to the I/T use in the container transportation business reside in the possible restructures that may take place in the industry.

So as to understand the possible ways how the industry can restructure, a simplified business system is drawn below.

**SIMPLIFIED BUSINESS SYSTEM FOR THE CONTAINER
TRANSPORTATION BUSINESS - SHIPPER PROSPECTIVE**



From the point of view of a shipper, the need for transportation can be divided in two major areas: inbound logistics and outbound logistics.

The inbound logistics involves all the movement of materials between suppliers and the company, or among company sites. The outbound logistics involves all the shipping of finished goods to the company's customers. Both logistics require extensive planning and monitoring of the "moving inventory," and shippers usually have transportation departments in charge of these activities.

There is a complementary activity in the outbound logistics that is making sure the customer acknowledges the receipt of the goods and starts the payment process to the shipper. This was generically called "billing."

The final part on this business system (under the name of "related services") corresponds to the set of information that one shipper usually requires when doing business overseas. Company credibility, transportation conditions (like good or bad roads, kind of equipment used, etc.), or information about local legislation, are all critical for a shipper to decide doing or not business with a new customer or supplier from a

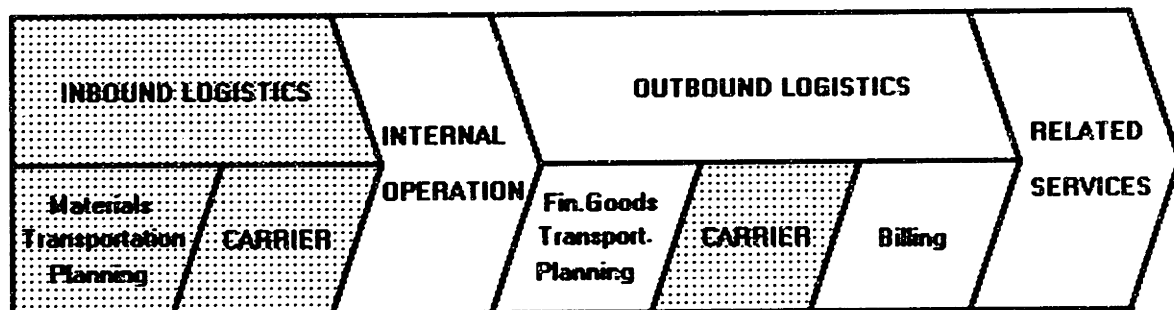
region where it has never done before. This information is currently required to international forwarders operating in that region.

I/T-Driven Opportunities

There are three opportunities for shipping companies: (1) Outsourcing of inbound logistics, (2) Outsourcing of outbound logistics, and (3) Active sale of related services.

Outsourcing of inbound logistics: illustrated by the figure below, this option can be pursued among transnational companies that operate spread around the globe.

OUTSOURCING OF INBOUND LOGISTICS - THE ROLE OF THE CARRIER



One example of such companies can be the apparel manufacturers: most of the companies have plants in under-developed countries and sell in the developed countries. This generally means that plants are "overseas," and a product pipeline must be established between the production facilities and the market.

Another example is Boeing. The 767 assembly in the U.S. depends on parts produced in at least three other countries (excluding engines): Japan, Italy, and Spain. All these parts must arrive under a strict schedule in Seattle, because they are not easily inventoried, and any starvation in the plant means a lot of money lost.

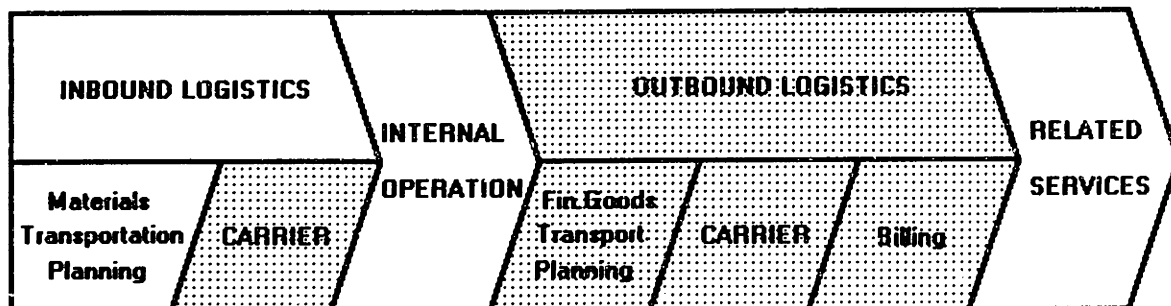
These two examples illustrate the high impact of inbound logistics in some companies' performance. This leads to huge spending on inventory tracking systems and transportation planning staff.

The container shipping companies can offer both services for these companies. The existing tracking systems allied to the deep understanding of intermodal transportation make these companies real experts on "moving inventory" management. Economies of scale can be capture through the spread of the fixed cost of tracking cargoes among many clients, and a relatively cheap service can be offered.

Long term contracts or partnerships could be established between these shippers and megacarriers based on door-to-door on-time delivery. The transaction-based business would be replaced by a relationship-based business, and the longer this relationship lasts, the stronger the bond between the parties involved.

Outsourcing of Outbound Logistics: similarly, the megacarriers could also outsource all outbound logistics. The economies of scale in managing "moving inventory" would still exist, and a billing service could be added to the activities scope.

OUTSOURCING OF OUTBOUND LOGISTICS - THE ROLE OF THE CARRIER



As the carriers operate a huge electronic network spread around the globe, it would not be difficult to them to funnel all the receipts, purchasing orders drafts, delivery drafts,

and other documentation through its network. The shipper could receive all this information from a single source - the carrier - that would alleviate the need for follow-up controls on deliveries.

The ability of the megacarriers to outsource either the inbound or outbound logistics for their clients depends heavily on its partnerships with other carriers. To provide frequent movement of cargoes in certain routes, shared space contracts must be closed with another shipping company. To assure door-to-door on-time delivery in regions where the carrier is not "vertically" integrated, some local forwarder must be tied up to the carrier.

The conclusion is that to succeed in the outsourcing business, a carrier must be able to manage relationships effectively, not only with their clients, but also with a complex web of competitors and complementary carriers.

Active Sale of Related Services: megacarriers operate covering a large geographic extension. In all the ports or regions where they operate, they have a local office or representative. This network of local informants could be used actively in building a database of basic regional economic characteristics, and about companies doing business in those regions.

The use of this database could be offered as a marketing planning tool for current clients of prospective clients. It could be included as a feature of the outsourcing deal, or could be sold in the market. Specific information requests could be researched and delivered by this "business intelligence network."

As more companies outsource their logistics with the carrier, it becomes easier for the carrier to collect these data.

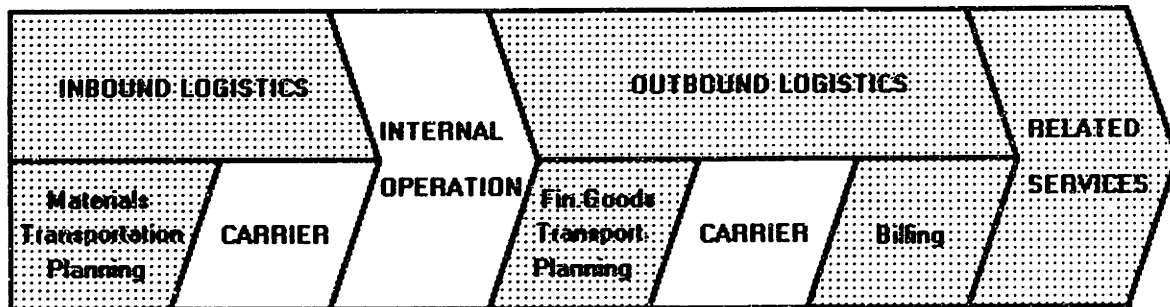
I/T -Driven Threat

The major threat for the megacarriers is the logistics companies. Built around their ability in managing complex transportation needs for big and small companies, these players maintain relationship with an extensive network of carriers, ports, and shippers.

Their basic role is the planning and monitoring of a firm's cargoes around the globe. They already work in an outsourcing partnership with their clients, which is already an advantage in relation to the megacarriers.

If there is an EDI standardization, there is a big chance that the freight hiring becomes an electronic marketplace. With an increasing number of companies selling their services in this marketplace, there is an opportunity for the logistics companies to bid more efficiently, and choose the low cost players in all segments.

OUTSOURCING OF LOGISTICS - THE COMPETING ROLE OF LOGISTICS COMPANIES



As the logistics companies already work outsourcing the logistics planning and monitoring, it would be very easy to them to overview the whole process, and the megacarriers would lose their chance to sell more added value services to shippers.

I/T PRESENT SITUATION

Information Technology makes possible the reshape of the container transportation business from isolated inland and sea trips to an integrated door-to-door approach. Until now, the companies that are utilizing this high-value-added approach are performing relatively well.

Factors that are preventing shipping companies from a quickly development of I/T capabilities are recession, disloyalty of shippers, and role of conferences. Clearly recession causes customers to look for savings in their operations and are less motivated to look for premium services. Shippers and logistic companies that contract carriers for the marine leg of their services are not loyal and take advantage of reduced prices that independent carriers charge. The role of conferences as guarantee for stable prices avoid carriers to start more aggressive strategies.

The future success of these companies depends on the speed that they start to utilize more aggressively the information capabilities available in order to differentiate themselves from the logistics companies, build information bonds with their clients, and avoid the risks that an electronic marketplace may represent to them.

If these companies are not able to leverage their relationship with clients using this information capability, the future may bring their failure by shifting their business to the lowest cost service providers in a completely integrated electronic marketplace.

CHAPTER 6

STRATEGIC PARTNERSHIPS

THE PARTNERSHIP CONCEPT

The partnership concept rests on the notion that performance can be significantly improved through joint, mutually dependent action. John C. Henderson¹¹ explores two dimensions of partnership-style relationships: Partnership in Context and Partnership in Action. Partnership in context is defined as the degree to which the partners believe that the partnership will be sustained over time. Partnership in action is defined as the ability of the partners to influence policies and decisions that affect the operational performance of the partnership.

I have two objectives for this chapter. First, analyze the three kinds of partnerships in the industry: partnership with competitors, with suppliers and with customers. Second, show that Liner Industry conforms in some degree to the first step of partnerships, partnership in context, but not the more advanced way of partnership, partnership in action. It means that there is room for increasing the relationships among partners. Henderson describes six determinants of partnerships, three for Partnership in Context, mutual benefits, commitment, and predisposition, and three for Partnership in Action, share knowledge, mutual dependency on distinctive competencies and resources,

¹¹John C. Henderson, *Plugging into Strategic Partnerships: The Critical IS Connection*, Sloan Management Review, Spring 1990

and organizational linkage. Those determinants will help me to analyze the partnerships in the industry.

PARTNERSHIPS WITH COMPETITORS

Mutual Benefits

Lines in partnership have mutual benefits: achieve economies of scale, improve service, and reduce expenses. In the liner shipping industry, competitors are working closely with each other to achieve economies and improve service. They are sharing space on each other vessels while still remaining competitors. Lines must move cargo at profitable rates if they are expected to maintain a high level of service. The popular "solution of the day" is what some call rationalization. Vessel share agreements or the sharing of container slots on each other vessels. For some lines this was a necessary step in order to stay alive. For others it is a logical approach to reduce expenses and improve service.

In doing this, a line can reduce the number of its own vessels in a given trade and likely provide a greater number of sailings through these partnership arrangements. In other words by pooling vessel resources and sharing space, economies of scale can be reached while keeping investments at reasonable levels. Overall service to the shipper is improved. Lines are able to offer their customers a greater frequency of sailings and a wider range of service opportunities in these sharing arrangements. I believe there will be more and more partnership agreements with competitors in the future. Providing more frequent and reliable series are beyond the reach of most individual carriers

How the partnerships with competitors work: An example.

A new partnership started this year among **Hapag Lloyd**, **NYK** and **Neptune Orient Lines (NOL, Singapore)** to offer a service between the Far East, U.S., and North Europe. Beginning April 1, the partners began sharing cargo spaces on 12 containerships with an average cargo-carrying capacity of 2700 TEUs. Hapag- Lloyd commits six vessels, **NYK** five ships, **NOL** deploys a single vessel. Ports of call are New York, Norfolk, Savannah, Oakland, and Los Angeles; in Europe: the stops are Antwerp, Belgium; Bremerhaven, Germany; Rotterdam, Netherlands; and Thamesport, England. In the Far East, the ports served are Tokyo, Kobe, Nagoya and Yokohama, Japan; Kaohsiung, Taiwan; and Hong Kong. That schedule replaced **Hapag-Lloyd's** previous services between U.S. West Coast and Gulf Ports and North Europe as well as the **NYK/NOL** all water run from the Far-East to U.S. East Coast.

Because that service is expected to face fierce competition from other cross-continental carriers or round-the-world operators, as well as intermodal rail links between the U.S. West and East Coast, its transit times are crucial. Vessels complete a round trip voyage from the Far-East through the United States to Europe, then back through the U.S. to the Far-East within 84 days. Eastbound time from Hong-Kong to Oakland is within 15 days, Savannah in 27, Norfolk in 29 and New York in 30 days.

The first advantage is increasing frequency that means better service for customers. By using 12 vessels, companies can market a weekly service among Far East, U.S., and North Europe. Individually, Hapag Lloyd and **NYK** could only make the service each two or three weeks, and **NOL** each 84 days. The second advantage is increasing the percentage of load per vessel. Each ship carries containers marketed by three companies. Finally, partnerships help to reduce costs and investments. For instance, **NOL** is marketing a weekly service and only dedicates 1 vessel. Previously, it could offer the

service each 84 days, clearly it couldn't do business, or deploy 12 vessels but it hasn't demand to load them.

Partnership as a way to access to new markets

Companies sometimes use the partnerships as a mean to survive or just reduce costs by maintaining their previous services. In some cases, companies use a partnership as a mean to enter new markets. This strategy is used by growing companies or strong companies that just need those new markets for improving their services and achieving economies of scale. Most liner shipping companies now accept that the only way to remain in the top league is to have a presence in all three of the major east-west trades, the Pacific, the Atlantic, and Europe/Asia

Furthermore, a study by Drewry Shipping Consultants Ltd¹², showed that round-the-world operators enjoy considerable cost advantages over those lines with end-to-end operations, mostly because of better utilization of equipment. For that reason, a number of Far-Eastern are planning new trans-Atlantic services even though the carriers already in that trade are suffering huge losses at the moment. Likely new entrants in the future will be Hanging, Yangming, Hyundai and Mitsui OSK.

The Hapag Lloyd, NYK, NOL partnership allows Hapag Lloyd return to the Pacific and completes its global network while has allowed NYK and NOL to enter the Atlantic routes. Previously, Hapag Lloyd provided services from Europe to U.S. East Coast, U.S. West Coast, and Far East. But it didn't provide service from U.S. West Coast to the Far East. Likewise, NYK and NOL offered services from the Far East to both U.S. coast and Europe. Now they market a service between the U.S. east coast and Europe. This

¹²Drewry Shipping Consultants, Ltd, *Traffic and Competition on Round-the-World Container Routes*, 1986

partnership allows the three partners to make the most important routes in the world and increase their access to the main markets.

Another example of partnerships as a way to access to new markets are the joint ventures **Sea-Land** is developing. Joint ventures **Sea-Land** developed during 1991 positioned the company in South America. A joint venture with Venezuela Container Line allowed Sea-Lad to establish a foothold in South America by initiating weekly container-shipment service between the U.S. and Venezuela. New ventures into South America were further extended when **Sea-Land** and Trans-Roll Navagacao S.A. began a joint-venture service to Brazil.

As a summary, Figure 6.1 shows what are the features that make necessary the partnerships. I have chosen the partnership between Hapag Lloyd, NYK and NOL to analyze the describe the main reasons that drive the establishment of such partnerships.

Figure 6.1

Hapag Lloyd, NYK, NOL Partnership

	Hapag Lloyd	NYK	NOL
Strengths	Strong Presence in Atlantic	Strong Presence in Pacific	Strong Presence in South Pacific
Weaknesses	Weak Presence in Pacific	Weak Presence in Atlantic	Weak Presence in Atlantic
Opportunity		Presence in main markets	
Threat	Non-Conference Round the World Services: Evergreen, and Landbridge's American Companies		
Need Partner	Access to new markets with little investments		

Main Partnerships

Figure 6.2 shows the main partnerships among top companies and markets covered. It points out that the most important companies, except **Evergreen**, are engaged in partnerships. We see that it is a common and extended strategy among top companies. Figure 6.3 shows the partnership groups that major companies are involved. This reflects that companies follow some patterns for collaboration. It is relevant to notice the close relationship among top companies such as **Sea-Land** and **Maersk**, and among second tiers such as **Hapag-Lloyd** and **NYK**.

This is not a coincidence. Barry Olsen, **Maersk** Canada's General Manager, says "Of course, one must be extremely selective in picking the right partner. We must be certain that we are compatible in most aspects because this is a long term arrangement. Our partners must measure up to our quality standards similar to what I mentioned with respect to intermodal partners. Our respective vessels must be close in terms of size and speed. Our equipment must be similar and our philosophies must be compatible. It is a tough process to find the right partner, but once you do it works. We have proved this in the trades where we are practicing this."¹³

¹³ Olsen, Barry, "Marine Carrier Strategies for competitiveness and Profitability", 1992 International Business Conference and Exhibition. Halifax

Figure 6.2

Main Partnerships Among Top Players

Companies

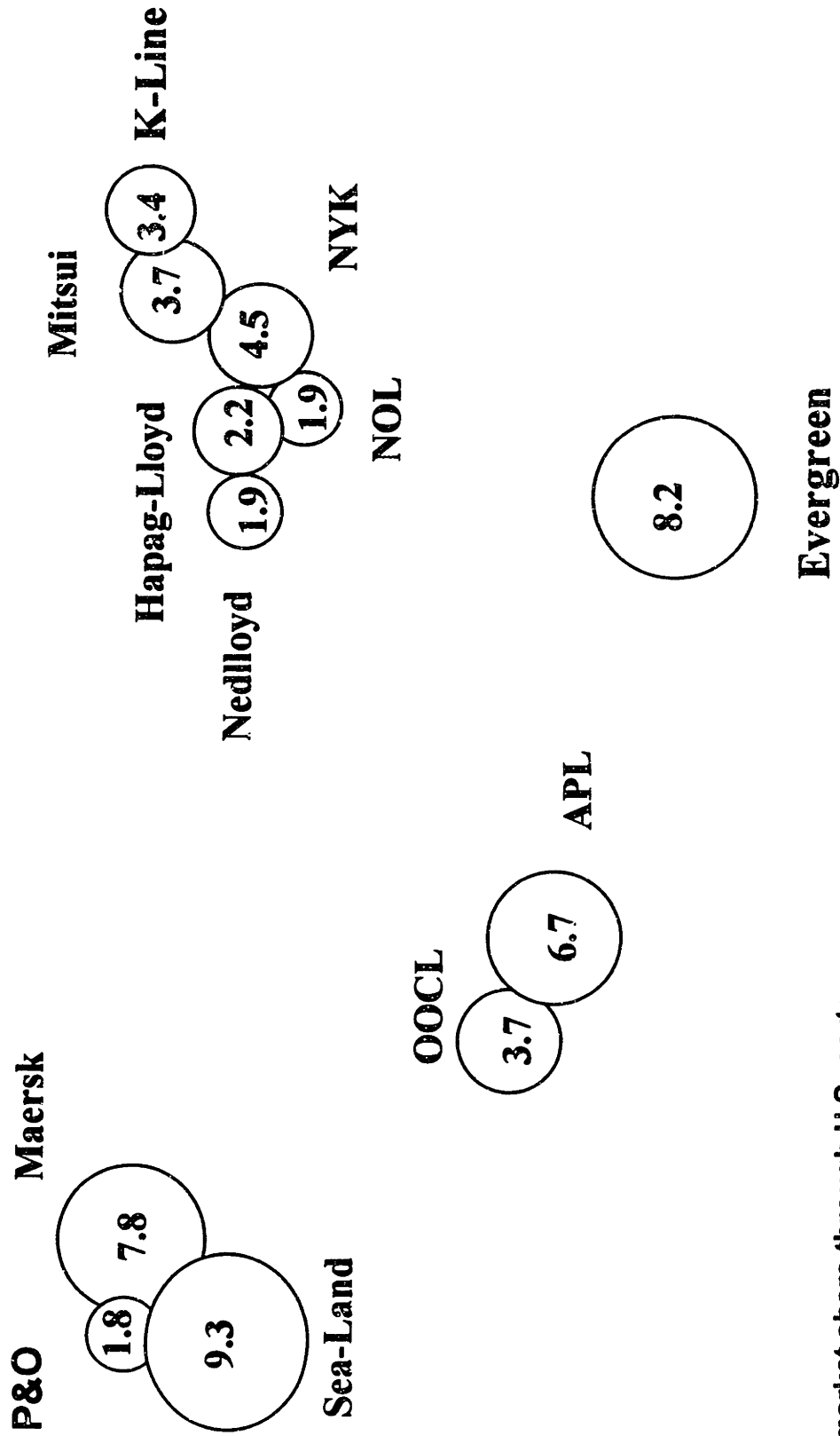
Sea-Land and Maersk
Sea-Land, Maersk, and P&O
Sea-Land, Maersk, P&O, OOCL, Nedlloyd Lines
Sea-Land, Maersk, and P&O
APL and OOCL
NYK, Hapag Lloyd, and NOL
NYK and NOL
NYK and Mitsui OSK

Markets

U.S. West Coast-East Asia
Europe-Middle East/Sub-Continent Asiatic
US East and Gulf Coasts-Europe
US East Coast-Canada/Dubai-India
U.S. West Coast-Far East
Far East-North America-North Europe
South Asia-Mediterranean Sea-North America
Far East-New York

Figure 6.3

Main Partnerships in the Liner Shipping Industry



P%: 1992 market share through U.S. ports

Commitment Among Partners

In general, there is not any kind of commitment among partners. Partnerships among top companies are more stable than other partnerships. For instance Compagnie General Maritime (CGM, France) and Spanish Line retired from their partnerships because in spite of the partnership they were losing money. Anyway there are partnerships among top companies that last for a short period. For instance in 1991, it began the TRIO service between North Europe and Far East. Hapag Lloyd, NYK and Mitsui OSK were the partners. In 1992 they canceled the service. As I indicated before, Hapag Lloyd and NYK are involved in a new partnership but their partner this time is NOL and not Mitsui OSK. **Sea-Land** had a joint venture with Norasia in 1991 covering the route Europe-Middle East. Now, **Sea-Land** provides that service but the partners are **Maersk** and **P&O**.

Following there is an example of partnership where a summary of the contract is reflected on the company's Annual Report¹⁴. "In July 1991, the company (APC)¹⁵ and Orient Overseas Container Line ("OOCL"), a Hong Kong shipping company, signed agreements to enable them to exchange vessel space and coordinate vessel sailings for a five year period. Currently, each party is guaranteed space and buys extra vessel space as needed. Starting in the third year, if there have not been specific increases in voyages or capacity, the company is required to increase its import allocation by 3% and compensate OOCL at a rate currently calculated at \$6.5 million per year."

I don't know the terms of other agreements, but this agreement at least is for five years. My idea is that other partnerships are not so defined the commitment among partners. Another relevant conclusion from the terms of the agreement is the scope of the partnership. Sometimes is very limited, for instance the "space charter" formula. Each

¹⁴American President Companies, *1991 Annual Report*

¹⁵American President Companies (APC) is APL's parent company.

partner secures a certain amount of cargo space for its own use in others' containerhips through the exchange of equal spaces among the containerhips owned and operated by the members of the group. Partners only commit to share vessels and to accomplish some volume targets. There are other choices that can be shared. Carriers that agree to share assets such as terminals, containers, chassis, computer systems and inland depots theoretically could reduce costs even further. In addition to share assets, partners could share operations activities, marketing, sales, logistics services, technology development.

An example of partnership with low commitment: Mitsui OSK-K Line

Mitsui OSK and K Line are the second and third Japanese shipping companies. They are eight and ninth of the containerhip lines moving international traffic through U.S. ports in 1992. Mitsui OSK and K Line are partners in a joint venture to move containers from the Far-East to U.S.. By means of the partnership they are able to market their services in ports where the vessels of one of the partners don't call. Nevertheless, both partners call in Los Angeles once a week. Mitsui OSK calls in Port of Los Angeles and K-Line in Long Beach. They have two terminals. Once both vessels arrive to the ports, each carrier transfers containers transported its partner's terminal to its terminal. After the transfer, they load the containers in two double stack train services to go to the main cities in U.S..

The transfer process is another example of bad management. Each company contracts separately with a trucking company the transfer between terminals. I saw this summer in the K-Line's terminal gate in Long Beach empty chassis going in to load containers to transfer to the Mitsui's terminal at the same time that Mitsui's empty chassis are going away from unloading containers. Many of these containers could have the same destination, Chicago or New York, and therefore cheaper to move by reducing the transfers between terminals.

Predisposition

Henderson¹⁶ looks into predisposition as the third major determinant of partnership in context. He describes two indicators of predisposition: trust and existing attitudes and assumptions. We can see from the previous examples that trust is not precisely the feature that defines the partnerships. Partners can reduce costs, streamline operations and offer better services by increasing the scope of the partnership. They are not doing that. In fact, carriers are reluctant to take the next step into other areas of rationalization. Main reasons can be complex and detailed exchange system or diffusion of the carrier's identity. Anyway this kind of reasons can be overcome.

Room for increasing the degree of partnership

After the previous analysis, I can conclude that the partnerships among competitors in the liner shipping industry conforms in some degree as a partnership in context as defined by Henderson. It is difficult to think that shipping companies are observing the determinants that define partnerships in action: shared knowledge, mutual dependency on distinctive competencies and resources, and organizational linkage. Companies willing to follow that steps have room for increasing their efficiency. Right now, they are not willing to do it. Their strategies differ from that policy.

PARTNERSHIPS WITH SUPPLIERS

The main suppliers of shipping companies are the suppliers of transportation services. The railways, truck operators, barge operators, terminal operators who are links in the intermodal chain. The most important container carriers offer door to door service from

¹⁶John C. Henderson, op. cit.

an inland point to an inland point in another region, country or continent. In the very near future it will be common to extend this to floor to floor and even shelf to shelf service. More and more of the shipping companies are becoming involved in various consolidation services that provide such opportunities.

For intermodal transportation to work the carriers are very dependent on the land transport companies. They provide them with the quality service required by the shipping companies' customers. They have sold and promised their customers a specific delivery time from door to door and if there is any breakdown in the chain, their credibility is at risk. Normally carriers are looking for long term relationships with their suppliers.

Some of the top carriers are vertically integrated and they offer logistic and land transportation services. In this case the relationship is among companies of the same group. An example is **Sea-Land's** relationship with the transportation companies of the group **CSX Corporation**. Other companies have to deal with land operators in order to provide the service the customer requires. Sometimes, the relationship with the suppliers is a kind of partnership because the continuity of the contracts, although most of the times there is not a stable relationship with land operators. Recently some shipping companies are starting to sign contracts with rail operators. These contracts include terms such as effective period, minimum volume, balance of traffic, transfer of data, schedules, rates, and payments.

The equipment issue

The relationship with the railroads is a necessity for some carriers to relocate their equipment mainly empty containers. Empty containers is a critical issue for global carriers. Some companies express that they are carrying 20% of empty containers on their ships. In this case carry air on containers is a big expense. The reason of moving empty containers is the traffic imbalance. The imbalance in some countries in containerized

cargo may be huge. For instance, Kuwait exports oil and imports all kind of goods. Most all the goods they import are containerized cargo. Carriers know that they have to move empty containers from Kuwait to other ports such as Honk-Kong or Singapore where the imbalance of containerized cargo is opposite. Exactly the same happens in inland USA, carriers have traffic imbalance, although they are pushing its marketing efforts to balance the supply and demand in the main areas in USA. Anyway they are far away to achieve their objectives, mainly because the loose customer relationships.

The real fact is that carriers owning equipment such as railcars, and containers have to relocate them through inland USA. Even worse, carriers have the same problem overseas. K-Line, not only have to relocate empty containers in USA but also among West Coast ports. In spite of K-line calls in ports in California (Long Beach and Oakland) and northern ports such as Portland, Seattle and Tacoma, it moves loaded containers from East Coast or Chicago to American customers in California. The amount of containers received in Californian ports is bigger than demanded. After unloaded, it moves them empty to Seattle or Tacoma to send them to Far East ports where empty containers are demanded. Because the smaller population in northern states such as Oregon or Washington, K-Line is not able to find enough customers to send loaded containers to the north area.

All that operations with the equipment have motivated carriers to set stable relationships with land operators. The complexity of those operations is increasing day by day. Those partnerships with land operators are the only way to reduce the complexity and work in a stable environment to offer a good service to their customers.

PARTNERSHIPS WITH CUSTOMERS: LOGISTIC SERVICES

The last type of partnerships and the most important is the partnership with the customer. For companies involved in shipping who intend to survive the nineties and into

the 21st century they must have customers and a thorough understanding of their needs. I think many of the carriers have been too insular in their thinking and have ignored the requirements of those who pay the bills. They have been worried about their sea operations and reduce cost in terminals. They weren't customers driven. Now, the trend is quite different. More and more of the larger companies are looking for one stop shopping as far as overseas transportation is concerned and carriers who can provide a full service in the major trade lines will be the winners. The customers' needs must be thoroughly understood and constantly monitored and measured to make certain they are being fulfilled. Carriers that pretend to stay in this business for a long time to come have to constantly remain cognizant of the requirement of their customers.

This is the key for this industry in the future, but carriers are not working in the right direction now. The reason is not that they don't realize that fact, the real reason is that the battlefield is not the customer relationship, but prices. In 1993, the recession is continuing in Europe, Japan and starting to recover in USA. Producers and large customers are concerned about price, with a minimum service, rather than premium services.

There are remarkable examples. **Sea-Land**, a conference carrier in partnership with other global carriers, calls Boston once a week as the first U.S East Coast in a route that covers other ports in America before continuing the trip to North Europe. Lykes Bros, another American non-conference carrier, has found a niche market to compete against **Sea-Land** and their partners. Lykes thinks there is enough demand for the route Boston-North Europe and have started a new line that covers that route. It offers lower price and less time. It can charge a lower price because is non-conference carrier. It can offer a minor duration because it saves the time **Sea-Land** and their partners spend on their trip along East-Coast American ports. The result is that large companies based in Massachusetts such as Polaroid (Cambridge), Bose (Framingham) and Ionics (Watertown) are sifting to Lykes. Ionics pays \$1250 per 40-foot container after conferenced carriers

hiked its rate from \$900 to \$1785 for delivering to Felistowe (England). Other large companies are committing the minimum volume with the conferenced carriers to keep the reduction in fees while they are switching to this new operator.

This environment invites the companies to establish closer relationships with their customers but is not clear that they are achieving this goal, given the tough competitive environment they are involved. Anyway, improved economical environment would induce the customers to require better services in addition to speed, that these niche competitors can't offer.

Another example of divergence from customer partnerships is the existent trend to reduce services. Carriers offered consolidation services in Far East ports for large American customers. For instance, J.C Penney imports product from Far East countries. Carriers used to consolidate cargos from different origin in containers to some destinations in USA. That service was include in the transportation fee from the Far East to the American destinations. Now carriers are charging the service as an extra fee.

Given that facts, large customers are heading to operators that can solve them the whole transportation process. It appears companies specialized in logistical services that can provide a stable relationship with large producers, retailers or customers. I analyzed before the role that shipping companies should achieve. The shipping companies are the most interested part of the global transportation business in integrate the whole process. They have strong incentives to pursue the integration. Their investment and risks are enormous. Nevertheless, another kind of companies. the logistic companies are achieving this role. The shipping companies are losing the battle mainly because they are focusing in survive on their core business, the maritime side of the business rather than investing in increasing the scope of their services.

CHAPTER 7

STRATEGIC ANALYSIS: CONTRAST AND COMPARISON

There are two fundamental competitive strategies in the container shipping industry. First, a firm can strive to become the low-cost producer and compete on cost. Second, a firm can try to create a premium value-added service and compete through market differentiation. With the emergence in the 1970's of heavily subsidized national carriers in Asia and Europe, companies intended to maintain their market shares both abandoned hope of competing on price alone and pursued strategies to differentiate themselves from their competitors (and each other). The following sections describe the salient aspects of strategy for the six companies I selected to analyze.

GEOGRAPHIC EMPHASIS AND TARGET MARKETS.

Companies have chosen different geographic scopes over which to operate. **Sea-Land**, **Evergreen** and **Maersk** can be considered as global carriers, although **NYK** and **Hapag-Lloyd** are moving to global services. I described in the chapter 6 the strategies that **NYK** and **Hapag-Lloyd** are pursuing to enter into markets they weren't serviced before. **NYK** has provided services intermittently in Europe in partnership with other carriers but they retired from this market.

APL had only been providing services in the Pacific basin until late 1975 when it decided to create a round-the-world service, following the reopening of the Suez Canal. Nevertheless, **APL** abandoned its loss-making round-the-world service in 1977. Probably

because of this bad experience, **APL** has never tried to return to a truly global service until recently. In the 1980s, **APL** has been involved in the trans-Pacific trades. As **APL** management stated, "Because of the exceptionally strong growth performance and prospects, the Pacific Rim countries represent the best market for a containership operator at present."¹⁷

Recently, March 1993, **APL** tried to buy a 50% of the container business of East Asiatic Co, a Danish company involved principally in routes Far-East/Europe. This would be the way to enter into trades from Asia, where **APL** is strong, to Europe. That trade is forecast to have the biggest growth in the near future. The negotiations finished as **Maersk**, also Danish, was interested in that acquisition. **Maersk** has bought East Asiatic the whole container business.

Unlike **APL**, **Sea-Land**, **Maersk**, and **Evergreen** have traffic in both the Pacific and Atlantic. Nevertheless they service the market in different way. **Sea-Land** and **Maersk** focus in point-to-point services in these trades as **Evergreen** focus in round-the world services. **Sea-Land** and **Maersk**, are intermodal companies that have developed the landbridge concept in U.S. Their services from Far-East to North Europe and Mediterranean routes are made, mainly, by train in U.S. By doing that, they offer a bigger frequency for goods with American origin or destination. **Sea-Land** and **Maersk** are committed to maintain their image of market leadership and independence from external forces. So they operate worldwide and fully exploit this position.

A major benefit **Sea-Land** and **Maersk** have captured is flexibility, since they can move ships among markets to adapt to the changes in demand in different trades. Moreover, they can offer service from anywhere to anywhere. In addition to these facts **Sea-Land** and **Maersk** are working in partnership, they are integrating their information

¹⁷ Lloyd's Shipping Economist. *APC: in a confident mood*, November, 1987

systems, they provide a high quality service and they are suffering less than other operators the existent recession.

Evergreen is offering weekly round the world services. Although **Evergreen** covers all the markets, its services are very rigid. The only way, it can answer recessions, periods or changes in demand, is either by changing the size of the ships, increasing or decreasing the capacity, or decreasing the frequency. **Sea-Land** and **Maersk** are better positioned to answer to changes in markets.

Competitors of global players are constrained to movements in their markets, as they can ship containers anywhere. **APL**, for instance, needs a partner to move containers outside its market, while **Maersk** or **Sea-Land** can keep complete control over pricing and scheduling.

Table 7.1 shows who are the competitors in the two busiest markets Asia-U.S. West Coast ports and East Coast-North Europe.

Table 7.1

Top Lines between East Asia and US West Coast

	<u>TEUs</u>	<u>Market Share</u>
APL	472,451	13.4%
Evergreen	362,135	10.3%
Sea-Land	296,318	8.4%
NYK	289,917	8.2%
Hanjin	268,542	7.6%

Top Lines between North Europe and US East Coast

	<u>TEUs</u>	<u>Market Share</u>
Maersk	110,521	10.9%
Hapag-Lloyd	101,760	10.0%
Sea-Land	98,850	9.7%
Evergreen	90,402	8.9%
OOCL	87,819	8.6%

Source: Journal of Commerce

GOVERNMENT REGULATION, CONFERENCES AND CARTELS

Subsidies

Perhaps the critical difference in the strategies of analyzed companies has been in how they are supported by their governments and they are taking advantage of that kind of external factors, so important in this industry.

For instance, developing countries support their shipping companies, by protecting them from competitors, even with financial help. **Evergreen** may be an example of company protected by its government, Taiwan. I am not able to probe rigorously that affirmation. It is very difficult to find that kind of information in regular sources such as financial or companies' annual reports. In the case of **Evergreen** this public information is harder to find, because it is difficult to get that common source of information from them or independent analysis.

American companies regard the subsidies offered by the United States government in a very different way. American President has historically been the largest recipient, while independent-minded **Sea-Land** has always shunned the subsidies. It is difficult to overstate the importance of the subsidies to American President. **APL** and Lykes Bros., a smaller private U.S. carrier, together combined for 80% all subsidy receipts. The effect of the ODS on **APL's** operating income is important. The ODS accounts for the majority of net income, and often makes the difference between turning a profit and a loss. In fiscal year 1991, **APL** has received a subsidy of \$70 million, the net income with subsidies has been 54 million.

That has been happening for at least last ten years. In return, **APL** had to guarantee to maintain regular services between the U.S. West Coast and the Far East and to undertake to replace certain of its existing ships with newbuildings, to be constructed in U.S. shipyards. So the price paid was in the form of constraints on two of the most

significant strategic decisions for a carrier line - route structure and ship acquisition. **APL** believed that the large infusions of subsidy cash justified the higher costs of U.S. built and U.S. crewed ships. What **APL** did not foresee was the effective discontinuation of the ODS in 1997. Even so, with the end of the construction differential subsidy in 1981, ODS operators were hamstrung for a decade, since without the CDS they could not afford to build new ships that would qualify for the ODS. Of course, they were free to build abroad and operate unsubsidized, as **Sea-Land** had always done.

Sea-Land figured it could beat the U.S. subsidy system by building abroad and gaining freedom to operate where and how it chose. Indeed, **Sea-Land** benefited from this freedom in its opportunistic purchases of foreign built second-hand ships and its fluid entry and exit of trade routes. While ODS recipients were petitioning the government for exception to the 'US-built' requirement, **Sea-Land** continued to make capital acquisition decisions based strictly on economic issues.

NYK as other Japanese companies has been benefited from subsidies to the shipbuilding industry. Nevertheless the amount of subsidies is remarkable lower than the subsidies received by **APL**. In fiscal year 1991, **NYK** received \$2,5 million, 3.6% of **APL**'s.

Other companies are also subsidized by having reduced taxes. **Maersk** in 1991 didn't pay taxes, and on its financial statement doesn't appear any account of deferred taxes. The amount of tax savings for **Maersk** Group in 1991 was around of \$95m, this amounts is bigger than **APL**'s subsidies. In the complex system of companies of the AP Moller-**Maersk** Group, there are transfers of capital between companies that mean an important support of the Danish government to this group.¹⁸

¹⁸ Baakkonen, R. Fernandez, M and Harada, M., *A Financial Performance Analysis of the Shipping Industry (APL, NYK, and Maersk)*. 15.535 Term Project April 1993

Conferences

Most important companies belong to conferences, with the exception of **Evergreen** that is member of some conferences but not all. For instance, It is a member of SEUSA (Mediterranean conference) but it is not a member of the Pacific and North Atlantic rate agreements. On these busiest trades, they are competing with a low-price strategy against the conferenced members. **NYK, Sea-Land, APL, Maersk** and **Hapag-Lloyd** are active members of the main conferences.

As conference members would like to commit independent carriers as members too. It is free to become a member.

So companies pursue different strategies depending on their own circumstances. For instance, **Sea-Land** and **APL** have pursued different strategies related to the rate-setting conferences. **APL** has consistently been an active conference member. **Sea-Land** has joined and exited conferences according to its price-setting strength and current strategy. In fact, **Sea-Land** resigned from a dozen of the various conferences in February 1980. It felt it was enough strong to establish its own rates lower than those of the conferences. This was a strategy to take advantage of the conference's slow reaction to aggressive outsider pricing. **Sea-Land's** resignation gave rise to a strong decline of rates, forcing several shippers to retire ships. This undermined **Sea-Land's** intent, since, in the classic cartel dilemma, all **Sea-Land** achieved in the long run was to reduce the market rate without gaining market share. By 1990, with its attendant depressed prices, both companies are again members of the main conferences. **Maersk** has been out of conferences until 1990, when it decided the incorporation. Now **Evergreen**, is taking their previous strategies and it is fighting with low prices for increasing market share. Now, conference members are strong companies that can establish high prices.

While conferences, according to the Shipping Act of 1984, cannot fix rates, companies agreed to create organizations with this objective, two organizations have been

created in the Pacific, the Asia-North American Eastbound Rate Agreement (ANERA) and the Westbound Transpacific Stabilization Agreement, (TWRA) and one in the Atlantic, the Trans Atlantic Agreement, (TAA). Most important companies pushed for their creation. The goal is to keep the rates stable and foster a market recovery in their markets. **Evergreen** is not a member of these Agreements, so it is establishing its own rates. The competition that **Evergreen** is doing is so important that the weakest carriers are going out of business or changing their strategies continually

CAPITAL INVESTMENT AND FINANCING.

In the international container shipping industry, ships (and the operating costs implicit in the choice of size, speed, and power plant) are naturally the greatest expense. Analyzed companies have pursued various strategies in the acquisition and financing of their fleets.

Sea-Land's fleet strategy can be described as the most innovative and opportunistic in the industry. Starting in 1969, when it ordered eight behemoth steamships (the SL-7's), **Sea-Land** has set the pace in ship capacity and fleet strategy. The steam-powered SL-7's were the largest, fastest (up to 33 knots) containerships yet built. The plan was that, since all conference members charged the same rate, all the best business would go to **Sea-Land**, with its faster delivery and ground connections. In 1986, ever-vigilant **Sea-Land** bought the entire 26 ship fleet of bankrupt US Lines, including 12 giant (1728 FEU, 40% larger than **Sea-Land's** largest) ships built just the year before by Daewoo. These new ships, designated Atlantic Class, were purchased for \$13.5m each, only 29% of the newbuilding price. All of this was made possible by **Sea-Land's** opportunistic strategy to buy ships when they come available, and decommission non-competitive ships; **APL**, with its ODS restrictions, could not take advantage of these opportunities in the same way.

APL has been more conventional in its ship acquisitions, placing long-term orders with major domestic ship builders. As mentioned above, it did not take advantage of

foreign-built second-hand ships, and domestic-built second-hand ships were either obsolete or simply not available.

American companies, **APL** and **Sea-Land**, have used different methods to finance their ships. **APL** has built on its good reputation with investors, and has been able to finance most of its expansion through issuance of bonds and convertible preferred stock. By minimizing its dependence on traditional mortgage markets, **APL** has been able to obtain its financing at attractive rates, thus keeping down interest payments. On the other hand, the continual innovator **Sea-Land** introduced the concept of sale-leaseback of ships to the industry in 1987 (with the guidance of **CSX**, who has long used the method to finance railroad rolling stock). By 1988, **Sea-Land** had refinanced half of its fleet by selling ships to U.S. investors seeking tax benefits. This enabled **Sea-Land** to raise \$1b in cash, while keeping full operational control of the ships over the 20-year leases. **Sea-Land** used the funds to partially pay down long term debt, but operating costs increased because the lease payments were 50% higher than what depreciation expenses would have been (this was a \$34m difference in 1988). The substantial improvement in cash flow at the expense of operating costs is frequently an acceptable trade-off for a capital-intensive industry. **APL** followed and by 1990 had placed one third of its fleet in sale-leaseback arrangements.

NYK takes advantage of the Japanese rules in Financial reporting. **NYK** has subsidiaries in countries whose shipping regulation allows them to reduce costs, "flags of convenience" countries. Subsidiaries own ships that lease to **NYK**. The **NYK** is the operator as it owned the fleet, but they can charge the leasing rents as operating expenses instead of depreciation. But simultaneously its subsidiaries are depreciating. Almost 70% of the **NYK's** fleet is chartered in that kind of deals. Moreover, **NYK** takes advantage of the close relationship of Japanese banks with companies belonging to the same *keiretsu*. **NYK** is a member of the potent Mitsubishi group. The complex financial relationship

among companies in Japan allows **NYK** to have operating an extensive fleet in all aspects of the shipping business.

As I expressed before, it is difficult to have information about **Evergreen**. It is investing strongly in new ships. It seems that **Evergreen** has important sources of cheap capital or may be they are financing from profits of other activities of the same industrial group. **Evergreen** Group is so important and powerful that it tried to buy McDonnell Douglas last year. **Evergreen** has had a strong program of investing in new ships that when they ordered 16 giant containerships they surprised everybody. Recently, March 1993, it bought a Japanese shipyard, Hayashikane Dockyard Co, that allows it to build 1200 TEU ships that it will dedicate to the traffic with China. China's relatively small ports require mid-sized containerships. Although direct transportation between Taiwan and mainland China is now banned by Taiwan. **Evergreen** will be able to ship Chinese goods through third countries, particularly Japan and Hong Kong.

Maersk, build its ships on shipyards belonging to the same group. Only twelve out of 70 ships are leased. **Maersk** doesn't care about buy or lease as strategy to finance its ships. It doesn't pay taxes, so it can not take advantage of tax shields from depreciation. So it is free to choose one strategy or another depending on market forces. The **Maersk's** financial performance so good, 35% of its assets are cash and marketable securities, that its strategy for financing and acquisitions has no restrictions.

Hapag-Lloyd owns most of its ships, although now due to the recession and decreasing profits, it tries to reduce its operating expenses by transferring its Germany fleet to flags of convenience.

REORGANIZATION AND FINANCIAL PERFORMANCE.

Most shipping companies are involved in the process of radical reorganization prompted by miserable financial performance

One area where main companies definitely agreed at the end of the 1980's was in the area of restructuring to cut costs. American President had pursued an aggressive expansion strategy throughout the 80's. This was promoted by **APC** president and CEO Seaton as an effort to "take **APC** out of the extreme cyclicality associated with pure container shipment and turn it into a genuine growth stock...and enhance the quality of our earnings."¹⁹ The justification for this was the desire to create a complete transportation company offering such a wide array of value-added services that **APL** would become immune to fluctuations in rates. When John Lillie was named the new CEO in 1990, this strategy had resulted in high costs - but poor revenue showings. Lillie immediately undertook a radical restructuring based on four objectives: staff cut-backs and better staff training; streamlined business operations and decision making; improved marketing techniques; and rigorous financial management.

Sea-Land has been involved in reorganizations last two years. Last year, **Sea-Land** cut costs by roughly \$100 million through layoffs of at least 500 workers, consolidation of several offices, and sale-leaseback deals on aging vessels. This year more cuts may occur at **Sea-Land** particularly because of its money-losing services to North Europe and the Mediterranean.

Hapag-Lloyd also is still losing money from shipping. Although the whole group would report a profit for 1992, the liner shipping division would show a loss of between DM50 M and DM 60M. The company, which also has extensive tourism-related business, made a profit of around DM40 million from liner shipping in 1991. Job cuts are inevitable, given the greater use of computer systems and the increasing level of cooperation between lines that reduces the number of staff required. As well as cutting staff members (500 people over the next two years), the **Hapag-Lloyd's** executive board

¹⁹ Lloyd's Shipping Economist, November, 1987

also decided to transfer some of its ships from the German flag to a cheaper register, probably Singapore, since it could save several million dollars a year

NYK, Evergreen and Maersk, in spite of recession, are earning money. Their net profits for 1991 are 1%, 4%, and 8%, respectively and they have been profitable last three years. They are not announcing any special reorganization to reduce costs.

VALUE ADDED SERVICES: INTERMODAL, LOGISTICAL AND INFORMATION SYSTEMS.

The main weapons used by main companies to differentiate themselves from their competitors (and each other) are intermodal and logistical services. The quality of these services gives rise to the fight for the high-end of the market. Because of the vast network of resources (ships, trains, trucks, terminals, information systems, etc.) required to operate an intermodal-logistical service, these companies can effectively eliminate competition from small or foreign carriers. The aggressiveness with which they pursued these strategies reflects their value as barriers to entry.

APL was the first mover in intermodal stack train service, which effectively formed a "land-bridge" between the Atlantic and Pacific. This was a major innovation, since it saved shippers from a slow, costly trip through the Panama Canal, and expanded **APL's** sphere of influence throughout North America. **APL** still maintains the greatest stacktrain capacity, even in the face of **Sea-Land**, who is backed by railroad giant **CSX**. American President's CEO, W.B. Seaton, commented in the 1986 Annual Report: "American President is aggressively expanding its premium transportation and distribution services and exploiting its logistic and information management capabilities to develop new packages that will provide additional value to customers to further differentiate its service from competitors." He continued: "**APL** is moving beyond the business of transportation into that of distribution. Distribution involves understanding, managing, and even

controlling overall economics of the total move, including all the related domestic and foreign segments in the distribution or product-manipulation processes."

American President described its Information System in "Jane's Containerization Directory 1989-90": "APL has developed state-of-the-art systems for automated documentation, customs clearance, and numerous administrative and operational functions. It supports Electronic Data Interchange (EDI) transactions with customers and vendors. Also APL is innovative by incorporating new technologies in the transportation business. APL is outfitting its marine and intermodal containers with special radio identification tags. The "automatic equipment identification" tags emit special radio signals for containers. Instead of visually logging numbers from containers, operators can use various types of AEI scanning device to download equipment information directly into their computer systems. The move, which could cost the ocean shipping and intermodal transportation company between \$15 million and \$20 million to adopt, represents the first large-scale implementation of automatic tagging technology systemwide by an international carrier. This technology is already in wide use in the railroad industry. The use of AEI tags and scanners speeds up container operations, improves tracking ability and prevents errors in information input, according to supporters of the technology.

For instance, truckers usually have to stop at the gate of a container terminal and verbally relay shipment information to the gate clerk. The clerk types the information into the computer system and then instructs the trucker where to drop off or pick up a load.

With the AEI technology, a scanner collects the information as the truck with the tagged container rolls up to the gate. The information is automatically download into the computer system, speeding up the entry procedure. Using the technology, operators also can take container inventories by simply driving a mobile scanner through a container yard. The Transportation industry adopted a set of standards to govern the use of AEI tags in 1991.

By acquiring **Sea-Land**, **CSX** reinforced its long-term strategy to transform **CSX** from a regional railroad into an international transportation company. The result is a synergy between both companies - **CSX** provides the land transportation and **Sea-Land** the ocean transportation. The company's acquisition of **Sea-Land** gives it access to Pacific Rim countries, where much transportation volume currently originates. This strategy is useful for both. Nevertheless, the railroad transport in U.S. is not the unique synergy between **CSX** and **Sea-Land**. **CSX** and Russia have reached an agreement to manage the Trans-Siberian Landbridge service between Vladivostock or Nakhodka and Leningrad. This service has sufficiently grown to pose a substantial menace to the Europe/Far East trade. If **CSX/Sea-Land** achieve the development of this service to link the Pacific with Europe, they would beat the competitors. Under unified management, it is possible to coordinate both activities, and to expand services such as logistics, marketing, and information systems. **CSX** created **CSX/Sea-Land Logistics (CSLL)**. This company is being used by a number of pioneering companies, most of them exporters to the U.S.. **CSLL** is most concerned about getting the job done the best way for the shipper, even if it means using other transportation and distribution vendors. **CSLL**'s managing director and senior vice-president, Hugh Randall, says the firm offers customers resources that are key to logistics success - computer system capabilities and international transportation expertise.²⁰ It does not make any money on transportation services. Revenues come from fees that are negotiated at the beginning of a project. They are concerned about getting the job done the best way for the shipper (but they know the strengths of their parent companies). **Sea-Land** offers a range of services to the customers based on information systems: **SEA-TRAC** which enables customers to book and subsequently track their consignments anywhere within the corporate transportation network; **SEA-RATE** which allows customers to automatically calculate and apply tariff

²⁰ "All ashore that's going' ashore." *Purchasing*, November 1989

rates to their consignments; and SEA-PAY which allows customers to automatically settle freight bills.

Evergreen doesn't provide this kind of value added services. Its strengths are high quality marine service, reliability and low cost. But it is not able to offer intermodal services or provide quick information about the containers. Mainly, **Evergreen** covers that kind of services through NVOCC or forwarders but these agents are not able to provide the quality of service than other competitors are providing.

NYK provides intermodal services in U.S, by connecting double stack train services from the West Coast ports to main regions in Midwest and East Coast. Also **NYK** has its own IT system called WINS. They intend offer and collect information to suppliers and customers. Nevertheless, they are having troubles on its development in U.S. At the moment it has meant the loss of a job for some senior managers at Yusen Terminals a subsidiary of **NYK**. Yusen has fired a senior vice-president and transferred its Japanese head of the terminal after repeated problems with the computer software that was to automate many of the functions at the terminal in Los Angeles. The system is designed to run everything from gate openings to tracking inventories to most functions involved in moving cargo from the ship to terminal exit. Once they solve those problems they would be able to offer a good service to their customers. Anyway, its system is developing at least three or four years later than American companies' systems.

Maersk has also a developed network of intermodal solutions for its customers in U.S. Moreover, **Maersk** Line's Global Computer network encompasses more than 125 of its offices, and ensures fast and smooth on-line communication and data exchange. The **Maersk** satellite-based network also offers customers the advantages of receiving instant, exact and detailed information on shipments at any time during the transportation. **Maersk** Line provides EDI at major centers worldwide and directly to many of its business partners.

Hapag-Lloyd differs from American Companies, **Maersk** and **NYK** because they don't provide intermodal services in U.S. They prefer all-water services through Panama Channel. Anyway, **Hapag-Lloyd** operates a number of electronic data systems worldwide for cargo booking, container logistics, equipment control and dangerous cargo information. Customers in most trades can communicate with **Hapag-Lloyd** on-line.

Information System Agreement

Main companies in the Liner shipping industry joined to sign that agreement related with IT. It was formed in 1991 by **APL**, **Sea-Land**, **Maersk**, **P&O** and recently joined the group **Hapag-Lloyd**, **OOCL**, and **Crowley Maritime**. The mission is similar to other industry groups that work to set internationally that reflect the realities of their industry. ISA works with ports and government agencies to "streamline" electronic data interchange, or EDI standards on a global basis. The goal is to maximize the use of information technologies for the benefits of shippers, carriers in the maritime industry who needs information.

Both American companies and both European companies are members of this agreement, while **NYK** and **Evergreen** are not members. This is an important data to disclose the relative importance than shipping companies give to IT issues.

CONCLUSIONS AND FUTURE PROSPECTS FOR THE LINER SHIPPING INDUSTRY

Top companies enter the 1990's after pursuing expansive strategies aimed at building differentiation through value-added services. These strategies necessitated immense capital investment in an uncertain cyclical market, with the resulting earnings difficult to predict. However, as demonstrated by erratic (and low) earnings, there is doubt whether all of these carefully planned premium service strategies can be translated into profits. Some companies as **APL**, and **Sea-Land** and **Hapag-Lloyd** are now adopting defensive postures, as evidenced by recent restructuring, after long campaigns of offensive expansion in the 1980's. Powerful market forces have thwarted the carriers' attempts to enhance revenues; rates seem disconnected to capital expenditures. In general, companies may have overestimated the value placed by customers on premium service. Other operators are certainly less sure of the profitability of full service, and firms like **Evergreen** prosper by offering bare-bones service. The main concerns revealed by customers have been price and reliability. Some companies are now questioning whether they have been chasing a myth that they wanted to believe, and have paused to act on areas where they have direct control - organizational structure and cutting costs.

Looking to future, firms are beginning to converge in their strategies, but several significant differences remain. Industry analysts have christened the 1990's the decade of cooperation, in contrast to the 1980's decade of confrontation. Cooperation among carriers is continually increasing. Almost all the carriers are involved in partnerships to reduce their costs and increase frequency of services.

Trade in the Pacific Rim is expected to increase as China and Asian countries are increasing their production capacities. Top companies are increasing their services, some of them maintaining their position and others expanding by entering into partnerships with Pacific carriers. Trade between Asia and North Europe is also projected to increase.

Carriers have two choices, either by using all-water service through Panama Channel or using the landbridge between the U.S. West Coast and the U.S. East Coast as a land segment between both sea segments. Carriers as **Evergreen** and **Hapag-Lloyd** will focus on all-water services while intermodal carriers as **Sea-Land**, **APL**, and **Maersk** will focus on intermodal services. On the other hand, **Sea-Land**, while strong in both areas, is better able to capitalize on the unification of European trade. In fact, **Sea-Land** has negotiated with Russia the creation of a Euro-Asian "land-bridge" stacktrain service across the country to connect Europe and Asia directly. If successful, this would revolutionize that trade.

In conclusion, **Sea-Land** and **Maersk** appear to be better situated in almost all the broad areas of strategy considered (geographic emphasis and target markets, government regulation and conferences, and value-added services). It is remarkable that both companies are working in partnership on the main trades and are increasing the scope of these agreements. **NYK** and **Hapag-Lloyd** are second tiers. Both intend to be global and provide value added services. Although they follow the same strategies than **Sea-Land** and **Maersk**, they provide fewer services. Also, it is remarkable that both are working in partnership in some common services. **APL** is focused in the Pacific and is very strong, its value-added services are as good as **Sea-Land** and **Maersk's** but it can not reach other customers outside the Pacific Rim. Its expansion strategy to the Atlantic will position it in the same level than **Sea-Land** and **Maersk**. **Evergreen's** strategy has so far been successful. If world economics improve and countries come out of the recession, customers will require high quality services that **Evergreen** may not offer. Clearly customers will require seamless transportation operations. **Evergreen** by itself can not offer that service. It will need the help of logistic companies to work. **Evergreen** may start the process to acquire these capabilities to satisfy future customer requirements or it may have to depend on third parties.

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APPENDIX

COMPANIES AT A GLANCE

SEA-LAND SERVICE

Headquarters: Edison, N.J
President and CEO: John P. Clancey
Parent Company: CSX Corporation

Operations

CSX: rail freight, container shipping, intermodal, barging, logistics management, trucking, warehousing, distribution and related services, real estate and hotels.

Sea-Land: container shipping, intermodal freight transportation and related trade services. In 1991, operated 87 containerships (owned and leased), and 1'5,000 containers.

Services

Sea: Main services

US East Coast/ North Europe, weekly
 US South Atlantic/Gulf Coasts to UK/North Europe, weekly
 Pacific Northwest and Southwest services.

Pacific InterAsia

Asia/Europe

Intermodal:

Service via doublestack train from Long Beach and Tacoma to Midwest, East Coast, Southeast and Southwest.

Europe Inter Port Service, network of feedership, inland intermodal services and Rhine river barge services to 23 countries through Northern Europe and the Mediterranean.

Partnerships:

Europe Middle East/Sub-Continent, joint service with Maersk and P&O, weekly

US West Coast/East Asia in partnership with Maersk

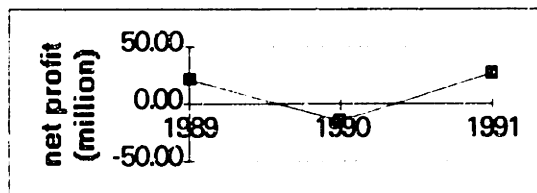
US East Coast-Canada/Dubai-India joint service with Maersk and P&O, weekly

Joint Service with Trans-Siberian Railroads, landbridge service between Asia and Eastern Europe.

Financials²¹

	1989	1990	1991
Revenue	\$2,343	\$2,664	\$3,238
Net Income	\$21	(\$15)	\$27

(million)



²¹ Source: CSX Corporation, 1991 Annual Report, Note 18. Summarized Financial Data- Sea-Land Service Inc.

AMERICAN PRESIDENT LINE

Headquarters: Oakland, CA

President and CEO: J. (George) Hayashi

Parent Company: American President Companies Ltd

Operations

APC: International and domestic transportation, and real estate

APL: Container shipping. In 1991, operated 24 containerships (owned and leased), 58,500 containers and 50413, chassis.

Services

Sea: Main services

US Pacific North West/Far East, weekly

California/ Far East, weekly

Pacific InterAsia, feeders to serve south and west Asian ports over Kaohsiung (Taiwan)

Intermodal:

Double stack train services linking major metropolitan centers of the U.S. and extending into Canada and Mexico

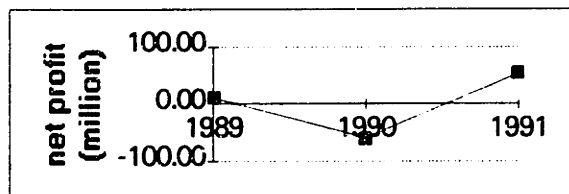
Partnerships:

Pacific Service with OOCL (Hong Kong)

Financials²²

	1989	1990	1991
Revenue	\$2,234	\$2,270	\$2,449
Net Income	\$11	(\$60)	\$54

(million)



²² Source: American President Companies, 1991 Annual Report. It includes domestic transportation and real estate. Real estate accounts for 0.7% of revenues.

EVERGREEN MARINE CORPORATION

Headquarters: Taipei, Taiwan

Officials: Y.F. Chang, Chairman; K.H. Chang, President

Operations

Ocean Shipping and distribution, real estate, hotels, leisure, aviation, container manufacture, refurbishment, chassis production, container terminals, computer software development, specialist steel, civil engineering, and construction. In 1991, operated 51 ships, capacity for 117,418 TEU (20ft equivalents), and 260,000 containers.

Services

Main Services:

Round-the-World Service/Eastbound, every 7 days

Round-the-World Service/Westbound, every 7 days

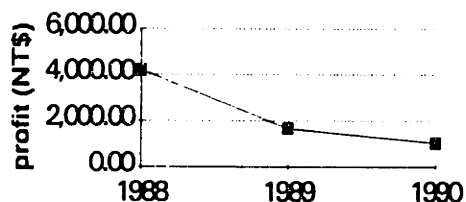
Far East-U.S. Pacific North West, every 7 days

Taiwan, Hong Kong-US West Coast Service, every 7 days

Financials²³

	1988	1989	1990
Revenue	26,065.40	25,825.36	27,900.50
Net Income	4,208.53	1,665.92	1,034.99

(million New Taiwan \$)



²³ Source: Center for International Financial Analysis & Research, Inc., *CFARbase (TM) INDUSTRIAL*, January 13, 1993



NIPPON YUSEN KAISHA (NYK)

Headquarters: Tokyo, Japan

Officials: Kimio Miyaoka, Chairman; Jiro Nemoto, President

Operations

Ocean Shipping: liner services, tramp, tankers and specialized carrier services, passenger cruise and marine leisure, and real estate. In 1991, operated 52 containerships (7 owned and 45 chartered), with capacity for 65,166 TEU (20ft equivalents), and 86,615 containers.

Services

Sea: Main services

Japan/ US Pacific South West, weekly

Japan/ US Pacific North West, weekly

Japan - Honolulu, twice a month

Far East - US West Coast, weekly

Intermodal:

Double Stack Train system transfers containers weekly between US West Coast ports and Mid-West, East Coast and the Gulf.

Partnerships

Far East/New York in partnership with Mitsui OSK, every 10 days

Far East/North America/Europe in partnership with **Hapag Lloyd** (Germany) and NOL (Singapore), twice weekly.

Mediterranean/Far East in partnership with

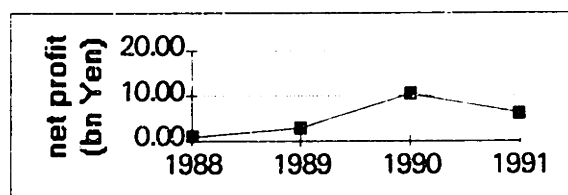
Far East/Red Sea in partnership with Mitsui OSK and Ben Ocean

Japan - Korea/SE Australia in partnership with Mitsui OSK, Y-S Lines, AJCL, K Line, ANL and CYS

Financials²⁴

	1988	1989	1990	1991
Revenue	641.40	649.50	755.30	842.4
Net Income	0.80	2.90	10.50	6.2

(billion yen)



²⁴ Source: NYK: 1991 Annual Report

MAERSK LINE

Headquarters: Copenhagen (Denmark)

Chairman: Maersk Mc Kinney-Moller

Parent Company: A.P Moller Group

Operations

A.P Moller Group: Container services, tankers and gas carriers, bulk and special vessels, offshore drilling rigs, oil and gas production, shipyards, airline, information systems, supermarkets,...

Maersk Line: Container services and tankers and gas carriers. Operates a fleet of 31 containerships with capacity of 90,000 containers. It has about 125,000 containers in service

Services

Sea: Main services

US West Coast/Far East, weekly

US East Coast/West Coast/Far East, weekly

InterAsia feeder services.

US West Coast/US East Coast/Europe, weekly

Inter-Europe feeder services

Intermodal

US North West Coast ports with Chicago, New York and East Canada

California- Gulf- South East Coast

Germany service

Partnerships:

North Pacific in partnership with Sea-Land, five weekly sailings

US East Coast-Mediterranean in partnership with Sea-Land and P&O (Great Britain)

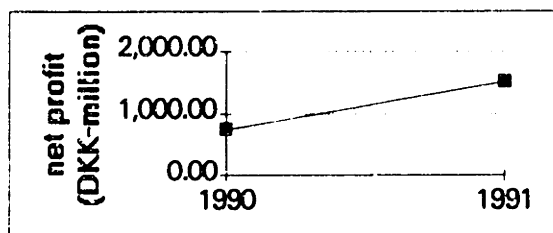
US East Coast-Canada/Dubai-India joint service with Sea-Land and P&O. weekly

Europe/Far East with P&O, offering two weekly sailings

Financials²⁵

	1990	1991
Revenue	16,824	20,185
Net Income	743	1,518

(DKK million)



²⁵ Source: Dampskibsselskabet AF 1912 A/S, *Accounts 1991*. This company and its twin A/S Dampskibsselskabet Svendborg are the public companies that reflect the accounts of A.P Moller Group. The accounts for the Liner Shipping business is together with tankers and gas carriers included on the accounts of Tankers and Liners in Partnership, owned 50% by these companies.

HAPAG LLOYD

Headquarters:

Hamburg (Germany)

Chairman:

Hans Jacob Kruse

Operations

Liner services, passenger cruise and marine leisure, tourism passenger airline, and travel agency. Operates 24 container ships, 60,604 TEUs of capacity. Also has 117,768 containers.

Services

Europe/US/far East **Hapag-Lloyd** services are made in partnership with other companies.

Partnerships:

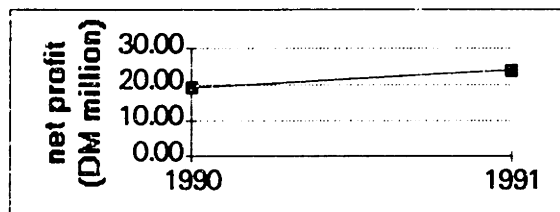
Far East/ North America and Europe in partnership with **NYK** (Japan) and **Neptune Orient Lines** (Singapore)

Seattle/Oakland Shuttle in partnership with **Matson Navigation Co.** (USA)

Financials²⁶

	1990	1991
Revenue	1,839	1,892
Net Income	19	24

(DM million)



²⁶ Source: Hapag-Lloyd, 1991 Annual Report. Data correspond to Liner Services Business.