

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT  
Geneva

# **REVIEW OF MARITIME TRANSPORT 2000**

## **Chapter VI**

### **Trade and Transport Efficiency**



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## Chapter VI

# TRADE AND TRANSPORT EFFICIENCY

*This chapter provides an update on the impact of the latest developments in the field of multimodal transport and on the emerging role of internet-based transportation service providers, as well as providing information developments in the legal sector and with training.*

### **A. DEVELOPMENTS IN MULTIMODAL TRANSPORT**

#### **(a) General developments**

121. The year 1999 passed with one disturbing question about what might happen after New Year's eve on 31 December 1999. The Year 2000 bug, commonly known as Y2K, was one of numerous potential disasters that many people, including transport operators, were doing their utmost to avoid. The bug was taken seriously because virtually everyone would be affected through the global interconnectivity of computer networks. Solving the problem would mean making sure that all computers correctly stated the date and time when they entered the millennium. Ignoring the problem would have a directly disruptive effect on institutions whose data precisions depended on the time element of database information, such as bank accounting, airline scheduling, market analysis, and many more. This disquiet had driven most of the world's major institutions to undertake basic computer software and hardware preparations to ensure that their worldwide computing networks were Y2K compliant.

122. International trading flows were among those heavily affected by the financial crisis experienced by Asia and Russia. In the area of trade facilitation, the impact of the crisis was also reflected by the negative growth and revenue of the container leasing and production industries that these countries had to endure during that period. The crisis was short-lived, however, and by the third quarter of 1999 demand had gradually improved in Asia and Russia alike.

123. E-commerce started to have an impact on the logistic industry. It began to redefine the efficiency of distribution by adding yet another dimension in the area of the supply chain. Bigger companies had begun cultivating the power of e-commerce to address the needs of their individual clients and distributors more efficiently by forming a community of supply-chains. The hope was that the new model of distribution would eventually reduce unnecessary inventory buildups held by trading partners. Analysts suggested that such a model would allow the distribution system to flow not in the traditional linear way but in more of a networked manner. In a similar way, E-trade facilitation had also given rise to a new type of trader who would offer and be able to facilitate interchanges of container equipment for shipping lines. Such traders, now called e-lessors, would grow to become an integral and important part of the players in the container leasing industry.

#### **(b) E-trade facilitation**

124. Trade facilitation now has a new dimension "trade facilitation" (etf). The newly developed Internet technology, when combined with the vast knowledge and expertise of the shipping world, may become the centralizing environment for the complex and dispersed global industry of shipping. At one level, an etf web site may become a virtual marketplace that brings together transport users and providers from around the world. As a system, it helps to streamline the current overburdened administrative aspect of the transport industry. E-trade facilitation can be the catalyst for a substantial change which will redefine the management of trade within the industry.

125. A good example of an etf site may be the LevelSeas.com site. This provides market intelligence, online charting, pre- and post-fixture activities, risk management tools, and freight derivatives to constitute a comprehensive freight management service for the seaborne wet and dry bulk commodity shipping community. The site delivers added value to the participants of the industry by providing greater market access and greater efficiency, and by lowering costs. The site does not discriminate against any player in the industry.

126. Another type of etf instrument serves as a tool in helping to manage one segment of the supply chain. An example is that of stevedores and chief officers working interactively on the same stowage plan. Currently, a website developed by a joint effort of Canada-based Autoship Systems Corporation (ASC) and the Internet Service Provider/Active Server Pages (ISP/ASP)-provider Stargate allows for a load-planning software to be used remotely through the site. All that a user needs is a PC with an internet connection. Another site, called Vendor Interface, is also a new etf instrument, which provides a channel for managing the drayage segment of intermodal shipments. The site is developed by Cysive Inc. and Hub Group. The idea is to enable Hub Group and its drayage partners to keep permanently in touch by means of the Internet. The site is designed to improve operational efficiency, eliminate redundancy and provide processing of orders all day long. For shippers, the site offers increased information visibility throughout the supply chain, and high quality communication and tracking. For operators, such as Multimodal Transport Operators, on the other hand, the site become a means to select appropriate carriers for each shipment based on cost, dates, location and cargo. This is all done online, where shipments are offered for carriers, terms are set, and deliveries identified and authorized.

127. With a digital camera, etf may help to reduce truck queues at marine container and intermodal terminal gates. By having webcams, digital cameras designed for the Internet, installed at the gates, one may access a designated site for information that would cut down on idle trucking time and help to track containers. Sites, such as eModal.com, gather information from shipping lines and sort and consolidate it into an easy-to-read format ready for enquiries on specific containers.

128. A more advanced etf system uses the latest and more sophisticated Global Positioning System/Global System for Mobile Communication (GPS/GSM) tracking

unit. It has an antenna and dual band GSM modem. The unit is designed to locate moving units such as containers, trailers, trucks or rail freight cars. As a system, it gathers data from the unit to be processed and stored in an information centre where customers may obtain relevant information via fax, telephone, Short Message Service (SMS), Wireless Application Protocol (WAP) or over the Internet. As regards tracking transport equipments, the system would gather the positions and status of any number of tracking units installed on the equipment and process them into a formatted table that could be evaluated by any combination of fleet management or dispatching systems owned by customers. This system is now being used in Europe and is commonly known as the MobileHound SAM Cargo System. The system sends the gathered data to proTime "Fleet Services" information centre to be processed.

129. A simpler yet integrated system for monitoring all stages of the supply chain is also starting to evolve as another type of etf system. This supply chain monitoring system relies heavily on the information coming from all those involved with a shipment, such as producers, transporters and storage providers, freight forwarders and surveyors. The system processes the information to provide an unobstructed and timely view of critical logistics data. It also allows participants to sequence and optimize the bulk material supply function. Stolt-Nielsen SA is currently implementing the system, calling it TransLink, an internet-based, open logistics system for chemical and related materials shipped in bulk.

130. Sea Box, a US container trading and design company, established a virtual marketplace on the Internet, which is called ISOContainers.com, a site for buying intermodal equipment worldwide. It is a 24-hour service, which includes a real-time inventory that is globally available in over 200 international inland and port cities. Customers may enquire about the type, location, condition and cost of the equipment, as the facts are always updated every quarter of an hour. This is just another new feature of the evolving E-trade facilitation.

### (c) **Container leasing industry**

#### *A general overview*

131. The container leasing industry has been in a difficult leasing market for the past few years. The utilization rate has deteriorated. The per diem rental rates and the prices of new boxes have plummeted, affecting the direct investment strategies of carriers and lessors alike.

132. Lessors have found themselves in direct competition with shipping lines and other transport operators in terms of acquiring new containers. Responding to the drop in prices of new boxes, lines and other transport operators acquired about 720,000 TEU in 1998, which was a 30 per cent jump from the purchases made a year earlier. Lessors, on the other hand, were not fully able to adjust their rental rates to the fall in prices of new containers because of the massive number of boxes they bought when prices were substantially higher. The rental rates had to remain somewhat rigid in order to cover the depreciation cost of older boxes. The new and cheaper boxes acquired by carriers thus significantly reduced carriers' demand for the relatively more expensive leased containers. Responding to the weak world demand for containers, lessors consequently had to curtail their purchases for new containers, and in 1998 acquired only 755,000 TEU containers, i.e. 45,000 TEU less than what they bought a year earlier. The share of boxes owned by carriers, in the meantime, increased substantially in meeting world demand for containers.

133. In general, the weak world demand for leased containers had led to the worsening of the utilization rates of leased boxes and the growing stockpiles of idle containers at unattractive locations in Europe and North America. Indeed, lessors were facing tough times in generating a profit. Compared with the newcomers to the industry, long-established lessors were holding a wide range of equipment that had higher depreciation rates than their own replacement cost.

134. Thus, besides restricting their purchases of new containers, lessors began to look for other cost-saving strategies, such as fleet mergers and management takeovers, mainly to achieve economies of scale. As shown in table 44, Genstar and Sea Containers merged in 1998 to form GE SeaCo with a more than 1.1 million TEU making it the second largest player in the industry. Textainer Group decided to expand its fleet by acquiring smaller sized PriceSource in 1998 and Xtra International in 1999. Such consolidations obliged the newly formed leasing companies to retire a large number of old containers that were classified as uneconomic. As a result, for the past few years, the fall in the lessors' direct investment was minimized as the yearly disposal rate was maintained at around 300,000 TEU (see table 45). The fact that older containers were retired earlier through consolidations, and that the top five leasing companies controlled about 70 per cent of the leasing market share, the rental rates adjusted better to the changes in

prices of new containers. This, in turn, helped to prevent the utilization rate of leased containers from falling too fast.

135. Retiring older containers through consolidations, however, did not entirely remove the problem of idle containers at low-demand areas. The companies with the largest stockpiles had to relocate their idle containers to areas with higher demand for export containers as this was cheaper in the long run than paying the mounting storage cost.

136. As mergers promote economies of scale that streamline performance within the industry, e-commerce also has contributed some degree of efficiency. Despite its young age, e-commerce has encouraged the birth of a new category of transport operators who own very few or not even a single container. Lessors are beginning to realize the growing importance of the role of e-commerce in marketing and servicing as part of their cost-saving strategies.

137. The fundamental challenges for lessors may be summarized as finding ways to meet the actual demand for leasing containers while generating profit near the break-even point and managing the reallocation of the growing mountains of idle boxes stranded at low demand locations around the world. Lessors agree that the answer to such challenges may begin with a substantial recovery of the market for leasing containers, in which an increase in demand for new boxes is generated by the growth of a more balanced world trade.

138. Entering the year 2000, the industry faced the lingering question of when the market would improve sufficiently to allow for a substantial return on their investment. Recent signs, however, supported a growing anticipation of the long awaited arrival of better market condition. The leasing companies, on the other hand, were hard to convince. Two years ago, similar signs had appeared showing a world market demand initially headed for improvement as containers' utilization rate increased to almost 85 per cent towards the beginning of 1998. The price of new containers also showed an improvement as it was expected to increase for two reasons: first, it was assumed that it had reached its lowest price level and, second, the Chinese Government had established a price floor for new containers in the first quarter of 1998.

Table 44

**Operating container fleets of major lessors and total industry for 1997-1999**  
(rounded figures in TEU and include all container types)

<b>Leasing Company</b>	<b>End 1999</b>	<b>End 1998</b>	<b>End 1997</b>
<b>Transamerica Leasing</b>	1 180 000	1 175 000	1 240 000
<b>GE SeaCo<sup>a</sup></b>	1 155 000	1 135 000	
<b>Genstar Container<sup>a</sup></b>			855 000
<b>Sea Containers<sup>a</sup></b>			290 000
<b>Textainer Group</b>	865 000	615 000	480 000
<b>PrimeSource<sup>b</sup></b>			55 000
<b>Xtra International<sup>b</sup></b>		230 000	225 000
<b>Triton Container Intl</b>	695 000	585 000	495 000
<b>Interpool Group<sup>c</sup></b>	520 000	500 000	425 000
<b>Florens Container Corp<sup>d</sup></b>	455 000	445 000	435 000
<b>CAI</b>	345 000	285 000	220 000
<b>Cronos Group</b>	340 000	350 000	355 000
<b>Gateway Container Corp</b>	240 000	165 000	100 000
<b>Capital Lease</b>	155 000	125 000	80 000
<b>Gold Container</b>	105 000	75 000	50 000
<b>Amficon</b>	73 000	50 000	35 000
<b>United Container Systems</b>	55 000	47 000	35 000
<b>Carlisle Leasing</b>	38 500	29 000	20 000
<b>Waterfront Container Leasing</b>	25 500	15 000	10 000
<b>Other</b>	385 000	344 000	300 000
<b>Total operating lease</b>	<b>6 632 000</b>	<b>6 170 000</b>	<b>5 705 000</b>
<b>Estimated finance lease<sup>e</sup></b>	<b>1 000 000</b>	<b>920 000</b>	<b>850 000</b>

Source: IICL and companies' own data.

- a Genstar and Sea Containers fleets merged to form GE SeaCo in 1998.
- b Textainer acquired PrimeSource fleet in 1998 and Xtra International fleet in 1999.
- c Includes some finance lease.
- d Includes containers leased to Cosco.
- e Includes all other containers financed by established transport leasing companies.

Table 45  
**New container purchases by major lessors in 1997-1999**  
*(rounded figures in TEU and include all container types)*

Leasing company	1999	1998	1997
<b>Transamerica Leasing</b>	55 000	50 000	40 000
<b>GE SeaCo<sup>a</sup></b>	60 000	30 000	35 000
<b>Textainer Group</b>	75 000	105 000	65 000
<b>PrimeSource<sup>b</sup></b>			5 000
<b>Xtra International<sup>b</sup></b>		15 000	25 000
<b>Triton Container Intl</b>	135 000	120 000	95 000
<b>Interpool Group<sup>c</sup></b>	70 000	85 000	85 000
<b>Florens Container Corp<sup>d</sup></b>	45 000	35 000	100 000
<b>CAI</b>	65 000	70 000	45 000
<b>Cronos Group</b>	5 000		30 000
<b>Gateway Container Corp</b>	75 000	65 000	100 000
<b>Capital Lease</b>	36 000	45 000	80 000
<b>Gold Container</b>	30 000	25 000	20 000
<b>Amficon</b>	25 000	17 000	8 000
<b>United Container Systems</b>	10 000	12 000	8 000
<b>Carlisle Leasing</b>	9 500	9 000	8 000
<b>Waterfront Container Leasing</b>	12 500	7 000	6 000
<b>Other</b>	38 000	65 000	45 000
<b>Total fleet purchases</b>	746 000	755 000	800 000
<b>Total fleet disposals</b>	305 000	290 000	310 000
<b>Total net increase</b>	441 000	465 000	490 000

Source: IICL and companies' own data.

<sup>a</sup> Genstar and Sea Containers fleets merged to form GE SeaCo in 1998.

<sup>b</sup> PrimeSource fleet acquired by Textainer in 1998, Xtra International fleet acquired by Textainer in 1999.

<sup>c</sup> Includes some finance lease, but excludes around 50,000 TEU acquired through buy/lease-back.

<sup>d</sup> Includes equipment leased to Cosco.

139. The 1998 signs turned out to be a disappointment as prices of new boxes fell further while the availability of low interest rates in the financial market continued. Such a combination sent carriers and other transport operators out on a buying spree for new boxes. The outcome was a sharp increase of lines' and other transport operators' holdings of new boxes as they purchased 31 per cent more than the previous year. Lessors, on the other hand, restricted their procurement behaviour, as in 1998 their direct investment had dropped almost 6 per cent to 755,000 TEU from the 800,000 TEU purchased a year earlier.

140. Moreover, the Asian financial crisis worsened the situation. Over the rest of 1998 and the first half of 1999, the procurement behaviour of both lines and lessors was curtailed heavily. In 1999, carriers and transport operators acquired only 5,000 TEU more than their 1998 purchases of 720,000 TEU, while lessors maintained their procurement level at about 9,000 TEU below their 1998 purchases of 755,000 TEU.

141. The drop in demand for import and export containers in and out of Russia and countries in Asia was so significant that it caused an unbalanced flow of

containers worldwide, which again put additional pressure on the off-hire boxes buildups that accounted for 25-30 per cent of available equipment for hire. The severity of the imbalance in the flow of trade worsened as the United States economy grew stronger. It caused the utilization rate to fall to a little above 80 per cent at the beginning of 1999; a 5 per cent drop from the level attained a year earlier as more than 1.2 million TEU were off-hired from the total available fleet of 5.8 million. At this point, the lease rates had fallen approximately 40 per cent over the past four years, which was proportional to the fall in new container prices over the same period. All of these factors thus contributed to the 15 per cent decrease in revenues for the container leasing industry between 1998 and 1999.

142. The crisis in Asia and Russia turned out to be short-lived. Starting in the third quarter of 1999, signs of recovery appeared. First of all, in addition to the improved flow of traded goods, prices of new containers started to increase, partly because of the higher cost of plywood flooring needed in the production of containers. Lines and transport operators responded by not buying as many new containers as the previous year; in other words, they acquired only 5,000 TEU more than the 720,000 TEU purchased a year earlier, and allocated more of their requirements to the leasing of additional boxes. An increase of interest rates in the United States and a temporary slowdown in the rate of containership deliveries also contributed to the change in the direct investment behaviour of carriers. The increase in leasing demand was reflected through the 2 per cent increase of average utilization rates due to the rehiring of idle containers.

143. In short, the stronger world demand for trade and the increase in prices of new containers strengthened the belief that the price increase will continue and contribute to a sustainable recovery of the leasing industry. If this recovery persists, lessors are likely to increase their procurement levels in 2000.

#### *Anticipation of recovery*

144. However, lessors have yet to see a significant improvement in per diem lease rates. As the new box prices are on the rise, lessors hope for leasing rates to increase.

145. When carriers resorted to leasing to meet their demand for containers, they preferred to engage in a transaction that locked in low-priced deals for a three-to-five year period. This is possible with lessors placing their new containers on term lease. For lessors, the term lease is also favourable because, in the long run, its capital investment cost will be lower than average. By the end of 1999, the volume of rental fleets on term-lease contract had reached 50 per cent, while 35 per cent were tied to master-lease contract and the remaining 15 per cent were off-hired.

146. Traditionally, master-lease option would have earned 30 per cent more than those generated by term lease. Currently, however, the master-lease option has become less attractive because, in addition to its return being almost no different from the return generated by term lease, it would generate higher revenue only when the world demand for trade becomes much stronger and the stockpile of idle containers is substantially reduced. For now, the competitive term-lease contracts will continue to be the major source of income for the leasing industry.

147. Overall, in 2000, lessors are expected to continue their procurement strategy as the certainty of recovery grows. There is also a prospect for further mergers and management takeover, as revenue and container reallocation problems continue in 2000. Container replacement will remain an important task undertaken mostly by larger companies. The tendency to expand the fleet will remain part of the strategies of mid- and smaller-sized companies to generate higher returns.

148. The total leased fleet has grown by 7-8 per cent during the past two years and will continue to grow in the new millennium. In particular, leasing demand is likely to continue pushing for the expansion of the dry freight high cube container fleet. Table 46 shows that dry freight high cube has steadily expanded about 30 per cent every year for the past three years. The volume of dry freight special boxes, however, has increased slightly, suggesting that purchases made for this type of container were mainly for replacement.

149. Table 47, in addition, clearly shows that leasing demand for all sizes is growing except for the 48 ft containers. The demand for 20 foot, 40 foot, and 45 foot containers has increased by 14.16 per cent, 25.08 per cent, and 28.79 per cent, respectively.

Table 46

**Global fleet of containers on operating lease by type, 1997-1999**  
(in TEU)

<b>Container type</b>	<b>End 1999</b>	<b>End 1998</b>	<b>End 1997</b>
<b>Dry freight standard</b>	4 545 000	4 420 000	4 230 000
<b>Dry freight high cube</b>	1 165 000	905 000	690 000
<b>Dry freight special <sup>a</sup></b>	354 000	335 000	310 000
<b>Reefer</b>	277 000	262 000	250 000
<b>Tank</b>	76 000	74 000	70 000
<b>US domestic</b>	146 000	135 000	120 000
<b>European swapbody <sup>b</sup></b>	42 000	39 000	35 000
<b>Total operating lease</b>	<b>6 605 000</b>	<b>6 170 000</b>	<b>5 705 000</b>

Source: IICL and companies' own data.

a Includes cellular pallet-wide units.

b Includes swap tanks and non-cellular units.

Table 47

**Global fleet of containers on operating lease by size, 1999 and 1998**  
(in TEU)

<b>Container size</b>	<b>January 2000</b>	<b>January 1999</b>
<b>20 foot</b>	2 086 993	1 828 071
<b>40 foot</b>	4 218 648	3 372 784
<b>45 foot</b>	35 638	27 671
<b>48 foot</b>	24	24
<b>Other</b>	815	330

Source: IICL 2000 and 1999.



### Container production

150. At the beginning of 1999, the price of a new 20 ft standard container was less than \$1,350 and the price of a new 40 ft standard container was a little over \$2,100. As the lowest in more than two decades, the 1999 container prices were also 45 per cent lower than the prices quoted four years earlier. Toward mid-1999, however, the prices started to increase and, by the third and fourth quarters, the prices of new boxes were 2-3 per cent and 5 per cent higher than the prices quoted at the start of 1999, respectively. The increase in the 1999 prices of new boxes absorbed the 50 per cent increase in the cost of Indonesian plywood for box flooring.

151. China remained the major supplier of new boxes representing 66 per cent of the global dry freight container production (see table 48). Because most of the manufacturers were located in the central and southern areas of China, where resources and raw material were relatively cheaper, China was able to produce boxes at very competitive prices dictating the world price of new containers.

152. At the end of 1999, the price of new 20 ft containers was about \$1,460-1,480 across China. This increase in the price of new containers was reportedly welcomed by the industry as an inevitable result of the recovery from the Asian financial crisis, and should the price continue to increase, it would help producers in their cost-saving effort to generate revenue for the

industry. An early reaction to the price hike was the setting of prices by container producers with their larger customers on volume production for the year 2000.

153. The fall in container output in 1999, which had initially been predicted to be 10 per cent, actually stood at a 2 per cent drop (see graph 9). The reason for the output not to drop any more than 2 per cent was the increase in demand for new containers that originated from the stronger world demand for trade following the end of the Asian crisis, and from the streamlining of the industry that went through continuing consolidations, which ensured a more efficient production of new boxes. In other words, with the improvement in the terms of trade and the speedy recovery from the Asian financial crisis, the increasing demand for new boxes was expected to continue or remain at current levels, sustaining an increase in the price of new containers.

154. The composition of production in 2000 is also expected to follow the trend from the past couple of years. As shown in table 49, total production was dominated by the demand for dry containers totalling about 1.2 million TEUs. Dry freight containers produced in 1999 and 1998 constituted about 84 per cent of the global production. The other types of boxes, comprising 11.7 per cent of world box production, had changed in composition. In particular, the production of tank and special boxes fell by 25 per cent and 15 per cent, respectively. On the other hand, productions of swapbodies increased by more than 20 per cent.

Table 48

#### Global container production by country/region for 1998 and 1999

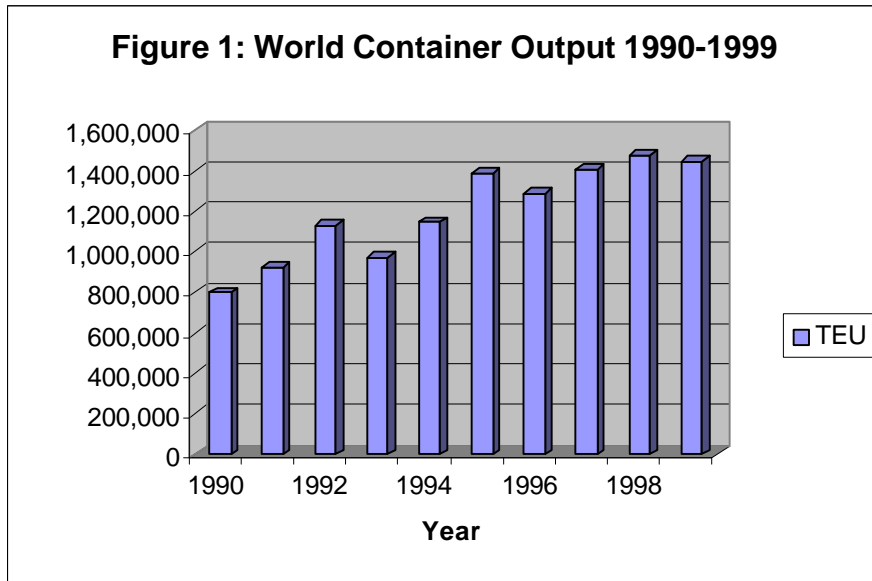
Container size	January 2000	January 1999
20 foot	2 086 993	1 828 071
40 foot	4 218 648	3 372 784
45 foot	35 638	27 671
48 foot	24	24
Other	815	330

Source: *Containerisation International*, January 2000.

Note: Totals include maritime and regional container types; some 1999 totals are estimated.

Graph 9

**World container output, 1990-1999**



Source: *Containerisation International*, January 2000.

Note: Totals include maritime and regional container types.

Table 49

**Global container production by main type for 1998 and 1999**

Container type	1998	1999
<b>Dry freight standard and high</b>	1 225 000	1 210 000
<b>Dry freight special</b>	77 000	65 000
<b>Reefer</b>	95 000	87 000
<b>Tank</b>	15 500	12 000
<b>European (swapbody)</b>	34 000	42 000
<b>US domestic</b>	28 500	29 000
<b>Total</b>	1 475 000	1 445 000

Source: *Containerisation International*, January 2000.

## B. ELECTRONIC COMMERCE AND ITS IMPACT ON TRANSPORT

Tracking movements of shipments along the transport chain.

### *The emerging role of Internet-based transportation service providers*

155. Major transport companies, including maritime carriers, are now providing a variety of information about their services on the Internet as well as enabling customers to process transactions online. In addition, in recent years there has been a considerable growth of infomediaries, which are creating marketplaces, and exchanges for transportation services. This section provides a brief description and selected examples of such infomediaries or Internet transport portals.

156. Internet transport portals are websites that are designed to bring together large numbers of transportation service buyers and sellers and thus match their offers and requirements. They function in the same way as more general web portals such as Yahoo, Excite, Infoseek, etc., except that they specialize in enabling the search for information on, and carrying of transactions in, transport.

157. The following are examples of online capabilities that they provide:

- Shippers posting their requirements for tonnage, rates, delivery time and other conditions;
- Carriers posting their available capacity, rates, routing, delivery time and other conditions;
- Shippers viewing rates and information on capacity available from carriers;
- Shippers responding to offers of capacity, delivery time and rates set by carriers;
- Carriers responding to loads offered by shippers at carriers' posted rates;
- Carriers and shippers making contracts based on mutually agreed offers;
- Printing and receiving bills of lading;
- Cargo booking and confirmation;
- Cargo notification;
- Payment;

158. Box 2 gives selected example of Internet transport portals. They demonstrate the range of services being offered and the ways in which they affect the activities of carriers and intermediaries. While there is a high degree of similarity or overlap between the services being offered by the different Internet portals, there are at the same time important variations as regards their scope and the objectives they pursue.<sup>13</sup>

159. A number of features can be summarized from the examples outlined in Box 2. Many of the services are designed for accessing by carriers, intermediaries and shippers. In such cases, in theory, the systems should benefit all the three groups. Some of the services are intended to arrange direct transactions between carriers and shippers and to bypass intermediaries. To the extent that the services do indeed bypass the intermediaries, the net effect would be to reduce their participation in the transportation chain. However, in so far as forwarders and other intermediaries can, in practice, have the same access as shippers to the services concerned, there appears to be no mechanism for them to be excluded.

160. A few service providers, such as FreightDesk, are dedicated to transportation intermediaries and the shippers they serve. Such services would enhance the role of intermediaries rather than diminish it. The argument advanced by the developers of FreightDesk is that intermediaries will always be needed because they have trading knowledge that carriers and shippers lack. This may be the case in most existing business-to-business transactions in which the professional expertise of intermediaries may be required to organize shipments.

161. Intermediaries may offer a number of advantages which may ensure continued demand for them. The main attraction in using intermediaries, such as forwarders, lies in their experience and specialized knowledge of a wide range of matters regarding transportation, packing, formalities related to letters of credit, customs, import licenses, etc.

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## Box 2

### **Selected examples of Internet-based transportation service providers**

#### TRADIANT

Tradiant offers a business-to-business market exchange for freight transportation services that brings together carriers, shippers and freight forwarders. It enables carriers and shippers to participate in a global online market for containerised cargo. On Tradiant's website, shippers or forwarders can request rate quotes for one-time shipments and also for contracts for periodic shipments over time. On the other hand, carriers can provide quotes in response to requests initiated by shippers.

When requesting quotes, shippers or forwarders can specify a price and also choose to send a request to all carriers, carriers of a certain type or class, or named carriers. Having received quotes, a shipper may then accept or act on a quote accordingly.

In addition to enabling the request and offer process, Tradiant facilitates the handling of actual transactions between carriers and shippers. This includes the establishment of a physical contract, online cargo booking, documentation, shipment control and payment across all modes of transport. According to Tradiant, its system helps small to medium-sized forwarders by providing them with a state-of-the-art technology platform that is normally available to freight forwarders with large technology budgets. It enables forwarders to manage a large number of quotes and contracts from many shippers in a short time and at relatively low cost. Tradiant's services are free for shippers. It charges the carriers a transaction fee for each quote or offer that results in a booking.

#### iShip

iShip provides an Internet-based shipping service that allows shippers and carriers to make shipping transactions online. Its focus is mainly on small-sized shipments. It allows users of shipping services to access and compare rates and services that are provided by major integrated carriers, such as UPS, FedEx, Airborne, U.S. Postal Services, Yellow Freight System, etc. It provides answers to basic shipping questions, such as the cost of shipment by alternative carriers, delivery times, by weight and destination, etc.

Users of shipping services can obtain information on a range of providers of shipping services. They can also get access to shipment tracking tools and secure data for billing purposes. Online vendors can add shipping features to their website by linking to the appropriate iShip.com URLs and thus provide buyers with information on shipping prices and options.

iShip also gives buyers of shipping services the possibility of bidding for rates. It assembles information from sellers of shipping services which is then matched with preferences expressed by users of the services. The bidding is completed by iShip providing a matrix of shipping rates for various carriers selected by the user.

#### GoCargo

GoCargo is a web-based auction for transport services. It is independent, without any affiliation with shippers or service providers. Through its Internet website, it provides access to shippers of all sizes to receive multiple competing bids from service providers in an auction format. By viewing and evaluating alternative options that match their needs, shippers are able to select services. For service providers, GoCargo receives information on cargo opportunities that match the provider's profile.

#### National Transportation Exchange (NTE)

The NTE is a United States national business-to-business e-commerce trading exchange for member shippers and truck carriers. It is used by shippers, forwarders, brokers, third party logistics intermediaries and truckload freight carriers. It creates a transportation-trading marketplace by providing shared information on shipment time, transport availability, prices, routing and service levels.<sup>14</sup>

NTE has around 500 industry user members. Users of truck transport looking for truck capacity service post their requirements on the Exchange and these are matched with available carriers' capacity. Carriers use the Exchange to find compatible freight that would fill out empty space on their trucks. The Exchange determines minimum, market-based prices on every shipment entered and consignors can enter freight at any price at or above the set minimum. Shipments quoted at lower than the minimum are not accepted. The Exchange also provides users with up-to-date information on the movement of shipments.

### Celarix

Celarix is a provider of a web-based transport exchange that combines the ability to buy and sell transportation services and also to manage and monitor the entire logistics process. Through the exchange, information is provided from sellers, carriers, customs brokers, freight forwarders and consolidators (NVCCs). Shippers can buy transportation services online. They can instantly communicate their requirements to many service providers, while service providers can offer available shipping space to the entire marketplace or selected users. Negotiations are thus permitted, leading to the securing of transportation service contracts and online cargo booking and confirmation.<sup>15</sup>

### FreightDesk

This is an online transportation service provider dedicated to transportation intermediaries and the shippers served by the intermediaries. It is not an online auction but deals with managing logistics processes from the standpoint of freight forwarders, customs brokers, NVOCCs and their customers. The founders of FreightDesk take the view that forwarders and other intermediaries will always be needed on the transportation chain because they have "the domain knowledge of trading that carriers and shippers intrinsically lack". They contend that freight forwarders should not have to face extinction because of the new market in online transportation auctions through which shippers of any size theoretically can buy their transportation directly from carriers. The intermediary is a domain expert which cannot be replaced by software. The complexity of international trading means that there is a need for middlemen.<sup>16</sup>

The approach of FreightDesk is to use Internet-based communications capabilities to give forwarders a range of up-to-date tools that make them more effective and attractive to shippers and more economically viable. Such tools also enable small and medium-sized freight forwarders to survive alongside much bigger intermediaries. Thus unlike some other service providers, FreightDesk develops a partnership with freight intermediaries instead of trying to bypass them in the transportation chain.

### Carrierpoint

Carrierpoint is an online transportation market that allows shippers and carriers to offer shipments, communicate prices and share information. Its founders aim at permitting carriers and shippers to create a true market environment free of middlemen or hidden charges. Shippers post available shipments on the marketplace and then matching carriers are notified, upon which they can communicate their current market prices. The carriers' prices are then communicated to the posting shippers along with each carrier's service characteristics. The shipper uses this information to select the best carrier for their posted shipments.<sup>17</sup>

The providers of CarrierPoint point out that their service is not an auction. Shippers are not required to accept the lowest bid. Both the shippers and carriers can set bid terms and reserves are not binding. Also postings can be discriminatory in that shippers can specify who will see their shipments.

### Tranzlink

Tranzlink is an electronic marketplace for freight transportation transactions for truckload shippers, brokers and carriers in North America. Participants in the trading system can match loads, negotiate contracts and confirm pick-ups and delivery details online. The system provides a dual-track capability, that is broker/carrier and shipper/carrier trading environments.<sup>18</sup>

Through the Internet, shippers post available loads showing pick-up date, origin, destination, type of equipment needed, type of commodity, estimated target price and other additional information. Carriers can accept a job as posted or bid online along with other carriers, until an arrangement is agreed upon between the shipper and a carrier. Similarly, carriers post details of available equipment, including locations and desired destinations. Shippers, brokers and logistics companies can view these and enter competitive bids. When a bid is accepted a confirmation containing essential details such as costs, delivery times and cargo weight is sent to the shipper.

### E-Transport

E-Transport is a marketplace where buyers and sellers of transportation services can conduct transactions electronically. It is designed to connect all trading partners including shippers, carriers and transportation intermediaries and ports. Users of transportation services can check tariff rates for shipping specific commodities from origin to destination. Through the marketplace shippers and carriers can negotiate rates and service contracts. They can use E-Transport's browser tools to enter shipment details, book cargo, generate documentation, rate and audit bills and track shipments.<sup>19</sup>

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162. More importantly, though, many freight forwarders have now expanded the scope of their services to become door-to-door logistics providers. Thus, while an individual shipper may search the required information on the Internet, the range of services that a forwarder can offer creates a value added service which shippers are prepared to continue to buy from forwarders. Also experience gained so far indicates that the rapid growth of e-commerce is placing heavy demands on e-retailers in fulfilling orders. In many cases such retailers lack the necessary logistics networks needed to meet the requirements of buyers. There has therefore been a tendency for them to outsource services from third party logistics providers, including forwarders. The emerging Internet-based transportation services provide the intermediaries with tools for improving their efficiency and access to shippers. Thus, rather than being bypassed their positions may be strengthened.

#### *Other related impacts of Internet transport portals*

163. Increased competition between carriers: The growth of Internet transport portals and related exchanges, auctions and other market mechanisms are likely to intensify competition between carriers in the supply of transportation services. Even though carriers of all sizes would have access to cargoes through the Internet, the competition is likely to drive out small carriers from the industry. This in turn would encourage higher degrees of concentration in the industry in the form of domination by large integrators or carriers operating in large consortia or global alliances. However, even cooperation arrangements such as global alliances are likely to be unstable due to the intra-alliance competition that would be encouraged by transport exchanges, auctions, etc. In the long run, this scenario may favour the domination of freight markets by large integrators and other large individual carriers "protected" from competition via vertical integration or mergers.

164. Pricing in liner conference services: The growth of transport exchanges and auctions provide opportunities for direct contact between carriers and shippers and thus greater partnership between them. This would lead to further reduction of the already diminishing role of liner conferences in influencing the pricing of services. There will be greater reliance on confidential price negotiations and contracts between shippers and individual lines. In some major trades individual contracts already account for the majority of liner shipments.

165. An empirical assessment of the real impact of web transport portals is generally hard to make, however. There are no consistent data or information on the overall volume of transport services that are traded on the portals. This problem is likely to persist if carriers and shippers place emphasis on confidentiality, for example with regard to rates.

166. In addition to the data problem, there is a perception in the industry that carriers may be uncertain as regards the legal position of the transactions that may be carried out on the portals. For example carriers could fear that posting rates on a portal by a number of them could be interpreted as price fixing by collusive means in contravention of certain antitrust laws.

#### *The position of developing countries*

167. The majority of Internet transport portals that have been established so far are located in developed countries. However, the services they provide are, in principle, accessible to carriers and shippers around the world, including developing countries. Thus, in as far as trade access is concerned, buyers and sellers of transport services in developing countries are not disadvantaged by the geographical location of the portals. Indeed for e-commerce generally, there is evidence that some e-retailers in developing countries prefer to market their products on websites located in developed countries where the markets are larger, payment mechanisms are suitable and the degree of sellers' and buyer's confidence is higher.

168. On the other hand, however, the location in developing countries of Internet portals, including those for transport services, would benefit developing countries in the form of service revenues and also greater control of overall website operations for the services provided.

### **C. EXPERT MEETING ON CAPACITY-BUILDING IN THE AREA OF ELECTRONIC COMMERCE: LEGAL AND REGULATORY DIMENSIONS**

169. In order to assess the potential impact developing countries of the legal and regulatory proposals currently being discussed in international forums and the policies to be considered by developing countries and the international community to stimulate the participation of smaller players in global electronic commerce,<sup>20</sup> an Expert Meeting on Legal Dimensions of Electronic Commerce was convened under UNCTAD auspices in Geneva in July

1999. The Expert Meeting, having acknowledged that most of the existing rules and legislation would in general also apply to electronic commerce, expressed concern that the existing paper-based legal systems might be insufficient to accommodate electronic commerce and might create uncertainty. In particular, the requirements in national laws for written, signed or original documents were considered as constituting barriers to the development of electronic commerce. The importance of establishing an internationally acceptable harmonized legal framework for electronic signatures and authentication was particularly highlighted by the Experts. During the Meeting the following specific concerns<sup>21</sup> of developing countries were singled out:

The lack of internationally acceptable rules and guidelines for the recognition of electronic signatures, digital signatures and certification authorities;

Restrictions imposed on the export of technology, especially with respect to state-of-the-art encryption standards;

The need for an international scheme for registration of domain names;

Problems arising from the application of traditional principles on jurisdiction and applicable law in an electronic environment;

The need for wider dissemination of information on international developments pertaining to the legal and regulatory aspects of electronic commerce, as well as a need for training and education, especially for small and medium-sized enterprises;

The need for technical assistance to developing countries, and particularly the least developed countries (LDCs), in adapting their national law to accommodate electronic commerce.

170. To address some of those concerns, the Expert Meeting adopted a number of recommendations<sup>22</sup> addressed to national Governments, to the international community as well as to UNCTAD. The following reflect some of the recommendations adopted at the Expert Meeting:

To examine the existing national legal infrastructure to assess if paper-based form requirements prevent laws from being applied to electronic transactions and to determine whether such form requirements should be adjusted to make their laws technology-

neutral and permit their interpretation and application in an electronic environment.

171. In reviewing their legal infrastructures, Governments are encouraged to give consideration to using the UNCITRAL Model Law on Electronic Commerce, as well as other instruments on electronic commerce prepared by UNCITRAL and other organizations, as a basis for preparing new laws or adjusting current laws. Where appropriate, Governments should also consider the introduction of rules to give certainty with regard to the legal effect of using specific technologies within a technologically neutral legal infrastructure.

172. Developed country Governments are urged to dismantle barriers to global electronic commerce for developing countries by removing restrictions on the export of technology, especially with respect to state-of-the-art encryption systems and products, as well as associated technologies and computer systems.

173. Governments of developed and developing countries, especially those that are members of regional economic groupings, are encouraged to establish cooperative relationships so as to increase their capacity to deal with the complexity of the issues that have arisen due to the development of information and communication technologies in such areas as taxation, customs, intellectual property, domain names, computer crime, Internet content regulation, privacy and data protection, consumer protection, certification authorities, and the role of accreditation and standardization bodies.

174. Governments of developing countries are encouraged to participate in the preparation of various legal instruments being considered in international forums and to promote public awareness and education of all aspects of electronic commerce and the opportunities and benefits it offers.

175. Finally, the international community is requested to provide assistance to developing countries in reviewing and adapting their national laws to accommodate electronic commerce, promoting awareness, education and training in the legal and regulatory aspects affecting electronic commerce.

176. Box 3 provides the status of international maritime conventions adopted under the auspices of UNCTAD as at 10 July 2000.

## Box 3

## Contracting States of selected conventions on maritime transport as at 10 July 2000

Title of Convention	Date of entry into force or conditions for entry into force	Contracting States
<b>United Nations Convention on a Code of Conduct for Liner Conferences, 1974</b>	Entered into force 6 October 1983	Algeria, Bangladesh, Barbados, Belgium, Benin, Bulgaria, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chile, China, Congo, Costa Rica, Côte d'Ivoire, Cuba, Czech Republic, Democratic Republic of the Congo, Denmark, Egypt, Ethiopia, Finland, France, Gabon, Gambia, Germany, Ghana, Guatemala, Guinea, Guyana, Honduras, India, Indonesia, Iraq, Italy, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Mauritania, Mauritius, Mexico, Morocco, Mozambique, the Netherlands, Niger, Nigeria, Norway, Pakistan, Peru, the Philippines, Portugal, Qatar, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Senegal, Sierra Leone, Slovakia, Somalia, Spain, Sri Lanka, Sudan, Sweden, Togo, Trinidad and Tobago, Tunisia, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, Uruguay, Venezuela, Yugoslavia, Zambia (78)
<b>United Nations Convention on the Carriage of Goods by Sea, 1978 (Hamburg Rules)</b>	Entered into force 1 November 1992	Austria, Barbados, Botswana, Burkina Faso, Burundi, Cameroon, Chile, Czech Republic, Egypt, Gambia, Georgia, Guinea, Hungary, Kenya, Lebanon, Lesotho, Malawi, Morocco, Nigeria, Romania, Senegal, Sierra Leone, Tunisia, Uganda, United Republic of Tanzania, Zambia (26)
<b>United Nations Convention on International Multimodal Transport of Goods, 1980</b>	Not yet in force - 30 contracting parties	Burundi, Chile, Georgia, Malawi, Mexico, Morocco, Rwanda, Senegal, Zambia (9)
<b>United Nations Convention on Conditions for Registration of Ships, 1986</b>	Not yet in force - 40 contracting parties with at least 25 per cent of the world's tonnage as per annex III to the Convention	Bulgaria, Côte d'Ivoire, Egypt, Georgia, Ghana, Haiti, Hungary, Iraq, Libyan Arab Jamahiriya, Mexico, Oman (11)
<b>International Convention on Maritime Liens and Mortgages, 1993</b>	Not yet in force - 10 contracting parties	Monaco, Russian Federation, St. Vincent and the Grenadines, Tunisia, Vanuatu (5)
<b>International Convention on Arrest of Ships, 1999</b>	Not yet in force - 10 contracting parties	-

Source: For official status see [www.un.org/Depts/Treaty](http://www.un.org/Depts/Treaty).



## D. OTHER DEVELOPMENTS

177. The TRAINMAR programme provides a system for locally-managed training for shore-based professionals in the fields of international transport, port management, and logistics, with a view to improve maritime trade. It ensures, through continuous and flexible cooperation among Training Centres, that a wide range of training is available effectively and economically. Each cooperating centre joins a regional network, maintaining regular contact with other centres; the regional networks also remain in contact and all are linked to a Central Support Team (CST) at UNCTAD's headquarters in Geneva. Efforts and resources are shared and each member has access to the latest information, experience and products. The training that results is organized and conducted professionally by local staff trained in the TRAINMAR approach, and is shaped to meet the needs of the community. Trainers who have gained experience through TRAINMAR have been able to conduct wider training in other countries, and in topics not considered to be the domain of UNCTAD, such as portworker training using materials prepared by the International Labour Organisation (ILO) and increasingly implemented through TRAINMAR.

### *Asia/Pacific Region*

178. In this region, TRAINMAR is currently active in Egypt, India, Malaysia, Pakistan, Papua New Guinea, the Philippines, Sri Lanka and Thailand. Members meet periodically to prepare plans for joint actions, which in 1999 have included a regional system of quality control applied to new courses being developed, and with help from the CST at members' request, the initiation of two projects to bring technology-based training methods into regular use for meeting the demands of an increasingly privatized maritime trade sector.

179. New interest has been expressed during 1999 from institutes in countries not currently involved with TRAINMAR, notably in Western Asia but also in Nepal, the first landlocked country of the region to recognise the benefits offered by network membership, and Australia where there is a willingness to help as well as share with centres in other countries. Greater membership in Western Asia may lead to the creation of a separate network there. Also, following contacts with countries of the Pacific, a project proposal has been prepared to support the creation of a separate TRAINMAR network.

### *Latin America and the Caribbean*

180. The TRAINMAR network has been very active in the Latin America and Caribbean region thanks to the more than 20 associate members, gathered in three regional networks (Southern Cone, Central America and Caribbean Basin). Faced with changing structures, partners and clients in the maritime business, TRAINMAR capacities had to be adapted to reflect new training demands, which include transport logistics, quality and environmental aspects, information technology and the concept of port community services. To meet these new challenges, new products and services have been developed over the past year, to the growing satisfaction of the wider port, transport and shipping communities served by TRAINMAR.

181. In South America, the TRAINMAR South American Association (ATAS), a non-profit private organization was created in 1996 to enhance the coordination of the regional TRAINMAR activities and better represent the interests and objectives of the TRAINMAR members in South America. Since that date, the association, jointly supported by UNCTAD and the German Agency for Technical Cooperation (GTZ), has developed an important number of new training materials and additional services to training.

182. In Central America, TRAINMAR has been working hand in hand since 1987 with COCATRAM, the Central American Commission for Maritime Transport. National port authorities or responsible commissions in each of the six countries of the Central American isthmus, excluding Panama, have been implementing TRAINMAR through their respective training or human resources sections. After privatization of port activities touched Panama, TRAINMAR activities have been coordinated there by the Panama Maritime Authority. Strong and long-lasting horizontal cooperation mechanisms among members allow for an intensive annual work programme, with more than 80 per cent of the courses being port centered.

183. The Caribbean Basin network is a successful combination of public and private port companies, universities and non-profit organizations working towards the goal of providing high quality training services, in three languages, with a strong emphasis on the transport logistics sector. A diploma programme in The Logistics of International Transport of Goods has been successfully developed and implemented in

Colombia, Panama and Guadeloupe, thanks to a technical and financial partnership with the French Ministry of Foreign Affairs. Contrary to most TRAINMAR network members around the world, each Caribbean network member is specialized in one activity: course development, multimedia development, course delivery, consulting, etc. To accelerate its integration as an efficient training provider, the Caribbean Basin network decided in 1998 to standardize all its working procedures in order to obtain a quality certification following ISO 9002 quality standard.

*Other regions*

184. In Eastern Europe, TRAINMAR has established two centres in Constanza, Romania, and Batumi, Georgia, with the hope of creating a regional network by the Black Sea. So far, the training needs analysis has been completed in both countries, and training plans are being prepared for 2000. In Romania, 8 courses were

delivered for the benefit of the local port and shipping community, as well as future TRAINMAR course developers. In Georgia, traditional TRAINMAR and IPP (Improving Port Performance) courses are being translated into Russian with a view to a wider use in Russian speaking countries. In both countries, TRAINMAR is cooperating with the German Agency for Technical Cooperation (GTZ) in the framework of port modernization technical assistance projects.

185. In Africa, cooperation between centres is being reactivated after a period without structured cooperation among the various qualified centres still active individually. In March 2000, trainers or managers from Angola, Benin, Cameroon, Cape Verde, Gabon, The Gambia, Guinea, Senegal, Togo and the United Republic of Tanzania met in Las Palmas, Canary Islands, where UNCTAD was requested to support renewed cooperation among the interested countries.