

ITIC FORUM 2000:

Innovative Thinking Is Crucial

Monday 2nd October 2000, Four Seasons Hotel, London

Defining The Future of Shipping Markets

By Martin Stopford

mstopford@clarksons.co.uk

2ndth October 2000



1 Aim of the Paper	3
2 The Sea Transport Revolution 1975-2000	4
2.1 The growth of sea trade 1970 to 2000	4
2.2 The falling cost of sea transport	4
2.3 How shipping achieved the cost reductions	5
2.3.1. A revolution in international communications:	5
2.3.2. Economies of scale:	6
2.3.3. Containerisation of general cargo transport:	6
2.3.4. "Deregulation" of shipping - Flagging Out:	7
2.3.5 Change of Control	7
2.4 Consequences of the shipping revolution	8
3 The Sea Transport Revolution 2000-2025	8
3.1 The information revolution and its impact on the world trade system	8
3.2 The Demand for Sea Transport 2000 to 2025	10
3.2.1 Trade growth 2000 to 2025	10
3.2.2 The new trade paradigm 2000 to 2025	10
3.2.3 An improved Transport System for a new trading world?	11
4 The Challenge For Bulk Shipping	12
4.1 Outlook for Bulk Trades	12
4.2 Tightening up the Bulk Transport System	12
4.2.1 A vision of bulk shipping in 2025	12
4.2.2 Doing the same thing better	13
4.2.3 A Quality Bonus?	13
5 The Challenge For Liner Shipping	14
5.1 The growth of liner cargoes to 2025	14
5.2 The demand for faster delivery	14
5.3 The conflict of volume versus speed	15
5.4 The case for a "Premium Container" service	15
5.4 Five reasons why a "Premium" service will become easier to supply	16
5.5 Who will provide the Premium service?	16
5.3 The FedEx example	17
6 Opportunities in Managing Ships & People	17
6.1 The impact on ship management	17
6.2 Shipping's commercial organisation	18
7 Conclusions	19

Defining The Future of Shipping Marketsⁱ

Martin Stopford, H. Clarkson

"If we could first know where we are and whither we are tending, we would better know what to do and how to do it"

Thomas Jefferson 1743-1826

1 Aim of the Paper

We all know I cannot predict the future of shipping. Even if I was lucky enough to pick on a few things that really happen over the next twenty or thirty years, nobody will remember or care. So this session is not about forecasting, even if it looks that way. It is about what is happening, what might happen, and what ought to happen.

The transport system did not just appear. People built it, and they made a pretty good job. Our challenge is to look at the next stage and see what needs to be done to develop it in the best way for our companies, our employees and our customers. Our brief starts, as it should, with the consumer. We need to look at such issues as

- changing customer expectations,
- seamless modal integration,
- workforce capacity,
- e-commerce and its impact on transportation
- safety and security standards

These are central issues not just for shipping, but for the whole world economy. In this paper I will start with the past because this gives us a sense of perspective on the changes taking place. In shipping these changes can be very slow. This will, I hope, give us a sense of the enormous changes and the industry's considerable achievements. I will then move on to set out my ideas for the next 25 years, dealing with the main segments of the business, bulk and liner separately.



Figure 1 The way we were in 1975

ⁱ This paper is a development of a paper to be delivered at the International Transport Symposium organised by the US Department of Transport on 10-11th October 2000

2 The Sea Transport Revolution 1975-2000

During the last 25 years the shipping industry has been through the biggest revolution since the first steel ships were built 130 years ago. As so often with revolutions, it happened almost unnoticed by the participants both in the industry and outside. 25 years ago it was a different world (Figure 1).

Miles of docks were lined with general cargo ships, operated by hundreds of companies that have long disappeared. The oil companies treated shipping as a core business, tanker owners were superstars, and the Baltic Exchange trading floor was packed with brokers every day, not just Monday. You booked telephone calls abroad and communicated in a strange language called the Beau Codeⁱⁱ. Greek shipowners ran fleets of tramps and little boys ran away to sea. It really was a different world!

2.1 The growth of sea trade 1970 to 2000

Although the 25 years started badly with the 1973 oil crisis, for trade it turned out to be a period of great expansion. Since 1975 the cargo volume has increased by 75% from 3,000 mt to 5,256 mt, an increase of 2.5 billion tons, with both the Atlantic and Pacific regions growing rapidly (Figure 2). The key to this growth was a combination of trade liberalization and economic development. Financial deregulation and the GATT initiative dropped trade barriers, whilst the growth of Asia as an industrial centre added volume. Even more encouraging is the fact that all this happened despite two oil crises, the financial crisis of the early 1990s and the 1997 Asia crisis, giving confidence that the forces driving trade are pretty robust.

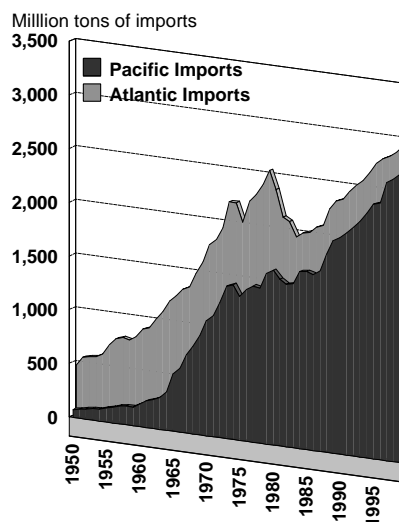


Figure 2
Seaborne trade

2.2 The falling cost of sea transport

Shipping's main contribution to this growth was to provide cheaper sea transport. During the 25 years the real cost of sea transport in 1970 dollars fell by 80%. This is illustrated by Figure 3 which shows that the real cost of shipping a ton of coal from East coast USA to Japan fell from over \$10 to under \$2ⁱⁱⁱ. Ironically as the cost fell so did the interest and prestige of the business which became a victim of its own success. In

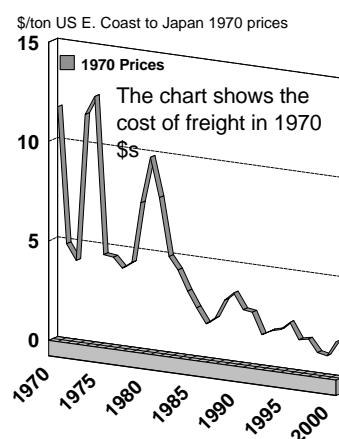


Figure 3
Cost of freight 1970 prices

ⁱⁱ A code which reduces words to letters. For example NKAMW means "We invite offers"

ⁱⁱⁱ In money terms it cost \$11.70 to ship a tonne of coal from Hampton Roads to Japan in 1970. In January 2000 it cost \$12.00. After taking inflation into account the cost fell to \$2/ton in 2000. To ship a barrel of oil from the Arabian Gulf to the USA still costs the same as it did in 1970 - about \$1. During the same period the motor car using that oil has increased to seven times the 1970 price.

the early 1970s transport was half the CIF price of a barrel of oil, but recently it has been less than 5%. Transport stopped being a core activity for oil companies.

The cost reductions were even greater in the liner business. Let me give you a few examples. The cost of shipping 15,500 bottles of scotch whiskey from the UK to Japan has fallen from \$1,560 in 1991 to \$675 today. That works out at 4 cents a bottle! The cost of shipping 14,500 pairs of trainers from the Far East to UK is about 18 cents a pair^{iv}. These products retail in the UK at around \$100. Now it can cost a European manufacturer less to ship components by sea from Taiwan than from a local manufacturer by road. As far as a trade is concerned, costs are so low that distance hardly matters.

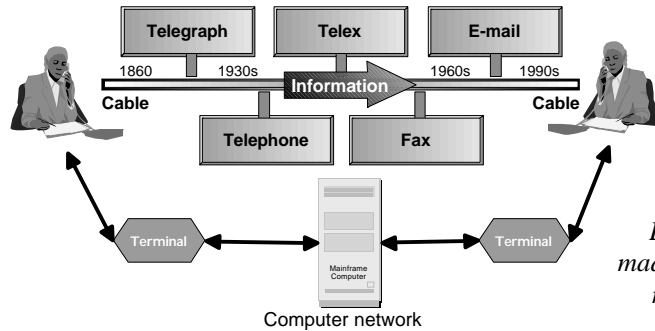


Fig 4
EDI system
made possible by
mainframe

2.3 How shipping achieved the cost reductions

There are many factors which contributed to this performance, but four stand out, a revolution in international communications, economies of scale, unitisation and the “deregulation” of international shipping.

2.3.1. A revolution in international communications:

This period started with a revolution in communications. If that sounds surprising, the explanation is that it was a quieter revolution than the Web, but just as important. The century leading up to the 1960s had seen cable and the telephone, but sending messages was still a time consuming and expensive exercise. Then in the late 1960s the arrival of computers made three new services available to international business: broadcast telex, automatic switchboards and EDI (i.e. databases that could be remotely updated through terminals). Maybe there was not the hype connected with the WWW, but this was a serious step forward^v. In particular computer

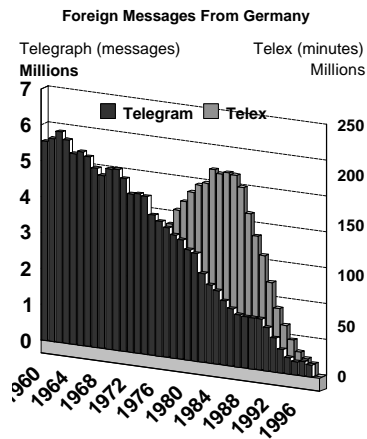


Fig 5
Telex
replaces
cable

^{iv} These figures were provided by the Far East Freight Conference (FEFC). They are undiscounted, so a big shipper would expect to pay much less. The Whiskey is based on 15,500 bottles in a 20 foot container at a rate of \$1,660 in 1991 and \$675 in September 2000. The trainer example is 14,500 pairs of trainers in a 40 foot container at a tariff of about \$2,750.

^v See “E-commerce: Implications, Opportunities and Threats for the Shipping Business” Dr Martin Stopford, 2000 Grout Lecture, Institute of Logistics www.Clarksons.net (click “Shop” & “free stuff”)

systems permitting Electronic Data Interchange (EDI) by remote terminals added a revolutionary new facility to communications (Figure 4).

Suddenly business could pick up the phone and dial a call abroad (instead of having to book it), send a broadcast Telex, and keep cargo booking information on a computer database. Until that time shipbrokers and owners laboriously sent cables in code to save money. Figure 5 shows the speed at which telexes took over from cable in the 1970s. It is hard to believe that Telex was a growth business only 15 years ago. At the same time the cost of messaging fell sharply and as a result international business became a much more viable proposition. Market networks became possible and a whole new world of enterprise was opened up. This meant tougher competition in the bulk trades and it greatly assisted containerisation of the liner trades.

2.3.2. Economies of scale:

Twenty five years ago in the 1960/1970s the size of ship used took a major step up (Figure 6). This contributed greatly to reducing bulk shipping costs. For example, coal shipped from ECNA to Japan moved up from a 35,000 dwt bulker to a 60,000 bulker in the 1980s and today it is shipped in 170,000 dwt vessels. This trend greatly assisted the reduction in freight costs, since the bigger ship carries three times the cargo but costs only 50% more to run.

However the benefits of size diminish as the ship gets bigger and the collateral costs increase. It is noticeable that towards the end of the period the average size of tanker and bulk carrier built was falling, suggesting that the fleet had found a size profile that matched trade. Tankers fell from 120,000 dwt to 82,000 dwt, bulk carriers stabilised at around 60,000 dwt and containerships at around 2000 TEU.

2.3.3. Containerisation of general cargo transport:

Automation was extensively used to reduce unit costs by replacing expensive labour with relatively cheaper capital equipment and using process control to use resources better. This had already been achieved in bulk transport, but in the 1975-2000 the containerisation of general cargo and specialist bulk transport, chemical parcel carriers, vehicle carriers, gas tankers, car carriers, forest product carriers made a real impact on these trades.

Although containerisation started in 1965, the real implementation took place in the period 1975-2000 (Figure 7), by which time there had been a total realignment of the business both in terms of the ships used, the companies, the terminals and the shore

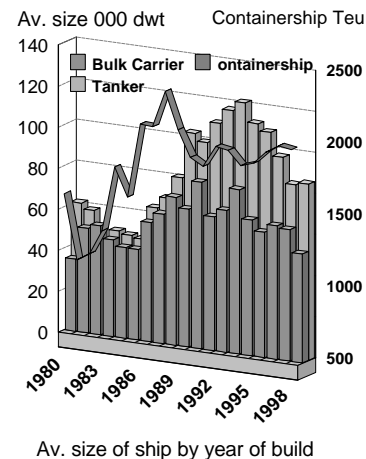


Fig 6 ships stopped getting bigger

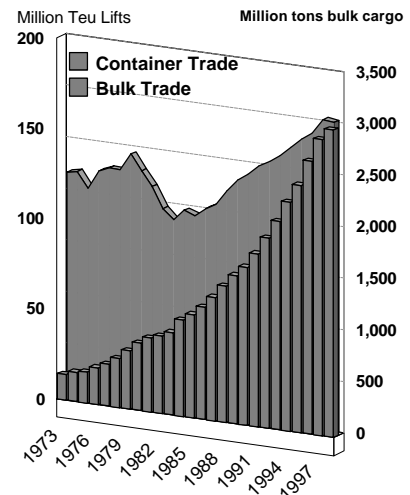


Fig 7 Container trade takes off

based infrastructure for cargo distribution. Hundreds of companies disappeared, but for laymen the most obvious symptom was the miles of quayside warehouses which were abandoned and finally turned into Marinas or housing developments.

2.3.4. "Deregulation" of shipping – Flagging Out:

The transfer of ownership to Flags of Convenience was the fourth and arguably the most important contributor to cost reduction. By moving the whole framework of ownership to Flags set up for this specific purpose, a whole layer of costs was stripped away. Tax, employment regulations, company regulations, and disclosure were all removed.

In the 1970s and 1980s the range of registries available for this purpose was greatly widened and during the recession of the 1980s even the most conservative companies in bulk shipping opted for this cost saving device, with the result that it costs less to operate a VLCC today than it did 20 years ago. The tonnage registered under Flags of Convenience passed 200 million GT in 1994 (Figure 8) and currently 48% of the world fleet is registered under these flags.

2.3.5 Change of Control

The period also brought a change in management style. Prior to the 1970s the shipping industry had been a rather gentlemanly business largely controlled by cargo shippers and shipping companies serving the European Colonies. Flags of convenience existed before 1975, but it was a closely controlled regime, carefully supervised by the charterers. The formula was well established. A timecharter from an oil major or Japanese trading house was used to finance a ship registered in Liberia or Panama. The charterer took a close interest in the ships and generally was closely involved in running a tightly controlled and highly efficient transport system^{vi}.

In the 1970s and 1980s many of the old companies disappeared, and big cargo owners drew back^{vii}. Bulk shipping evolved into an aggressively competitive market driven regime. The charterers were often replaced by traders who took a short term view, and preferred to hire the ships they needed from the spot

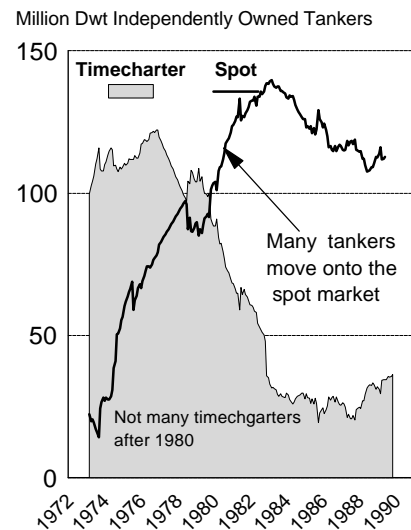


Fig 9 Fewer tankers on timecharter

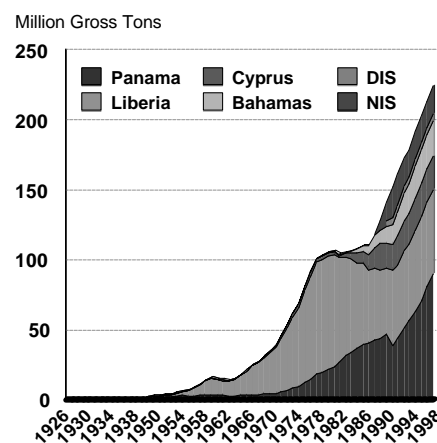


Fig 8 Flags of Convenience grow

^{vi} The Shell Video "On Any Day" issued in 1973 provides a graphic example of this "partnership" approach. In 1978 Shell had 282 oil tankers, including 82 VLCCs, under its control. Today it owns less than 30 tankers.

^{vii} For example in 1978 Shell owned or chartered 232 tankers, including 82 VLCCs. Today they own 33.

market. This was particularly apparent in the tanker business. As the big companies drew back they stopped taking ships on long timecharters. By the 1990s 80% of the independently owned tanker fleet was trading on the spot market (Figure 9). This classic “beat ‘em up” market place encouraged tight overheads, use of old ships (made possible by the building boom in the 1970s), a minimalist approach to maintenance and many other bad habits.

2.4 Consequences of the shipping revolution

By the end of the 20th century the world had a very different shipping system. Communications had changed and ships were much bigger. The hundreds of liner companies had given way to a handful of very big players, whilst the highly structured bulk shipping business had turned into a marketplace where the players battled for business and much of the commercial ownership had moved offshore.

Shipping had become a ruthlessly competitive with the tightest of margins, offering a low return on capital^{viii} in return for the chance for individuals to enter the shipping lottery and become very wealthy. The result was cheaper shipping and a vastly improved transport system, especially for general cargo.

All of this challenged the established regulatory systems which had developed in the more relaxed corporate shipping business of the pre-1970 era. The change of commercial structure weakened the industry's own internal control mechanisms (Class societies, Flag etc) and services like cadet training, previously operated by the shipping companies, disappeared. Today the regulatory framework is in a shaky state. The industry's own control mechanisms that have worked for a century are in disarray, the IMO lacks funds and there is a move to unilateralism by leading maritime states such as the USA and the EU.

3 The Sea Transport Revolution 2000-2025

Now let's look at the next twenty five years. It's a fantastic challenge and, if the last 25 years is any guide, all the building blocks for constructing the new world of shipping are already in place.

Over such a long period we are not bound by what is happening today. Everything can change, just as it did in the last 25 years. If I was making this speech in 1975 and had announced that the oil companies would pull out of the tanker business, most of the liner companies would disappear and the docks would be turned into Marinas, it would not have been thought fanciful, but that's what happened, so at let's least try to think the unthinkable.

I will start by looking at how the trading world will develop, then discuss how the bulk and liner shipping industries will respond, bearing in mind the various technical changes on the cards. Finally I will say something about the people and regulatory framework.

3.1 The information revolution and its impact on the world trade system

^{viii} Typical return in the 1990s was 5-7%, which is probably dictated by the cost of borrowing by banks accessing the Euro\$ market to lend to shipping

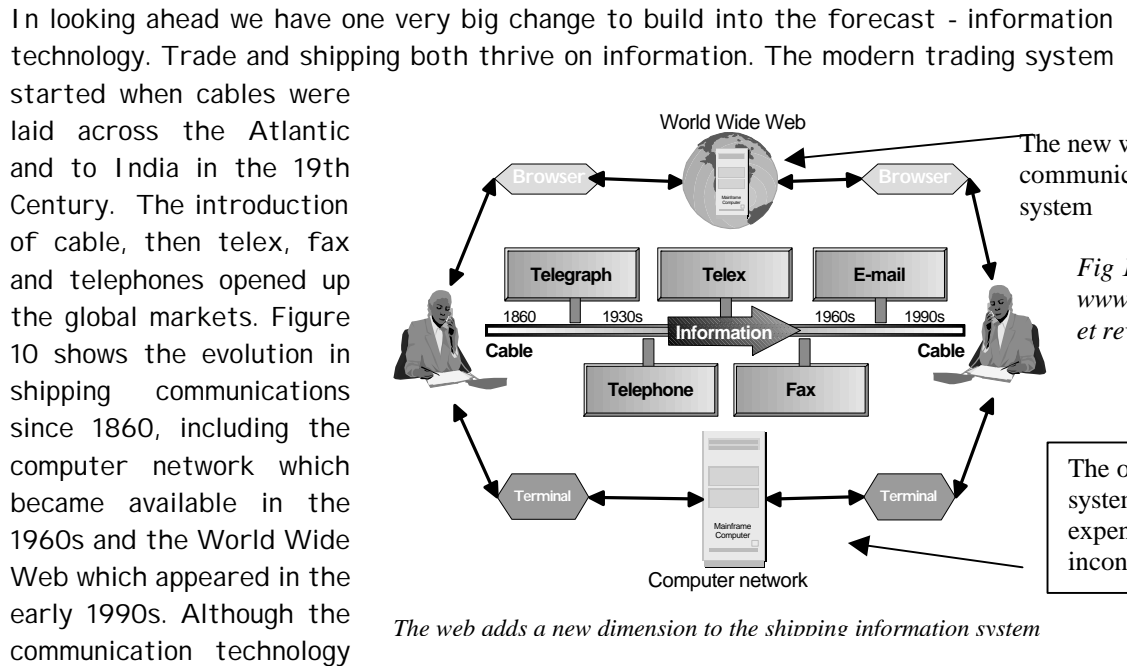


Fig 10 The www/Internet revolution

Although the communication technology is new, the diagram (which is a development of Figure 4) shows that the internet is essentially an evolution of the proprietary mainframe information systems that have been in use since the 1960s. It is a public cable network (radio communications are not quite there yet!) with computers (servers) managing the traffic passing along the cable.

Most businesses in shipping, especially in the liner sector, have been using computerised networks for at least ten years. Office networks with their servers, information systems like Reuters, the EDI system used in the liner business, and a web based logistics system all belong to the same family. A server linked to terminals allows users in remote locations to store, process and retrieve data within an open environment.

The "revolution" of the internet is the creation of a public service which replaces, at a fraction of the cost, the mainframe systems previously operated by private organisations. Three developments are working together to facilitate this revolution.

- i. The Web Browser. Until the web, remote access to computer systems required a special terminal. Now web browsers and HTML/FTP offer an international standard for accessing online files at a negligible cost (free in most cases) and using software which is available to small companies as well as corporates.
- ii. PC Software. 10 years ago the database software available to PC users was feeble and difficult to use. A decade later the power, speed and storage capacity has reached mainframe standards. Implementing systems is still expensive and difficult (having problems with your company IT department?) but now small companies can do big things in the information management area.



Fig 11

Fibre optic cable (in a ship's hold) connecting the world

- iii. Broad Band Cables. As fibre optic cables are laid, the cost of transferring information is falling dramatically and the speed of transfer is increasing. This business is growing at 100% a year and the new cable networks will open all sorts of possibilities. Very cheap communications, videoconferencing, movement of databases etc.

At every level the entry barrier for business communications has fallen sharply and the service levels available to support trade will improve dramatically. Anyone trading internationally knows the difficulty of managing legally secure documentation, especially in such areas as establishing the ownership of goods. Systems like Bolero will make the whole process much easier, especially for small companies^{ix}. For shipping and trade this is a particularly valuable development because both are very communications intensive and stand to gain as a result. It will provide “seamless integration” in trades where this would not have been technically or economically possible previously.

3.2 The Demand for Sea Transport 2000 to 2025

3.2.1 Trade growth 2000 to 2025

Looking ahead the forecasts say there will be another 2 billion tons of cargo in 2025 (Figure 12). The OECD region is now economically mature so it is growing quite slowly. As Asia grows and China finds its feet the importance of the ring of economies around the South China Sea will increase. India is on the road to deregulation and is growing fast. With luck over the next twenty five years the ex-Soviet states will overcome their present difficulties and become a more substantial economic force. Latin America is growing steadily and with each decade will gain critical mass as a centre of trade.

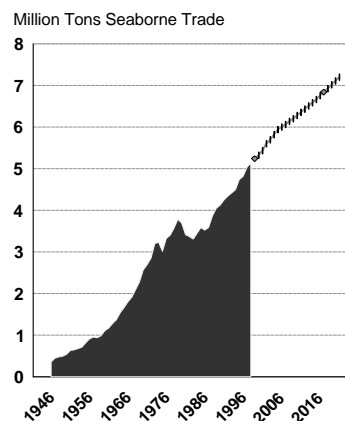


Fig 12
Trade
growth
forecast

3.2.2 The new trade paradigm 2000 to 2025

How will trade change? Better and cheaper communications will help a broader trading matrix to evolve. Web based e-commerce systems will allow manufacturers to widen their search for new suppliers and markets. Light engineering industry can migrate to the remote corners of the globe and many more towns and cities in these areas will be drawn into the global trading system. Adam Smith's pin maker can set up business wherever he likes and still be part of the global economy.

This vision of the future has a very respectable foundation in international economics. Professor Michael Porter's model of the trading world attributes comparative advantage not to local resources, but clusters of expertise.^x He argues that specialised

^{ix} The Bolero System set up by the TT Club and SWIFT Communications provides two key services. Firstly a secure way of exchanging electronic trade documents via the Internet (e.g. messages between users are validated and acknowledged). Secondly a guaranteed Title Registry allowing ownership of goods to be exchanged on line. See www.bolero.net

^x Porter, Michael The Competitive Advantage of Nations The Free Press 1990 Ed, p. 72

expertise in a particular item (say ski boot clamps) allows a cluster of competitive manufacturing businesses to develop in a locality and because of their collective expertise, they have a “comparative advantage” in that product^{xi}. The right communications and transport can allow these clusters to exploit their advantage on a global arena, leading to a broader trade matrix and improved global efficiency. This common sense approach explains why the broader trade matrix could develop, but will it?

3.2.3 An improved Transport System for a new trading world?

The challenge for the shipping business is to provide the transport services needed to support this new trading world. Of course the present system is fine, but tomorrow's technology will create new opportunities. We need to tighten up the system and fill some gaps – what the Japanese call “*improvement engineering*”. No revolutions in ship design. That is over. The next 25 years is about using organisation to make the systems we have today better.

Let's start by looking at the sea transport system. Figure 13 shows how trade starts with raw materials shipped to component manufacturers. This is generally a single transport operation, though occasionally materials like alumina are shipped on in semi-refined form.

In the centre of the diagram are the components which are shipped around the world between manufacturing assembly operations. This has been going on for years^{xii}. In the context of the Cluster model this is a very exciting area for the future. The more clusters there are, the more sea trade there will be as components are shuttled around the world between assembly operations.

In these trades the frequency and reliability of the transport service are crucial and rank ahead of cost.

The cost of moving a container carrying US\$750,000 worth of car components, say \$2,500 by a regular service, are so low that geographical location is no longer a major issue. In economic terms containerisation has already shrunk the world. When it only costs \$1 to ship a video recorder from Asia to Europe, price is no longer an issue. What really matters is the standard of service. The cost to a manufacturer of a component not being there on time and shutting down the production line; or being there ahead of time and clogging up warehouse space is very significant.

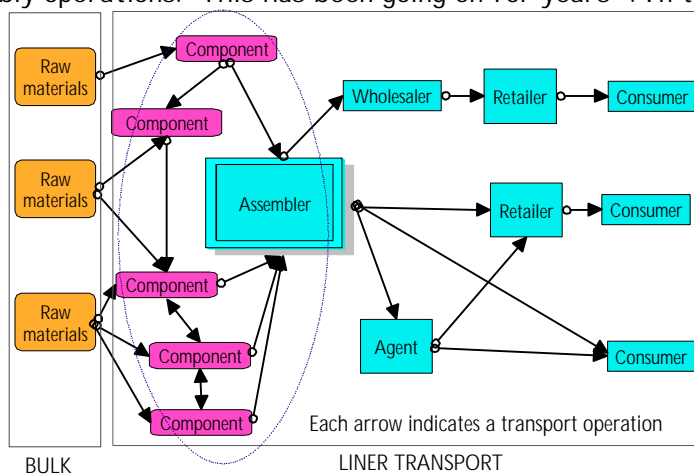


Fig 13 World transport system

xi “underlying... the phenomenon of clustering is the exchange and flow of information about needs, techniques, and technology among buyers, suppliers and related industries” page 153 Porter 1990

xii One of the staple 19th century trades was shipping grey cloth from India to UK for finishing, back to India for manufacturing into clothing and then to the final customer.

Supply chain management is at the top of the agenda, whether the cargo is bulk or general cargo. The challenge is to maintain low costs, whilst providing better transport. The question we must answer is “what is better?”

4 The Challenge For Bulk Shipping

4.1 Outlook for Bulk Trades

For bulk trades, “better” will continue to mean cheaper. The outlook is for sluggish growth, with the possibility that some big trades may even decline. Most OECD growth is now channelled into services rather than physical goods and the heavy industrial expansion of the Tigers is well advanced. Improving technology, mature capital stocks and recycling will all lead to lower primary commodity demand growth. Recently Sheik Ahmed Yamani predicted a sharp fall in the demand for oil in 30 years^{xiii}. Not everyone agrees, but it is possible. Gasoline accounts for 43% of oil demand in the USA and if motor cars move into the politically incorrect ground already occupied by cigarette smoking, the effect would be significant. Growth in the emerging economies seems unlikely to do more than counter balance this trend. So trade is likely to grow at only 1-2%pa (Figure 14) putting cost management high on the agenda of the cargo interests.

4.2 Tightening up the Bulk Transport System

4.2.1 A vision of bulk shipping in 2025

For the bulk shipping industry we are not looking at dramatic change. The major innovations took place in the 1960s and the technology of the business is now mature, so I cannot entertain you with visions of million ton tankers or super barge carriers. The challenge for the next 25 years is to use what we have better. Improvement engineering. As we saw in the earlier sections, there is plenty to do. We need to turn that battlefield we call the “spot market”, where shipowners and shippers (and do not forget the traders) are ranged against each other, into a closely integrated bulk transport system that squeezes another layer of value out of the bulk transport operation^{xiv}. If we can do this, the future will feel very different.

What does this entail? It means moving away from the market driven system of bulk transport which has evolved in the last 20 years into a logistic system like the one the oil majors operated before the 1973 oil crisis. At that time oil transport was 20% more efficient than it is today, and that was without the help of the web. The challenge is to make it work in today's market driven environment.

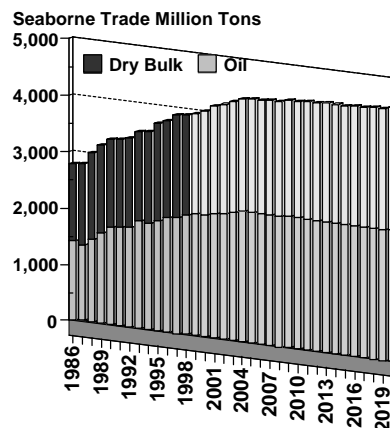


Fig 14 Bulk trade forecast

^{xiii} Interview in The Sunday Telegraph June 2000. He said “Thirty years from now there will be a huge amount of oil- and no buyers”.

^{xiv} I have a slight problem fitting traders into this view of things. Typically they take a short term view and line a liquid transport market. An issue requiring further thought.

The web could be just the catalyst needed to precipitate this change. It offers cheap and easy access to an industry wide information system that will allow everyone in the bulk transport chain to coordinate their activities. The opportunity is there for the refinery, grain operator, tug operator, pilot and terminal to know where each ship and cargo is at each hour of the day. It will all be in a big computer system which every business involved in the trade can access. Right now venture capitalists are prepared to throw money at making the systems work. We should make the most of it while we can.

4.2.2 Doing the same thing better

Implementing this vision will mean integrating all those proprietary information networks operated by owners, traders, charterers and brokers into an industry logistics system (or maybe several competing systems). This system would bring three benefits:-

1. Tighter Supply Chain Management: The web makes it possible to maintain a database that records information supplied by every party that touches the cargo - from producers, to transportation and storage providers, to freight forwarders and surveyors. Once this information is available to all parties, the whole chain can be tightened up, with benefits to industries managing inventories. Web based systems are so easy to implement that I imagine it will become routine for all cargoes.
2. Automation of Accounting, Administration, & Dispute Settlement. Putting transactional information onto a database will streamline and automate the paperwork. Web forms (in effect on-line charter parties) linked to a database allow the details of the trade to be recorded as it is agreed. This brings many advantages. Automatic checks for errors and inconsistencies can be built into the system and the information can be fed into the operations and accounting systems of the parties in the transport operation.
3. New Commercial Relationships: The new system will change commercial relationships. The spot market, which encourages secrecy, is not the ideal way to run a tightly planned logistic system. Web based systems will allow complex cargo contracts, including performance bonuses for the shipowner. If the industry goes down this road the spot market would shrink, and be replaced by a more stable system of contractual arrangements that reward efficiency and share risk^{xv}.

4.2.3 A Quality Bonus?

This system would have two important side effects. Firstly it would bring the cargo owners back into the business as active participants, but without having to own ships. Secondly this more closely integrated system might provide a quality bonus by lending itself to enhanced vetting and make it easier for regulators to monitor performance standards. It would provide the maritime equivalent of closed circuit street cameras. A global information system for a global industry.

There is a lot of competition to establish the "industry platform", and it is encouraging to see big cargo owners involved. For example LevelSeas.com which was set up by BP,

^{xv} Shipping faces the dot.com stampede, Lawrence Royston, Tradewinds 8th April 1999

Shell, Cargill and Clarksons. It may turn out that there is room for everyone. The great thing about the web is that it allows users to work between platforms.

5 The Challenge For Liner Shipping

5.1 The growth of liner cargoes to 2025

Now we come to liners, which is where we should see the real action. Manufactures & components are the fastest growing sector of world trade. If recent growth rates continue, by 2025 there could be three times as much volume as there is today, especially small, high value, parcels - machinery, electrical equipment and chemicals (Figure 15). We noted in section 3.2.2 that we are hoping small businesses will stimulate this growth by shopping globally when they get the hang of how to do it. They are tomorrow's customers.

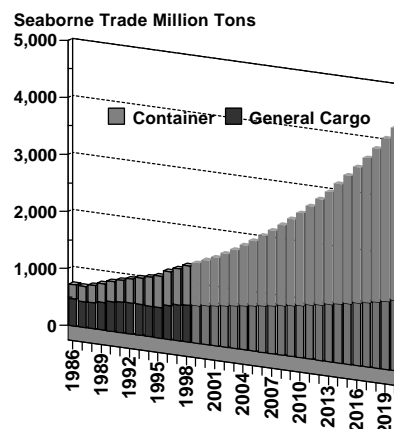


Fig 15 Container trade forecast

5.2 The demand for faster delivery

How will the liner business tackle the next 25 years? It has done a remarkable job in the last twenty five years, reducing transport costs to levels that would have been inconceivable fifty years ago. What next? If we look at the range of transport services offered by the inter-continental transport business there seems to be a gap. Figure 16 explains the point in more detail. We have bulk shipping to carry the very big price sensitive parcels, the container business offering very cheap transport of small parcels and air freight which offers very fast transport. But there is no business offering a direct service for shippers requiring speed and reliability. That is the service that is missing today.

I can already hear the protests. The lines already do this. Of course they do up to a point, but they are restricted in what they can guarantee, especially for small parcels relying on feeder services. Delivery times are still very slow compared with the time it takes the ship to cross the sea. How about "Anywhere in Europe to anywhere in S. America in under 15 days, guaranteed" as a marketing slogan. Of course it sounds impossible, but it's the language businesses understand.

This Premium service is not really available today because the containerisation strategy adopted by the big players has made the liner product homogeneous. Price discrimination by commodity has disappeared because shippers, quite rightly, argue that everyone gets the same service, on the same ships, to the same terminals. With no service differentiation, everyone pays the same. Like Henry Ford's policy on car colour, customers can have any colour as long as it is black!

Four Shipping Market Segments

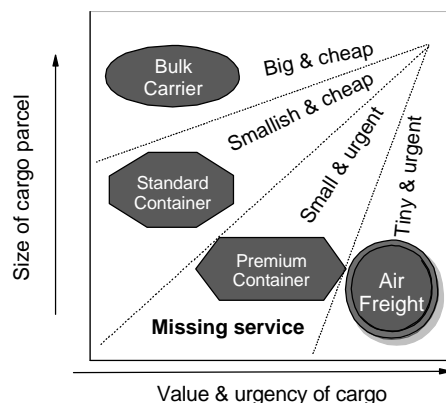


Fig 16 Segments in the transport system

This is not a policy that car manufacturers could get away with today, and the same is true for the liner business. The reason container operators cannot charge a premium rate for high value cargoes is that they cannot provide a premium service. They are locked into a system built around ever bigger ships. So far they have got up to 8000 TEU, but I keep reading about 15,000 teu container ships ^{xvi}. This year owners have ordered 105 of these Super-Containerships which demonstrates their commitment to this strategy.

5.3 The conflict of volume versus speed

Why are the shipping lines so dedicated to the big ship philosophy? One explanation is that in their search for profitability they have been targeting high volume bulk cargoes. Refrigerated cargo is the most recent example. Massive amounts of reefer capacity has been installed in recent years, with the aim of grabbing a slice of the refrigerated cargo market. Figure 17 compares the reefer capacity on containerships with the capacity of conventional reefers, showing the extraordinary growth. Today the containership fleet has more reefer container capacity than the whole fleet of refrigerated ships (reefers).

Enterprising though this may be, it is a slippery slope. Containership operators are on the "bottom cargo" treadmill that hounded liner operators for a century. To fill the ship you need to win more low value cargo, but to get the unit costs low enough to attract this cargo, and meet the capacity demands of shippers, you need even bigger ships. Unfortunately the bigger the ships get, the more operators are locked into arterial hubs. However efficient you are, this slows the transit time, especially for the unfortunates located at the extremes of the feeder network. That is fine for the lower value cargoes, but it will not suit the "cluster" cargoes who would happily pay for speed and certainty.

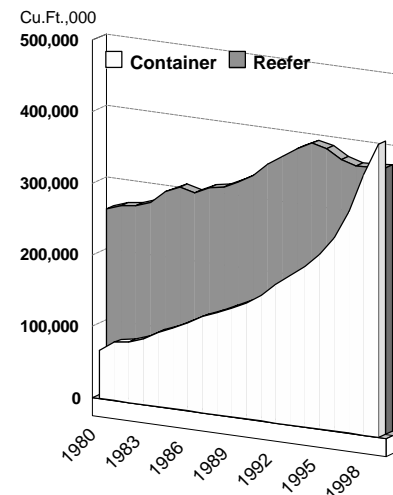


Fig 17 Reefer capacity in containerships overtakes conventional capacity

5.4 The case for a "Premium Container" service

That cannot be right. There will be too much premium cargo around for it to spend the next 25 years locked into the same transport system that carries . The challenge facing the transport providers is to offer premium cargo a premium service that is worth paying extra for. Of course air freight already does this, but it is prohibitively expensive and volumes are tiny.

My vision for 2025 is of a liner business where consumers who want speed and guaranteed delivery across the seas, and are prepared to pay for it, will be able to buy that service. Something between the cheap and cheerful service offered by the existing container lines and the very expensive air freight. This applies to both short sea and deep sea transport.

^{xvi} "Sea View From An Eastern Star" Lloyds Shipping Economist August 2000 speculates about shipping in 2010

Let's call it a "Premium" service for international containers. Service providers may take a completely different approach to the transport operation, perhaps using smaller ships and local ports. As long as it provides the premium service, who cares how the cargo travels? In a sense it is exactly what the container operators did when the system started in the 1960s. They creamed off the premium cargo.

5.4 Five reasons why a "Premium" service will become easier to supply

Against this background I believe five trends will help open up the premium market in future:-

1. Growing trade volume will create sufficient volume on many secondary routes to operate a direct service with reasonable sized ships (mini-hubs become viable). The whole question of what constitutes an economic size of ship is central. In fact the economies of scale in container shipping are surprisingly small in relation to other costs manufacturers face. I estimate the saving is about 30% in moving from a 1200 TEU ship to a 6,500 TEU. Say \$600/box. Most studies of container economics do not rate the benefits of big ships very highly^{xvii}. Small ships are an option, even on deep sea routes.
2. Information technology will allow niche liner companies to offer door-to-door services without the heavy overhead structure previously imposed by EDI systems. Browser based systems and services like Bolero will make the job easier.
3. The growth of the containership fleet will create a pool from which smaller operators can obtain ships on charter when they need them. Recently the container fleet has reached 2669 ships and will soon reach 3000. There is now a thriving charter market where small operators can obtain tonnage to set up niche services.
4. There are many small ports with container terminals keen to attract new business. Hub port costs are very high compared with the cost of the sea leg and small ports prepared to offer favourable rates will reduce system costs. This opens the way to shipping premium cargo to the local port, using small ships.
5. There will be pressure from the public and the environmental lobby to divert distribution of containers by land to a waterborne option where this is available. Again this will support the drive to use local ports.

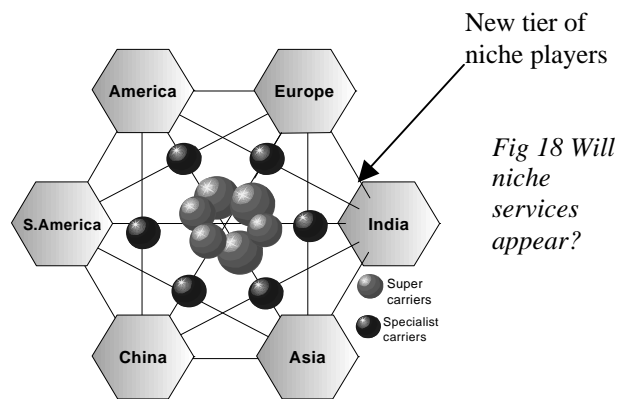
These developments set the scene for new services that will help the "Premium Class" service operators assemble enough premium cargo to offer the regular services their customers want.

5.5 Who will provide the Premium service?

^{xvii} Seok-Min Lim Economies of Container Shi Size: a new evaluation Maritime Policy and Management 1994 vol 21 No 2 says that "The benefits of ships size economies are not strikingly apparent if one uses unit costs and income measurements as in this study"

I am not going to predict who will provide this service, or how they will do it. The business is complex and requires detailed market research and careful planning. There are plenty of different ways the job could be done. Perhaps the existing shipping companies will lead the way with a new breakaway service. Or the solution might be local niche operators serving specific geographical cross trades (see Figure 18).

Or perhaps an entrepreneur from another part of the transport system will force the pace. Remember who initiated containerisation? It was a trucker. Maybe Stelios Haji-Ioannou, owner of Easyjet, will give us EasyBox! Whoever runs the business, the principles are the same. The service must be highly focussed, customer responsive, fast, flexible and, most importantly, guaranteed.



The future –small & speedy container

5.3 The FedEx example

Such changes may seem radical, but there are parallels. A good example is the way FedEx approached the parcel market in the 1970s. At the time the big air freight operators like Pan Am were convinced that shippers wanted cheaper traditional trucking lines such as UPS or air freight for priority cargo. However the founder of FedEx, Fred Smith, identified the 'middle market' and designed a stand alone transport system to serve it. He studied each step in the collecting, transporting and delivering of packages and in billing for the work^{xviii}. and decided to use small business jets. Although these small planes had much higher costs, they allowed FedEx to offer frequent services to many more places using smaller airports - without the big loads needed to fill the larger planes.

FedEx had found a new market for the movement of high-value products requiring guaranteed delivery. The parallel with the present state of the container transport industry is inescapable. Surely there is a shipping parallel for the transport of gearboxes, tractor engines, books or computers that need a Premium service, but not quite urgently enough to pay the prohibitive cost of air freight^{xix}. For shippers in difficult places on the matrix, whose cargo falls in the "priority" bracket this is the future!

6 Opportunities in Managing Ships & People

Finally some comments on two other issues, people and regulation.

6.1 The impact on ship management

The people who crew the ships in the merchant fleet have to be a major consideration. Shipping used to be an exciting and rewarding career. Two hundred years ago the

^{xviii} Drucker P. *Managing For The Future* 1992 Plume Penguin p. 277

^{xix} Giles D. *FastShip a Clean Sweep* BIMCO Yearbook 2000 p. 254 contains a fuller account of the development of FedEx and the economics of the "middle market" for shipping

Master and the Supercargo were the commercial managers of the ship. If the ship needed stores, repairs, or ran into legal difficulties they handled it.

The pendulum has now swung to the other extreme. The business is conducted from the centre, with agents playing a smaller part and the ship's officers no part. As port times have shortened to a few hours^{xx}, going to sea is a long way from life ashore. There is not even peace and quiet to enjoy the solitude. Modern radio communications mean that the Master is deluged with demands from the office, but he does not really know what is going on^{xxi}. In the last 25 years owners solved this problem by drawing officers and crews from developing countries who were glad of the wages. In future this will not be so easy.

Perhaps there is a solution. Why not involve shipboard personnel more actively in the commercial running of the ship? Shipboard communications are about to take a great leap forward. As service levels improve and costs fall, the way will be open to give on-board management access to the same information systems available to management ashore. These systems would allow them to handle every aspect of their business from chartering the ship to provisions, crew and dry docking. The ship could become a profit centre.

Surely this will effect the way the ships and their officers/crew interface with the rest of the company. I do not know how this will develop, and it is an emotive issue, but shipping companies will soon have a very powerful new management tool at their disposal, if they can find ways to use it.

6.2 Shipping's commercial organisation

Finally regulators are faced with the challenge of sorting out the "free for all" in the regulatory area. The frustration of national governments with the shipping community is clear for all to see. Figure 19, which shows a recent Lloyds List front page featuring a shipowner and the EU's Director For Maritime Transport says it all. This frustration has led to unilateral actions by important maritime states, and a lack of mutual respect which is distracting attention from the central issues. If you run tankers on the spot market with its draconian pricing policy, you must be prepared to accept the consequences.

The good news is that the web based information systems being discussed today might just bring the industry back into the regulator's clutches. There has been much talk about the value of information in raising quality standards and now the Web may make obtaining this information much easier and cheaper. The regulatory authorities need to start thinking about how to handle this important new facility which will certainly change the way shipping is regulated.



Fig 19 Owners ranged against regulators in the safety debate

^{xx} The average time in port has shrunk from 6 days in 1970 to 16 hours

^{xxi} Recently I was told by a Mission to Seafarers Chaplain who spends a lot of time talking to Masters "I've not met a sea captain who is happy with the future of his profession". Similar comments were made to me in discussion with staff of the US Merchant Marine Academy.

7 Conclusions

Thirty years of crystal ball gazing have convinced me that the chances of getting this type of analysis exactly right are small. We analysts are often misled by exciting ideas. In 1979 I thought economies of scale would drive the liner industry towards barge carriers^{xxii}. Right issue, wrong solution! We got 8000 teu containerships instead. Nowadays I stick with pinpointing the issues and leaving it to the industry to find the solution that works.

My theme today is "improvement engineering" - no barge carriers this time, just a concerted effort to make the resources we have work harder. I have come up with four challenges.

1. We have a new international communications system that is going to reshape the way shipping and trade is organised. Shipping is a key link in the supply chain and must put this new technology to work.
2. In bulk shipping the challenge is to move from the adversarial system we call the "spot market" to a more closely integrated transport system where shipowners and cargo interests are partners, not competitors (traders are a problem!). This could lead to a smaller spot market and a new generation of contractual relationships between shipowners and charterers.
3. In the liner business the challenge is to enhance the "stack 'em high & sell 'em cheap" product with a cargo driven "premium" service. I am convinced the demand is there, but someone has to make the running. Several developments in the industry, especially the web, will make it easier. Roll on EasyBox!
4. In the regulatory arena the challenge is to create a legal framework that promotes shipping efficiency. Shipping has become an aggressively competitive environment, and understandably regulators have started to view it as a necessary evil rather than a vital resource. But there is a positive way forward. The new web technology offers a chance to create a more transparent system of maritime regulation.

We have a great opportunity and the future is in our hands. Thirty years ago brave investment decisions like containerisation changed the whole face of the industry. Today we have another revolution, so it's time for the next leap of faith.

Martin Stopford

MD Clarkson Research

e-mail mstopford@clarksons.co.uk

^{xxii} Stopford R.M. New Designs & New Buildings Commodities & Bulk Shipping in the 1980s Conference, London 13th November 1979 "Barge systems offer opportunities for obtaining economies of scale in small bulk parcels". It seems the industry does not like complicated solutions!

Defining The Future of Shipping Markets

⋮

Tel +44 (0) 20 7334 3142

