

The Different Types of Ocean Shipping

Many different types of ship are used to transport goods around the world. The differences between them reflect the varied needs of international traders. In particular, different types of ship are used to carry different types of cargo, or to carry cargo in varied ways. The different types of ship are summarized below:

- Container ships carry their cargo packed into standard 20'/40' containers that are stacked both on and below deck. Smaller "feeder" ships carry containers on coastal and inland waters.
- Roll-on/roll-off (ro-ro) carriers carry both road haulage and passenger vehicles.
- General cargo ships carry loose-packaged cargo of all types.
- Bulk carriers carry unpackaged goods - usually large volumes of single-commodity goods such as grain, coal, fertilizers and ore.
- Tankers carry liquids (such as oil and gas) in bulk.
- Vehicle carriers carry cars.
- LPG/LNG carriers carry liquefied petroleum gas and liquefied natural gas.

Merchant ships primarily do business in two different ways:

Liner vessels operate on fixed routes, to fixed schedules and usually with a standard tariff. Liner trades are dominated by container ships, roll-on/roll-off carriers and general cargo ships.

Charter ("tramp") vessels operate entirely according to the demands of the person chartering them. Their ports of loading and discharge are set by the charter, as is their cost, which depends on immediate supply and demand conditions. Most tankers and bulk carriers operate in the charter markets.

The Liner Trades and Container Flow

Most container moves involve an international sea leg. Figure 1 illustrates global flows of containers along the principal trade routes in 2002. These flows accounted for 37.7 million TEUs or roughly 24.3 million actual box moves concentrated in the dominant Trans-Pacific, Asia-Europe and Trans-Atlantic trades. Container traffic figures for world ports from Containerization Online indicate that over 264 million containers were handled in 2002. These figures account for all containers handled at the various ports including transhipped containers, empty container moves on both the export and import sides. These trade volumes are expected to increase in coming years as world trade increases.

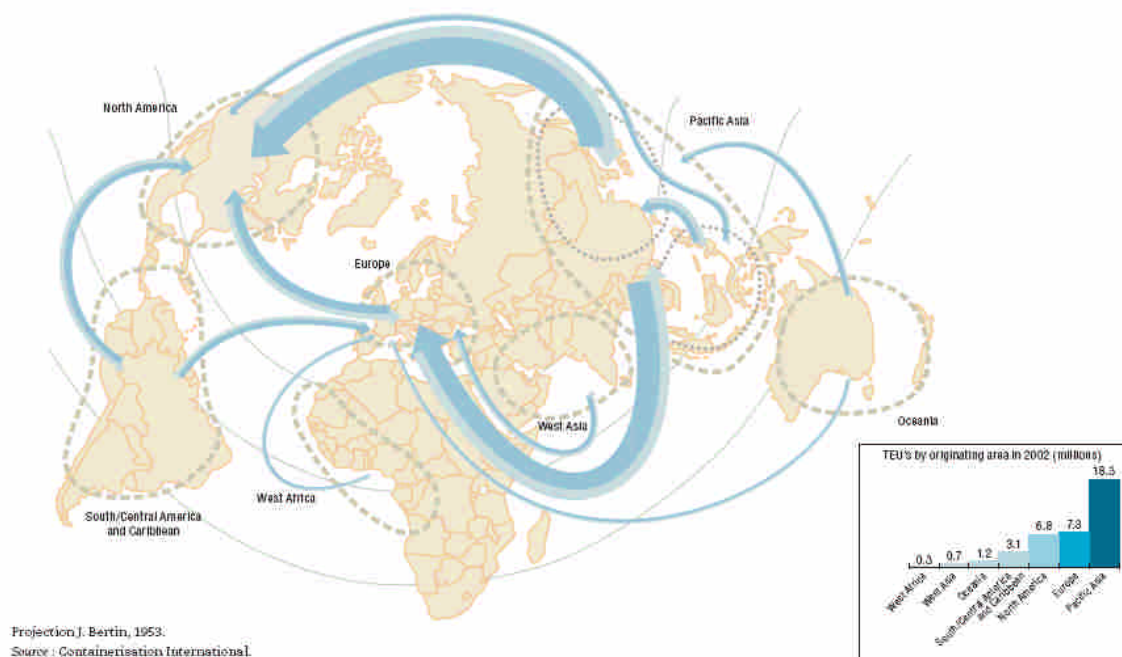


Figure 1. Global flows of containers along the principal trade routes in 2002

An increasing coherence of the liner shipping industry has been an important byproduct of containerization which, over the last two decades, has benefited from, and contributed to, the expansion of world trade in manufactured goods. World container traffic volumes broke the 300 million TEU in 2003, a rise of 13.5% of 2002. Preliminary estimates put global handling activity in excess of 311 million

TEU (Fossey et al., 2004). Roughly, 65% of world-wide container movements were generated in the four main trades: transpacific, Far East/North Europe, transatlantic and intra-Asia.

Table 1. Container trade flow volumes of east/west axis (unit: 1000 teu)

Trade Year	Transpacific			N. Europe - Far East			Transatlantic		
	EB	WB	Imbalance	EB	WB	Imbalance	EB	WB	Imbalance
2000	7,211	3,775	3,436	2,678	4,077	1,399	1,516	2,101	585
2001	7,352	3,654	3,698	2,822	4,075	1,253	1,541	2,124	583
2002	8,766	3,899	4,867	2,992	4,394	1,402	1,544	2,181	637
2003	9,632	4,363	5,269	3,212	5,167	1,955	1,581	2,207	626
2004	10,530	4,807	5,723	3,474	5,753	2,279	1,622	2,296	674
Trade Year	Mediterranean - Far East			Mediterranean - North America					
	EB	WB	Imbalance	EB	WB	Imbalance			
2000	630	1,280	650	399	853	454			
2001	670	1,325	655	377	904	527			
2002	760	1,475	715	415	989	574			
2003	808	1,759	951	468	995	527			
2004	866	1,985	1,119	486	1,040	554			

Source: Fossey et al., 2004.

A closer look at Figure 2 shows that cargo flows are not balanced on the most important trade routes. Flows from Asia to the USA exceed those in the opposite direction; likewise, flows from Asia to Europe and from Europe to the USA are significantly higher than the respective flows back.

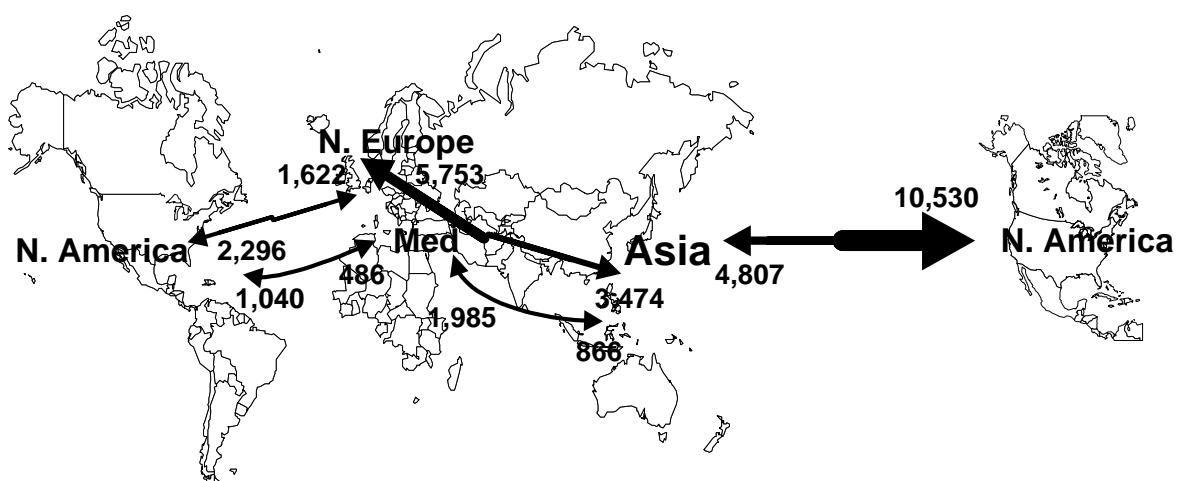


Figure 2. Container trade flow volumes of east/west axis in 2004 (unit: 1000 teu)

One of the largest cost elements in liner shipping has to do with the management of the fleet of containers. The flow of containers across the world does not coincide with the routing of containerships. They need to be picked up and delivered at inland locations, maintained, and repaired, or may not be needed for some time. This makes the management and optimal relocation of empty containers a separate control problem in liner shipping. The main liner company objective in this regard is to ensure that, at every location, enough empty containers are available so that all transport requests from customers can be satisfied. This problem becomes an actual and immediate one whenever, on a certain route, more cargo moves in one direction compared to the other. Such a route is known as an unbalanced route, or a route with cargo imbalance. This is the case, for instance, of the Europe-Far East route, one of the three main liner routes where most of the full containers travel westbound.

Repositioning empty containers is costly for liner carriers, and recent increases in container flow imbalances in the main trades, especially the transpacific and Asia/Europe trades, have highlighted this problem. A detailed analysis of the world container flow (see Table 1) shows a continuously worsening situation. Storing and repositioning such massive and increasing volumes of empty containers is growing more costly, and the need for empty repositioning remains one of the container carriers' biggest problems. The problems not only result in losing revenue opportunities and increasing container handling and storage costs, but bring some negative effects on marketing strategies, e.g. low rates, container one-way free use, that erode revenue even further.