

# The history of sea shipping of goods economics essay



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A business organization needs to move material to support its operation. A manufacturing entity needs to move raw materials to the start of the production chain and supply the necessary material along the production line until the good is in the finished state. A simple looking product may need several material inputs which are supplied by subcontractors or other sub assembly plants to produce the finished good. With the advent of globalization the sourcing of an organization for sub assembly parts and raw materials can span the whole globe. This has increased the interdependence of several organisations, and need for a managed efficient system to transport goods from one place to another. This transportation activity has been expanded and nowadays the whole process from raw material to the finished product placed in a retail shop is called as the supply chain. Several examples can be found in today's world to highlight this new reality. E. g. when ST Microelectronics in Malta got the contract to produce the much wanted mobile phone semiconductor chips to Nokia, one could hardly envisage the vast network of logistical tasks were needed to provide the needed chips in time to customer ' Nokia' in Thailand. The sub assembly plant in Thailand was another step in the Nokia phone supply chain. To produce such chips ST (Malta) had to import all raw materials in timely manner and export the finished goods to the next step with clockwork precision. A delay of 2-3 days in production output did mean that the Thailand plant was waiting for Malta's chips and Nokia final assembly plant in Finland would also be edging to a standstill. A shortage of Nokia goods at the mobile phone shelves would mean loss of sales in the highly competitive market. One must here bear in mind that most manufacturing plants operate under Just in time operations conditions. The industry has realized long ago

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that keeping high inventories mean keeping monies in inventories which cost money in storage, plus the devaluation of such stocks. Just in time is clearly important for products like the one mentioned above where electronic goods lifetime is very short, and hence manufacturing plants must keep very low inventories. Just in time is no longer a domain of the manufacturing sector. This methodology has ' is also increasingly important in the retail sector, where the practice has been coined " lean retailing". Such example is Zara a Spanish vertically integrated fashion clothing firm, were a skirt from design to a retail outlet anywhere in the world takes only two weeks. In this case production is done in Portugal or Spain with higher labour costs than Asian competitors yet being near their main retail shops enable them to cut on lower distribution costs and faster JIT deliveries (a container from China takes a minimum of one month to reach European ports(Nordas-2008 17th symposium). This highlights the fact to the importance of logistics in the supply chain, and to this matter logistics functions have taken over storage, handling, manufacturing, purchasing, packaging and transport functions in an organization. The main objective of such functions is to provide utility in the right place right time at the right condition and price. The chain is as strong as its weakest link

## **Time, Logisitcs and Mode of Transport**

What are the variables in choosing one mode of transport from the other? ;

Below are some such variables

Speed of delivery

Certainty of Timing

Freedom from interruption

Possibility of damage due to type of utility

Possibility loss through pilferage

Quality and or impact of ancillary services

The Just in Time methods and lean retailing methods has pushed the transportation industry to give more importance to delivery of goods in time. Speed and efficiency of transportation has taken a bigger importance whilst the cost of this task has to be kept low. To this effect lead-time is an important variable in the whole equation. Lead-time is the amount of time between the placement of an order and the receipts of the goods ordered (Nordas-2008 17th symposium). Time costs of transport has declined over the years example relative cost of air transport has for instance , declined by 40% between 1990 and 2004 (Harrigan, 2005) while average shipping time to the United States has declined from 40 to 10 days during the period 1950-98 due to faster ships being used.

To select the best mode of transport for ones utilities one has to carry out a detailed cost time analysis. It is often perceived as more cost effective to ship a production machine from Europe to Asia by sea, the reason being that for the high volume and weight it is too costly to use other modes of transport such as air, or it is too dangerous to cross by truck the Middle East region. Yet with such scenario one must take into consideration the vast amount of added value of production the machine would have produced in the period the machine was in transit. Hence when factoring the cost of

transporting a machine by air one has to factor the added advantage of having the machine running on production some 2-3 weeks whilst if transported by sea this same machine would have been still unproductive.

## **Sea shipping of Goods**

The movement of goods by sea has a long historical tradition and our history books recount how the Romans, Phoenicians thrived on moving of goods across the Mediterranean region. Several countries have benefitted from their geographical position or their particular geography/topography, and developed significantly through the natural advantages obtained by being at the optimum point of a transportation road or is able to offer an added cost advantage by being able to link different transport modes. Today many of the world major centres of population and commerce are situated because their roots date back to transport requirements of the time. Examples of these are most of the major port cities, such as Hamburg; Rotterdam; New York; Singapore and Hong Kong. Most of these port mega cities were established hundreds of years ago due to their proximity to the port and hence their proximity to transportation and trade. On the other hand countries which are located far from sea routes, our do not have the necessary road infrastructure linking to such ports have found it difficult to develop economically. Example the lead time for an exported good from Central African Republic is more than eight months this owing to the poor accessibility and hence trade with this country with the OECD countries was just \$24.5 million in 2003 (Nordas, 2008).

It is for this reason that a country to be competitive has to have a strong transportation system both internally and with the other countries which <https://assignbuster.com/the-history-of-sea-shipping-of-goods-economics-essay/>

surround it. Each country has its own particular variables. It is due to the above facts that areas in close proximity to ports have developed in important economic areas, where manufacturing, logistics facilities have been setup. A case in point is the economic benefit which Rotterdam and the Netherlands have benefitted from, due to their very efficient port system and supporting road and rail system. Rotterdam port is today considered as the main port/ transportation hub in Europe, which is serviced by the main container liners coming from the US and Asia. A spin off from this port success, the Netherlands have experienced a big increase in logistics companies (approx 400, 000 work in logistics in the Netherlands making it the largest industry in the country)being setup in the region, to serve as a hub for the rest of Europe. Example Nissan motors main hub for spare parts logisitcs centre near Rotterdam. (Bollen, 2012)

## **Why sea transport?**

According to the European Commission, the growth in transport volume over recent decades has resulted in congestion and increased pressure on the environment and on safety. Forecasts show that transport demand will continue to grow which means that optimum use should be made of all forms of transport, notably water-borne modes. Water transport is well adapted to the geography of Europe and its extensive coastline.

The advantages of water-borne transport include:

More fuel efficient: Transport by sea uses up to six times less fuel vs road transport and hence lower carbon emissions. This together with lower noise pollution makes sea transport the most environmentally friendly

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Reliable: Few traffic constraints and plenty of ships and routes to offer innumerable possibilities

Low Cost: Due to lower fuel consumption/ container load against road and lower labour costs. Sea shipping is 30-60% cheaper. When comparing the time to deliver a good or utility by sea against using the road sea transport is definitely slower compared to air transport, and also slower against road transport unless the geography favours sea transport. Yet sea transport is often considered cheap due to economies of scale, ships can carry a huge amount of a cargo with relative low amount of personnel.

Low infrastructure costs: There is no need to build or maintain roads however there is need for a port terminal

Safer: Sea transport is 90 times safer than road transport

Less Restrictive: Sea transport is not dependant on public holidays, weekends or the need for rest breaks, or the restriction of speed

(Institute of Sustainability, 2013)

<http://www.lopinod.eu/>

## **Challenges effecting ports and transporting goods by sea**

It is important to note that efficiency of port facilities and bureaucratic barriers may increase the lead times in the transportation of utilities to their destination, and hence being at a strategic post for a port is important yet the efficient handling of these goods is also an important factor. Example a consignment entering Malta before 2004 (before Malta's accession to EU)

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artificial barrier were imposed by the duty control these were removed after EU accession. This improved the efficiency in our ports. Another factor which can effect port efficiency is congestion. Ports have to have the necessary infrastructure like cranes, roads, rail connections and storage facilities to cope with the expected container carriers calling at the port at the same time in peak period. No shipping line is happy to keep their ship in port for long times as this impacts on their schedule. On the other hand it is of no use that a container is in port in storage waiting to be transferred to cargo-rail due to saturation in the cargo rail system.

As the demand for sea transport grows the need for larger sea carriers grows and hence we are seeing bigger carriers roaming the globe from Ningbo port in China to Hamburg in Germany. The reason for bigger carriers is that they bring with them economies of scale, hence we have seen container ships grow from 4000 TEU to 16, 000TEU ultra-large container carriers. These larger carriers require ports to be equipped with bigger gantry cranes, plus the need for deeper quays since the larger carriers require more draught to dock alongside the quays. Another problem posed by these ultra large carriers is that their size and draught may limit them the use of main ports or canals in the world. Example the Emma Maersk which can carry 14, 000 TEU cannot be used on the Panama canal due to the lock draft capacity limit of 12. 05m. The Panama canal is currently being enlarged to cater for bigger carriers yet not enough to cater for the Maersk e-class container ships. Such projects require huge investments but are essential for the development of the transportation system same issues can be seen at the entrance of the Scheldt river in Antwerp and the port of Hamburg which is at the delta of the



Elbe river (Rodrigue, January 2010). Marsaxlokk harbour has to be continuously cleaned/ dredged at sea-bed level so that the port can continue catering for large carriers.

Another important factor related to sea port facilities is the surrounding infrastructure. Maritime container shipping has increased dramatically in the Mediterranean region in the last decade, yet one of the main ports Gioia Tauro strategically positioned in south of Naples did not replicate this increase (19.5% increase between 2000-2005 other ports in the Eu Med experience increases of more than 50%). This is due to the poor road connections in the area which hinder the efficient connection to the main Italian road motorways. (Rothengatter, 2008)

## **Road Transport of Goods:**

The transportation of goods by land is the eldest form of transport. The earliest forms used were by means of animal power such as horse or oxen powered carriages. These were very limited since the necessary infrastructure of the modern roads was not available hence communities traded with other communities near them. With the advent of the industrial revolution accessibility was increased by the invention of the steam engine and railway-f cars/trucks. This system has evolved and today we can say that the land transport of goods especially within European countries and neighbouring countries, is very efficient and fast. Several specialised road haulage companies have been created which serve most companies which demand transportation of goods over short to medium distances.

Why Road Transport ?

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Road transport can offer several advantages over other modes of transport.

The relative cost of investment in a vehicle is relatively small compared to a ship. This makes it easier for a service provider to enter the market and offer the service a road transport service. This has also resulted in greater competition.

The infrastructure in roads and accessibility. Roads can vary in cost and this depends on the type of road, which can vary from a single lane in the country side which needs a low amount investment in building and a multi-lane motorway which can experience thousands of vehicles per hour. The advantage of roads is that these can be extended to reach areas which are unreachable with other modes of transport. One can easily understand that sea cargo can go as far as the port, whereas the rail or inland water ways are restricted to the geography or the infrastructure. This has made road transport in inland areas very popular especially in the United States where the intracity rail system does not exist. The United States rely for most of their inland cargoes by road. This can be said also to Malta where other modes of transport other than the road is not existent and not feasible to construct due to our small size. Hence we are used to roads congested with commuter traffic mixed with cargo trucks moving through our narrow roads. Malta has one of the largest road networks per sq/km in Europe extending to a length of 2000km (Ecorstys Nederland BV, 2005). The flexibility of route choice once a network of roads is in place is an important attribute of road transport by which way can offer a door to door service for freight.

As already described time and speed of transportation of goods is a very important factor. The relevant speed of road transport is another important factor, which tilts the balance in favour of road transport. A trip from Naples to Genova may take 7-8 hours by truck yet the same trip by sea is more like double the time. One must here mention certain restrictions being imposed on cargo trucks as regards speed limits, and limits on days and times when cargo trucks can travel through certain roads. Communication systems nowadays have also helped to reduce congestions as trucks are advised beforehand of traffic areas and are advised to divert on alternate routes

Trans European Transport Network TEN-T. is basically 29 corridors along the European region which enables better connectivity by road of the various countries. The scope of such project is to facilitate the accessibility of moving goods and people across borders inside the EU by using roads. The four main factors which were taken as a basis for the need of the above mentioned corridors were

Transport volume and share of international transport

Improved accessibility for the regions of the Union

Savings in generalised costs (time and operation costs in transport)

Environmental protection

Examples of these projects are the Strait of Messina and the Turin to Lyon underpass which both would bring an added accessibility to the transport sector.

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This century will see a continuously evolving set of factors and pressures influencing the way in which transportation systems will be expected to meet the requirements of a global marketplace. For most of the 20th century, each of the modes evolved and functioned under a “modally” based regulatory structure. With the advent of containerisation in the mid-1900s, deregulation during the last two decades and the recent focus on logistics, global supply chains, e-commerce and advanced information technology, the climate is rapidly shifting towards integrated transport single-waybill shipments.

A well-functioning freight transport system is an essential element of a successful economy. In transportation, smooth flows and profitability tend to be highly correlated. Smooth flows reflect effective loading/unloading and transfer in terminals, reliable vehicle performance, a minimum of starts and stops along the route, and high utilisation levels for the fixed assets required in the system. Actions or conditions that interrupt trip flow or increase trip time typically add to the cost and erode asset turnover. Conversely, modifications that improve flows and trip times usually reduce cost and improve asset turnover.

In the coming years, the freight transportation system will face challenges requiring the

development of entirely new approaches to operations and planning. These challenges will not remain static, and governments and service providers must be prepared to meet them in a flexible, responsive manner. The factors

that will drive the key issues and challenges affecting freight transportation in the future include the following:

- Domestic and international freight demand will continue to grow. For example, distance travelled by heavy trucks is expected to almost double from 1995 to 2020. <sup>7</sup> The consumption of goods will increase as new segments of the population enjoy more disposable income. The incorporation of the former socialist republics into the world trade system and the expansion of economic activities in developing countries will significantly augment the flow of goods and merchandise. Pressure for increased economic competitiveness will grow as a consequence of factors such as the economic unification of Europe, the resurgence of the Asian economies and regional trade alliances such as NAFTA and APEC.

- Businesses and consumers are ordering goods with less lead-time and requiring predictable delivery within ever-narrower windows of time. Freight transportation systems will have to become more and more responsive to user needs and expectations as consumers continue to demand greater control over the services they receive. This trend will be accentuated by the availability of information systems and technologies that enable users to specify the kinds of service they require and to integrate their operations effectively with the freight transport system. As a result, users of the freight transportation system will be increasingly involved in closely managed logistics chains, where customer decisions drive supply decisions relating to quantities, location and delivery times. <sup>8</sup> Continuous information about production schedules is already being fed to suppliers, to arrange just-in-time (J-I-T) delivery of inputs to the production schedule and final delivery to <https://assignbuster.com/the-history-of-sea-shipping-of-goods-economics-essay/>

the customer within a guaranteed response period. These trends present a challenge at the domestic level; in the context of the global marketplace, the tensions placed on transportation systems are significantly exacerbated.

- € Smooth product flow is maintained through flows of information and increased integration of management processes by all participating organisations. Extra complexity is introduced by any door-to-door service that relies on intermediate transfers of the shipment between carriers/modes. The freight transportation system is increasingly turning to information technology to help it increase both efficiency and productivity in an integrated system. Steadily declining prices of new technology, combined with a growing awareness by the industry of the benefits of these technologies, is leading to increased use of information technology.

However, as supply chains take on global dimensions, the integration of complex technologies takes on added importance, especially considering the lack of universal standards or harmonisation of systems. These challenges are not limited to those technologies directly used by transportation service providers, but also affect government (e. g. customs, immigration, regulatory agencies) and private organisations (e. g. brokers, Third Party Logistics, infrastructure providers).

- € In dealing with the growing volumes of domestic and international merchandise trade,

freight planners have to consider limitations on infrastructure. Additional infrastructure will be increasingly difficult to obtain, and may even be considered undesirable in some

communities or regions. Economies or regions which are seen – or see themselves –

primarily as conduits between trading areas may be unwilling to expend the resources and face the social costs of expanding their infrastructure to meet transportation demands. More efficient use of existing infrastructure, and careful development of new infrastructure and facilities, will become a key priority. Appendices