

Service Logistics –

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What are the multi modal transport and its uses to logistics and development at the global context

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Introduction

Logistics have evolved a lot during the last decade, and continue to be developed today thanks to innovation or technical progress. Nowadays products travel all around the world to be delivered to the final customer, they even pass by different continents, the conception, the production, resource extraction and the commercialization are often made in different places on the planet.

To make this possible logistics needed to adapt and find adequate means to enable the movement and management of these flows. This is where the importance of transportation comes, to be moved, products have to be transported by the most efficient way possible to keep the product competitive and attractive for the customer. During the years, such as logistic, transport methods have been developed, with the beginning of the container ship, flight transportation, development of the road and highway, and most especially with the possibility of using multi modal transport.

This new possibility thanks to logistics and transport development brings many benefits, with the possibility to buy everything, from everywhere in the world thanks to the internet and e-commerce. This brings benefits for consumers but also for the people who live in the area of resource extraction, production, or even for people who work in zones of transportation like port and strait, because this activity creates jobs and opportunity for the local population.

Unfortunately this evolution also brings negative things such as pollution, exploitation of local population, exploitation of non-renewable resources, abuse of labour.

So the aims of this assignment will be to define what is multi modal transport, what is its history and its development to the beginning until nowadays. Then I will define what is logistics, and study the conception cycle of a product to understand how it is international to create and put something in the market today, after this I will present the principal needs of logistics in terms of operation and transport. Finally, I will explain how multi modal transport is applied into logistics for which benefit but also for which negative impact, then I will try to show why multi modal transport is essential to logistics today, and how it is used as a tool to develop the logistics sector.

1 Multi modal transport

1.1 Definition

Intermodal transport can be defined as the act of using two or more modes of transportation cooperating on the movement of goods or products to be delivered to the customer or the supplier. Supply chain managers are looking for the best way to move shipments and these often include the uses of different transport modes, because each of these modes have their benefit and inconvenience.

1.2 History

Multi modal transport is arriving bit by bit with the development of commerce across countries then across the world. The first road used for commerce were trails, animals were used too to transport goods and products such as horses, mules or camels. The arrival of wheeled vehicles has accelerated the improvement of the roads, since this time the modes of transport and the infrastructure have not ceased to be developed. Logistics and transport experienced a great evolution during the two World War, the need of the army has required a lot of improvement in terms of way of transportation, but also in works organization to find the best way to move the goods quicker as possible up to the war zone. All these developments have benefited the logistics and transport sector after the war.

Another big progress in the sector of multi modal transport is the arrival of the container in the 1960s also contributed greatly to the development of multimodal transport. With containers, goods can be transported from point A to point B without requiring large handling operations. The same container can be loaded successively on a boat, on a truck, on a train, etc. When the loading unit does not change, it is called intermodal transport (GEFCO).

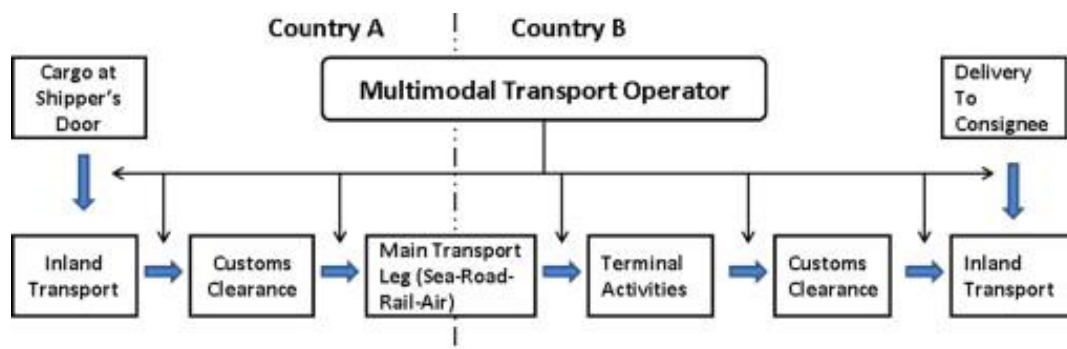


Fig. 1 : Goods flow in a typical international multimodal transport chain (I. Harris et al, 2015)

Nowadays multi modal transport is used in almost all shipment, especially for the one which come from another country or from a longue distance, often the easiest way to move these shipment is to combine two or more methods of transportation to reduce cost, to be quicker, safer and facilitate loading (Generix, 2019).

1.3 Transport mode

There are 5 major ways to use intermodal service by the road, water, pipeline rail and air, each of these types of intermodal services has certain useful characteristics, which makes them more interesting for transporting certain products.

1.3.1 Road Transportation

Road transport is the most popular ground transport. Although they are not the most ecological or economical, trucks are very often used in addition to other transport because they are much more flexible and easy to access. So the goods are often transported from the shipper to another transport center and then once arrived by boat, train or plane, the goods are again transported by truck to their recipient (DLM, 2021). Road transportation is almost the only transportation mode which allow to deliver the product directly to the final customer.

1.3.2 Rail Transportation

Rail transport accounts for less than 10% of national freight transport and is especially popular in Russia and the United States. It is considered a particularly efficient means of transport, whether in terms of environmental cost, volume of transport or speed. It is suitable

for long transport and is particularly safe as it suffers fewer accidents than other modes of freight (DLM, 2021). Rail transportation is often used by heavy industries, or for heavy or bulky goods. The containerization also improved the flexibility of rail transportation, and can be easily linked with maritime and road mode.

1.3.3 Pipelines

This mode of transport is widely used to transport liquid materials such as water, oil and gas. Pipeline's main benefit is to carry one commodity from a location to another by a safe way. But this mode of transport requires infrastructure which is expensive to build and most of the time financed with private capital. Most of the pipelines are in the US which hold 17% of all tons-km.

The main constraints of this mode of transport are the costs of setting up which it requires, but also the damage to the landscape in unpopulated areas

1.3.4 Water Transportation

Maritime transport is the most used mode of transport for goods. In 2015, it represents 80% of world trade in volume. The use of sea containers and cargo ships reduces the risk of loss, theft or greed while increasing productivity through faster loading and unloading, which also reduces the cost of mooring and thus the cost of this means of transport (DLM, 2021). To have an idea of how maritime transport is important in international transportation, 71% of all freight shipped globally goes through maritime transport, 25 000 billion tons-km are on average transported annually against 7 000 by rail and only 3 000 by road. Maritime transportation use the most important zone on the earth, the water, which represent 71% of the surface. Furthermore, maritime routes are now developed and established, with infrastructure and massive business ports adapted for this size of actual container ship.

Today we count around 85 000 ships of more than 100 tons, half of them performing transport functions and the other half performing service functions, we can also observe a growth of the number of ships as well as their average size, so to conclude on maritime transport we can say that this mode of transport dominantly concerns freight.

1.3.5 Air Transportation

Air transportation is used very little for the transport of goods but much more for the transport of people. This mode of transport is especially appreciated for its speed as well as for the large volumes it can transport. However, its main defects are a limited load and a higher cost than the others. Another drawback of air cargo is that it is extremely controlled which makes commercial flights less frequent than other modes of transport. Airplanes, because of their speed, are mainly used for the delivery of perishable products or urgent products because of lack of stock at their destination (DLM, 2021).

2 Global logistics

2.1 Definition

Global logistics include flow of resources and information between a supplier and a customer. The person who is in charge of logistics operations has to manage how the resources are acquired, stored and transported, to be efficient this process requires a precise analysis of a company's entire supply chain. To simplify, "global logistics refers to the management of the flow of goods or services between the point of creation and the point of consumption" (Staff Writer, 2020). The stakes around logistics continue to grow due to globalization, and the growth of e-commerce.

2.2 Needs of logistics

The evolution of the logistics and the multimodal transport have obliged the development of infrastructures adapted to the exchange of goods and the reception of the modes of transport.

2.2.1 Infrastructure

Most developing countries have put in place these infrastructures in order to remain competitive and be able to continue to play a role in world trade. In fact, container ships are always getting bigger and bigger, the ports become hubs, the volume of goods transported throughout the world is constantly increasing, so as not to be excluded from this new way of doing business, countries must adapt in order to remain trading areas capable of transiting these volumes of goods, and berth these giant ship. Today most of the world's largest ports are in Asia as they are the world's largest exporter of merchandise, but there is also great

infrastructure in western countries that serves as a point of deserve to accommodate ships coming from Asia (Klaus-Dieter Ruske et al).

And it is the same for all other modes of transport, companies are developing and expanding their structure in order to be more competitive and adapt themselves to the market. Nowadays, we can see all across Europe massive truck park with lot of dock to accommodate trucks and their goods, there are also airports or train stations in most major cities

2.2.2 Manpower

Logistics and transport need infrastructure but also manpower, so many jobs have been created and developed during the evolution of logistics and transport. Today logistics is one of the sectors that hires the most, there are more than 150 trades related to this sector and more than 50 core businesses (AFT, 2019). Logistic. Offer different kinds of jobs, as handlers, forklifts, road drivers, but also positions that have high responsibility as supply chain manager, logistics project manager, logistics manager and many others.

3 Multi modal transport into logistics

3.1 Multi modal transport as development tools for logistics

Transport and logistics have both evolved together, multi modal transport development have considerably changed the way to organize and operate logistic, nowadays most of the company use multi modal transport to transport their shipments, because it allows a lot of benefit for the supplier but also for the customer.

Multi modal transport allow to use different transport mode to deliver a shipment from a point A to a point B, this mode of transport is often use for long shipment, for example if a shipment from China have to be deliver in France, the most appropriate combination of transport mode will very probably be water transport then road transport to deliver the shipment to the final address of the customer.

The containerization has played a very important role in the development of multimodal transport, thanks to this, goods can transit from one mode of transport to another in safe ways, limiting load breaks and fast (DLM, 2021).

3.2 Effect on logistic sector

The possibility of combining different transport modes for the same shipment have changed this sector forever, nowadays it is inconceivable to organize a transport of goods without using the multimodal transport.

3.2.1 Positive

The main positive effects are felt on the logistic operation, with the reduction of time limits for the customer, the reduction of the risk of loss, breakage or theft of the goods, cost reduction, easier freight tracking, less time and effort for handling. Multimodal transport also reduces the carbon impact by centralizing the sending of goods on a single mode of transport rather than several (I. Harris et al, 2015).

Multimodal transport brings a lot of benefits for the logistic and transport sector, it allows to manage by a most efficient and more sustainable way the flow of products which forward across the world.

3.2.2 Negative

The negative impacts are not specific to multimodal transport but rather to our mode of consumption, products cross the world to reach end customers, this situation is not sustainable and ecological, our consumption mode is not sustainable in time. Every day millions of products come from China and other countries to Europe or America while we could produce these products closer to the places of consumption and avoid very polluting routes for our oceans, our lands and our people.

The question we can ask ourselves today is how long will we consume ourselves in this way and when will we reach the point of no return for the environment and our planet.

Conclusion

This report allowed to link the evolution of logistics with that of multimodal transport, it is obvious that these two sectors are interdependent, the development of multimodal transport has allowed to develop new possibilities for the logistics sector, but this development of multimodal transport is made of the need of the logistics.

Today multimodal transport is present in almost any transport organization, because it is the method that makes it possible to be the most competitive for the company and to satisfy the customer as best as possible, by reducing risk and cost, by reducing the carbon impact by centralizing the sending of goods on a single mode of transport, by reducing the effort and time on handling or by making easier the tracking of shipment thanks to his centralization.

To conclude we can say that multimodal transport and also containerization have played a very important role in the evolution and development of logistics, this allowed to be more flexible, and efficient for companies and to combine the different modes of transport most adapted for each shipment.

However, despite these many advantages, we start to realize that our current mode of consumption is not sustainable, we consume products made on the other side of the world while we could produce these products closer and more sustainably by limiting the movement of their goods and therefore land and ocean pollution.

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