

INNOVATION IN THE PORT OF LOS ANGELES USA

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Summary

Not all ports can receive last generation gigantic vessels, only the most advance and efficient ones can benefit from the large amount of international trade arriving to its borders.

The Port of Los Angeles, as the main shipping port in the largest economy of the world and one of the main connecting points with Asia, needs to constantly evolve and adapt its process to the new era and to the everyday exigencies and fast changes. One of the main objectives of the port is to be more efficient and attract larger importers and exporters, while maintaining and increasing security and safety for the whole nation. Unsuccessful, ineffective and unproductive ports will disappear with time.

Enforcing a Smart Port vision, which includes the use of high technology, striving for automatisisation and to be able to analyse large amount of data, will guarantee the number one port position in America, most important it will follow a sustainable expansion. By Implementing new technologies and multimodal capacities the port can decrease cost and transportation times, giving more options to customers at a better price and follow the industry trends for 2030.

Keywords: Port of Los Angeles, Innovation in logistics, Smart Ports, Multimodal Transportation, Port Trends.

Introduction

International commerce and trade are a basic and a prime necessity. Our societies were built under the ashes of bartering and haggling. Trade helped the civilizations to flourish and made humans eager to discover new routes and markets “Throughout history, trade and its many social, political, and demographic ramifications have invariably represented a central spur for social development... trade had as central a role in determining the historical trajectory of varying nations and areas in early antiquity as it does today” (Algaze, 2004).

Our world is covered by water in almost 70% and it's necessary to cross large oceans to get to different and faraway places. Therefore, is only natural that international trade has found a way to carry enormous amounts of goods in enormous vessels capable to transport up to more than 23,000 TEUS per journey, the Ever Ace vessel is the largest container ship and it started sailing in 2021 (Marine In Sight, 2022). This would represent more than half million tonnes transported every time the Ever Ace arrives to a new port. But not all ports can receive this type of vessels, only the most advance and efficient ones can benefit from the large amount of international trade arriving to its borders.

As the main shipping port in the largest economy of the world and one of the main connecting points with Asia, the port of Los Angeles needs to constantly evolve and adapt its process to the new era and to the everyday exigencies and fast changes. One of the main objectives of the port is to be more efficient and attract larger importers and exporters, while maintaining and increasing security and safety for the whole nation. Unsuccessful, ineffective and unproductive ports will disappear with time. This article task is to analyse the efforts made by the Port of Los Angeles in order to be more innovative and to describe why it is considered a Smart Port.

Research aim: To describe the innovation of the Port of Los Angeles.

The following **objectives** have been set to achieve the aim:

1. To characterize the main points to be considered a Smart Port
2. To identify benefits of utilizing this port in North America and the importance of multimodal transportation.

Research object and methods

The object of the research: The Port of Los Angeles.

The methodology used in this article was conducted with a mixed approach with the help of both types of data, primary and secondary based in the analysis of scientific literature. The paper followed an intensive research online based on articles found in Google Scholar and several Official Government Agencies like Eurostat and the Official web site of the Port of Los Angeles. They key word terms used were “Port of Los Angeles” “Innovation in logistics” “Smart Ports” “Innovation in the port of Los Angeles” “Multimodal Transportation”. 12 articles were analyzed in order to accomplish the research aim and objectives.

Research results and discussion

Innovation in a broad description means doing something or implementing a new or different procedure. We all are capable of innovate. Since the begging of the history of humankind, innovation is key to our evolution and preservation. Joseph Schumpeter is well known author on the subject, he pointed out the importance of the term in the 1930's since is first step when defining innovation. He described it as “new combinations” of resources bring about five different types of innovation: new products or a new quality of a product, new methods of production, new markets, new sources of supply of raw materials and intermediate goods, and new methods of organizing the economic process” (Vanelander, 2013).

Very similarly the OECD define it as “An innovation is a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)” (OECD/Eurostat, 2019).

The logistics industry is constantly looking for a better way of doing things, since it can reflect in cost saving hence in bigger profits and in a increment of international trade that not only will benefit the business but also final customers.

Efficiency in ports can caused a decreased in shipping cost. Poor infrastructure accounts for more than 40% of the transport cost (Limao and Venables, 2000).

In this approach we can find the following definition “a technological or organizational (including cultural as a separate sub-set) change to the product (or service) or production process that either lowers the cost of product (or service) or production process or increases the quality of the product (or service) to the consumer” (Arduino 2012), the author also explains some of the barriers for innovation like the technological element itself and the cost of the innovation initiative.

We can assume that the innovation requires a vast investment, whether is in a small company or a gigantic one, therefor, the investment needed for a shipping port of the magnitude of Los Angeles is enormous, but as we will see, the Port is constantly renewing itself and making important changes in order to become one of the most innovative ports in the world.

By 2030 the Port industry as a whole will be affected by the following trends in figure 1.

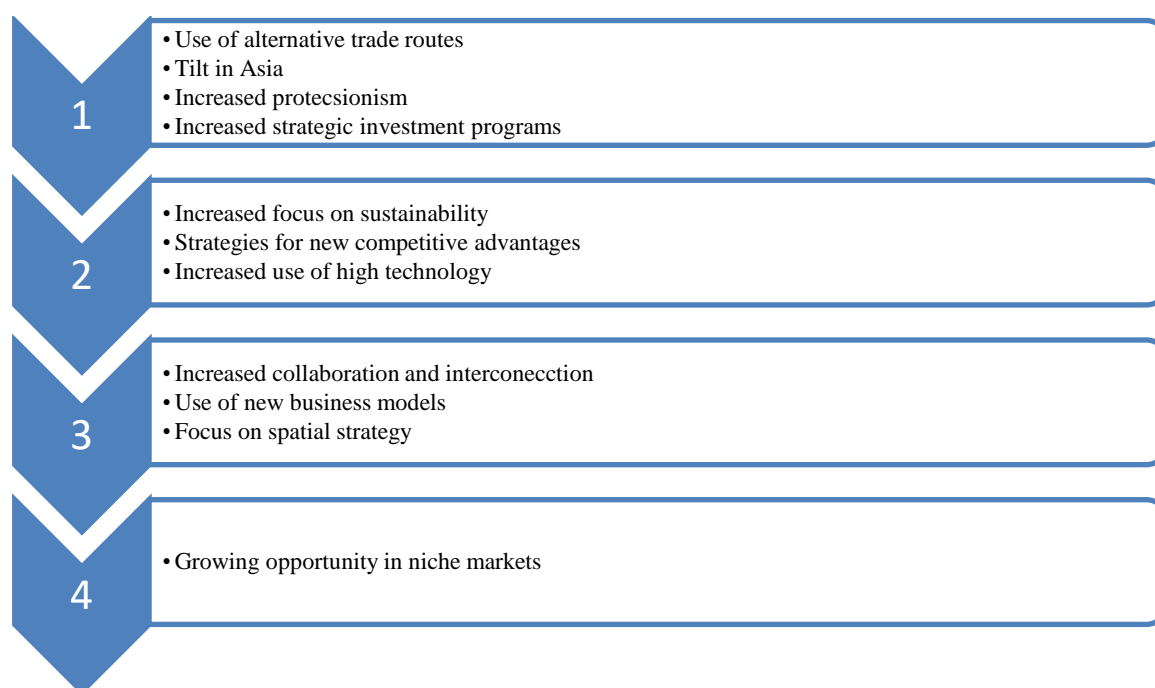


Figure 1. Port trends by 2030

Source: Made by the author according to Deloitte (2020)

A port that cannot follow these trends and is not capable of making investments in technology and infrastructure will have a hard time to prevail in the near future. Only those aware of the challenges coming and increasing everyday will have a more competitive position in the market. It is important and essential to prepare for those challenges and act according with time and implement a strategic plan to face the new era in transportation.

Smart Ports and Intermodal connections: Los Angeles as an example

Nowadays we hear the word “Smart” almost everywhere, we have our smart phones, smart tv, smart watch and they become an essential part of our lives. The phenomena is being applied in a bigger and more intense way in the logistics and transportation field. Evolution goes hand to hand with globalization and in the transportation sphere, it means the need for a faster, better communicated and more efficient delivery of goods. International trade is not going to stop

any time soon, nor is going to decay its volume, furthermore it will grow more and more and the needs for a better interconnection from manufacturer to final user is a constant demand and not optional “The idea of Smart Ports is not only management of technological processes, but also digitalization, increasing the efficiency of operations in ports, integration of ports with cities and acquiring energy from alternative sources. Smart Port - the new model of management is a series of innovative tools used on technological and organizational level” (Karaś 2020). Smart ports are one of the solutions to the new problems surging everyday with the Supply Chain, it is a deal breaker and it includes a new vision of how to manage containers, information, and technology.

We can conclude that a smart port will have the following characteristics:

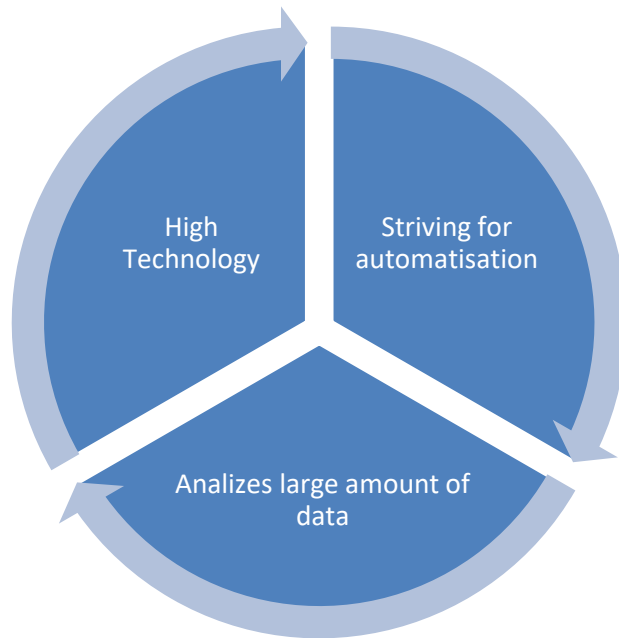


Figure 2. Smart Port Characteristics
Source: Made by the author

While these 3 are the main pillars of the smart port, we also need to include the severe need of a more efficient and sustainable port, since in our times, profit can't be the only objective and society plays an important role pressuring entities to do their part for the future, especially now with the help of social media and an easier access to information. This new phenomenon is described as the blue economy, and according to the World Bank it means to care not only for the economic growth but do it with a sustainable use of resources, and by doing so, the result will be the improvement of live hoods, will create jobs and will take care of the ocean ecosystem health. In other word it establishes the responsibility to look for cleaner energies, care for climate change and waste management, etc. in order to increase the long-term benefits for all the community and world in general. The Los Angeles port receives a considerable amount of investment from the Government since is the largest in the country and the North America, and just in 2021 the cargo volume has increased 22% compared to last year, with a total of 9,079,562 TEUs (POLA, 2021).

Not only in the ports, but in general Artificial Intelligence is taking over the world and according to a recent survey by Gartner (2022), 70% people from United States prefer to see the optimistic side by expecting robots and technology to take over the most arduous parts of their jobs.

Customs are the doors in every border, their job is to stop any malicious cargo than can harm their citizens.

Nowadays we have seen an increase in terrorism and smuggling putting much more pressure in the accuracy of the task. Because of this reason, security is one of the main concerns in the Port and most of their budget goes to this field combined with high technology. Since 2003 the program called TWIC (Transportation Worker Identification Credentials) was launched in coordination with Unisys Corp Safe Commerce. It consist in four phases, the first one is to analyse and understand the needs of the port while the later stages includes the program to be involve in procurement of device, and providing final results. This program will include the use of smart cards and biometric technologies that will allow works to enter the areas they need to, saving time and increasing security since workers and truckers will not be able to move into areas out of their zones, it's a slow process since its estimated that each terminal has around 50,000 to 60,000 people needing access to some specific area (American City and County, 2008).

Another important pillar is the Big Data in the ports since the sharing and analysis of information increase the productivity of the port, resulting in better inbound and out bounds. The connectivity includes sharing information among cargo owners, carriers, truckers, terminals and railroads, all based in a in-cloud system that is already giving results since the portal is already saving two to three hours to the truck dispatchers. The system uses not only big data but also artificial intelligent and machine learning (Mongelluzzo, 2017).

Since 2015 the Port of Los Angeles implemented a mobile app to expedite containerized cargo and increase the supply chain efficiency. It started in 2013 as a web page where trucks with unused space and shippers needed to move merchandise could find each other (POLA 2015). Since now it has developed and become an app for easier and faster usage.

Monios, J., Lambert, B. (2013) Mention in their research the importance of multimodal and the vision of the USA strategies to strength intermodal corridors throughout the country. With the help of the double stack train, it help to reduce costs and to integrate information from origin to destination in just a single bill of lading. It states that Los Angeles port is the number one port in the USA, followed by Long Beach, proven the dominance of both ports in the country. The total of TEUs, only in 2009 was 6,748,994 just for LA port, but the growth expectation for international trade indicates it will increase its supremacy.

According to the research and its authors Arias Nancy, Chavarria Ayala (2016), a way to measure and compare the productivity of any port:

1. By the time the trucks are in the terminal
2. Downloaded containers per hour.

Hence, the most common way to measure productivity is by the number of handled TEUs and in the case of the Los Angeles port world trade imports in USA are booming, for example, in 2007 the total millions of tons transported in the USA was 18,581 but is expected to expand till 27,104 by 2040.

Multimodal is an important fact for the whole supply chain and logistics, especially in modern times and for long distances and voluminous journeys. It also opens the door for a more efficient, effective and lean supply chain that will help the expansion of international trade.

The Port Of Los Angeles and its very well connected. The western railroads have train lengths of over 10,000 ft, meaning than in some cases it can reach a capacity of 650 TEU's, making it very profitable, it helps that in the USA this industry is unused to government intervention, as they operate as private and not public companies. Comparing the way of intermodal terminals work in USA and Europe, intermodal terminals are generally grounded facilities, meaning that containers are transferred between train and truck, and if a direct transshipment is not made, the containers are stacked on the ground. The truck driver will arrive at the terminal with a chassis and the container will be lifted onto this. By contrast, in the US, both chassis and containers are owned by the carrier (be that the shipping line or 3PL), while the truck driver simply arrives in his tractor. Containers are loaded onto waiting chassis and the arriving driver will hook up to a loaded chassis and take it away. The importance of the Alameda Corridor is gigantic it has 3 double stack tracks to reduce congestion. It was opened in 2002 and had a capacity of about 150 trains per day. USA is investing in the intermodal freight transport, particularly through the development of corridor approach and its working for them.

The main points to be able to call a shipment as multimodal or intermodal transportation is that it has to be an international movement, carried by at least 2 modes of transportation and one of the most important key factors is that the goods inside will not be handled when changing the modes. By doing so, the goods are more protected, there are no risk of merchandise loss since containers are sealed until final destination and it makes logistics transportation faster and more agile. It can also signify a lower transportation rate since one carrier is in charge of the whole trip until last destination. It gives a more extended leverage when negotiating for better prices.

As a result of this multimodal capacity and the investment in better infrastructure and smart technologies, the future grown of the Port of Los Angeles is overwhelming, just by 2030 it's estimated to be moving 17.3 million TEUs per year.

Conclusion

1. Enforcing a Smart Port vision, which includes the use of high technology, striving for automatisisation and to be able to analyse large amount of data, will guarantee the number one port position in America, most important it will follow a sustainable expansion. Ports worldwide are critical infrastructure and safety is one of the most important matters for the port of Los Angeles, investing in several programs to achieve a safe and control environment. By perusing high technology, the port will increase its competitiveness and will create new opportunities for shipping companies, workers, importers and consumers. Digital platforms and big data will help analysing and improving the logistics and supply chain systems. The Port of Los Angeles will continue to invest in the implementation of more technology to assure its place in the smart ports and as one of the most important ones in the world.

2. If a port is efficient, innovative and has plans for expansion in the near future, it could be considered as a better option since efficiency reduces delays, increases the quality of the logistics system, improves delivery times and the handling charges of the port will be considered less expensive, since it also means less hour/man work. The port of Los Angeles had invested over time in its infrastructure, in their technological systems and specially in constructing partnerships with all the people involved in the supply chain. According to the official website of the Port of Los Angeles, they invest 1 million of USD per day in capital improvements. All these investments are paying it forward, since more containers are using the port, which converts into an economic growth and it's also beneficial for the society. Implementing new technologies and multimodal capacities can decrease cost and transportation times, giving more options to customers at a better price.

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