SMART PORTS: BEYOND BUSINESS AS USUAL

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Digital transformation is affecting every aspect of our lives. Inside our homes, different household appliances are becoming smart objects, our cities are becoming smart cities and industries and businesses in general are moving rapidly towards what is known as the fourth industrial revolution.

Although maritime transport has not traditionally been a pioneering sector in the adoption of new technologies, on this occasion it is not alien to this global reality. In fact, logistics companies, especially the large shipping companies, terminal operators and logistics operators, are trying to reinvent their roles within the logistics chain, migrating towards other schemes where they are no longer exclusively logistics service providers but are becoming technology companies offering logistics services.

CHANGING THE STATUS QUO

This distinction is very significant since it implies important changes in the status quo, being, perhaps, the most evident, the growing investment effort that all these companies make annually in digitalization, acquisition of new capacities and equipment, standardization, training, etc. All these new expenses exceed by far the budget assigned in previous stages and becoming at this time a very significant item within their annual Investment Plans.

This new way of understanding the maritime business where digital transformation becomes an essential pillar in the value chain of companies also has much to do with the success models of companies such as Microsoft, Apple, Amazon, Google, or Facebook, which have opted to build digital platforms that allow them to obtain great advantages from the data-based economy. These firms have demonstrated that digital business models allow them to grow faster than those that opt for traditional ones as they have lower marginal costs (zero-marginal-cost economy).

Focusing on the maritime sector, this cultural change in the world's leading logistics companies has led to the emergence of two major global shipping networks: TradeLens and the recently consolidated Global Shipping Business Network (GSBN) which bring together all the different agents in the logistics chain, managing millions of events and thousands of documents and transactions every week.

These blockchain-based platforms intend to create communities and new markets where each new node of the network expands the ecosystem and generates more network effect, that is, it expands the community and, therefore, its attractiveness and value. In this regard, the attractiveness of global platforms is not only in the network effect, but also in the control of the data and their capacity to create and capture the resulting value.

IMPLEMENTING INFORMATION NETWORKS

However, despite the incipient cultural change and the outbreak of new digital solutions for the industry, for the successful implementation of these large global information networks, interoperability between information systems and global standards are essential as they allow the industry to "speak" the same language and interpret the data in the same way. In this regard, it is very common in container shipping that different companies have sharing agreements to exchange slots on their vessels. Therefore, these shipping companies will need to exchange information seamlessly even if they belong to TradeLens, GSBN or other new platforms that may appear in the future.

For this reason, in parallel with the appearance of the two major global platforms, other initiatives have emerged worldwide such as the Digital Container Shipping Association (DCSA) or the Terminal Industry Committee (TIC 4.0). These associations seek to define standards and standardize the terminology and protocols used in the exchange of information between different IT systems with the aim that all companies in the maritime sector use these formats to facilitate the digitization of the industry and the incorporation of new technologies and services. In this sense, as goods are transported in containers with standard measurements, these associations seek to ensure that the information and data generated by these containers can be exchanged with the same rules and formats.

PORTS IN GLOBAL TRADE NETWORKS

On the other hand, regarding the role of ports in this new scenario where digital transformation deliver strong competitive advantages, an important cultural change will take place, affecting the current governance models. Landlord ports will necessarily have to adapt to the new reality where the way to compete and be more efficient no longer has to do only with geographical location or infrastructure provision but with having the capacity to manage, administer and provide data and new digital services that will improve the experience of clients and users of the port.

There will be a progressive transformation of ports from infrastructure providers to a new paradigm of ports as data providers, offering a new portfolio of digital services (e.g. Marketplace services) based on the management and analysis of data, taking advantage of emerging technologies such as the internet of things (IoT), artificial intelligence, big data or blockchain.

In this medium-term scenario where the choice of a port may depend on its degree of digital transformation (and of its port community), managers of these harbours will need to rethink their investment plans, reconsidering the resources that they an-

nually allocate to the technological evolution of their service portfolio as one of the essential pillars of their business strategy.

Furthermore, a strong and recognised position of ports in global trade networks, technology platforms (e.g. Digital Transport and Logistics Forum) and other associations will be key objectives in the port management of the future. In line with the latter, the fact that the Fundación Valenciaport holds the general secretariat of the Terminal Industry Committee 4.0 and other important roles in the Alliance for Logistics Innovation through Collaboration in Europe (ALICE) and Waterborne Technology Platform means an advantageous position for the port community of Valencia compared to other harbours.

Therefore, in order to maintain the leadership and attractiveness of the port, it will be essential to promote the constant evolution and modernization of the different information systems, and especially the Port Community Systems (PCS) due to their greater scope and impact on operations. In this sense, the port's main digital platform must be equipped with the necessary resources to connect all the different players and digital platforms, so that further network effects are generated.

In conclusion, the emergence of these large digital platforms together with other initiatives promoting the digitization and standardization of the maritime industry represents a major cultural change to which all companies in the sector will have to adhere in the medium term (2022-2025). In the case of ports, it is not enough to be integrated with these platforms, but the management of the port itself must be rethought, orienting the offer of services towards new innovative schemes that allow it to continue being competitive and attractive for its clients and users. Those harbors that understand this

new philosophy and allocate the necessary resources and efforts to achieve these objectives will undoubtedly be better positioned than those that continue to maintain the business as usual model.

ABOUT THE AUTHOR

Alexandre is project manager at Fundación Valenciaport. His professional background mainly covers the fields of digital transformation, business process reengineering and Port Community Systems (PCS). He has extensive knowledge on these fields, cooperating with several companies around Europe through EU-funded research and innovation projects.

ABOUT THE ORGANIZATION

Fundación Valenciaport is an Applied Research, Innovation & Training centre providing services to the port and logistics cluster. This initiative of the Port Authority of Valencia has enjoyed the collaboration of notable businesses, universities and institutions from the port community. Since its establishment, it has developed projects in more than 60 countries, primarily Mediterranean nations, as well as from the rest of Europe, Asia and Latin America.

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