PORT OF BARCELONA
PORTS AND CITIES COME TOGETHER UNDER THE SMART CONCEPT

Emma Cobos, Business Development Director, Port of Barcelona

Port de Barcelona

The Port of Barcelona is committed to a Smart Port model that involves a gradual move towards a more efficient, sustainable port with the capacity to provide continuous service. Relations between ports and their cities are increasingly intense. The port and the city are no longer juxtaposed and are increasingly linked together. Following this path towards integration, the city of Barcelona is leading the way in developing "Smart" policies at international level.

A Smart Port is one that uses automation and innovative technologies such as artificial intelligence (AI), digitalisation, Big Data, the Internet of Things (IoT) and Blockchain to improve its performance.

The Port of Barcelona remains firmly committed to these technologies in the port field and today is one more touchstone in the development of a smart port model where technology can automate processes, connect the various actors in the logistics chain through platforms that streamline transactions and bureaucratic procedures —making them more reliable and

traceable— and where the data collected throughout these interactions between vehicles, sensors, people and institutions allow better decision-making.

In turn, the Port of Barcelona has developed its own Smart Port model based on the Smart City academic model, which encompasses six different dimensions of transformation adapted to the port environment: logistics, mobility, the environment, economy, people and governance. Adopting the Smart Port model has therefore represented and continues to represent a series of challenges faced by ports, which can be grouped into the following five categories:

1. Cybersecurity. According to Lance Kaneshiro, CIO of the Port of Los Angeles, "All of the port stakeholders are going to start generating and sharing a lot more data in different places. This data now comes in a variety of formats. We need to standardise these formats so the data can flow between different ports and platforms. Digitalisation processes will lead to an in-

crease in our cybersecurity needs, which must be handled not only on individual level but also as a system, as part of a series of interconnected networks."

2. Applications based on Big Data. Data analysis in conjunction with deep learning can lead us to create predictive, prescriptive systems that anticipate responses and incidents and help interest groups with decision-making.

3. Blockchain. This will help develop smart self-executing contracts that are safer and more reliable, i.e. an automated process to exchange goods or services between companies.

4. Geographic information systems with value-added. Developing systems based on geolocation could help speed up processes and change the port dynamic: from detailed monitoring of cargo status to the option to oversee vehicles, allowing certain tasks to be automated.

5. Traffic management systems. Gate Appointment Systems (GAS) have been the response many port authorities have used

to address this issue, to remedy the negative side effects of intermodal transport around ports, as containers are constantly entering and leaving the terminals, which can generate congestion and traffic jams.

COMMITMENT TO ENVIRONMENTAL SUSTAINABILITY

However, a Smart Port is more than just technology. Smart Port is also synonymous with economic, social and environmental sustainability - the three strategic axes adopted by the Port of Barcelona for facing future challenges and which condition its actions to reduce the impact of port activity.

The Port is committed to the European Union and the International Maritime Organization (IMO) objectives derived from the Paris Agreements to cut emissions by 2030 and 2050. These environmental protection actions are also part of the United Nations Sustainable Development Goals (SDGs). One example is the Power to Ship project, connecting ships to the grid while docked, thereby avoiding emissions from auxiliary engines while berthed in the port. Another is the commitment to electric mobility and the promotion of liquefied natural gas (LNG) as alternative fuel for ships, trucks and terminal machinery, to significantly reduce emissions and combat climate change.

The Port of Barcelona is fully aware that the economic and social sphere also play an important role in a Smart Port and is therefore actively promoting innovation. Examples of this are the OpenPort platform, using the concept of open innovation to develop cooperation systems between start-ups and the port community as a way to find innovative solutions; initiatives such as PortInnova, a meeting where the Port of Barcelona and various companies in the port sector propose challenges to Vocational Training students to develop original solutions based on technology and innovation; Smart Catalonia Challenge, a competition promoting open innovation to try to solve territorial challenges in Catalonia; and Pier01, a hub designed to promote Barcelona Tech City entrepreneurship and innovation.

A WINDOW TO THE WORLD – SMART PORTS: PIERS OF THE FUTURE

Smart City Expo World Congress is an international event for urban evolution and innovation. During the ninth edition, held from 19 to 21 November 2019, the Port of Barcelona hosted the first edition of Smart Ports: Piers of the Future, an exhibition space showcasing six of the most advanced ports in the world: Antwerp, Hamburg, Los Angeles, Montreal and Rotterdam. The 2020 edition, held on 17

and 18 November 2020 and live streamed, will also include the Port of Busan, the largest on the Korean peninsula, providing an ideal opportunity for exchanging ideas, projects and initiatives related to the sector.

The international situation generated by the COVID-19 pandemic led to the decision to make Smart Ports: Piers of the Future 2020 fully online and it will take place on 17 and 18 November under the motto: "Thinking Ahead, Globally". This year we will also be working hand in hand with Port Technology International, the digital magazine specialised in news from the shipping sector. This publication is considered the top magazine for ports and terminals and will also be organising some of the most important international events in the maritime and logistics industry as well as discussing current issues such as world trade, digital technologies and sustainability.

In this way, the Port of Barcelona invites you to actively participate this year in Smart Ports: Piers of the Future 2020, a key global event that seeks to shine the spotlight on proposals, business models and innovation, focused on ports and their relationship with the world. This event will serve to highlight the importance of having a smart and digitalised port committed to the environment, but above all connected with the inhabitants of its cities and the world.
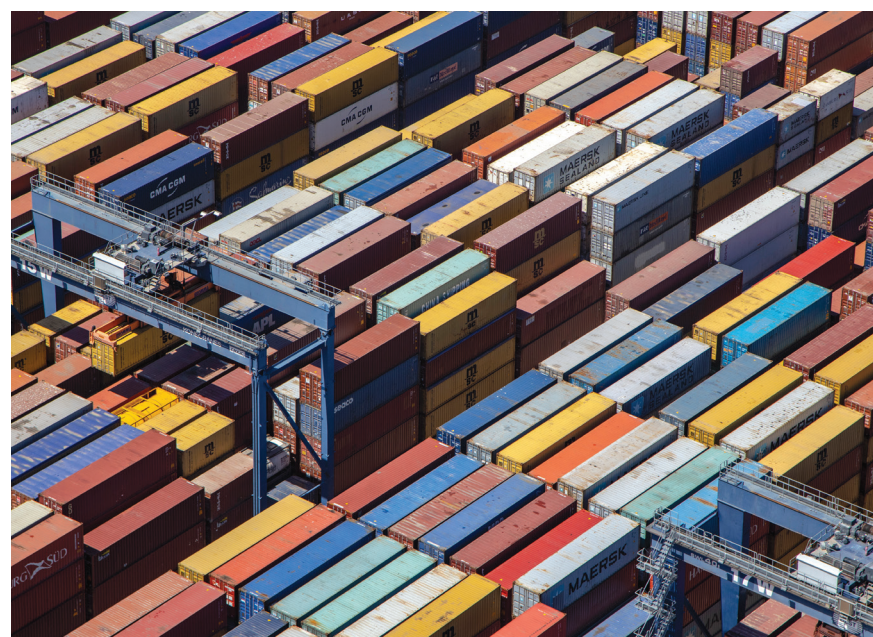

ABOUT THE AUTHOR

Emma has been the Port of Barcelona's Business Development Director since 2010. Emma started her career in Shipping in 1999, working at Transglory, a freight forwarder with headquarters in Barcelona, she led the development of the agent's network in Asia. Emma has been working at Portic Barcelona S.A. as sales and marketing manager. Her academic background is in economics and executive education, specialised in foreign trade and logistics.

ABOUT THE ORGANIZATION

The Port of Barcelona is the fastest-growing port in Western Europe and it is part of a unique and seamless logistics and business hub, including airport, port, logistics areas and a large urban area. It is Spain's top port for international trade: from Barcelona companies can reach a market of 400 million consumers in under 48 hours. Its area of influence stretches through the south and centre of Europe and North Africa and it is the logistics gateway linking markets as distant as the Far East and Latin America.