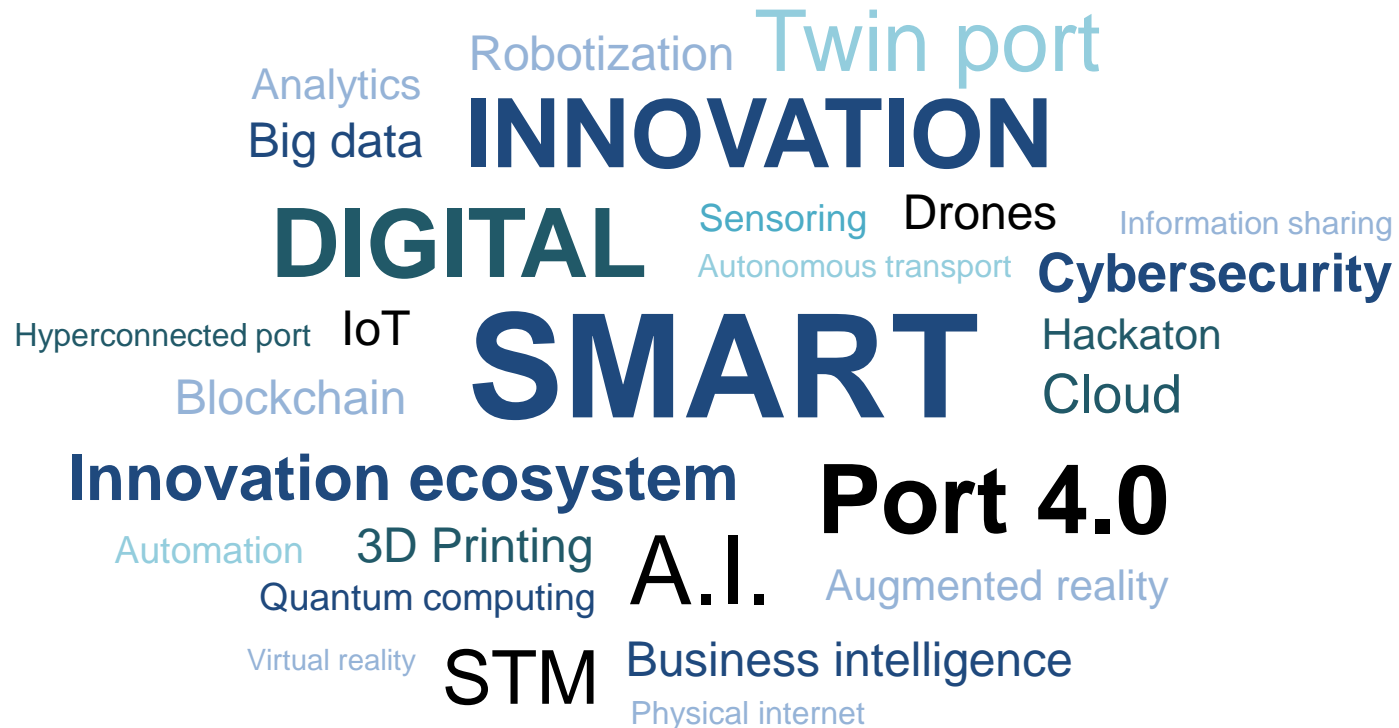


# Smart port model: A Port of Barcelona's perspective



# 01 TECHNOLOGY FOR PORTS

What ports are talking about... In terms of technology.



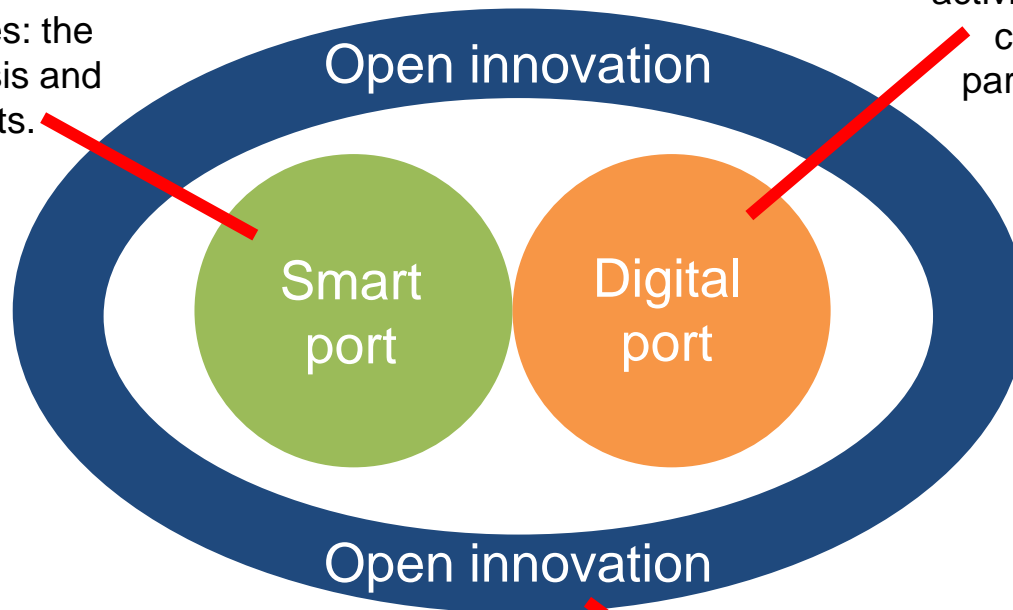


# 01 TECHNOLOGY FOR PORTS

How to be smart, digital and open...

**Smart** innovation concept can be applied to the **back office** for innovation activities: the data collection, analysis and automation aspects.

**Digital** innovation concept can be applied to the **front office** of innovation activities: their relational, collaboration and participative aspects.



**Open innovation** means a **proactive collaboration** with your innovation ecosystem in order to get multiplicative effects.



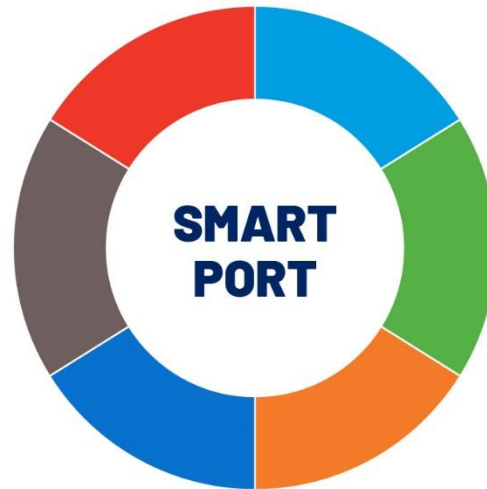
# 02 SMART Our SmartPort model

- Real-time information
- Traceability
- Automation and robotisation
- Physical and technological integration infrastructure
- Efficiency and predictability
- Seamless freight transport
- Smart maintenance
- Non-intrusive inspection



- Connected vehicle
- Sustainable transport
- Autonomous transport
- Intermodality and syncromodality
- Smart traffic management
- Mobility management
- Connected infrastructure roads and rails
- Advanced parking

- Transparency
- e-Administration
- Security
- Cybersecurity
- Business models
- Digital platform
- Enabling tech
- Strategy and management



- Circular economy
- Pollution reduction
- Waste management
- Energy efficiency
- Energy production
- Water management
- Alternative fuels
- Biodiversity

- Port city
- Passengers
- Port heritage
- Diversity
- Social cohesion
- Nautical cluster
- Training and knowledge



- Economic impact
- Competitiveness
- Employment
- Routes and connections
- Open innovation
- Cost reduction
- Financing





# 02 SMART Smart model



## LOGISTICS

Integrates physical and technological infrastructures with processes that share information with operators and clients in real time in order to make the logistics chain more efficient, predictive and productive.



## MOBILITY

Connects infrastructures, means of transport and technology to facilitate agile decision making, and to efficiently, sustainably manage traffic, transport and mobility in all its modes.



## ENVIRONMENT

Protects and is respectful of the environment, efficiently managing natural and energy resources, promoting the use of clean energy and contributing to the fight against climate change.



## ECONOMY

Facilitates competitiveness, innovation, internationalisation and entrepreneurship to create economic value in its surroundings and boost the labour market.



## PEOPLE

Promotes the relationship between people and the port world and stimulates culture and social cohesion, fostering diversity, learning, creativity and popular participation.



## GOVERNANCE

Leads the digital transformation to add value to society, with transparent and sustainable management of resources, based on participation and collaboration, without forgetting physical, digital and legal security.



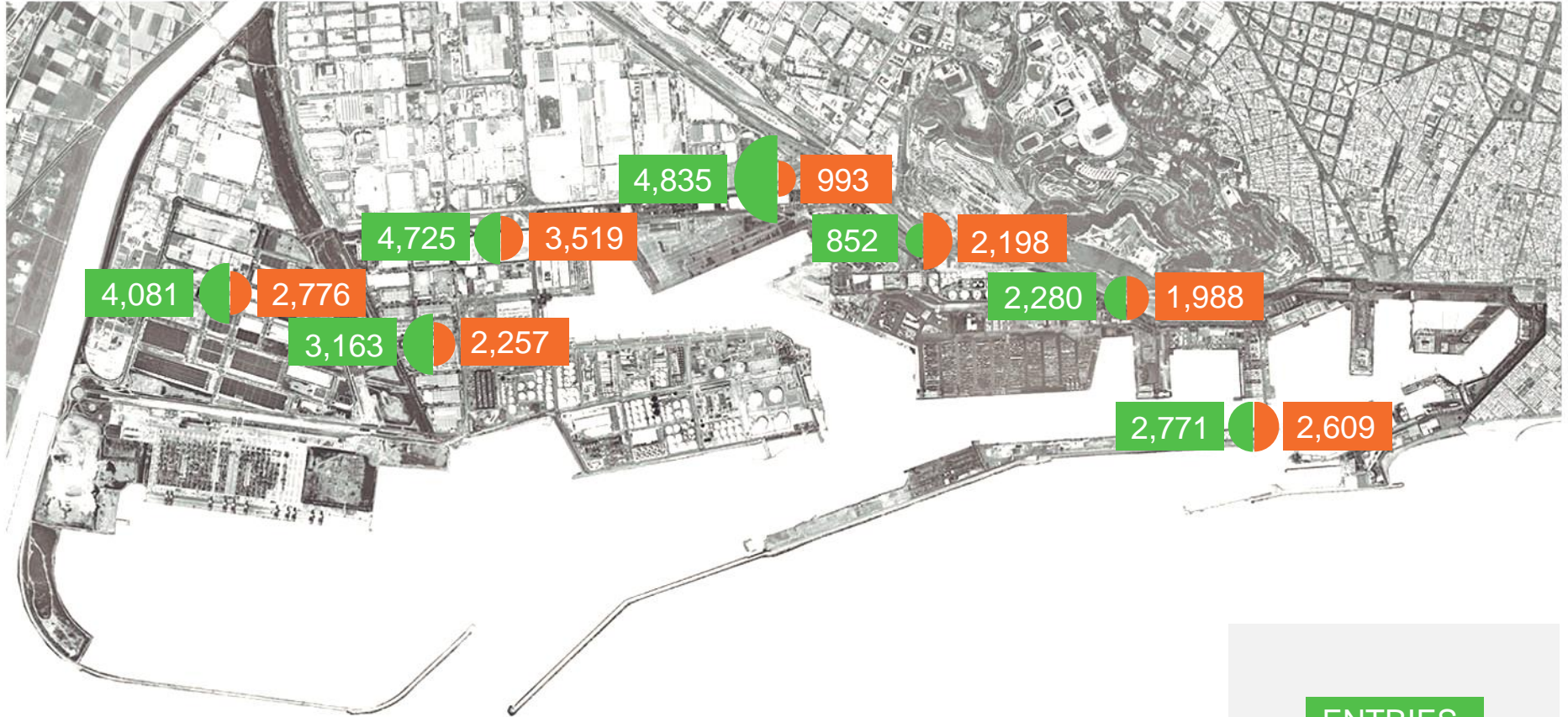
## TECHNOLOGY





# 02 SMART

## Smart realities: Smart port access



25,000 Vehicles per day

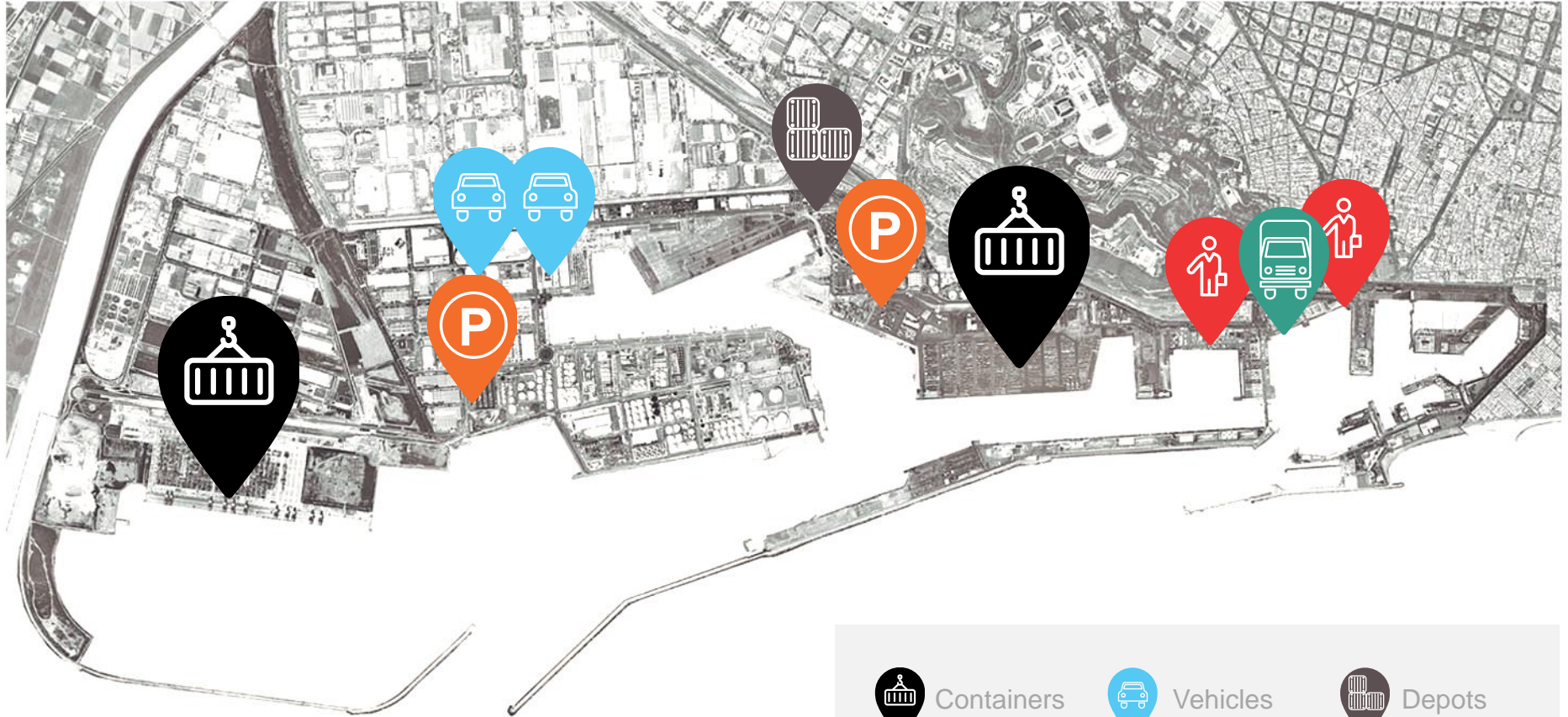
ENTRIES







EXITS



# 02 SMART

Smart realities: Automatic access



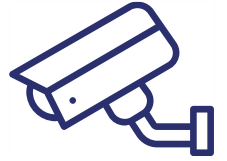
 Containers	 Vehicles	 Depots
 Lorry parking areas	 Passengers	 Lorries

Access to terminals



# 02 SMART PORT: Some examples

## Smart security



**+180 Cameras**

 Cameras








# 02 SMART

## Smart realities: Smart meteorological stations



Meteorology, sea & NOx surveillance

-  Sea stations
-  Weather stations
-  Navigation radars



# 02 SMART Ports as big data generators



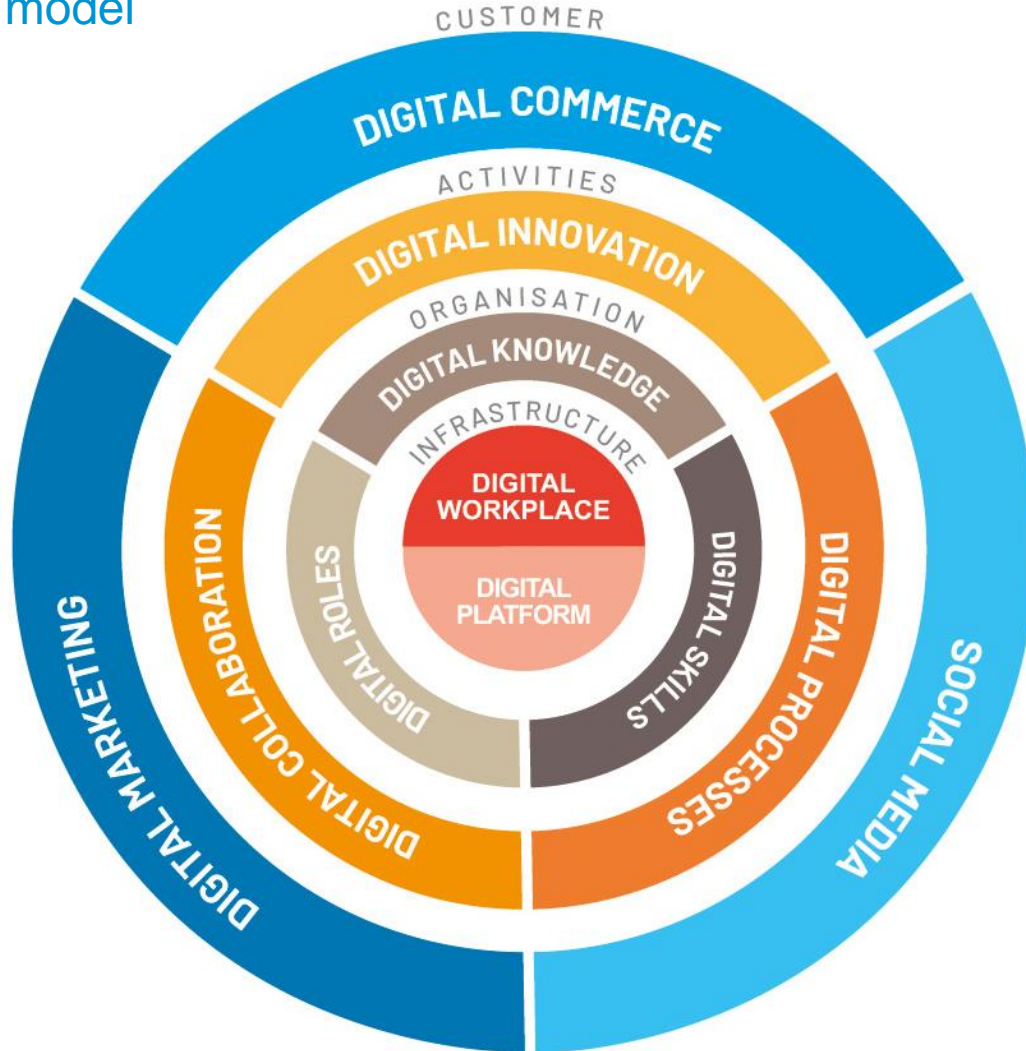
9 Railway stations	+180 Surveillance cameras	Telecommunications services
90 Trains per week	25,000 Vehicles per day	9,000 Port calls per year

	Siding		Cameras
	Railway Infrastructure		Fibre optics network
	Railway terminals		Links to the network



# 03 DIGITAL

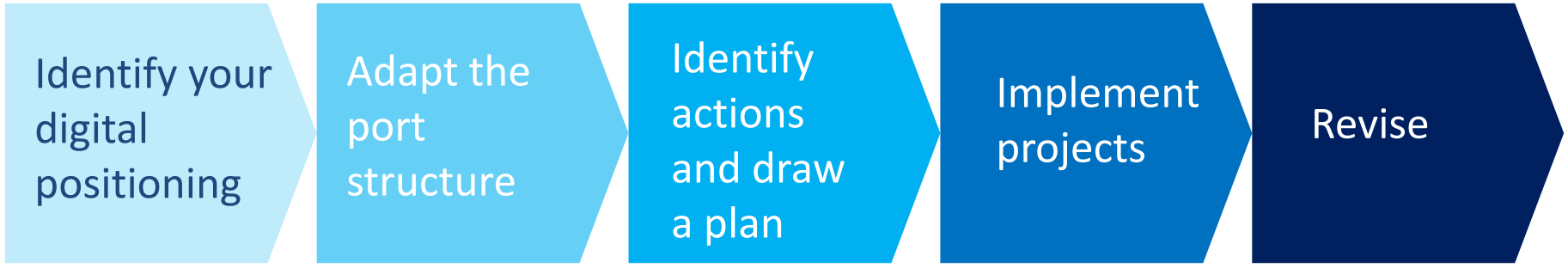
Digital port model





# 03 DIGITAL

How to implement it



CUSTOMER	Digital Commerce	2,4
	Social Media	2,5
	Digital Marketing	1,6
ACTIVITIES	Digital Innovation	2,3
	Digital Collaboration	2,9
	Digital Processes	3,0
PEOPLE	Digital Skills	2,8
	Digital Roles	2,4
	Digital Knowledge	3,0
INFRASTR.	Digital Workplace	3,9
	Digital Platform	3,2

- Digital manager
- Digital committee (internal)
- Strategy & innovation workgroup (external)

54 projects

- Project manager for each project
- Consider quick wins
- Empowerment
- Management focus on big relevant projects
- Involve people
- Move projects
- Report advancements
- Disseminate



# 03 DIGITAL

## Examples of digital projects

### CUSTOMER

#### PortBCN 360

Twitter Optimization

#### PierNext – Innovation blog

Increase LinkedIn presence

Social media management

New Web definition

Annual facts video (multi-format)

#### Container 360

Port events App – pilot for SIL

#### Bport (LinkedIn group for clients)

Digital graphics and infographics

### ORGANIZATION

Digital committee

Cybersecurity training

Training in social media

Cybersecurity best practices

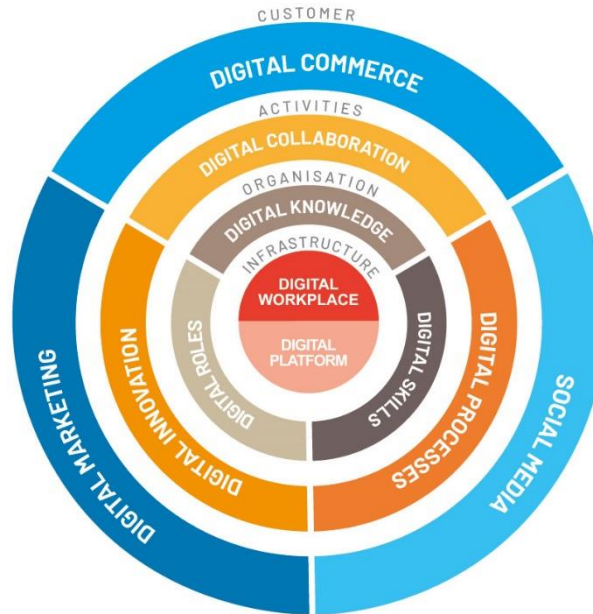
Training in Digital marketing

#### Port Academy

BIM training

Technical Office for BI

SmartCity participation



### ACTIVITIES

Strategy and innovation model

Open Innovation

New CRM

Pilot geolocation

#### SmartPort model

#### BCN Booking System

E-contract platform (VORTAL)

### INFRASTRUCTURE

Video-conference equipment

Conference room equipment

iPads

Increase mobile data to 10 GBs

Cloud as infrastructure (test on

PierNext)

Pilot HCP (multimedia file storage)



# 04 INNOVATION

Why?




**Changing economic context**  
**Demand driven logistics**  
**Technology is available**  
**Transport disruption**  
**Infrastructure as a commodity**

# OPEN INNOVATION



# 04 INNOVATION

Port de Barcelona's innovation ecosystem



**Port Challenge Barcelona**  
2n edition



**CHAINPORT**



**PORTINNOVA**  
BARCELONA PORT HACKATHON

**OpenPort**  
Innovation by Port de Barcelona



**Barcelona TECH CITY**



**Pier01**  
BARCELONA TECH CITY



**PierNext**  
Innovation by Port de Barcelona

**SMART PORT**

Puertos del Estado



GOBIERNO DE ESPAÑA    MINISTERIO DE FOMENTO

**Fondo Puertos 4.0**



# 05 CONCLUSIONS

Lessons learned

# SHARE

# DIGITALISATION AS A TOOL NOT AS AN END

# THINK BIG, BUT SOLVE REAL PROBLEMS

# LET PEOPLE DO

# HAVE A CLEAR PURPOSE





# 05

## CONCLUSIONS

Our purpose: our mission



**To contribute to the competitiveness of our hinterland by providing efficient services responding to its needs for maritime transport, land transport and logistic services**



Port de Barcelona

# Thank you

[www.portdebarcelona.cat](http://www.portdebarcelona.cat)