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# INTRODUCTION



**AURELIO MARTÍNEZ**  
FUNDACIÓN VALENCIAPORT PRESIDENT





## 1.1. LETTER FROM THE PRESIDENT

It gives me immense pleasure to present this report, which provides a comprehensive overview of the activities carried out by Fundación Valenciaport over the 2015-2016 period.

As we well know, a port's competitiveness does not depend solely on its own growth, but rather on the overall performance of all cluster stakeholders, and this is where an "active" innovation policy is key.

In the case of the Port of Valencia, this innovation policy enjoys the support and backing of Fundación Valenciaport, which from the very outset was set up to be an R&D&I catalyst for the port logistics cluster.

Over the past two years, the cluster has been able to enjoy several benefits, including the contribution and exchange of ideas, action plans to improve business and procedures, international assistance, the provision of market information and a broad selection of training initiatives (online, in-company and postgraduate courses, business recycling, seminars and workshops).

Turning now to projects, Fundación Valenciaport has been actively involved in or has managed 26 European initiatives over the past two years, in addition to providing technical assistance on 9 occasions to Latin American countries, as well as a further 12 initiatives carried out for the Port Authority of Valencia (PAV).

Fundación Valenciaport operates in a broad spectrum of areas: logistics and intermodality, information technologies, sustainability, security and protection or port planning, to name but a few. Similarly, the collaborating companies come from across the entire transport chain, from exporters, to road transport operators, railway services operators, freight forwarders and logistics operators, shipping agencies, diverse types of terminals, technical-nautical services, customs, other governmental organisations and international institutions.

At this juncture, it is worth pointing out that more than 60% of all the projects undertaken over this period by Fundación Valenciaport could be classified as pure innovation (focusing on the development of prototypes or pilot testing) and deployment, rather than the standard research studies. This high percentage attests to the commitment of Fundación Valenciaport to be at the service of the cluster, in addition to its clear intent to continue to be

the instrument to implement improvements and innovation to both the infrastructures and the technologies used in its areas of business.

With regard to training, it is worth mentioning the excellent performance of the Master's in Port Management and Intermodal Transport, which is now well into its 25th edition and which, year after year, consolidates its position as the number one Spanish-speaking training programme in Trade, Transport, Logistics and Ports, with a growing international prestige, receiving very positive feedback from professionals and young post-graduates not only in Spain but also in the rest of Europe and in Latin America.

And before I draw this to a close, I would like to highlight the challenges that Fundación Valenciaport has set for the coming years, including strengthening the areas where it already enjoys a prominent position, such as energy efficiency, with the incorporation of hydrogen fuel cells; the services associated with new fuels; the implementation of technologies linked to concepts such as the Internet of Things, wearables or big data, to improve port services and procedures; fostering cruise ship business and encouraging new facilities to improve railway interconnection; as well as sustaining the levels achieved in international cooperation in Latin America and continuing to develop other markets as a result of the agreement signed with the multinational, SGS.

In short, we are in the enviable position of having a mechanism in place to facilitate and foster innovation in our cluster, which I am proud to preside and whose personnel I wholeheartedly congratulate in this address and who I encourage to continue working as they are now with the goal of increasing, year after year, their contribution to the port logistics cluster.



### 1.2. CORPORATE INFORMATION

#### 1.2.1. ABOUT US:

Fundación Valenciaport is an **Applied Research & Training** centre providing services to the port and logistics cluster.

It is an initiative of the Port Authority of Valencia, and has been joined by outstanding businesses, universities as well as institutions from the port community. It currently collaborates in more than twenty countries, primarily Mediterranean, as well as from the rest of Europe, Asia and Latin America.

#### 1.2.2. OBJECTIVES:

The main objective of Fundación Valenciaport is to serve the port logistics community in order to strengthen its competitiveness through research, innovation, training and cooperation. It can thus ensure that the services offered by the Valenciaport cluster to its customers are of the quality required to continue leading the field in the Mediterranean.

This objective is founded on a number of different action points:

- Encourage **innovation**, collaborating with businesses, institutions, training centres and R&D&I centres to implement groundbreaking projects to enhance the competitive edge of businesses in the Port of Valencia.

- Active **cooperation** with other port maritime clusters, spearheading knowledge generation and management initiatives, implementing **best practices** from an international perspective for the benefit of the Port of Valencia.
- Knowledge management initiatives, promoting **training** for continued improvement of the human capital of the port logistics community.
- **Revitalize** the Valenciaport cluster, promoting the design, deployment and execution of R&D&I projects aimed at raising the competitiveness of businesses that carry out their activities in the Port of Valencia.
- Raising the international profile of the **Port of Valencia's know-how**, through a policy that actively encourages cooperation between port communities from around the world, providing support to Spanish logistics operators in their internationalization processes.
- Cohesion within the port logistics community, encouraging cooperation within the sector, and rapprochement and dialogue with the public, within the framework of a collective strategy of social responsibility.



### 1.2.3. LOCATION:

Fundación Valenciaport headquarters are located in the PAV Phase III Building at Av. del Muelle del Turiaín.



## 1.3. ORGANIZATIONAL STRUCTURE

### 1.3.1. FUNDACIÓN VALENCIAPORT BODIES

#### - BOARD:

The Board is the highest governing, administrative and representative body of the Fundación Valenciaport. It comprises a maximum of 25 Ex Officio and elected

trustees. There are currently 19 members, all Ex Officio Trustees, from 16 different organizations.



Fundación Valenciaport Board, December 2016

## INTRODUCTION

FOUNDING BODY	REPRESENTED BY
<b>Port Authority of Valencia</b>	Mr. Aurelio Martínez Estévez Mr. Ramón Gómez-Ferrer Boldova Mr. Manuel Guerra Vázquez Mr. Federico Torres Monfort
<b>Generalitat Valenciana</b>	Mr. Josep Vicent Boira Maiques
<b>Fundación Bancaja</b>	Mr. Emiliano García Domene
<b>Valencia International Trade Fair</b>	Mr. José Vicente González Pérez
<b>Official Chamber of Commerce, Industry and Navigation of Valencia</b>	Mr. José Vicente Morata Estragués
<b>Valencian Business Confederation</b>	Mr. Salvador Navarro Pradas
<b>Valencia City Council</b>	Mr. Carlos Galiana Llorens
<b>Valencia Provincial Council</b>	Mr. Jorge Rodríguez Gramage
<b>University of Valencia. General Studies</b>	Mr. Guillermo Palao Moreno
<b>Polytechnic University of Valencia</b>	Mr. Francisco José Mora Mas
<b>Noatum Ports Valenciana, S.A.U.</b>	Mr. Gustavo Ferrer Soriano
<b>APM Terminals Valencia</b>	Mr. José Luis Alabau Vázquez
<b>Remolcadores Boluda, S.A</b>	Mr. Vicente Boluda Ceballos
<b>ATEIA Valencia</b>	Mr. Luis Rosa Vidal
<b>Valencian Shipping Association</b>	Mr. Vicente Boluda Fos
<b>Official College of Customs Agents and Commissioners of Valencia</b>	Mr. Emilio Guardiola Huertas

### - CHAIRMAN:

The board elects its chairman from among its ex officio members, with their choice based on professional expertise, suitability and track record in the port sector, and the appointment is then made by the Port Authority of Valencia. Since October 2015, the **Chairman of the Fundación Valenciaport Board** has been Mr. **Aurelio Martínez Estévez**.



### 1.3.2. HUMAN RESOURCES

Fundación Valenciaport has a staff of 56 highly qualified professionals working in the different departments. The

Fundación also enjoys regular collaboration WITH researchers and interns from Valencian universities.



### 1.3.3. FUNDACIÓN VALENCIAPORT LEGAL FRAMEWORK

- Law 50/2002, of 26 December, on Foundations.
- Law 49/2002, of 23 December, on the Tax System of Non-Profit Entities and Tax Incentives for Patronage.
- Royal Decree 1270/2003, Regulation of the Tax System of Non-Profit Entities and Tax Incentives for Patronage.

Other general regulations:

- Law 49/2002 on the Tax System of Non-Profit Entities and Tax Incentives for Patronage.
- Royal Decree 1270/2003, Regulation of the Tax System of Non-Profit Entities and Tax Incentives for Patronage
- Real Decree 296/2004. Simplified accounting system.
- Royal Decree 776/1998. Regulations on adaptation to the General Accounting Plan for non-profit entities and the regulations on budget information.
- Accounting system for financial year 2012 and the following: Resolution of 26 March 2013, of the Institute of Accounting and Auditing, which approves the General Accounting Plan for non-profit entities.
- Royal Decree 1491/2011. Regulations on adaptation to

the General Accounting Plan for non-profit entities and the action plan model.

- Additional Disp. 2 and 3 of Royal Decree 1517/2011 the Law of Audit of Accounts.
- RD 1514/2007 approving the General Chart of Accounts.
- RD 1159/2010 approving the Regulations on the Formulation of Consolidated Annual Accounts and amending the General Accounting Plan approved by Royal Decree 1514/2007.
- RD 602/2016 amending the General Accounting Plan approved by Royal Decree 1514/2007; Regulations on the Formulation of Consolidated Annual Accounts approved by Royal Decree 1159/2010 and Regulations on adaptation to the General Accounting Plan for non-profit entities approved by Royal Decree 1491/2011.
- RESOLUTION of 19 December 2003, of the Bank of Spain. Agreement of the Governing Council in relation to the Code of Conduct of non-profit entities making temporary financial investments.





2

PROJECTS

## 2.1. INTRODUCTION

Over the 2015-2016 period, Fundación Valenciaport has consolidated its position as an international benchmark in applied research on port logistics, and has managed undeniably important projects within the sector. At a local level, it has continued with its efforts to promote R&D&I in businesses that belong to the Valenciaport logistics cluster, gradually increasing the number of businesses collaborating with the Fundación in the search for solutions to the challenges of competitiveness through innovation and knowledge generation.

In addition to its traditional areas of expertise, it has incorporated new research programmes with ties to the latest trends in port and logistics; such as programmes on logistics and intermodality, security and protection, transport economies, energy efficiency and alternative fuel sources, information and communication technologies or planning and port management, and new challenges that are of huge interest have come to the forefront, such as cybersecurity, the Internet of Things, big data in port logistics or the latest trends in the growth of smart cities and smart ports. All these topics have been incorporated into the international innovation and cooperation programme designed in collaboration with the Port Authority of Valencia, that supplements the major efforts undertaken in Europe.

Within the European framework, the main milestones are the organization and coordination of significant projects such as GAINN, concerning the promotion of the use of Liquefied Natural Gas for maritime fuels and around the port, SEA TERMINALS to improve the energy efficiency of container port terminals, or CONNECT Valenciaport, for the financing of infrastructures required for the use of railways in the Port of Valencia. Furthermore, the Fundación has played a particularly active role in projects managed by other organizations, such as STM (Sea Traffic Management), Transforming Transport through Big Data applied to

transport, or Inter-IoT, involving the application of the Internet of Things within a port environment.

Outside of Europe, cooperation with other countries has yielded a certain degree of success, transferring the accumulated experience at the Port of Valencia into very different areas: port planning, with the development of the Master Plan for the National Ports System of Uruguay, the Cormagdalena river port development plan or the capacity analysis for the Cuenca de Plata terminal in the Port of Montevideo, logistics planning (in Argentina and Brazil) or the development of information systems via the definition study carried out for the standard Port Community System for the large-scale logistics network (Chile), to name a few.

Another of the challenges faced over the past two years has been the increased role of Fundación Valenciaport as a centre for reflection and support for the Port Authority of Valencia and the companies from the cluster in tasks involving Market Intelligence. Thus, a special work group has been created to monitor the economic climate, the port-maritime market (shipping companies and port terminal operators), traffic in hinterlands and forelands and, in short, any market information that might help to improve the international competitiveness of businesses that operate in the Port of Valencia.

In summary, and by way of a conclusion, we continue to make progress in what we consider to be our most significant mission: consolidating our position as the primary motor for R&D&I in the Valenciaport Cluster. The collaboration was very close with some groups, less so with others, but we always aimed to achieve the goal of not only attending to the needs expressed to us by companies and associations, but also to be proactively involved in proposing innovative ideas and innovative projects. The following pages provide an overview of the projects carried out in each of the research programmes that make up the projects division.





### 2.2. RESEARCH PROGRAMMES

#### 2.2.1. Logistics and Intermodality

The logistics and intermodality programme expands the field of expertise of the Fundación Valenciaport far beyond the purely port-related ones, providing it with a comprehensive vision of the logistics infrastructures and chain. The comprehensive design of the logistics system is necessary to be able to deal with the present and future situation in a globalized world where logistics has become an essential part of competitiveness and where ports set themselves up as key elements of the logistics chain.

Container logistics, the connection of ports with their hinterland, maritime and rail integration, logistics nodes and intermodal logistics platforms, the integration and competitiveness of the port logistics cluster or urban logistics are just some of the fields where we have continued to work from a strategic perspective and of planning from an operational optimization perspective and improvements to efficiency.

In the past two years, these lines of work have resulted in several projects that have provided support to both institutions with expertise in logistics and transport, and associations and companies from within the port logistics community, who have entrusted themselves to the knowledge and experience of Fundación Valenciaport. The European and international scale of many of the projects has provided direct insights into other situations, share experiences and transfer best practices that help to improve the supply chain.

Accordingly, over this two-year period, work has been carried out in railway-maritime integration projects such as CAPACITY4RAIL and CONNECT Valenciaport. The first one aims at providing a foresight into the future of rail freight

transport (Horizon 2050), anticipating the future infrastructure and superstructure needs, and the second, covering a whole series of activities to improve the railway infrastructure and operations in the Port of Valencia, including the connection to the Mediterranean Corridor, adapting the line gauges to meet European standards, as well as being able to handle 750m-long trains.

Furthermore, the STIMULO project acted as a kickstart for the development of complex real-time multisource information management systems such as artificial vision, the Internet of Things and big data, to improve the planning and management of road traffic around major logistics nodes. This line of action led to the development of new case studies within the framework of other technology projects being developed within the scope of smart port logistics.

Research into a CITA PREVIA (appointment system) has also had an impact on improvements to traffic management, a problem inherent to ports all around the world, whose situation has worsened with the advent of “megaships” which leads to a concentration of traffic and puts more pressure on the hinterland. Several of the international projects deal with the problem of traffic planning and management in ports in Uruguay, Argentina and Chile (see the internationalization section).

Lastly, other projects such as SMILE and SUCCESS that arise from the relationship between the port and the city and tackles urban logistic issues putting forward and testing alternative solutions to minimize the impact of logistics activities in the city, such as the use of urban consolidation centres and the deployment of electric vehicles for urban freight distribution, among others. In short, the logistics and intermodality programme works together with the rest of Fundación Valenciaport’s divisions in the shared goal of maintaining the port logistics community at the forefront of expertise and consolidating Valencia as a logistics benchmark in the Mediterranean.



## CONNECT VALENCIAPORT - IMPROVEMENT OF THE HINTERLAND RAIL CONNECTION AND THE MARITIME ACCESIBILITY TO THE PORT OF VALENCIA

### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Carles Pérez, Josep Sanz, Clara Peña

**Project Partners:** Fundación Valenciaport, Port Authority of Valencia, Noatum.

**TIMEFRAME:** January 2014 - December 2019

**FUNDING BODY:** Project partially subsidized by the European Commission through the CEF (Connecting Europe Facility) financing mechanism.



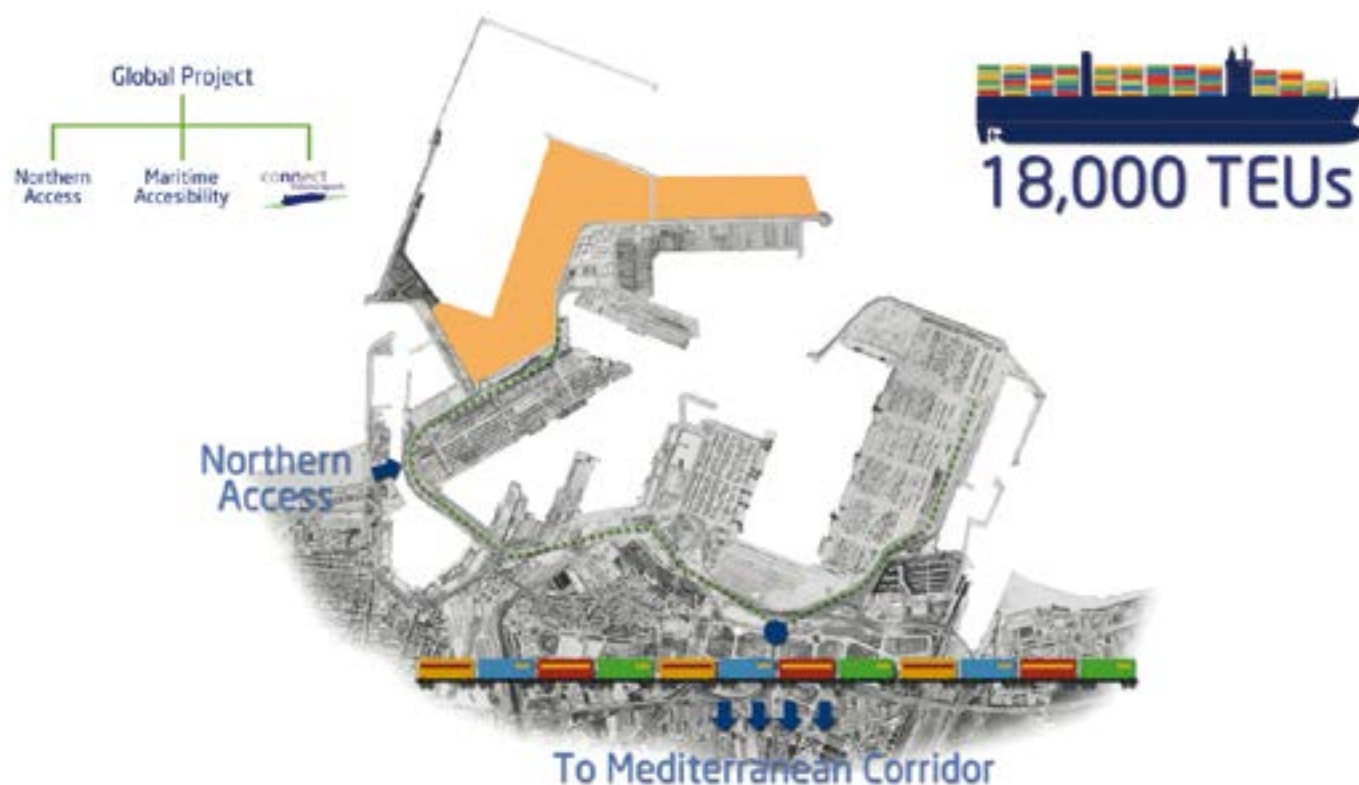
Co-financed by the European Union  
Connecting Europe Facility

### PROJECT JUSTIFICATION AND RESULTS:

#### JUSTIFICATION

The CONNECT Valenciaport project, co-financed by the European Union through the "Connect Europe" programme is part of a global project that aims to improve the **interconnectivity of the Port of Valencia** by adapting the

railway infrastructure, building a new access to the port (Northern access) and improving maritime accessibility so that the port can handle the new generation 18,000TEU container ships.



## PROJECTS

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The Port of Valencia is a key Mediterranean Corridor node in the TEN-T network (Trans-European Transport Networks). Consequently, one of the main objectives of this global project is to boost the Port of Valencia's

capacity to handle trains arriving from and departing for its hinterland, thereby improving its connection with the hinterland and the Mediterranean Corridor.



The CONNECT Valenciaport project focuses on rail improvements and aims to bring the Port of Valencia rail systems and infrastructure up-to-date through the construction of UIC gauge tracks that enable the Port of Valencia to connect with the Mediterranean Corridor of the TEN-T network. The project will also increase the capacity and efficiency of Port of Valencia rail operations by enabling it to run trains of up to 750 m in length and updating the railway management systems within the port facilities.

**The CONNECT VALENCIAPORT project is aligned with the objectives of both the Mediterranean Corridor and the Port Authority of Valencia,** which seek to integrate the Port of Valencia into a national and European infrastructure network that will improve the competitiveness of the cluster located in the hinterland.

### OBJECTIVES

The CONNECT Valenciaport project seeks to improve the rail connectivity of the Port of Valencia with its hinterland, with

the ultimate aim of increasing the number of containers and the volume of goods entering and leaving the Port of Valencia by rail. By boosting the efficiency of rail operations and reducing costs, the project will consequently help improve the competitiveness of the companies in the hinterland of the Port of Valencia. The development of rail as a continuation of maritime transport is a strategic factor that will enable the port to face the new challenges posed by the increased volume and concentration of traffic, trends that are set to intensify in the future.

In particular, the CONNECT Valenciaport project addresses the most urgent problems affecting the rail infrastructure of the Port of Valencia, tackling the lack of interoperability between the port's rail infrastructure and that of the Mediterranean Corridor. Thus, **the project includes surveys and studies, and focuses on both the adaptation of the railway infrastructure to the UIC gauge by installing a third rail, and on the operation of trains up to 750 metres long.** In addition, safety is improved by eliminating five level-crossings and increasing control over rail operations within the port area.





Specifically, the project objectives are:

- Connect the Port of Valencia and its terminals to the TEN-T Mediterranean Corridor through UIC gauge tracks
- Improve the rail infrastructure of the Port of Valencia to accommodate trains of up to 750m long
- Improve the internal rail network of the Port of Valencia
- Increase the capacity to run trains in the Port of Valencia
- Improve efficiency of rail operations of the Port of Valencia

- Improve operational safety and control of trains entering and leaving the Port of Valencia

#### RESULTS:

The activities of the CONNECT Valenciaport project can be divided into two main groups. Three deal with **public works to adapt the port's road and rail infrastructure**: actions at the Levante dock, actions at the Príncipe Felipe dock and lastly, the road and rail system of the Port of Valencia's internal network. In addition, the project includes a group of activities focused on **adapting and updating the rail operations management and information systems**.

#### ACTIONS AT THE LEVANTE DOCK

The works carried out at the Levante dock consist mainly of lengthening the terminal rail tracks so that they can accommodate trains of 750 m in length, and adapting the infrastructure to the UIC gauge by installing a third rail. In addition, the pavement of the railway terminal has been reinforced since the train loading and unloading operations were designed to use RTG (Rubber Tyred Gantry) cranes rather than reachstackers.





### ACTIONS AT THE PRINCE FELIPE DOCK

As with the Levante dock, the works carried out at the Príncipe Felipe dock consist of lengthening the tracks to be able to handle 750m-long trains and adapting the railway terminal to the UIC gauge, thus enabling its connection with the Mediterranean Corridor. In this case, the works to

extend the tracks are hindered by the current location of the access doors, which will thus have to be moved to another location within the Noatum terminal. The land occupied by the new rail yard and the relocation of the terminal access doors will also require paving an area of the public container terminal dock, in return for the land given over to the new railway infrastructure.





## ACTIONS IN THE ROAD AND RAIL NETWORK OF THE PORT OF VALENCIA

The last group of actions related to the infrastructure improvements proposed by the CONNECT Valenciaport Project consists of upgrading the Port of Valencia's road and internal rail network. This entails the construction of a new rail yard at the entrance of the port to improve rail operations,

the construction of a railway control centre for rail management, and the adaptation of the road and railway lines within the Port of Valencia facilities to allow greater operational efficiency and safety by eliminating up to five level-crossings. In addition, the new rail route within the port will be equipped with UIC gauge by means of the third rail solution, thus enabling the integration of the Port of Valencia with the TEN-T network and the Mediterranean Corridor.



## UPGRADING RAIL MANAGEMENT SYSTEMS

Finally, the last group of activities of the CONNECT Valenciaport project will focus on updating the rail information systems, enabling more efficient operations and accompanying the improvements in the rail and port infrastructures. These upgrades will enhance the use of rail freight by improving operating time in the port and reducing costs.

**WEB:** [www.connectvalenciaport.eu](http://www.connectvalenciaport.eu)



### STUDY ON THE IMPLEMENTATION OF A PRIOR APPOINTMENT SYSTEM IN CONTAINER TERMINALS THE PORT OF VALENCIA

#### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Josep Sanz Argent, Miguel Llop Chabrera, Jaime López

**Project Partners:** PAV, Valencian Shipping Association, ELTC

**TIMEFRAME:** 2015

**FUNDING BODY:** Port Authority of Valencia

#### PROJECT JUSTIFICATION AND RESULTS:

##### OBJECTIVES

The overall goal of the study is to examine the main implications as well as the advantages and disadvantages stemming from the possible implementation of an appointment system for the reception and delivery of containers by lorry at the Port of Valencia's container terminals.

A more specific aim is the analysis of how the implementation of such an appointment system might affect the different stakeholders (haulage companies, freight forwarders and shipping agents), and proposals of alternative recommendations to overcome the difficulties identified during analysis.

The results of the study can also be used as a basis for defining the requirements and functionality of the new service that needs to be developed in the Port of Valencia's Port Community System ([valenciaportpcs.net](http://valenciaportpcs.net)) to provide support for the system.

##### METHODOLOGY

As part of the study, fieldwork was carried out to understand stakeholders' perspectives, assessment and impressions. First, 17 interviews were conducted, including 3 with container terminals, 6 with ground transportation providers, 3 with shipping agents and 5 with freight forwarders. A range of different types of interviewees (in terms of size, type of services, etc.) were selected in order to obtain a representative sample of the population. In addition, two haulage companies' working days were monitored in order to gain an understanding and achieve a more in-depth analysis of how the establishment of the appointment system would affect daily operations. Finally, sector meetings were held and/or feedback was obtained through their associations, thus

enabling a more in-depth analysis of the implications of an appointment system combining each sector's viewpoint.

In addition, an analysis was carried out of a representative sample of operations for which there is available time data (e.g. the exact time the order or the assignment was created) along with data provided by the terminals on number of entries and the percentage of incidents. The overall aim is to draw quantitative conclusions about the operation of the system. Specifically, an analysis was carried out of the dispatch, assignment, delivery and admission times of a set of 164,543 orders during the months of September and October 2014. The dispatch time corresponds to the creation of the order in [valenciaportpcs.net](http://valenciaportpcs.net), the assignment time refers to the introduction of the registration plate of the lorry that will handle the transport, the delivery time is the moment when the carrier has collected the container (full or empty) from the terminal or container yard, and the admission time is the moment the container (full or empty) is deposited in the terminal or container yard.

Entry times, operating times and number of incidents have also been analysed on the basis of data provided by the terminals for two typical weeks.

##### RESULTS

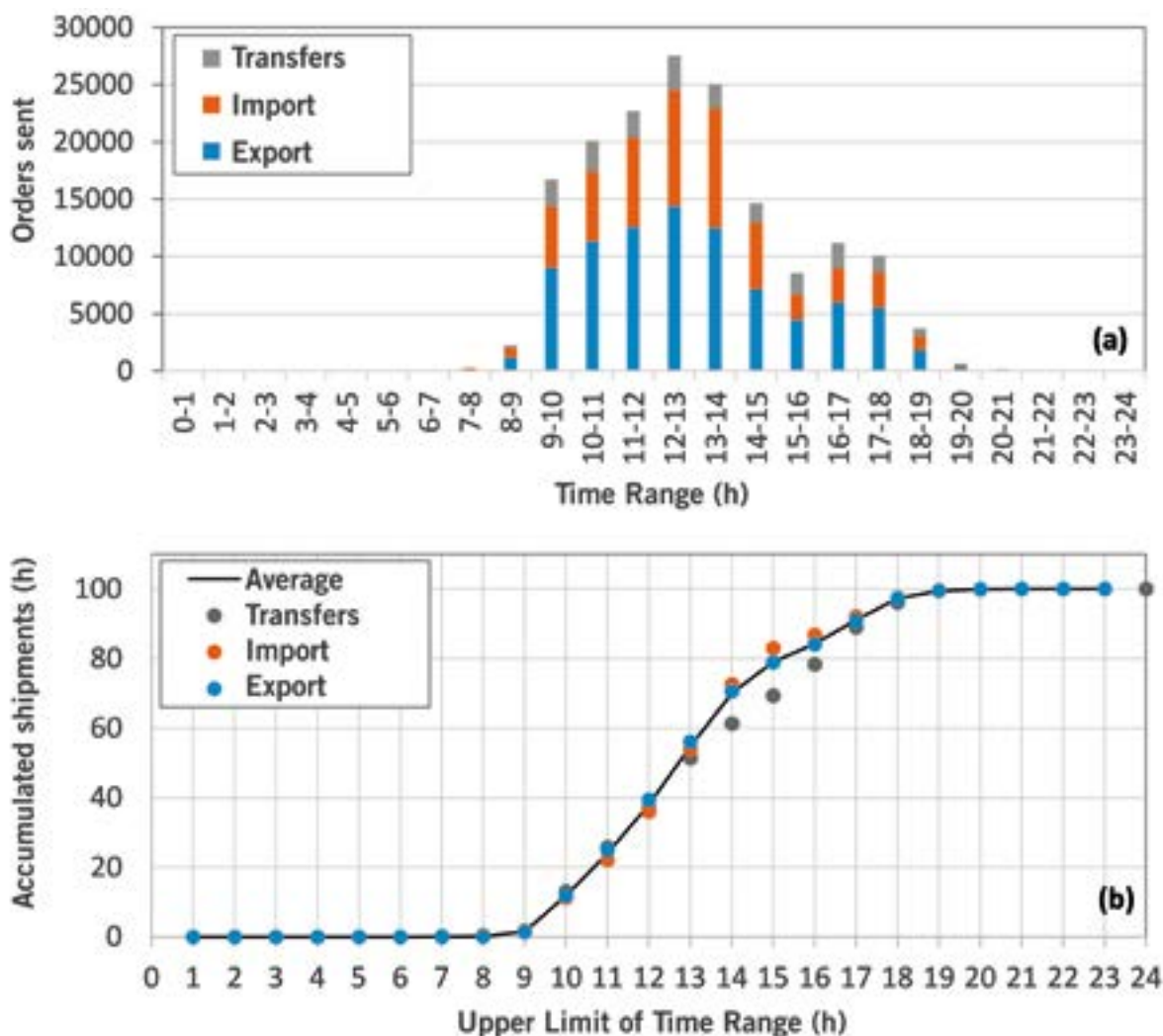
###### Review of current operation and rationales

An analysis of the operations of the land side of the Port of Valencia terminals revealed that there are two periods each day with a significantly higher demand for services than the rest of the day. From the terminals' perspective, this means poor optimization of their resources, and from the ground operators' viewpoint, long waiting times in the entrance queues as well as inside the actual terminals. The concentration of the maritime sector, agreements between companies, and the arrival of large ships and shared lines will significantly increase the number of operations, leading to foreseeable problems with the concentration of reception/delivery operations and congestion at the terminals. This situation calls for better

planning and staggering of the operations relating to reception/delivery of containers in the terminals.

The Port of Valencia currently employs a “closing time” system for forwarding information and improving ground transportation planning and container reception/delivery operations. Under this system, only admission/delivery orders issued before 15:00h can be carried out the same day. For

import, full containers can be removed from the terminal as soon as they have been issued. In the case of export orders, empty containers can be removed from the terminals from 14:00h the day of the order. However, the fact that container yards are not included in the closing time system means that export orders can be issued after 15:00h and the transport can begin that same day if the empty container is taken from a yard.



Time Distribution in the sending of orders (a) number of orders per time slot (b)

Although the closing time system is widely used at present, it may not be capable of efficiently handling land traffic in the near future, given the growth and concentration of operations. **To address this situation, one option that is being implemented in many other ports is an advance**

**reservation system for services**, known as appointment systems or Vehicle Booking Systems.

The goal in implementing these types of systems is not only to streamline the activity at the terminal gates, but also for



it to have an effect on the entire logistics chain. For example, as a result of improved terminal operations (which can use advance information to optimize operations by reducing the number of relocations), transport companies could be given a guaranteed maximum time for container delivery/collection and they could anticipate and avoid congestion and queues. In addition, the exchange of information would allow them to react to unforeseen situations and improve the service to the end customer.

### Stakeholders' perception of the system and the main barriers to overcome

The appointment system under study is a **system for managing land operations of reception and delivery of containers by lorry in maritime terminals**. The aim is for the terminals to streamline

said operations and achieve better planning by optimizing resources (equipment and labour), reducing the number of relocations and additional movements in the terminal yard (optimization of movement sequencing) and improving the level of service in terms of shorter wait times and operation times. The introduction of such a system means that **improved planning** can be expanded to the rest of the **logistics chain**, thus making it possible to **optimize resources, anticipate problems, improve reliability** and, ultimately, **improve the level of service** to the end customer or shipper.

However, the various stakeholders do not always share the same perspective and it should be understood that they may view the disadvantages and risks differently.

ADVANTAGES	
TERMINALS	CARRIERS
<ul style="list-style-type: none"> <li>- Mitigation of peaks and troughs in the demand curve for reception/delivery services.</li> <li>- Quality advance information that allows better planning of terminal operations.</li> <li>- Enables optimization of resources: equipment/machinery and labour (makes hiring easier).</li> <li>- Enables movement sequencing in the terminal and reduces the number of relocations and additional movements.</li> <li>- Enables advance preparation of containers and improved/more flexible service in land operations of admission/delivery (shorter wait times and operation times).</li> </ul>	<ul style="list-style-type: none"> <li>- Reduction of queues and shorter wait times to enter the terminals.</li> <li>- Shorter container delivery and collection times in the terminals.</li> <li>- Advance information about the "availability" of a container in the terminal, as well as compliance with the maritime "closing time".</li> <li>- Enables improvements in punctuality in loading and unloading at the client's end (shipper or receiver).</li> <li>- Allows anticipation of problems, delays and incidents and helps identify solutions (though the carriers are not in unanimous agreement on this point).</li> </ul>
FREIGHT FORWARDERS	SHIPPING AGENTS
<ul style="list-style-type: none"> <li>- Provides access to advance information on the "availability" of a container in the terminal, as well as compliance with the maritime "closing time".</li> <li>- Enables delivery or collection of goods to be planned with the client once all the necessary procedures have been completed.</li> <li>- Enables improvements in punctuality in loading and unloading at the client's end (shipper or receiver).</li> </ul>	<ul style="list-style-type: none"> <li>- May facilitate better planning along the logistics chain.</li> <li>- Enables improvements in punctuality in loading and unloading at the client's end (shipper or receiver).</li> <li>- Provides access to advance information on the "availability" of a container in the terminal, as well as compliance with the maritime "closing time".</li> <li>- Improvement in reception/delivery operations and reduced congestion can help prevent these factors from negatively affecting maritime operations.</li> </ul>

DISADVANTAGES	
TERMINALS	CARRIERS
<ul style="list-style-type: none"> <li>- Requires developments in TOS.</li> <li>- Management and maintenance of the system.</li> </ul>	<ul style="list-style-type: none"> <li>- Fear that the appointment system may complicate planning, thus negatively impacting the performance of the fleet.</li> <li>- More complex management and planning, which may result in greater administrative costs.</li> <li>- Difficult to align the appointment system with clients' needs, demands and way of working.</li> <li>- Limited flexibility (which can affect level of service provided to shipper/receiver). This could heighten tensions and increase the risk of conflicts between carriers and clients (freight forwarders and agents).</li> </ul>
FREIGHT FORWARDERS	SHIPPING AGENTS
<ul style="list-style-type: none"> <li>- More complex management and planning, which may result in greater administrative costs.</li> <li>- Difficult to align the appointment system with clients' needs, demands and way of working.</li> <li>- Limited flexibility (which can affect level of service provided to shipper/receiver).</li> </ul>	<ul style="list-style-type: none"> <li>- The system requires more management and planning (which may result in greater administrative costs).</li> <li>- The system might increase the pressure on agents to quickly generate delivery and admission orders.</li> <li>- Some agents believe that, due to internal procedures, carrier operations could be affected as they are available until later, thus delaying the request for an appointment.</li> <li>- Limited flexibility (which can affect level of service provided to shipper/receiver).</li> </ul>

In the opinion of the users themselves, the main risks or barriers that may prevent the system from functioning well are the following:

- This type of system runs the risk of creating unfair situations whereby certain parties find it easier to obtain appointments in the peak time slots. In principle, the design of the appointment system minimizes this risk, and the widespread perception that it may put some parties at a disadvantage seems to be wrong.
- Abnormal practices: 'ghost' appointments, selling appointments, monopolizing appointments, etc. The proposed system whereby appointments are made for an existing delivery or admission order, largely prevents such practices from taking place.
- Certain agents refusing to use the system
- Preferential treatment and lack of transparency. These risks are not unique to appointment systems, and can in fact be found in any ground transportation management system adopted.

## PROJECTS

### Characteristics and design parameters

The study includes a detailed presentation of the proposed appointment system for the Port of Valencia, analysing each

of the features, functionalities and design parameters. The main characteristics of the proposed system are summarized in the following table.

### Main characteristics of the appointment system

CHARACTERISTIC	VALUE
Slot length	1 hour (adjustable parameter)
Required information	Admission/delivery order Assigned ground operator Registration number (if the ground operator does not belong to
Request limit	End of the slot
Applicant	Transport operator or carrier
Changes	Between adjacent slots, providing it does not exceed 110% of capacity
Exchanges	Between orders from the same transport operator and booking
Automatic cancelation	At the end of the slot chosen for the appointment
Connections between appointments	Import + export (only with assigned registration number, which will be used to validate the connection)
Exceptions and special cases	Inspection outside the terminals Refusals on leaving the port Movements between terminals
Penalties	None

### Implementation Plan

**The implementation of an appointment system at the Port of Valencia terminals represents a notable change affecting a significant number of actors. It is therefore advisable to carry out a gradual implementation, with the following stages:**

1. **Development and measurement.** A valuable step during the development phase of the new service in valenciaportpcs, is tracking ground transportation operations and reception/delivery operations. On the one hand, this allows for an analysis of changes over time in the parameters that may be crucial to the proper functioning of the appointment system. These include factors such as ground operators' planning time or the number of incidents at the gates. On the other hand, it also helps identify indicators that can be used later to evaluate performance under the new system.

This stage could involve evaluating the possibility of adding a confirmation of the transport assignment, to report the expected time frame for container pick-up and delivery, purely for informative purposes.

2. **Training phase.** Before the complete implementation of the system, a two-stage test period is recommended:

- In the first stage, appointment for orders can be made on a voluntary basis, but they will not be checked at the gates (or if they are, only for information purposes). This stage will allow users to familiarize themselves with the system in real working conditions.
- In the second stage of testing, it will be necessary to request an appointment and have it checked at the gates, but there will be no limit on the slots

During the two test phases, monitoring and follow-up will be performed using the system of indicators described.



1. **Pilot tests.** To carry out the complete system implementation with limited slot capacity, a progressive implementation is proposed, starting on a day of the week with little traffic (for example, during operations on Saturday) before then adding other days later.
2. **Definitive implementation.** Following any necessary modifications detected during the training and pilot phases, the definitive and comprehensive system implementation will take place. Ongoing monitoring of the system will be crucial to its evaluation.

### Proposed monitoring indicators

PROPOSED MONITORING INDICATORS	
GENERAL INDICATORS	APPOINTMENT SYSTEM INDICATORS
Time distribution of demand for services at gates	Compliance
Average operation time	Advanced
Planning time (time elapsed between creation of order and start of operation)	Delayed
Incidents at gates	Non-compliance
	Automatic cancellations
	Regular changes
	Changes in the period before the slot (within the limit)
	Deviations in changes (original slot – changed slot)
	Change in advance (time difference between the changing/cancelling of an appointment and the start time of the slot originally assigned to that appointment)
	Operation times
	Slot information at 100% daily

### Recommendations

The following recommendations cover a number of elements that should be taken into account if a final decision is taken to implement an appointment system for managing ground transportation in the Port of Valencia.

- The development of the appointment system project requires certain current issues to be resolved, such the high number of incidents at terminal gates involving errors with

admission/delivery orders. A more detailed analysis than the one included in this study is recommended. A high error rate could hinder the proper functioning of the appointment system.

- The implementation of the appointment system should be used as an opportunity to improve user information (container availability, maritime closing time, customs status, etc.). Users are increasingly calling for better information on container availability.

- The implementation of the appointment system should not change the terminals' current capacity for container collection/delivery. This means that in peak times, as indicated by the business configuration (origins and destinations, driving time regulations, the arrival of mega-ships, etc.), the terminals should be able to handle as many lorries/operations as they could before the implementation of the system. This capacity may even increase through better planning of operations and eliminating the congestion that hinders operations. The proper functioning of the appointment system should contribute to better planning and distribution of the activity over time.
- To begin with, the proposal is to maintain ground closing time along with appropriate monitoring of the transmission of information between different agents. Once the appointment system is well established, the elimination of closing time could be considered, initially for import operations where clearance for goods is received after closing time.
- A contingency plan must be established.
- A phased implantation is recommended, such as that proposed in the study.

### CAPACITY4RAIL - INCREASING CAPACITY FOR RAIL NETWORKS THROUGH ENHANCED INFRASTRUCTURE AND OPTIMIZED OPERATIONS

#### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Rocío García, Gabriel Ferrús

**Project Partners:** Union Internationale des Chemins de Fer (coordinator); Arttic; Trafikverket; Systra SA; Deutsche Bahn AG; Network Rail Infrastructure LTD; Administrador de Infraestructuras Ferroviarias; Fundación Ferrocarriles Españoles; Instytut Kolejnictwa IK; VAE GMBH; Acciona Infraestructuras S.A.; Instituto Superior Técnico; Università Degli Studi Di Roma La Sapienza; Ansaldo Sts S.P.A; Union Des Industries Ferroviaires Europeennes; University of Newcastle Upon Tyne; Ingeniería y Economía del Transporte S.A.; Centro de Estudios Materiales y Control de Obras S.A.; Newopera AISBL; Oltis Group AS; Kungliga Tekniska Hogskolan; Chalmers Tekniska Hogskola AB; The University of Birmingham; TRL Limited; Vossloh Fastening Systems GMBH; The University of Huddersfield; Technische Universitaet Dresden; Uppsala Universitet; Türkiye Cumhuriyeti Devlet Demir Yollari Isletmesi Genel Mudurlugu; Rede Ferroviaria Nacional; Universidade do Porto; Kockums Industrier AB; Van Dieren Sweden AB; Centro de Estudios y Experimentación de Obras Públicas; Societe Nationale des Chemins de Fer Francais; Adevice Solutions; Linkopings Universitet; European Federation of Railway Trackworks Contractors; Vossloh Cogifer SA; Cargosped Spolka Z Ograniczona Odpowiedzialnoscia; University of Sheffield; Comsa SAU; Societe de Transports de Vehicules Automobiles SA; Knorr-Bremse Systeme Fur Schienenfahrzeuge GMBH; Réseau Ferre de France; Institut Français des Sciences et Technologies des Transports, de L'aménagement et des Réseaux

**TIMEFRAME:** October 2013 - September 2017

**OBJECTIVE:** The basic objective of the project is to define a vision for the European railways sector in 2050, identifying the primary changes expected in the design, construction, maintenance and management of shunting operations and the transfer of cargo at the terminals. Capacity4Rail aims to help to increase the capacity, availability and performance of the railways system by identifying the necessary changes in: the design of the infrastructure, the construction and maintenance, operational management, incident management with real-time information, and freight operations with a particular focus on freight transfer.

**FUNDING BODY:** Project co-financed by the European Commission through the 7th Framework Programme

**WEB:** [www.capacity4rail.eu](http://www.capacity4rail.eu)





## STIMULO –INTELLIGENT MULTIMODAL TRANSPORT LOGISTICS SYSTEM

### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Miguel Llop, Antonio Torregrosa, Carolina Navarro, Jaime López, Purificación Albert, Remedios Cebriá, M<sup>a</sup> Dolores Coscollá

**Project Partners:** Prodevelop, S.L. (coordinator); CBT Comunicación Multimedia, S.L.; Answartech, S.L.; Innovalia Association; Alcala University; Valencia Polytechnic University



**TIME FRAME:** June 2012 - June 2015

**OBJECTIVE:** The main objective of the STIMULO project is to develop highly efficient transport systems through a combination of simulation models and the provision of real-time information from different information sources, sensors, and both stationary and mobile equipment (road and city traffic services, mobile devices in vehicles, weather conditions, video cameras with images of current traffic conditions, etc.) as well as access to historical data.

The main elements of the infrastructure proposed in the STIMULO project are the simulation model, mining of real-time data from a range of different sensors, the generation of traffic indicators and the use of these indicators together with collective intelligence techniques to be able to provide the transport system with associated services that help improve efficiency and performance.

**FUNDING BODY:** INNPACTO – Innovation Plan 2012 – Spanish Ministry of Economy and Competitiveness

## BOOSTING INTERMODALITY IN THE PORT OF VALENCIA: DEVELOPING RAILWAYS, SSS AND LOGISTICS PLATFORMS

### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Vicente del Río, Carolina Navarro, Eva Pérez, Lorena Sáez, Antonio Torregrosa, Miguel Llop, Marina Sáez, Carles Pérez, Mark Tanner, Josep Sanz

**TIME FRAME:** January 2010 – December 2017

**OBJECTIVE:** The main objective of the project is to provide support to the Valenciaport cluster in order to increase specialized know-how and advance the development of inter-modal transport, and to improve maritime-rail integration, primarily by taking an active role in different research projects. The configuration of efficient inter-modal connections between the ports and the hinterland is one of the keys to achieving competitive door-to-door services able to attract cargo and strengthen the positioning of the cluster. This interest in developing inter-modal transport in connections between ports and the hinterland has been bolstered at a national level by policies such as the Plan to Promote Railways, and by European transport policies, both of which underline the need for improvements to the integration between modes of transport and the strengthening of the railways, inland waterways and short sea shipping as a way of achieving a more sustainable transport system and significantly reducing the emission of polluting greenhouse gases.

**FUNDING BODY:** Port Authority of Valencia



### FUTUREMED – REAL-TIME ECO-EFFICIENT TRANSPORT PLANNING SYSTEM APPLIED TO PORT GROUND TRANSPORTATION

#### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Miguel Llop, Carolina Navarro, Jaime López, Antonio Torregrosa, Eva Pérez, Clara Peña, Marina Sáez, Ana Rumbeu, Josep Sanz

**Project Partners:** Lazio Region; Port Authority of Civitavecchia; Autonomous Region of Friuli Venezia Giulia - Central Directorate for Infrastructure, Mobility, Spatial Planning and Public Works; Institute for Transport and Logistics Foundation; Port Authority of North Sardinia; Hellenic Ministry of Infrastructure, Transport and Networks; Centre for Research and Technology Hellas - CERTH; Thessaloniki Port Authority S.A.; TRAINOSE S.A.; Plaza S.A.; Fundación Zaragoza Logistics Centre; AFT; University of Maribor; BSC, Business Support Centre, L.t.d., Kranj - Regional Development Agency of Gorenjska; Cyprus Centre for European and International Affairs (CCEIA)

**TIME FRAME:** June 2012- May 2015

**OBJECTIVE:** The overall objective of the project is to improve the competitiveness of ports in the MED area by improving accessibility and connections with their hinterlands through technology and procedural innovations that guarantee the sustainability of transport. The specific objectives are:

- The removal of access barriers to the ports, both on the foreland and on the hinterland side.
- Improving the integration of ports with the hinterland.
- The development of inter-modal rail transport to connect ports with their areas of influence.
- The development of interoperable information systems and solutions aimed at improving the efficiency of the port logistic systems.

**FUNDING BODY:** Project co-financed by the European Commission through the MED Programme

**WEB:** [www.futuremedproject.eu](http://www.futuremedproject.eu)



### SMILE - SMART GREEN INNOVATIVE URBAN LOGISTICS FOR ENERGY EFFICIENT MEDITERRANEAN CITIES

#### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Carolina Navarro, Marina Sáez, Seán Deehan, Alicia Martí, Pilar Sánchez, Clara Peña, Jorge Lara

**Project Partners:** Piraeus City Council, CERTH-HIT, InnDEA, ITL, Barcelona City Council, CENIT, AFT, Montpellier City Council, Regional Energy Agency - Kravner, Rijeka City Council

**TIME FRAME:** November 2012 - April 2015

**OBJECTIVE:** The overall objective of the SMILE Project is to the energy efficiency of Mediterranean cities by testing innovative strategies, plans and smart urban-logistic solutions. The main goals of the project are as follows:

- - Provide support to public institutions in the creation of energy-efficient urban logistic strategies, plans and policies.
- - Raise awareness about the impact that urban logistics can have on a city's energy efficiency.
- - Improve understanding of energy-efficient urban logistic solutions.
- - Reduce energy consumption of the logistics and transport sector.
- - Reduce the emissions of greenhouse gases produced by transport.
- - Minimize congestion and other disruptions caused by urban freight distribution.

**FUNDING BODY:** Project co-financed by the European Commission through the MED programme

**WEB:** [www.smile-urbanlogistics.eu](http://www.smile-urbanlogistics.eu)



## MEDITA - "MEDITERRANEAN INFORMATION TRAFFIC APPLICATION"

### WORK TEAM

**FV Coordinator:** Miguel Llop

**Research team:** Andrea Muñoz, Eva Pérez, Marina Sáez, Rocío García

**Project Partners:** Interporto Toscano Amerigo Vespucci S.p.A. (Italy) - (coordinator); Region of Tuscany (Italy); Port Authority of Livorno (Italy); CFLI - Intermodal Logistics Training Consortium (Italy); Interporto Marche S.p.A (Italy); University of Piraeus Research Centre, Transportation Systems Group (Greece); Patras Port Authority S.A. (Greece); CTGC – Container Terminal and General Cargo (Montenegro)



**TIME FRAME:** February 2013 - June 2015

**OBJECTIVE:** The MEDITA project centres on the establishment of a network of port and dry ports to facilitate the easy and rapid movement of freight in the Mediterranean area, using low-cost technologies such as passive UHF RFID (Radio Frequency Identification) tagging. The network was set up within the framework of the MOS4MOS project by the Port of Livorno and the Tuscany Interport. It is not only a network of ideas, but also a procedural and technological network capable of becoming a Motorway of the Sea and as such able to overcome territorial boundaries by using a single system with shared procedures.

RFID is an established, standard technology that is very versatile and is increasingly being used for logistic and commercial purposes. The MEDITA project evaluates its deployment in the demanding port environment for freight at roll-on-roll-off terminals. The pilot projects tested within the framework of this project have sought to lay the foundations for improving the tracking of lorries, semi-trailers and manufactured vehicles.

The experience gained from the MEDITA project makes it possible to analyse the origins and destination of freight, the type of freight and the quantities transported. The project involved four European countries from the MED area: Italy, Spain, Greece and Montenegro.

**FUNDING BODY:** Project co-financed by the European Commission through the MED programme

**WEB:** [www.meditaproject.eu](http://www.meditaproject.eu)

## SUCCESS - SUSTAINABLE URBAN CONSOLIDATION CENTRES FOR CONSTRUCTION

### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Carolina Navarro, Carles Pérez

**Project Partners:** Luxembourg Institute of Science and Technology (LIST), Association pour la Formation professionnelle dans les Transports (AFT), Institute for Transport and Logistics Foundation (ITL), Fundación Valenciaport, TRALUX Construction, VINCI Construction France, Cooperativa Muratori e Braccianti di Carpi (CMB), Federation of Construction Companies (FEVEC), Emilia Romagna Region (RER), Fundación INNDEA, En&Tech Research Centre (EN&TECH)

**TIME FRAME:** May 2015 - May 2018

**OBJECTIVE:** The main objective of SUCCESS is to limit the negative impact of urban freight distribution associated with construction in cities, reducing costs, facilitating a better understanding of the of freight distribution logistics in the construction sector and demonstrating the impact it has in terms of transport and environmental efficiency. To this end, the project seeks to extend the concepts of Supply Chain Management and Consolidation Centres for Construction (CCC) to allow the testing of replicable solutions (appropriate collaboration frameworks, and consequently, sustainable business models). These solutions are aimed at addressing the supply chain problem in construction, with a focus on distribution networks, the work itself and reverse logistics.

**FUNDING BODY:** Project co-financed by the European Commission through the H2020 programme

**WEB:** [www.success-urbanlogistics.eu](http://www.success-urbanlogistics.eu)





### 2.2.2. Intelligent Port Logistics

Nowadays, information systems are management and production tools that ensure flexibility, reduce costs and facilitate rapid communication; they are also useful strategic decision-making tools. Rapid and accurate data acquisition and exchange between the different actors in the transport chain are key factors in the coordination of services, both in time and in space, ensuring better results and supplying the necessary information. Currently, all sectors are searching for new, more efficient, affordable, safe and accessible technology solutions, taking advantage of the growing interconnectivity of objects and people (**Internet of Things**), the availability of geolocation systems (**GPS, EGNOS and Galileo**), **Cloud Computing**, the storage and processing of massive amounts of data (**Big Data**) and **Intelligent Transport Systems**.

All these solutions and technologies have the potential to improve the performance of **port facilities**, resolve several different **mobility** issues, provide a differentiated and more **personalized** service for both freight and passenger transport services. Managing vast quantities of data, namely the availability, acquisition, storage, distribution and use of information, will form the foundations of an **intelligent port and transport system** where other components such as data **reliability, confidentiality, privacy, ownership and security** should be considered if users are to be receptive and adopt these solutions.

At the Port Authority of Valencia, there are three information system areas: management systems, industrial systems and the port community system (PCS). In addition to the systems administered and maintained by the Port Authority of Valencia, there are the information systems used by the port operators, clients and users that form part of Valenciaport, as well as the information systems from other public administrations that are involved with foreign trade and maritime transport (as is the case of Customs). It could be said that for Valenciaport to have a greater competitive advantage over other ports, both the systems that the PAV manages like the rest of the systems that are involved in port logistics operations, will play a significant role. Special focus should be directed towards terminal operating systems (TOS), the systems used for the inspection points, and the systems of other public administrations, such as those used by the Customs Department or by the Inspection Agencies.

Within the framework of the industrial systems managed by the PAV, the automated systems used at the access to porta (particularly the Port of Valencia) play a critical role. Currently, Valenciaport is internationally renowned as a leader in the application

of information and communication technologies (ICT). Nevertheless, to continue as leader, it must encourage the evolution, modernization and coordination of the different information systems, both its own and those of third parties and be a pioneer in new emerging models that allow all these solutions to merge into one to create a Smart Port and position Valenciaport as a benchmark port within the Future Ports, Corridor Community Systems and the European platforms that are being advocated at a European level by the European Commission. Fundación Valenciaport has been working in the field of Intelligent Port Logistics since 2014, within the framework of the action plan that was defined and partially subsidized by the Port Authority of Valencia, and has already made major breakthroughs with meaningful results. All the above activities have been part of the following European projects during the 2014 and 2015 fiscal years: **B2MoS, Mednet, Medita, e-Mar, Inte-Transit and Stimulo**. All these projects have been successfully completed and consequently all the scheduled activities have been wrapped up. With the advent of the new stage that started in 2016, the **aim of the Intelligent Port Logistics project has focused on the adoption, use and development and new architectures and open systems that ensure that information is made available to the different actors involved with the suitable quality, reliability and content, and these can be shared in real time, even under difficult conditions (roads, ports, maritime navigation, etc.).**

The aspects that are being considered in the strategy adopted by the Fundación Valenciaport to achieve its goal of intelligent port logistics include:

- The use of the Internet of Things (IoT) in port amenities to allow objects and people to connect and interact anywhere through a network of sensors, actuators, objects and intelligent devices, communication and interfaces that enable information to be captured, recorded and processed through local and global networks.
- Mobile communications for the secure exchange of information between actors (users, service providers, operators, communities) paying special attention to the roles of the driver and the vehicle and the adoption of intelligent transport systems (C-ITS) as part of the vehicles communications architecture with the infrastructure (V2I);
- Communications, the massive storage of information and fast processing, secure, robust and reliable (Big Data), which includes delivery and presentation infrastructures that are adapted to the service of the

port authority, customs, border control authorities, the port community, transport and the stakeholders of international trade;

- Supply of spatial and positioning information of moving freight through geo-positioning, RFID and 3G/4G/5G systems;
- Open web based platforms that facilitate the exchange of information between suppliers, manufacturers, logistics operators, distributors without the need to create expensive interfaces;
- Technical and organizational user guides of the information systems, technical aspects of the IT solutions, business model and processes;
- Deployment of programs to implement collaborative systems and services, evaluating and providing recommendations from a legal and business perspective;

As part of this strategy, Fundación Valenciaport, together with the Port Authority of Valencia is taking part in the **Digital Transport and Logistics Forum** set up by the European Commission and in the Alliance for the Internet of Things Innovation (**AIOTI**).

Fundación Valenciaport is part of project consortium of the **Inter-IoT project** (Interoperability of Internet of Things Heterogenous Platforms), which was launched in 2016 and will continue through to 2017 and 2018. The project aims to design, implement and experiment with an environment and an associated methodology for the introduction of an open transversal layer that facilitates voluntary interoperability between heterogenous platforms of the Internet of Things (IoT). In 2017, this project will implement several IoT platforms that will be used by the PAV, Noatum and selected forwarding agents, and the connectivity and interoperability tools for these platforms will be developed, culminating in the launch of a pilot project in 2018. In the case of the PAV, the aim it has set for itself is to incorporate data collected from port access points, vessel detection and energy consumption using counters.



### INTER IOT - INTEROPERABILITY OF HETEROGENEOUS IOT PLATFORMS

**FV Coordinator:** Miguel Llop

**Research team:** Pablo Giménez, M<sup>a</sup> Luisa Escamilla, Alexandre Sánchez, Eduardo Olmeda, Seán Deehan

**Project Partners:** Universitat Politècnica de Valencia, Università della Calabria, Provedelop S. L., Technische Universiteit Eindhoven, Fundación Valenciaport, Rinicom Ltd., Association pour le développement de la formation professionnelle dans les transports, Noatum Ports Valenciana S.A.U., XLAB razvoj programmske opreme in svetovanje d.o.o., Systems Research Institute Polish Academy of Sciences, Azienda Sanitaria Locale TO5, Alessandro Bassi Consulting, NEWAYS Technologies



**TIME FRAME:** January 2016 - December 2018

**FUNDING BODY:** Project co-financed by the European Commission through the H2020 programme

#### PROJECT JUSTIFICATION AND RESULTS:

Most current existing sensor networks and IoT device deployments work as independent entities of homogenous elements that serve a specific purpose, and are isolated from “the rest of the world”. In a few cases where heterogeneous elements are integrated, this is done either at device or network level, and focused mostly on unidirectionally gathering of information. A multi-layered approach to integrating heterogeneous IoT devices, networks, platforms, services and applications allow heterogeneous elements to cooperate seamlessly to share data, infrastructures and services as in a homogenous scenario.

INTER-IoT project is aiming at the design, implementation and experimentation of an open cross-layer framework and an associated methodology to enable voluntary interoperability among heterogeneous Internet of Things (IoT) platforms. The system allows effective and efficient development of adaptive, smart IoT applications and services, atop different heterogeneous IoT platforms, spanning single and/or multiple application domains. The project and associated approach has been defined to be use case-driven. Thus, it will be implemented and tested in three realistic large-scale pilots:

- Port of Valencia transportation and logistics involving heterogeneous platforms with ~400 smart objects.
- An Italian National Health Centre for mobile health involving ~200 patients, equipped with body sensor networks, wearable sensors and mobile smart devices.

- A cross-domain pilot involving IoT platforms from both application domains will be deployed and tested in the premises of the Port of Valencia.

Furthermore, the project analyses usability of the provided solutions from the perspective of IoT platform creators, IoT platform owners, IoT application programmers and users investigating business perspectives and creating new business models. The most important benefits expected for third parties are related with the new features and components that will be released by the consortium: Methodologies, tools, protocols and APIs that are released as open items available to develop new applications and services. The variety and cross availability of the results could be used to build and integrate services and platforms at different layers according to the needs of the stakeholders and developers. The availability of more and new data stimulates the creation of new opportunities and products, always in the scope of open interoperability.

Accordingly, the INTER-IoT systemic approach, which creates within the project together with necessary software tool-boxes and end-user applications, provides ways of overcoming interoperability problems between heterogeneous IoT systems across the communication/ software stack, including: devices, networks, middleware, application services, and data/semantics. Henceforth, reuse and integration of existing and future (even standard) IoT systems is facilitated and made possible to obtain interoperable ecosystems of IoT platforms.



INTER-IoT provides all the building blocks needed to achieve interoperability, including a framework, methodology and associated APIs and tool-boxes. Assuring that interoperability is kept as the different products and architectures may evolve in the market. The benefits of INTER-IoT are:

- At the device level, seamless inclusion of novel IoT devices and their interoperation with already existing, even heterogeneous ones. This allows fast growth of smart objects ecosystems.
- At the networking level, seamless support for smart objects mobility and information routing. This allows design and implementation of fully connected ecosystems.
- At the middleware level, seamless service discovery and management system for smart objects and their

basic services. This allows global exploitation of smart objects in large (even extreme) scale (multi-platform) IoT systems.

- At the application service level, reuse and exchange (import/export) of heterogeneous services between different IoT platforms.
- At the data and semantics level, common interpretation of data and information based on global shared ontology in order to achieve semantic interoperability.
- At the integrated IoT platform level, rapid prototyping of cross-platform IoT applications.
- At the business level, faster introduction of IoT technology and applications across multiple application domains.

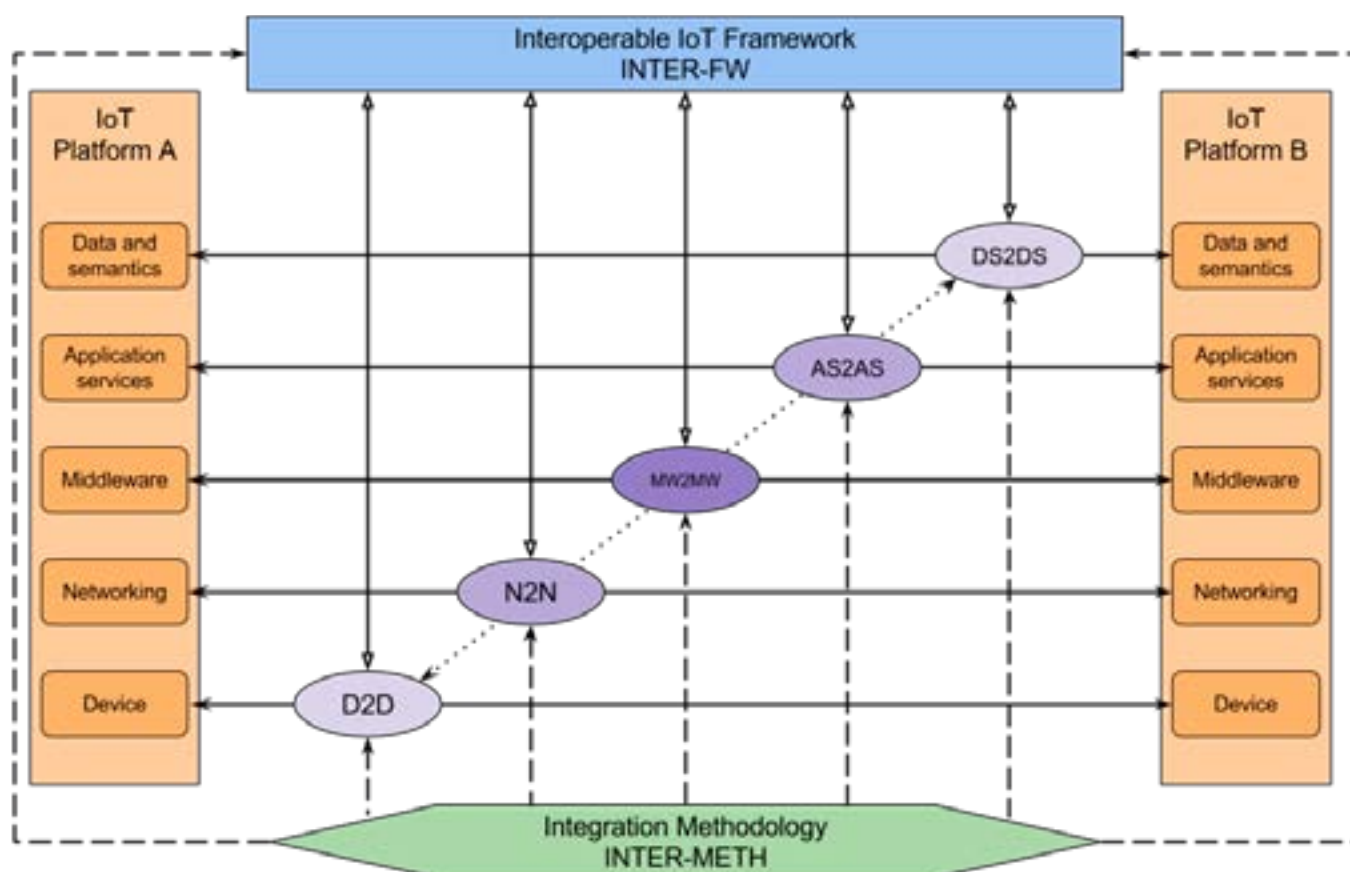


Figure 1. INTER-IoT approach abstract schema

### OBJECTIVES:

To meet this goal, the INTER-IoT project focus on the following set of specific research and innovation objectives:

1. Design and Implementation of an Open Cross-Layer Framework for Interoperability of IoT Platforms. The interoperability framework (INTER-FW) fully addresses interoperability issues that do not allow heterogeneous IoT platforms to be interconnected and interoperate. By using the INTER-FW, any IoT platform can be made interoperable with respect to its fundamental layers: device, networking, middleware, application service, and data&semantics.
2. Definition of Techniques and Tools for interoperability at the different IoT Platform Layers. Layer (and cross-layer) interoperability is fundamental to provide global interoperability between IoT platforms.
3. Definition of a CASE-driven Engineering Methodology Driving the Application of the IoT Platform Interoperability Framework. INTER-IoT defines a special-purpose, systematic methodology (named INTER-METH) that enables (semi)automation of application of the INTER-FW framework for making heterogeneous IoT platforms interoperate, and guide the process. To support application of INTER-METH, a CASE (Computer Aided Software Engineering) tool is implemented.
4. Design and Implementation of an Integrated Interoperable Open Platform for Transport and Logistics in Port Environments (INTER-LogP). INTER-LogP is the result of using INTER-IoT in a specific application domain providing support among others to containers, trucks, environmental platforms, with the main goal to improve different indicators through a fully working interoperable platform.
5. Design and Implementation of an Integrated Interoperable Open Platform for Mobile Health Monitoring (INTER-Health). The integrated open platform (INTER-Health), supports health monitoring at health-care centre through the centre facilities, at home through a set of medical consumer devices, and in mobility based on body sensor networks.
6. Successful completion of field trials. The INTER-IoT developed pilots (Objectives 4 and 5) are further evaluated in the two proposed application domains in: Nichelino (Turin) (IT) for m-health and Valencia (ES) for port transportation and cross application domain.
7. Establishment of a New Cooperation and Business Framework. This objective aims at defining a cooperation and business framework among project partners to bring to market the results of the project, creating new and innovative business opportunities.
8. Impact creation. Beside typical project dissemination activities in presenting and promoting the project approach and achieved results at various occasions (conferences, website, exhibitions, and workshops), the INTER-IoT project performs several showcases including small demonstrations and at both trial locations close to the project end.

### PROJECT RESULTS:

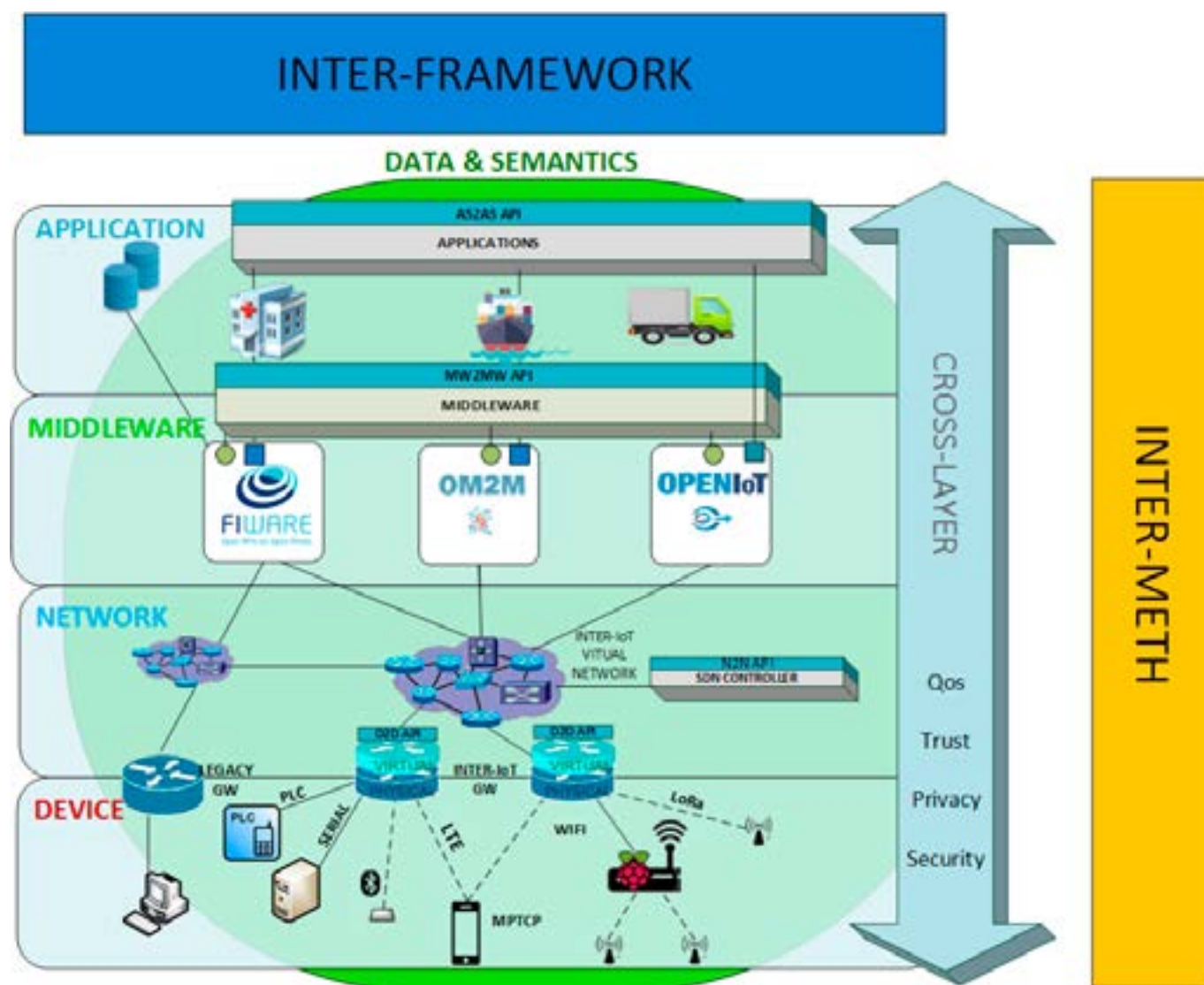
Project results are specifically tested in the two independent application domains that lead to two independent products, namely: INTER-LogP and INTER-Health. Thus, as an outcome of the project, INTER-IoT provides five products that could be introduced in the market for a wider implementation and exploitation. The market analysis and stakeholders are based in the existence of these five products, and the interest generated by the stakeholders.

## INTER-LAYER

INTER- IoT uses a layer-oriented approach to fully exploit specific functionalities of each layer (device, networking, middleware, application services, data & semantics). Although the development of a layer-oriented approach is a research challenge, as compared to a global approach, it has a higher potential to deliver tight bidirectional integration among heterogeneous IoT platforms, notably guaranteeing independence, thus providing higher performance, modularity and reliability and, what is extremely important, more control on functional and non-functional requirements. In addition,

the data and semantics level provides a global shared ontology and methods in order to achieve IoT platform semantic interoperability.

INTER-LAYER includes the design of device-to-device interaction based on multiprotocol/access mechanisms, the design of software defined interoperable modules for mobility and routing, the development of an open service discovery and management framework for smart objects, the design and implementation of smart IoT application service gateway and virtualization and the definition of a common ontology for IoT platform semantic interoperability.

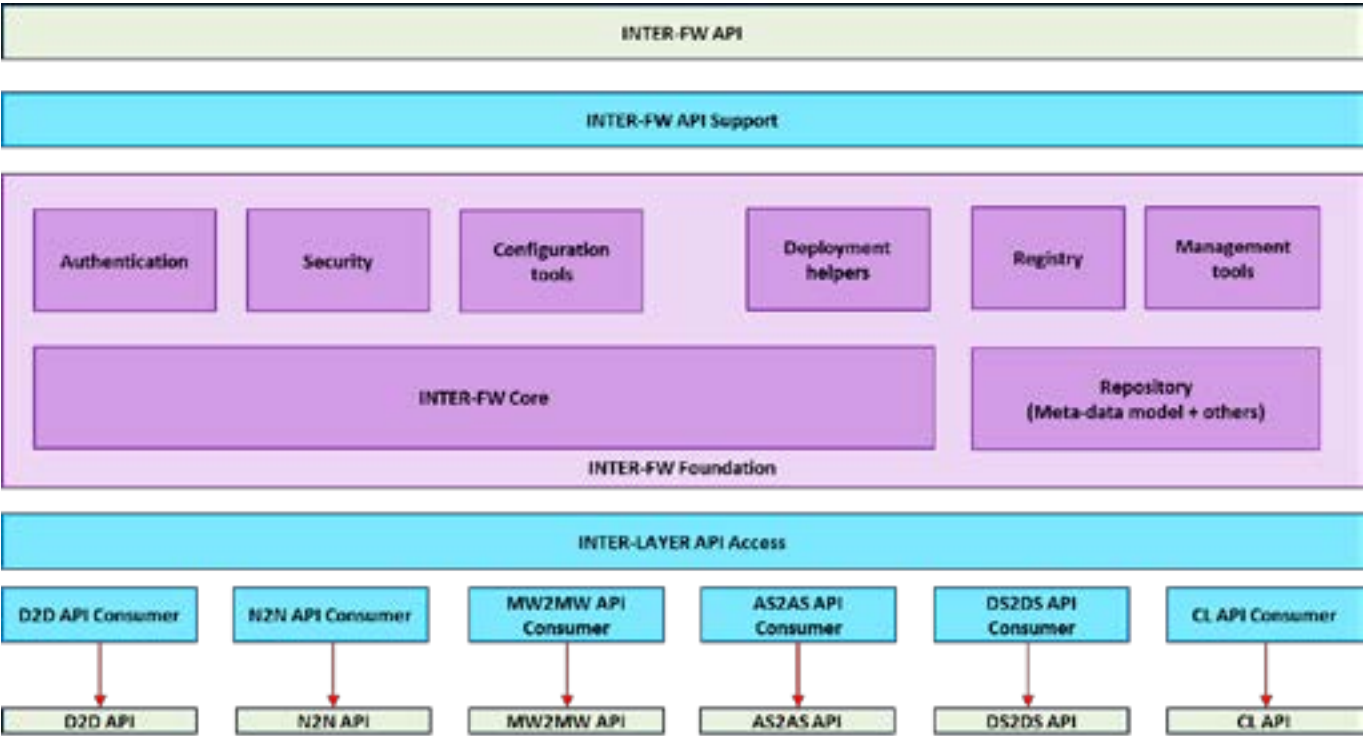




INTER-FW

The Interoperability IoT Framework (INTER-FW) aims at providing global and open platform-level interoperability among heterogeneous IoT platforms coupled through specifically developed Layer Interoperability Infrastructures

(LIIs) and Interoperability Layer Interfaces (ILI). INTER-FW relies on an architectural meta-model for IoT interoperable platforms, on a metadata-model for IoT interoperable semantics and it provides a programming API and tools allowing global-level management of the integrated IoT platforms.



The figure shows the abstract schema of the INTER-FW. INTER-FW advances the state-of-the-art by providing a general and effective method for inter-platform interoperability, addressing at a global level: real-timeless, reliability, security, privacy and trust. In particular, INTER-FW thoroughly addresses privacy and security-related risks and challenges resulting from the use of IoT devices.

INTER-METH

The engineering methodology INTER-METH aims at defining a systematic methodology supporting the integration process of heterogeneous IoT platforms to obtain interoperability among them so allowing implementation and deployment of IoT applications at the top of them. It is widely recognized that using an engineering methodology is fundamental in any engineering application domain (e.g. software engineering, codesign hardware/software, civil engineering, etc.). The manual and non-systematic application of complex techniques, methods and frameworks would very likely lead

to an increase of the degree of errors during integration. INTER-METH is supported by a Computer Aided Software Engineering tool (CASE) for driving IoT platforms/systems integration (INTER-CASE).

INTER-LOGP

INTER-LogP use case illustrates the need to achieve seamlessly interoperability of different heterogeneous IoT platforms, oriented to port transport and logistics. The considered application domain identifies several physical transport entities (trucks, containers, semi-trailers, cranes, tractors and other container handling machines) owned by different companies. The possibility to capture in real time sensor-based data coming from these physical moving assets and connecting them to transport and logistic infrastructures, is an opportunity to drive optimal real-time execution as well as automation of transport and logistics operations. The capture and sharing of real time sensor-based data across different organizations is today a big

challenge as there is not any solution in the market able to attend this need and overcoming the complexity of implementing IoT solutions connecting different sensors, systems and products. Sensor-based technology is already being pushed by the transportation and logistics industry. However, what it is lacking is the ability to effectively capture and share the data relative to the movement of vehicles and goods and convert it into actionable insights capable of driving improvements across the supply chain. The lack of use of IoT oriented platforms and their interoperability is today a main obstacle.

For example, almost any person, truck, machine and equipment have been outfitted or it is relatively easy to do

so with GPS devices and other sensors to capture information such as location, speed and idle time. With this information, companies have been able to compile and assess several indicators like delivery times, fuel consumption or emissions. However, these companies are not able to design and establish connections with platforms managed by other operators in the supply, logistics and transport chains. The global and interconnected nature of today's supply chains needs a greater collaboration among supply chain partners. The interoperability of heterogeneous IoT platforms can provide a framework for real-time multidirectional information sharing to help in creating true supply chain collaboration.

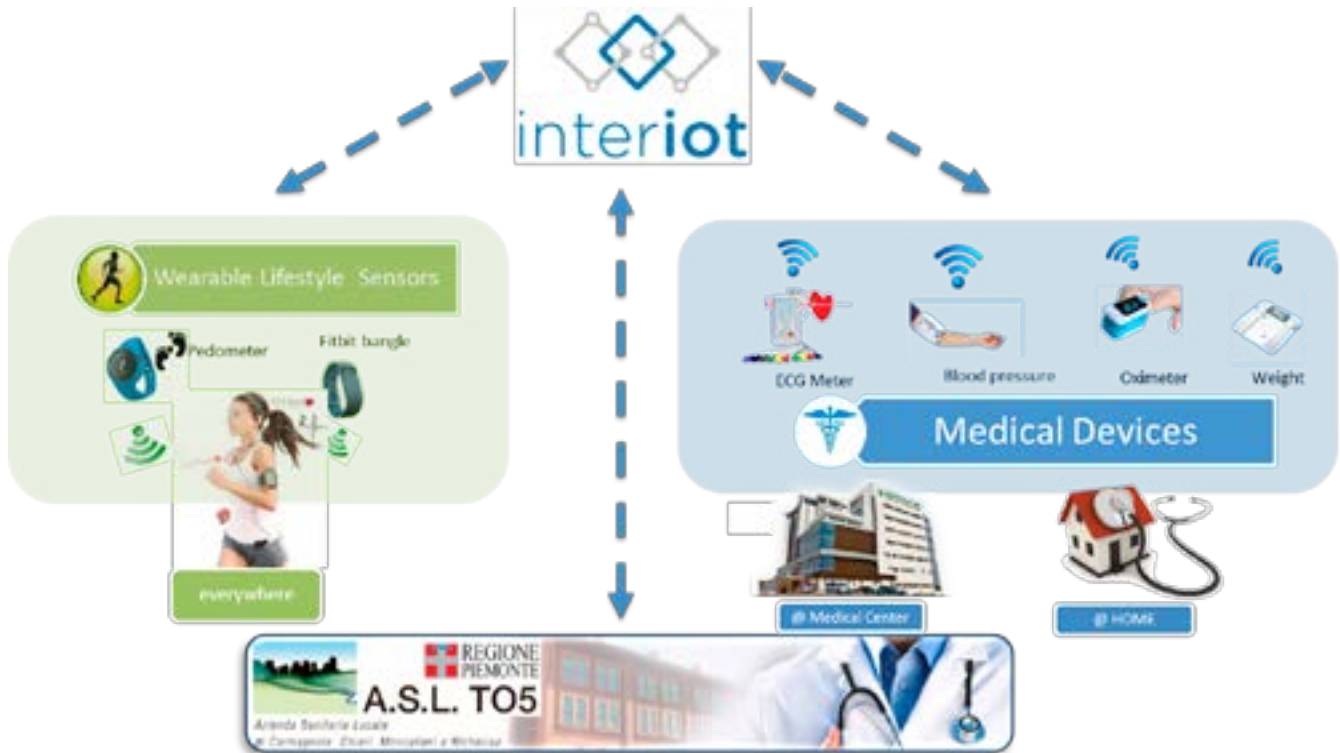


## PROJECTS

### INTER-Health

INTER-Health scenario for Decentralized and Mobile Monitoring of Assisted Livings' Lifestyle aims at developing an integrated IoT system for monitoring humans' lifestyle in a decentralized way and in mobility, to prevent health issues

mainly resulting from food and physical activity disorders. By exploiting the integrated system (INTER-Health) the patient's monitoring process can be decentralized from the healthcare centre to the monitored subjects' homes, and supported in mobility by using on-body physical activity monitors.



**WEB:** [www.inter-iot-project.eu](http://www.inter-iot-project.eu)



## STM VALIDATION PROJECT

**FV Coordinators:** José Andrés Giménez y Vicente del Río

**Research team:** José Andrés Giménez, Vicente del Río, Gabriel Ferrús, Seán Deehan, Pilar Blaya, Purificación Albert, Jorge Lara, Lucía Calabria



Co-financed by the European Union  
Connecting Europe Facility

**Project Partners:** Swedish Maritime Administration

(coordinator), Saab TransponderTech AB, Carnival Corporation & Plc, Transas Marine Ltd, Viktoria Swedish ICT, Maritime Safety and Rescue Society, Fundación Valenciaport, SSPA Sweden AB, Southampton Solent University, Centre Internacional de Mètodes Numèrics en Enginyeria - Cimne, Port Authority of Barcelona, Signalis GmbH, Danish Maritime Authority, NAVICON A/S, Svitzer Sverige AB, Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., The Swedish Meteorological and Hydrological Institute, Chalmers Tekniska Högskola AB, Ab Yrkeshögskolan vid Åbo Akademi / Yrkeshögskolan Novia, Port Authority of Valencia, Frequentis AG, OFFIS e. V., University of Oldenburg, Flensburg University of Applied Sciences, SAM Electronics GmbH, NHL Hogeschool / Maritiem Instituut Willem Barentsz, Republic of Finland - the Ministry of Transport and Communications, Costa Crociere S.P.A, Ministero delle Infrastrutture e dei Trasporti - Direzione Generale per la vigilanza sulle Autorità portuali, le infrastrutture portuali ed il trasporto marittimo e per vie d'acqua interne, The Norwegian Coastal Administration, Cyprus University Of Technology, GS1 Sweden AB, Jeppesen GmbH, Universitat Politècnica de Catalunya, Magellan - Associação para a representação de interesses portugueses no exterior, Furuno Finland Oy, University of Southampton, Sikkerhetssenteret Rørvik AS, HiQ Göteborg AB. TIMEFRAME: January 2015 - December 2018

**FUNDING BODY:** Cofinanced by the European Commission through the CEF programme (Connecting Europe Facility)

### PROJECT JUSTIFICATION AND RESULTS:

The maritime transport sector is currently facing major challenges that affect maritime transport system management and infrastructure. These challenges include the increasing transport capacity of passenger and cargo ships, the imbalance in trade flows between producer and consumer regions, strategic alliances between large shipping groups, and the opening up of new trade routes. These and other factors are shaping an ever-changing sector, creating a need to coordinate instruments that can help boost sector efficiency, while ensuring safety and environmental protection. To that end, a number of international authorities have launched a great many international programmes and initiatives aimed at promoting innovation in the maritime industry, so that this sector can remain competitive against other modes of transport.

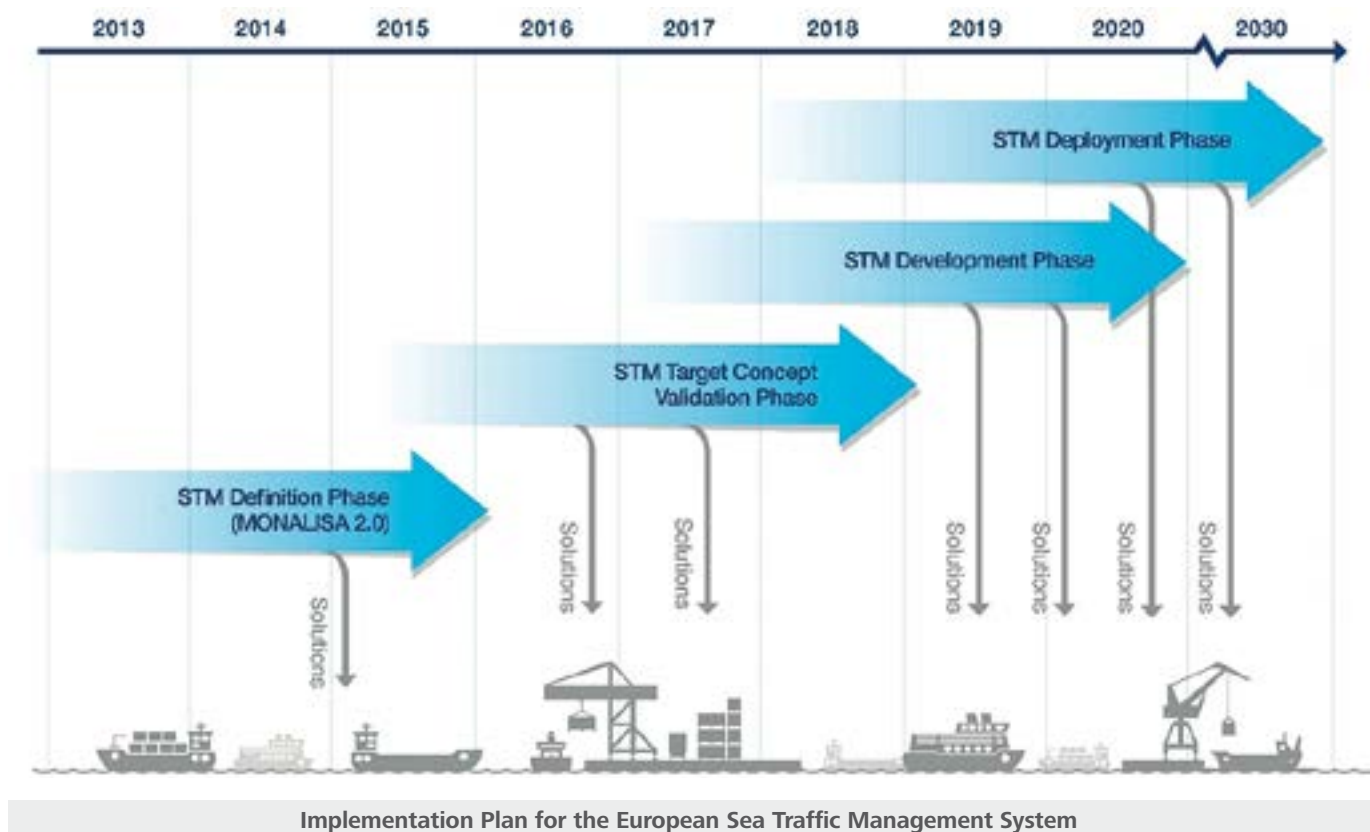
Furthermore, in recent years, there has been a revolution in the development of technologies designed for real-time capture, processing and exchange of information, both in terms of capacity and functionalities as well as the extension of this practice to multiple economic sectors. With the increase in business use of the internet since the end of the last century, the range of technologies, the interoperability of the environments in question and the improved time and reliability of the connectivity of all types of devices and platforms, have facilitated the emergence of new applications and

services with great potential impact on the competitiveness of organizations.

Digitization is a key factor in the development of the shipping industry. The aim in this case is to optimize the interaction processes between the complex network of agents involved in the logistics and transport chains. On the one hand, initiatives such as the so-called e-Maritime, at European level, represent an attempt to harmonize the electronic transmission of information in order to position the European maritime transport sector at the forefront of ICT application and thus boost value creation in the maritime sector. On the other hand, international initiatives such as e-Navigation promote improved navigational safety through better use of digitized information.

The main objective of the STM Validation project is to validate a set of technologies, systems and procedures that demonstrate the viability of the Sea Traffic Management concept as a new maritime traffic management system in Europe. Sea Traffic Management aims to substantially improve maritime shipping safety, reduce its carbon footprint and strengthen the European internal market.

The range of possibilities opened up by the use of new technologies to improve the shipping industry creates the need for a maritime traffic management system supported by certain services. Sea Traffic Management anticipates a phased development and implementation of such a system, as shown in the following figure.



STM proposes a fully connected and digitized maritime ecosystem between agents, both on land and at sea. By improving the different concepts developed in previous projects, the aim of this stage is to develop methods to facilitate the coordination and synchronization of the movements of each key piece of the maritime traffic system, heightening common situational awareness in order to reduce inefficiencies and improve safety in navigation and port-maritime operations.

### METHODOLOGY AND ACTIVITIES

The STM concept is embodied in a series of standards and physical services that facilitate the secure, real-time exchange of information between authorized users. This is achieved through a common framework of action that applies standards for the exchange of such information and for the management of access to interoperable services. In this regard, the operational concepts around which the services are grouped are:

- **Strategic Voyage Management (SVM)**: encompasses the services aimed at improving route planning and optimization processes, which are carried out before the voyage starts.
- **Dynamic Voyage Management (DVM)**: covers the services focused on route monitoring and improvement while the ship is sailing.
- **Flow management (FM)**: includes services developed to provide visual support of the maritime situation from land, thus optimizing overall traffic flow through areas of dense traffic and areas with particular navigational challenges.
- **Port Collaborative Decision Making (PortCDM)**: aims to optimize both the internal port processes and the ship-port interface, improving coordination among the group of agents that make up the system.

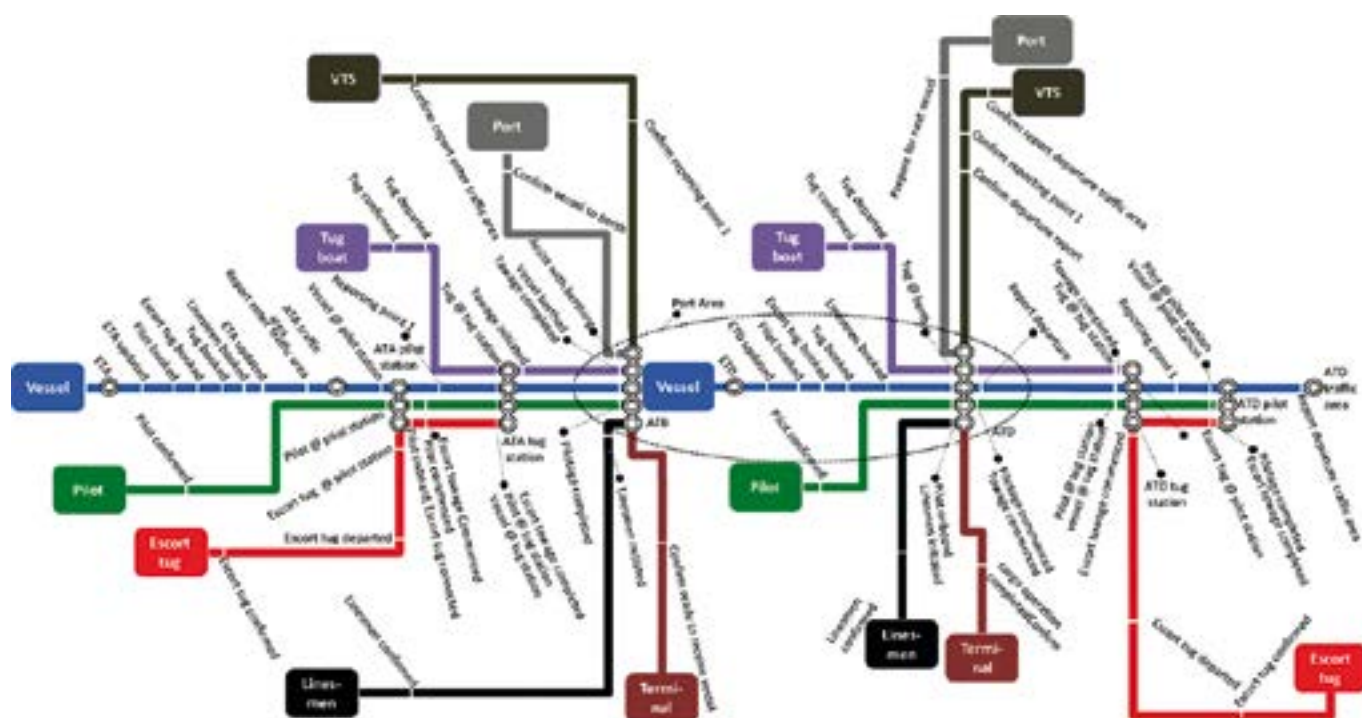
The functionality of STM is enabled through the implementation of a platform called Sea System Wide Information Management (SeaSWIM), which establishes a secure environment for the exchange of information and the provision of STM functional.

The services developed within the framework of the project can be classified into three main areas:

- Services that facilitate the exchange of secure information
- Services to improve navigation operations
- Services to improve port operations

The STM Validation project consists of five technical activities that address the abovementioned concepts from various perspectives.

- **Activity 1:** Port Collaborative Decision Making - PortCDM. Within the framework of this activity, a pilot project is carried out involving large European ports (Valencia, Sagunto, Gothenburg and Barcelona, among others), in order to demonstrate the effectiveness of and benefits stemming from the real-time sharing of operational information. The aim is to implement a collaborative digital environment for the different agents that provide vessel approach and docking/undocking services, including port authorities, pilots' corporations, VTS traffic controllers, tug-operators, and linesmen.



Process Diagram of Vessel Approach and Docking/Undocking



## PROJECTS

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- **Activity 2:** Voyage Management. This activity coordinates a large-scale pilot project consisting of equipping 300 ships with new route management and information exchange systems. These systems

will allow ships navigating close to each other to digitally share information on their respective routes and intentions, thus reducing the risk of accidents and improving the efficiency of maritime navigation.



Example of Shipping Route Optimization under the New Traffic Management System

- **Activity 3:** EMSN (European Maritime Simulators Network). Activity 3 of the project will see the launch of a network of maritime navigation simulators that can be used for exercises and to recreate situations

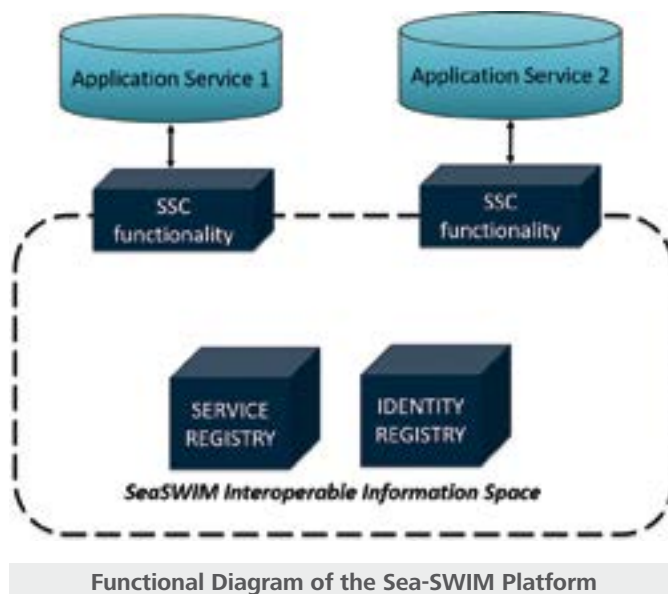
that are hard to evaluate in a real-life setting, whether due to the danger they pose or other factors (meteorology, tests of new crew procedures, etc.).



Command Bridge Simulator

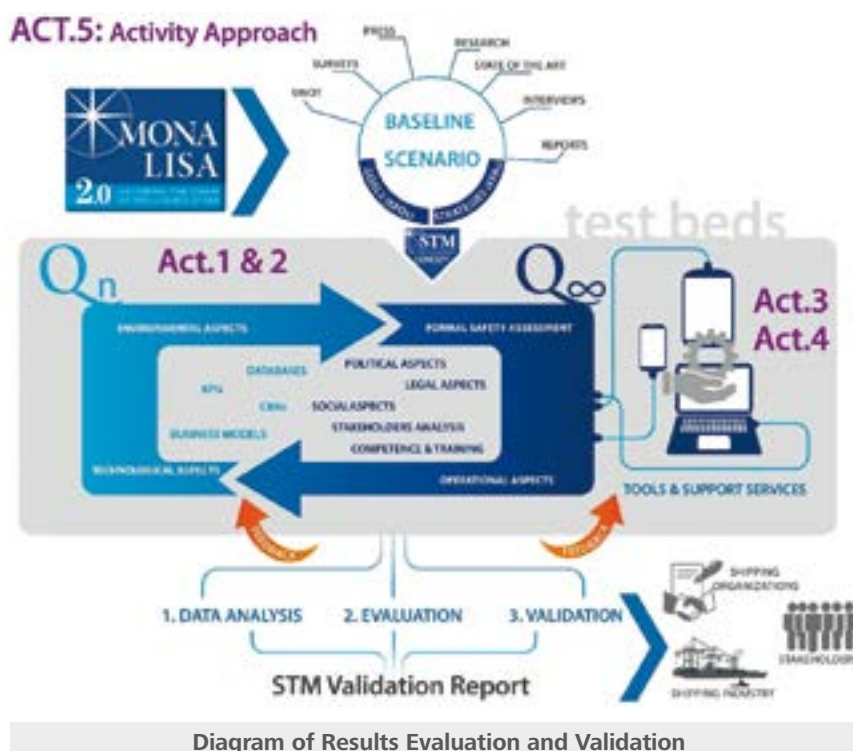
- **Activity 4:** System Wide Information Management. Activity 4 involves the design of the necessary communication infrastructure so that the systems

proposed in the project can interact and connect with each other according to harmonized standards and protocols.



- **Activity 5:** Analysis and Evaluation. Activity 5, led by the Fundación Valenciaport, deals with the final evaluation and validation of the project results. This assessment will enable a quantification of the macro-

level impact of the STM system in relation to the reduction in operating costs, times, navigation risks and greenhouse gas emissions.



### BCISQL05 PLATFORM - TECHNICAL ASSISTANCE SERVICE FOR THE MODIFICATION OF ACTIVITIES ON THE BCISQL05 PLATFORM

#### WORK TEAM

FV Coordinator: M<sup>a</sup> Luisa Escamilla

Research team: Miguel Llop

**TIME FRAME:** December 2016 - January 2017

**OBJECTIVE:** The objective of this technical assistance is to advise the Port Authority of Valencia on the activities required to develop the BCISQL05 platform. These actions are:

- Audit existing DBs and their corresponding relational tables
- Collect, revise and update existing documentation
- Identify sources of information and standardize the information according to the corresponding format
- Adapt the platform to establish Web Services for external communications
- Document the development of applications and scripts that automate tasks related to the insertion, removal or deletion of existing information in the database
- Analyse the data recovery plan: revise backup systems, data frequency. Identify recovery plan shortcomings.
- Identify the different third-party systems (in-house applications) and the way to interconnect them: information exchange languages (EDIFACT, ANSI X12, XML, JSON, ASCII ...) and information exchange protocols (VAN, SOAP , REST ...)
- Analyse and propose conceptual and logical data models that comprise the database

**FUNDING BODY:** Port Authority of Valencia

### CAU VALENCIAPORTPCS - "DEFINITION AND UPDATING OF SERVICES IN VALENCIAPORTPCS TO ADAPT IT TO THE NEW UNION CUSTOMS CODE (UCC) REQUIREMENTS"

#### WORK TEAM

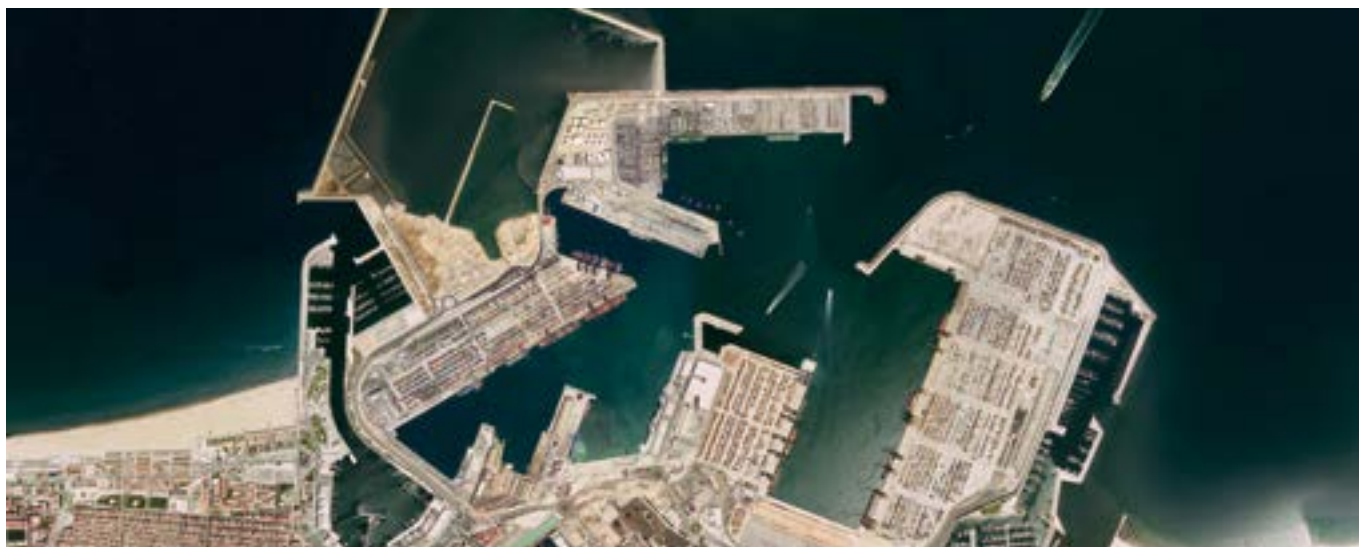
FV Coordinator: Miguel Llop

Research team: Alexandre Sánchez, M<sup>a</sup> Luisa Escamilla, Lorena Sáez

**TIME FRAME:** December 2016 - December 2017

**OBJECTIVE:** The objective of this technical assistance is to identify the actions required to update the services offered in ValenciaportPCS, to better adapt it to the new requirements of the Union Customs Code (UCC). On the basis of a number of diagnostic studies, a set of measures will be identified and analysed with the aim of ensuring the Port of Valencia's early adaptation to the UCC requirements.

**FUNDING BODY:** Port Authority of Valencia



## TECHNICAL STUDY FOR THE DIGITIZATION OF THE EXPORT FOLDER IN VALENCIAPORT

### WORK TEAM

**FV Coordinator:** Miguel Llop

**Research team:** Lorena Sáez, M<sup>a</sup> Luisa Escamilla

**TIME FRAME:** October 2015 - February 2016

**OBJECTIVE:** The general objective of the study is to identify the actions required for the complete digitization of the export folder in Valenciaport. The digitization of the export folder is in response to the problems that have been observed in loading processes, especially the provision of supplies to ships. They need to be identified, characterized and quantified by this study and their impact on the processes relating to ship calls should be analysed. This diagnostic study will identify and analyse a set of measures aimed at achieving the complete digitization of the export folder, based on the procedures and functionalities currently in effect for Levante Without Export Papers.

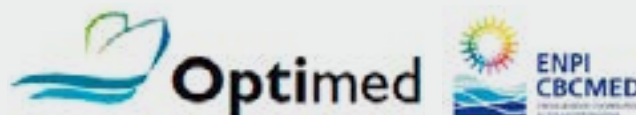
**FUNDING BODY:** Port Authority of Valencia

## OPTIMED - DESIGN, DEVELOPMENT AND TEST OF AN INFORMATION SYSTEM FOR A VIRTUAL LOGISTICS PLATFORM WITHIN THE PROJECT "OPTIMED – RATIONALISING MEDITERRANEAN SEA WAYS: FROM SOUTHERN-EASTERN TO NORTHERN-WESTERN PORTS"

### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Miguel Llop, M<sup>a</sup> Luisa Escamilla, Pablo Giménez



**Project Partners:** University of Cagliari – CIREM, Port Authority of Olbia and Golfo Aranci, ASCAME - Association of Mediterranean Chambers of Commerce, European School of Short Sea Shipping, Chamber of Commerce, Industry and Agriculture of Beirut and Mount Lebanon – CCIABML, Ministry of Public Works and Transport - DGLMP (Lebanon)

**TIME FRAME:** May - December 2015

**OBJECTIVE:** The overall objective of the OPTIMED project is to improve the development of the maritime transport and logistics sector in the Mediterranean, in order to ensure more efficient and sustainable trade relations between the northern and southeastern shores of the Mediterranean Sea.

OPTIMED has promoted new opportunities, facilities, tools and skills to improve the trade network between the northern coast of the Tyrrhenian arc and the southeastern coasts of the Mediterranean Sea, improving relations between public and private operators in the maritime transport and logistics sector in Lebanon, Italy, Spain and France.

To achieve the aforementioned objective, an innovative virtual logistics platform was developed, which strengthened the ports as transshipment centres.

In this specific case, Fundación Valenciaport, together with the CERTH team, designed and developed a new information platform that enabled companies to plan and identify the best maritime transport option.

The platform, which was developed according to international standards of e-accessibility, provides users with all the available options regarding information on ports, connections, schedules, space availability, frequency of service, etc.

**FUNDING BODY:** Project cofinanced by the European Commission through the ENPI CBC Mediterranean Sea Basin Programme. The Chamber of Commerce, Industry and Agriculture of Beirut and Mount Lebanon - CCIABML (Lebanon) contracted the Centre for Research and Technology Hellas (CERTH)/Hellenic Institute of Transport (HIT) with which Fundación Valenciaport forms a consortium.

**WEB:** [www.optimedproject.eu/index.php/en](http://www.optimedproject.eu/index.php/en)



### B2MOS - BUSINESS TO MOTORWAYS OF THE SEA

#### WORK TEAM

**FV Coordinators:** Eva Pérez, Miguel Llop

**Research team:** Purificación Albert, José Luis Aznar, Amparo Costa, Vicente del Río, Ma

Luisa Escamilla, Salvador Furió, Rocío García, Sonia Iborra, Jaime López, Alicia Martí, Inmaculada Martínez, Arturo Monfort, Francisco Montesinos, Clara Peña, Marina Sáez, Pilar Sánchez, Antonio Torregrosa, Paula Vieira, Ma Dolores Coscollá, Pilar Blaya, Seán Deehan, Amparo Mestre, Noemí Monterde, Ma Carmen Estela, Elisabeth Mateo, Asunción Navarro, David Calduch, Jorge Lara, Alexandre Sánchez

**Project Partners:** Port Authority of Valencia; Port Authority of Barcelona; Escola Europea de Short Sea Shipping, A.E.I.E; Continental Rail, S.A.U.; Port Authority of Bilbao; Contenosa S.A.; Grupo Romeu Multiservices S.L.; International Forwarding, S.L.; Piraeus Port Authority S.A.; Maritime Cargo Processing Plc; Hafen Hamburg Marketing E.V.; Dbh Logistics It Ag; Luka Koper, Port And Logistic System, D.D.; Intereuropa, Global Logistics Service, Ltd. Co.; Boluda Lines S.A.; Neptune Lines Shipping And Managing Enterprises S.A.; Global Maritime Agency S.A.; Dakosy Datenkommunikationssystem Ag; Portic Barcelona S.A.; Tiba Internacional S.A.; Italian Ministry of Infrastructure and Transport.

**EXECUTIVE BODIES OF THE ITALIAN MINISTRY OF INFRASTRUCTURE AND TRANSPORT:** Rina Services; Gruppo Ib; D'appolonia; Port Authority of Livorno; Port Authority of Civitavecchia.

**TIME FRAME:** July 2013 - December 2015

**OBJECTIVE:** B2MoS is an innovative study in the form of pilot actions aimed primarily at preparing and adapting business communities and port authority systems to the requisites of European Directive 2010/65/EU. It provides interoperable electronic documents and messages (for example electronic waybills) intended to improve the efficiency of the Motorways of the Sea door-to-door distribution chain, thus facilitating intra-Community trade and increasing European territorial cohesion.

**FUNDING BODY:** Project cofinanced by the European Commission through the TEN-T programme

**WEB:** [www.b2mos.eu](http://www.b2mos.eu)



Co-financed by the European Union  
Trans-European Transport Network (TEN-T)

### INTE-TRANSIT - INTEGRATED AND INTEROPERABLE MARITIME TRANSIT MANAGEMENT SYSTEM

#### WORK TEAM

**FV Coordinator:** M<sup>a</sup> Luisa Escamilla

**Research team:** Antonio Torregrosa, Miguel Llop, Jaime López, Marina Sáez, Vincent Ernoux, Clara Peña, Fernando Martí-Belda

**Project Partners:** Institute of Communication and Computer Systems (Greece) – (coordinator); Luka Koper (Slovenia); Piraeus Container Terminal S.A. (Greece); Co.Na.Te.Co. Spa (Italy); Seability Ltd. (Greece); Andalusian Institute of Technology; Andalusian Public Ports Authority

**TIME FRAME:** January 2013 - June 2015

**OBJECTIVE:** The general objective of INTE-TRANSIT is to improve the information management systems that are currently being used by ports and their logistic areas by defining an integrated management model that includes both public and private-sector companies. The model is to be based on a process map and common harmonized indicators in the MED.

**INTE-TRANSIT WILL ALSO PROMOTE AN ICT SOLUTION FOR MONITORING AND LOCATING CONTAINERS IN THE PORT, IMPROVING THE TRACKING, VISIBILITY AND TRANSPARENCY OF FREIGHT TRANSPORT.**

**FUNDING BODY:** Project co-financed by the European Commission through the MED Programme

**WEB:** [www.inte-transit.eu](http://www.inte-transit.eu)



## MEDNET - MEDITERRANEAN NETWORK FOR CUSTOMS PROCEDURES AND SIMPLIFICATION OF CLEARANCE IN PORTS

### WORK TEAM

**FV Coordinator:** Miguel Llop

**Research team:** Lorena Sáez, Eva Pérez, Rocío García, Jaime López, Seán Deehan, Antonio Torregrosa, Vicente del Río, Marina Sáez, Clara Peña, Salvador Furió

**Project Partners:** Rete Autostrade Mediterranee Spa (coordinator, Italy); Ancona Port Authority (Italy); Taranto Port Authority (Italy); Centre for Innovation in Transport (Spain); Chamber of Commerce and Industry Marseille Provence (France); Malta Transport Centre (Malta); Prometni institute Ljubljana (Slovenia); Rijeka Port Authority (Croatia); Zadar Port Authority (Croatia); Intermodal Transport Cluster (Croatia); Albanian Institute of Transport (Albania); National Technical University of Athens (Greece); Igoumenitsa Port Authority (Greece); Patras Port Authority (Greece); Cyprus University of Technology (Cyprus); Maritime Institute of Eastern Mediterranean (Cyprus); TIS.PT, consultores em transportes, inovação e sistemas, S.A. (Portugal)



**TIME FRAME:** June 2012- May 2015

**OBJECTIVE:** The objective of the MEDNET project has been to improve interoperability, facilitating supply chains and developing a common framework of understanding of customs procedures and ship custom clearance, promoting the implementation of information systems in ports.

MEDNET has identified the requirements at both a national and European level with regard to the information used for port operations and customs administration, as well as the bottle-necks that hamper the efficient flow of information in Mediterranean ports.

With the aim of improving the current situation, MEDNET has proposed collaboration actions with both administration and customs institutions as well as private agents from the countries concerned. These actions seek to harmonize Mediterranean ports and thus create a more open market which facilitates the use and deployment of information technologies that help simplify procedures.

**FUNDING BODY:** Project co-financed by the European Commission through the MED Programme

**WEB:** [www.mednetproject.eu](http://www.mednetproject.eu)



### 2.2.3. Port logistics sustainability

The aim of the port logistics sustainability department is to carry out R&D&I activities and projects that facilitate the progress of sustainable development models that are deployed in ports and along their logistics chains. According to its original definition, sustainable development consists of “satisfying the needs of the present generation without compromising those of the future”, and is one of the fundamental principles of the Rio de Janeiro Declaration on Environment and Development.

There has been a notable rise in environmental concerns, the result of an increase in society, public and private sector agent awareness. One of the catalysts of this increased commitment is the perception of global warming as a planetary challenge that requires joint and coordinated actions by all countries to reduce greenhouse gas emissions which lead to a rise in the average temperature of the planet.

In the maritime transport sector and port logistics industry, the measures and actions targeting the protection of the environment have been advocated by several international organizations such as the International Maritime Organization (IMO) through a series of international conventions and agreements such as the MARPOL Convention. Similarly, ports have made significant headway over recent years in the field of sustainability following the implementation of environmental management systems and international certifications such as the ISO 14001 standard and the EMAS Eco-management and audit scheme, with the Port of Valencia and the entire Valenciaport cluster becoming an international benchmark in environmental management.

Within the framework of port sustainability, currently new development lines are coming to the forefront such as energy efficiency and the use of alternative fuel sources, a key element when it comes to maintaining and even increasing the level of competitiveness of ports and its logistics chains. The gradual rise in energy costs and the uncertainties surrounding its future, makes energy efficiency an opportunity to improve the situation of businesses within the Valenciaport cluster. Over the 2015-2016 period, the Port Authority of Valencia and Fundación Valenciaport have worked together on a variety of different R&D actions and projects aimed at improving energy efficiency and reducing greenhouse gas emissions, in keeping with the current strategy of the European Commission regarding emission reduction and the so-called 20/20/20 targets.

Accordingly, the European Commission, in its aim to develop sustainable modes of transport is backing different initiatives that encourage the use of alternative, less pollutant and more efficient fuel sources. The fact that the Mediterranean could receive its ECA (Emission Control Area) classification in keeping with the European Commission standard already in force in Northern Europe, encourages us to look for and develop solutions that enable us to reduce emissions generated on ships and at ports.

In this situation, the use of Liquefied Natural Gas (LNG) is vying to be one of the most efficient and viable alternatives from an economic, environmental and technical perspective. The work carried out within the framework of these and other actions show the need to continue making progress in this potentially huge field of expertise and roll-out the results and lessons learned to the rest of the Valenciaport cluster, with the aim of maintaining its continued commitment, attested to in the Port of Valencia’s Environmental Policy.



## SEA TERMINALS - SMART, ENERGY EFFICIENT AND ADAPTIVE PORT TERMINALS

### WORK TEAM

**FV Coordinator:** José Andrés Giménez

**Research team:** Eva Pérez, Rocío García, Marina Sáez, David Calduch, Fernando Martí-Belda, Rafael Company, Jorge Lara, Miguel Garín, Alicia Martí, Noemí Monterde, Andrea Munoz, Paula Vieira, Ana Rumbeu, Josep Sanz, Vicente del Río, Antonio Torregrosa, Mar Monzó, Mercedes De Juan, Lucía Calabria

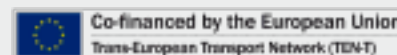
**Project Partners:** Fundación Valenciaport (coordinator), Port Authority of Valencia, Noatum, Amplía Soluciones, S.L., Ingeniería d'Aplicacions Energetiques, S.L., Instituto Tecnológico de Energía – ITE, NACCO Materials Handling BV, Terberg Benschop B.V., Italian Ministry of Transport - MIT y Baltic Ports Organization. In addition, participating in the project as collaborative partners of MIT: Port Authority of Livorno, Global Service, Scuola Superiore Sant'Anna (PERCRO) and OLT Offshore LNG Toscana S.p.A.

**TIME FRAME:** March 2014 - December 2015

**FUNDING BODY:** Project cofinanced by the European Commission through the TEN-T programme



SEATERMINALS



### PROJECT JUSTIFICATION AND RESULTS:

The SEA TERMINALS project is intended to follow on from the earlier GREENCRANES project, the main aim of which was to encourage a new culture in the current operative model of the port industry by introducing eco-efficiency as a key variable in order to improve activities and processes linked to Port Container Terminals (PCTs). This study is oriented towards PCTs as these facilities are notable in the European port sector for their intensive energy consumption.

PCTs are responsible for a major share of the greenhouse gas (GHG) and pollutant emissions generated in ports, particularly due to the intensive use of diesel-powered heavy-duty machinery in non-stop cycles (24 hours) throughout the year. This not only has a medium-long term impact due to the contribution of these emissions to global climate change, but also a short-term effect on the population and the environment due to the continuous emission of compounds such as SOX, NOX and particulate matter, which can cause respiratory illnesses and several types of cancer.

Integrating energy efficiency into the port terminal operating model will lead to a significant reduction in GHG emissions, which will be of benefit from both an economic and an environmental point of view. SEA TERMINALS takes as a starting point the learned lessons

in the successful project GREENCRANES co-financed through TEN-T funds, which has demonstrated that alternatives fuels and efficient energy management can generate positive effects by cutting energy consumption and thus GHG emissions.

SEA TERMINALS seeks to follow the path forged by GREENCRANES, but also to go a step further by testing real sustainability in ports. The project continues to develop innovative concepts based on the adaptation of port machinery, as well as the incorporation of state-of-the-art technologies suitable for implementation in PCTs in the short term, following prototyping and testing. Lastly, the SEA TERMINALS project promotes the development of ecoefficiency measures in the port sector.

### OBJECTIVES

The primary objective of the SEA TERMINALS project is to fast-track the transition of the port industry towards efficient operational models by integrating the energy variable as a key factor to improving PCTs. The project is based up the lessons learned from the GREENCRANES project, the results of which show that the efficient management of energy consumption and the use of alternative fuels is not only feasible but also generates major benefits at all levels of the PCTs.



## PROJECTS

Some of the specific objectives of SEA TERMINALS are:

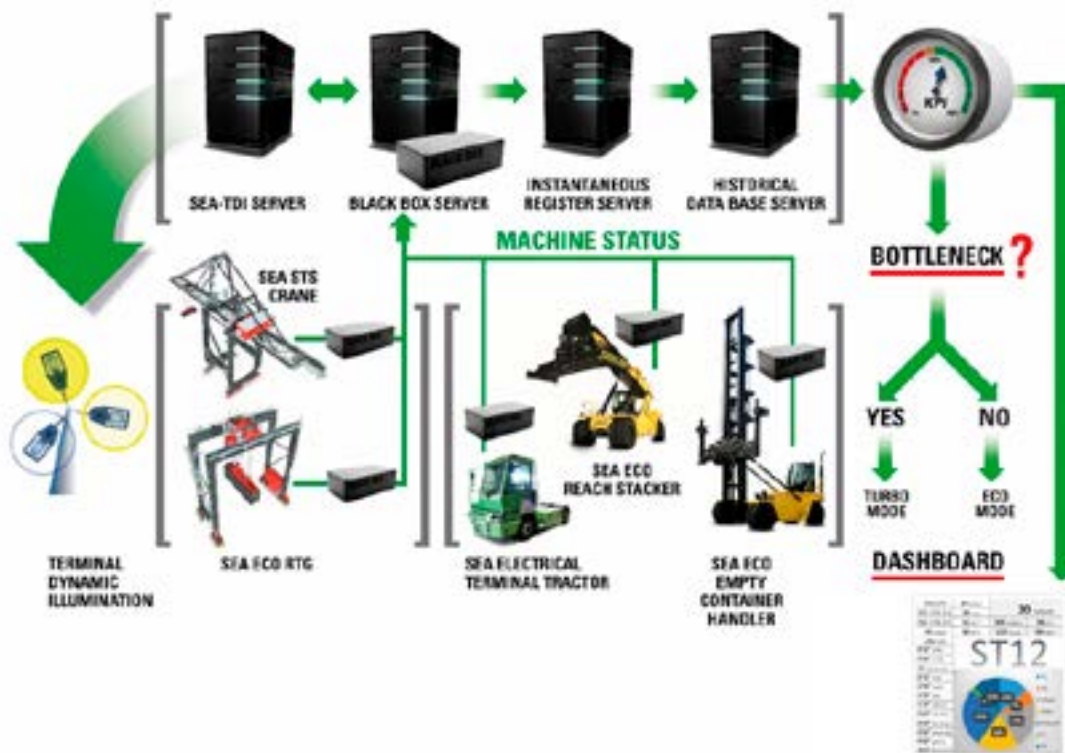
- Develop a set of eco-efficient alternatives that are technically, environmentally and economically feasible. In this regard, SEA TERMINALS proposes the implementation of fully electrical machinery (100% electric terminal tractor), as well as the development of prototypes that use LNG (liquefied natural gas) as a fuel.
- Develop a real-time operating system that minimizes current bottlenecks in the terminal operations, with different operating modes (eco, turbo, waiting, etc.) for the required machinery. This platform, called SEAMS Platform, will be capable of receiving real-time information from machinery and from the terminal operating system (TOS), calculating the best operating mode for each type of machinery at any given moment.
- Develop machinery prototypes fuelled by electricity or by LNG, including terminal tractors, reach stackers, forklifts and RTGs. The project will evaluate the performance of these prototypes together with the SEAMS Platform. –
- Carry out real life trials in container terminals of the project prototypes. The real-life testing took place at the Noatum Container Terminal Valencia (NCTV) in the Port of Valencia and at the Livorno Darsena Toscana terminal in the Port of Livorno. The prototypes included in the project are: 100%

electric terminal tractor (SEA-e-Terminal Tractor); Eco-RTG based on “Hybrid RTG”; Eco-RTG using LNG/diesel dual fuel technology (SEA- Dual Fuel RTG); prototype LNG supply station specifically for port machinery; Reach Stacker (SEA-Eco Reach Stacker) and ForkLift (SEA-Eco Empty Container Handler) equipped with fuel-saving and energy efficiency systems; real-time dynamic terminal lighting system (SEA-TDI).

## PROJECT RESULTS

The project results can be analysed with reference to the different successful prototypes developed:

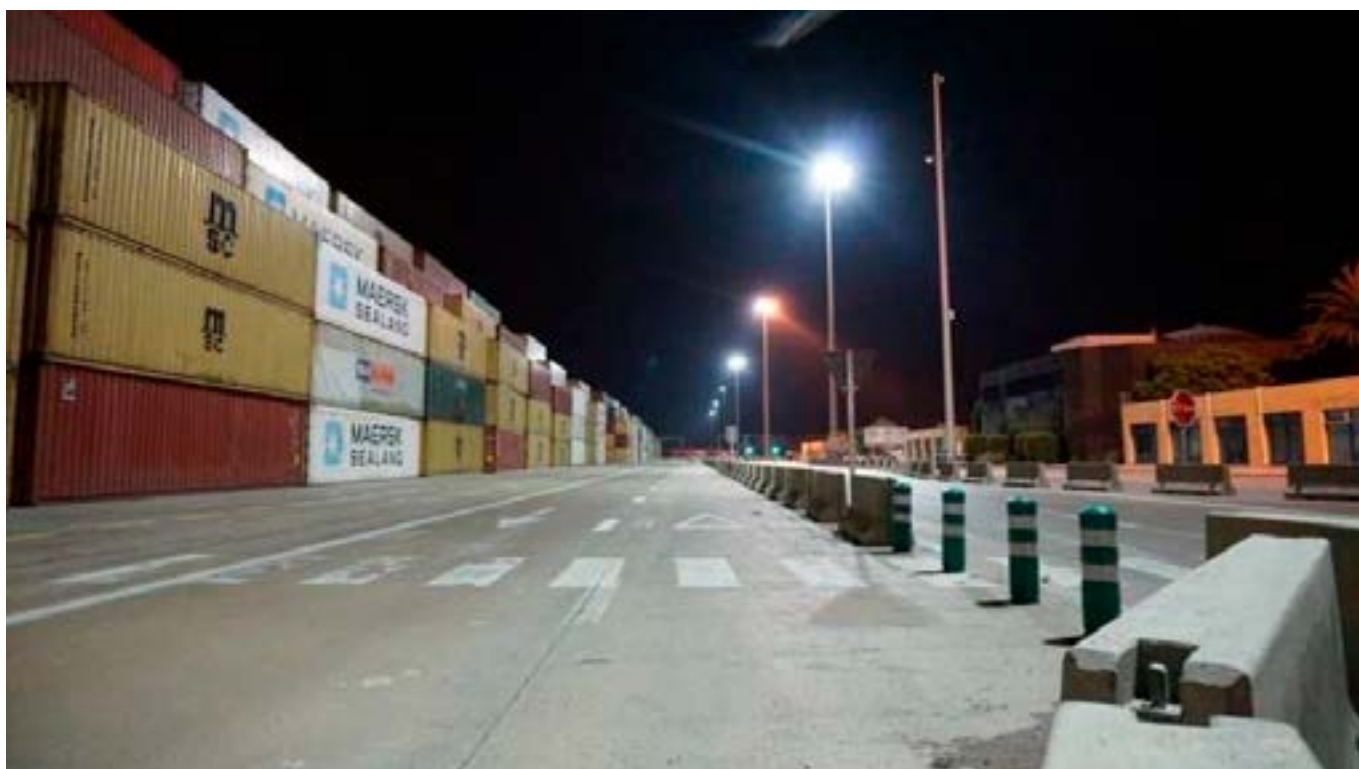
- **The “Black Box” and SEAMS (Smart Energy-efficient and Adaptive Management System) Platform prototypes.** The “Black Box” prototype generates about 17,600 data per second relating to the position, speed, power, etc. of all the machinery at the terminal. Taking these data, the “SEAMS Platform” then produces a set of key real-time performance indicators (KPIs). These indicators will help improve operational planning, and by pinpointing operational bottlenecks they will also help reduce fuel and energy consumption and thus improve the energy efficiency of the terminal. The result of these prototypes is a globally unique platform that aims to improve both the operations and the energy efficiency of the terminal.





- **Dynamic Lighting System** developed by EDAE (Ingeniería de Aplicaciones Energéticas SLU). This system includes LED luminaires and software that manages terminal lighting requirements and reduces lighting levels by a third, provided there are no operational activities underway in the areas overseen by the lighting towers. In addition, the system automatically adapts the lighting conditions

during the hours of dawn and dusk so that there are no abrupt changes to the lighting levels at the port container terminal. The results show combined savings of 80% of initial energy use and costs, thanks to the new system. These savings are achieved with a return-on-investment period of under two years (internal rate of return above 35% and net present value of triple the initial investment).



## PROJECTS

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- The **Eco-RTG crane** was tested with the **hybrid-diesel generator (HDG)** for RTG cranes using supercapacitor storage technology, developed by PACECO SPAIN. The HDG has been designed for the retrofitting of RTG cranes of any manufacturer and design, and the results show that it is capable

of doubling their energy efficiency. Tests have also shown that the conversion of RTG cranes equipped with conventional diesel generators to diesel-hybrid generators leads to very significant savings in fuel consumption (of more than 50%) and an associated reduction in costs.





- The first prototype of the **Electric Terminal Tractor** was trialled and tested during the project. From the users' point of view, it has been a success since it is an emissions-free prototype when in use and emits low noise pollution; it was also quickly adapted to PCT operations. In addition, from a maintenance

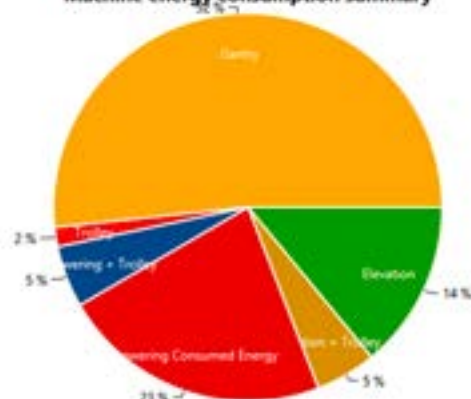
perspective, the Electric Terminal Tractor has reported a remarkable reduction in maintenance costs. However, some of the recommendations including increasing the autonomy of the tractor or quick-charging batteries (they use lithium iron phosphate batteries).



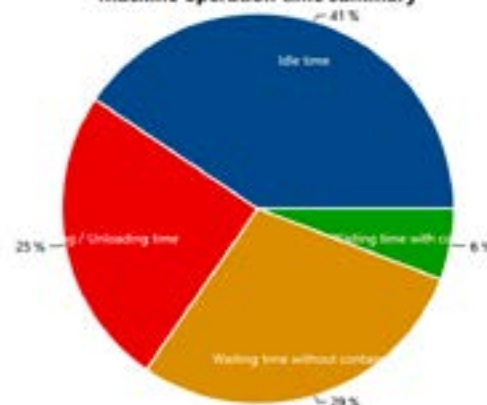
- The **Eco-Reach Stacker** and **Eco-Empty Container Handler** prototypes were also trialled and tested during the project, demonstrating that the incorporation of new technologies such as start-stop, dual Eco-Turbo operating mode and the optimization of the machines' auxiliary and hydraulic systems enable new eco-efficiency measures to be implemented with these types of machines. Capital investment costs (CAPEX) are reduced as well as the machines' energy consumption. The aim of these tests was to demonstrate potential savings of up to 25% that can be achieved through the use of these machines equipped with the new measures.



Machine energy consumption summary



Machine operation time summary





## PROJECTS

- The **SEA-Dual Fuel RTG and the SEA-LNG mobile supply station** have been trialled and tested at the Darsena Toscana Terminal (TDT) in Livorno (Italy). These prototypes have demonstrated the viability of LNG supply and of running gantry cranes on alternative fuels such as LNG, producing a 23.8%

reduction in fuel costs and a 10% reduction in CO<sub>2</sub> and particulate matter emissions compared to diesel equivalents. To that end, an existing RTG crane was retrofitted in TDT, and the prototype of the mobile LNG supply station was also built as part of the project.



WEB: [www.seaterminals.eu](http://www.seaterminals.eu)

## CORE LNGAS HIVE - CORE NETWORK CORRIDORS AND LIQUEFIED NATURAL GAS HIVE

### WORK TEAM

**FV Coordinators:** Eva Pérez y Josep Sanz

**Research team:** Mercedes de Juan, Vicente del Río, Rocío García, José Andrés Giménez, Jorge Lara, Amparo Mestre, Carolina Navarro, Marina Sáez, Evelina Ioana Poponete, José Luis Aznar, Julián Martínez, Lorena Sáez, Amparo Costa



Co-financed by the European Union  
Connecting Europe Facility

**Project Partners:** Enagás Transporte (Project Coordinator), State Ports, Directorate General of the Merchant Navy, Port Authority of Valencia, Sagunto Regasification Plant, Molgas Energía, Seaplace, Boluda Corporación Marítima, Maritime Safety and Rescue Society, Universidad Politécnica de Madrid, Universidad de Santiago de Compostela, Ente Vasco de la Energía, Port Authority of Barcelona - Port of Barcelona, Port Authority of Cartagena, Port Authority of Ferrol - San Cibrao, Port Authority of La Bahía De Algeciras, Port Authority of Huelva, Compañía Española de Petróleos (CEPSA), Noroeste Regasification Plant, HAM Criogénica, Bureau Veritas Iberia, Guascor Power, Idiada Automotive Technology, Flota Suardiaz, Itsas Gas Bunker Supply, Ibaizabal Tug Company, Barcelona Contain Terminal, Terminal Catalunya, UTE Remolcadores de Barcelona-Sar, Armon Shipbuilders, Gas Natural SDG, Instituto Enerxético de Galicia, Port Authority of Bilbao, Renfe Mercancías, Port Authority of Gijón, Port Authority of Melilla, Port Authority of Santander, Port Authority of Tarragona, Port Authority of Vigo, Port Authority of Santa Cruz de Tenerife, REN Gasoductos

**TIMEFRAME:** January 2014 - December 2020

**FUNDING BODY:** Project co-financed by the European Commission through the CEF (Connecting Europe Facility) Programme

### PROJECT JUSTIFICATION AND RESULTS:

The objective of the project is to develop a safe and efficient integrated logistics chain for the supply of liquefied natural gas, LNG, (small scale and bunkering) for use as a transport fuel, and especially for shipping, in the Iberian Peninsula.

CORE LNGas hive contributes to the decarbonization of the Mediterranean and Atlantic corridors and represents a step towards EU goals of reducing emissions, promoting clean energy for transport and caring for the environment.

LNG is one of the most environmentally-friendly of all fuels, generating around 30% less CO<sub>2</sub> than traditional petroleum-based fuels. It also helps reduce emissions of sulphur oxides (SO<sub>x</sub>) and particulate matter (PM), and nitrogen oxides (NO<sub>x</sub>). This helps ensure compliance with environmental regulations, by improving air quality in port environments.

Thanks to its geostrategic location and key gas infrastructure, the Iberian Peninsula can consolidate its position as a point of reference for LNG in Europe. That is why CORE LNGas hive has been selected for the development of the Trans-European Transport Network

(2014) and receives funds of € 16.5 million from the European Commission. The total investment in the project is € 33 million.

### METHODOLOGY

The CORE LNGas hive project includes 25 initiatives, both studies and pilot projects, with the aim of adapting LNG supply infrastructure and logistics, as well as aiding its commercial development. This will help foster small-scale supply and fuel supply services in the Iberian Peninsula. Among the initiatives included in the project are the following:

#### Pilot projects (investment)

- Adaptation of the infrastructures of all regasification plants for small-scale supply services and/or fuel supply services.
- Development of LNG distribution barges in Barcelona and northern Spain
- Use of LNG as fuel in tugboats, port cranes and land transport (rail transport)

### Studies

- Estimation of the potential demand for LNG and determination of the required supply chain
- Development of technical and safety standards
- Analysis of the public acceptance of LNG
- Study of training needs for LNG use and deployment

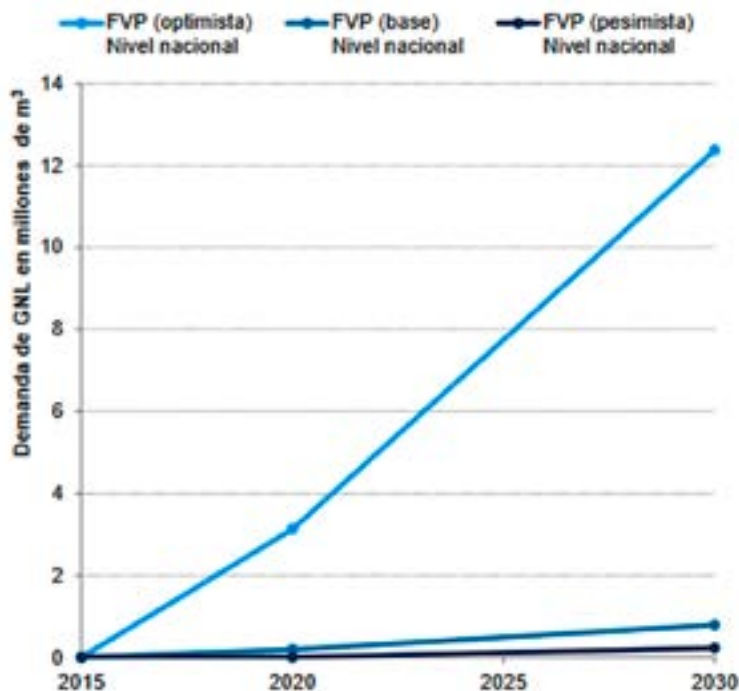
In addition, the CORE LNGas hive project shares its know-how with other European countries for the development of procedures, legislation and training activities. The project also promotes the international expansion of the LNG sector, combining public and private efforts to integrate initiatives into a coherent global project.

Specifically, the actions included in the CORE LNGas hive project, in which Fundación Valenciaport participates, are the following:

### Study on lng demand and supply chain analysis for the roll out

Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the implementation of an infrastructure for alternative fuels requires each Member State to adopt a National Policy Framework (NPF) for the development of the market for alternative fuels in the transport sector and the implementation of the corresponding infrastructure.

As part of the NPF, there must be an analysis of the potential market in order to limit the uncertainty regarding the evolution of the demand for LNG as a marine fuel in Spanish ports. In this regard, Fundación Valenciaport has contributed to a study that seeks to identify the best technological alternative that would allow compliance with the new emission regulations while yielding the best financial results for shipowners. Based on these findings, the potential demand for LNG bunkering was estimated in Spain and Portugal. The following figure shows the results obtained, which have been included in the aforementioned National Policy Framework.



### Adaptation for lng bunkering/small scale services in the regasification plant of Sagunto (Valencia)

In this action, SAGGAS and the Port Authority of Valencia have participated as partners alongside Fundación Valenciaport. The aim of the action is to carry out the technical studies required to adapt the SAGGAS facilities so that they can supply the volumes of LNG required to

meet forecasted demand for the period 2020-2035. The first step is to analyse the technical and financial feasibility of adapting the dock at the SAGGAS facilities; the regasification plant would need to adapt its berthing line and terminal to be able to supply LNG in bunkering or small scale applications, where the boats used are much smaller than the methane tankers that usually arrive at the terminal.



In addition, an analysis has been carried out of the financial viability of the adaptation needed to supply LNG to ships from its facilities. Potential demand from regular lines of short and medium distance transport, regular international lines, tramp trade and cruises has been determined. A financial analysis has been carried out on the basis of those findings, which takes into account the cost of adapting the

dock, as well as the costs and revenues associated with each operation.

If the solutions analysed are technically and financially feasible, the action would also include the basic engineering study of the best solution identified in the previous stages.



### Tugboat powered by LNG

In this action, Boluda Corporación Marítima, SEAPLACE, Bureau Veritas and the Port Authority of Valencia have participated as partners alongside Fundación Valenciaport. The aim of the action is the basic engineering of a new LNG-powered tugboat. The tug will also implement other innovative technologies aimed at optimizing its use of energy. This is one of the first tugs fuelled by liquefied natural gas (LNG), which is much more environmentally friendly. Gas engine technology is not new, having been tested both on land and in large vessels, but LNG tugs are groundbreaking in this maritime sector, requiring a significant advance in technical know-how. The tug must comply with the International Safety Code for gas-fuelled vessels and the rules of the Bureau Veritas Classification Society.





## PROJECTS

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### LNG/CNG (compressed natural gas) mixed station for vehicles and small

In addition to Fundación Valenciaport, Molgas and the Port Authority of Valencia have also participated in this action. The aim of this pilot is to propose an innovative approach for small-scale LNG terminals, providing solutions from a technical as well as an economic standpoint. A small-scale LNG logistics chain normally refers to the distribution of LNG to local users. Specifically, it is intended as an

alternative LNG supply in the port area for ships, vehicles and other mobile equipment. This pilot will test the logistics chain for LNG/CNG supply in a port without a regasification plant. In addition, this LNG/CNG station will include an innovative decanting system capable of producing high methane content natural gas for use in transportation. The methane number (indicating the amount of methane in a given natural gas) is a key parameter for the use of natural gas in alternative engines, since it directly affects the detonation resistance.



**WEB:** [www.coreIngashive.eu](http://www.coreIngashive.eu)

## GAINN4MOS - SUSTAINABLE LNG OPERATIONS FOR PORTS AND SHIPPING - INNOVATIVE PILOT ACTIONS

### WORK TEAM

**FV Coordinators:** Eva Pérez, Carolina Navarro

**Research team:** Mercedes de Juan, Marina Sáez, Josep Sanz, Jorge Lara, Amparo Mestre, Rocío García, José Andrés Giménez, Laura Pérez, Jamie McBride



Co-financed by the European Union  
Connecting Europe Facility

**Project Partners:** Fundación Valenciaport (coordinator) Port Authority of Valencia; Centre Internacional de Mètodes Numèrics en Enginyeria; Seaplace S.L.; Boluda Corporación Marítima S.L.; Bureau Veritas Iberia SLU; Luka Koper, Port and Logistic System, Public Limited Company; Ministère de L'Écologie, du Développement Durable et de L'Énergie; Istrabenz Plini; Directorate General of the Merchant Navy, Ministry of Development; Elengy S.A.; Grand Port Maritime de Marseille; Ministero Delle Infrastrutture e dei Trasporti; Portos dos Açores, S.A.; Mutualista Açoreana - Transportes Marítimos, S.A.; APDL - Administração dos Portos do Douro, Leixões e Viana do Castelo, S.A.; Grupo Sousa Investimentos SGPS, LDA; APRAM - Administração dos Portos da Região Autónoma de Madeira, S.A.; APSS - Administração dos Portos de Setúbal e Sesimbra, S.A.; LNG Hrvatska d.o.o.

**TIMEFRAME:** January 2015 - September 2019

**OBJECTIVE:** The GAINN4MOS project forms part of the Global GAINN Project. The Global GAINN Project is aimed at supporting policymakers in EU Member States, ports and shipowners operating in the Atlantic area of the EU and Mediterranean countries to comply with the MARPOL Annex VI -Directive 2012/33/EU in the most efficient way, promoting the use of Liquefied Natural Gas (LNG) as fuel in the maritime and port logistics industry.

GAINN4MOS aims to improve the Motorways of the Sea network in 6 Member States (Spain, France, Croatia, Italy, Portugal and Slovenia) by carrying out engineering studies on ship retrofitting and/or newbuilds, port LNG infrastructures, bunkering stations and a range of pilot projects.

GAINN4MOS includes 14 engineering studies on LNG infrastructures and bunkering stations and on ship retrofitting and/or newbuilds, as well as 11 prototypes (4 LNG retrofitted prototype vessels and 7 LNG bunkering stations at core ports).

**FUNDING BODY:** Project co-financed by the European Commission through the CEF (Connecting EUROPE FACILITY) PROGRAMME

## SUSPORTS - DELIVERING SUSTAINABLE ENERGY SOLUTIONS TO PORTS

### WORK TEAM

**FV Coordinator:** Noemí Monterde

**Research team:** Rafael Sapiña, Ana María Martín, Arturo Monfort, Remedios Cebriá, Clara Peña, Fernando Martí-Belda, Vincent Ernoux, Antonio Torregrosa, Marina Sáez

**Project Partners:** CRESS (coordinator, UK); University of Reading (UK), RHDHV (The Netherlands)

**TIMEFRAME:** October 2013 - December 2016

**OBJECTIVE:** The project aims to measure and model the energy flows of two ports, Felixstowe and Valencia, and quantify the transient energy flows associated with the movement of containers. The project then examines different local energy storage systems in the port and identifies and tests different energy management solutions in an attempt to minimize the demand for electricity and diesel consumption of the freight handling equipment.

The primary objective is to identify eco-efficient solutions that allow ports to manage transient energy flows, and maintain the quality of the supply so that they can reduce both energy demand and greenhouse gas emissions.

**FUNDING BODY:** Climate-KIC. European Institute of Innovation and Technology



### STUDY ON THE ACTIONS TO BE CARRIED OUT BY THE PORT AUTHORITY OF VALENCIA FOR THE IMPLEMENTATION OF THE INTERNATIONAL CONVENTION FOR THE CONTROL AND MANAGEMENT OF SHIPS' BALLAST WATER AND SEDIMENTS

#### WORK TEAM

**FV Coordinator:** Mercedes de Juan

**Research team:** Rafael Company, Jamie McBride

**Project Partners:** CRESS (coordinator, UK); University of Reading (UK), RHDHV (The Netherlands)

**TIMEFRAME:** December 2015 - April 2016

**OBJECTIVE:** This study includes the following aspects:

- Study on the actions to be implemented by the PAV for the implementation of the International Convention for the Control and Management of Ships' Ballast Water and Sediments
- Propose a road map coordinated with the other stakeholders to carry out the implementation of the Convention.

**FUNDING BODY:** Port Authority of Valencia

### DRAWING UP THE SPECIFICATIONS FOR THE PUBLIC TENDER FOR THE EXPLOITATION, UNDER ADMINISTRATIVE CONCESSION, OF A PLANT FOR RECEIVING, STORING AND TREATING LIQUID WASTE GENERATED BY SHIPS (MARPOL 73/78- ANNEXES I AND IV) AND OTHER APPLICABLE LIQUID WASTE AUTHORIZED BY THE PORT AUTHORITY OF VALENCIA

#### WORK TEAM

**FV Coordinator:** Mercedes de Juan

**Research team:** Remedios Cebriá, Rafael Company, Noemí Monterde

**TIMEFRAME:** December 2016 - April 2017

**OBJECTIVE:** The purpose of this contract is to review the applicable regulations and to assess the appropriateness of expanding the plant for the storage and treatment of MARPOL VI waste. It will also entail drawing up the specifications for the construction and operation, under administrative concession, of the storage plant, and for the end treatment of liquid waste from ships and other liquid waste authorized by the PAV.

**FUNDING BODY:** Port Authority of Valencia

## GREENBERTH

#### WORK TEAM

**FV Coordinator:** Mercedes de Juan

**Research team:** Remedios Cebriá, Rafael Company, Noemí Monterde

**Project partners:** Port Authority of Valencia; Grand Port Maritime de Marseille; Port Authority of Livorno; Port Authority of Venice; Luka Koper; FEPORTS; Centre for Research and Technology Hellas / Hellenic Institute of Transport (CERTH/ HIT); Cadiz University; Port Authority of Rijeka

**TIMEFRAME:** January 2014 - June 2015

**OBJECTIVE:** The primary objective of the GREENBERTH project is to facilitate the access of PYMES to the opportunities offered by the port sector in terms of the implementation of solutions to improve energy management and the implementation of renewable energy sources. Ports are major consumers of energy, and in this regard, the project encourages cooperation between businesses specializing in renewable energy and port businesses that are making great strides, both financially and with human resources, to implement innovative solutions. This joint cooperation will help boost port competitiveness and improve the efficiency of their operations as well as the management of the resources they consume (electricity, fuel, water, etc.).

**FUNDING BODY:** Port Authority of Valencia (subcontracted to Fundación Valenciaport)

**WEB:** [www.greenberth.eu](http://www.greenberth.eu)



## GAINN4SHIP INNOVATION - LNG TECHNOLOGIES AND INNOVATION FOR MARITIME TRANSPORT FOR THE PROMOTION OF SUSTAINABILITY, MULTIMODALITY AND THE EFFICIENCY OF THE NETWORK

### WORK TEAM

**FV Coordinators:** Eva Pérez, Lorena Sáez

**Research team:** Mercedes de Juan, Marina Sáez, Rocío García, José Andrés Giménez, Rafael Company, Laura Pérez, Jamie McBride



Co-financed by the European Union  
Connecting Europe Facility

**Project partners:** Fundación Valenciaport

(coordinator) Port Authority of Valencia, Fred. Olsen, S.A., Directorate General of the Merchant Navy, Centre Internacional de Mètodes Numèrics en Enginyeria

**TIMEFRAME:** January 2015 - December 2018

**OBJECTIVE:** The European Parliament's Directive 2012/33/EU on the sulphur content of marine fuels and the International Maritime Organization regulations have led shipowners to look for alternative fuels with a lower sulphur content that enable them to comply with the regulations. In this regard, the use of LNG is considered one of the main alternatives for several Member States and has the full support of the European Commission.

The GAINN4SHIP INNOVATION project is an Action within the Global Project called GAINN, whose objective is to facilitate the development of the use of LNG as marine fuel in the shipping and port logistic sector in the western Mediterranean arc, and in areas that are particularly environmentally vulnerable, such as the Canary Islands.

GAINN4SHIP INNOVATION involves the development of a study of alternatives and the retrofitting of a high-speed passenger and cargo ship (HSC) to run on LNG fuel, which reduces the environmental impact on routes in the Canary Islands.

**FUNDING BODY:** Project co-financed by the European Commission through the CEF (Connecting Europe Facility) Programme

## IMPLEMENTATION OF THE TOOL FOR MONITORING STANDARD ENVIRONMENTAL MANAGEMENT SYSTEMS AND COMPLIANCE WITH THE ENVIRONMENTAL BEST PRACTICE CONVENTIONS OF THE PORT AUTHORITY OF VALENCIA (PAV)

### WORK TEAM

**FV COORDINATORS:** Pilar Sánchez, Alicia Martí

**RESEARCH TEAM:** Remedios Cebriá, José Andrés Giménez

**TIMEFRAME:** June 2014 - June 2015

**OBJECTIVE:** The objectives of the implementation of the tool for monitoring standard environmental management systems and compliance with the environmental best practice conventions of the Port Authority of Valencia are as follows:

- Importing and storing as historical data the information used thus far by the Environmental Management System (the initials "SGA" in Spanish).
- Evaluation and monitoring of the work to develop the Environmental Management System Tool.
- Verifying the functioning of the SGA tool to ensure it meets the requirements for SGA certification by the PAV.
- Review of documentation presented by the port operators that request or renew the signing of the PAV's Environmental Best Practices Convention.
- Issuing of reports to other PAV departments regarding compliance with the conditions stipulated for signatories of the aforementioned conventions.
- Drafting of the specific text to be applied in each case to signatories of the conventions.
- Monitoring of operators' compliance with the conditions of the convention and detecting cases of potential non-compliance, should they arise.
- Review of documentation provided by operators who have requested an extension to the convention in order to verify their level of compliance vis-à-vis the audit reports presented by the operators.

**FUNDING BODY:** Port Authority of Valencia



### CO-EFFICIENT - COLLABORATIVE FRAMEWORK FOR ENERGY EFFICIENT SME SYSTEMS

#### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Seán Deehan, Josep Sanz, Marina Sáez, Clara Peña, Francisco Montesinos, Mercedes De Juan

**Project Partners:** CIERVAL; Maribor University (Slovenia); Mura Regional Development Agency (Slovenia); Transport and Logistics Institute (Italy); Association of the National Confederation of Artisans and SMEs for the Province of Modena (Italy); SATA Advanced Technology Applications (Italy); AFT Regional Delegation for the Rhone Alps (France); Eslavonia and Baranja Regional Development Agency (Croatia); Osijek Entrepreneur Centre (Croatia)



**CO-EFFICIENT**  
COLLABORATIVE FRAMEWORK FOR  
ENERGY EFFICIENT SME SYSTEMS



**TIMEFRAME:** February 2013 - June 2015

**OBJECTIVE:** The overall objective of the Project is to bring about technological and behavioural changes among PYMES from the logistics and manufacturing sectors, generating positive results for the economy and the regional environment, in keeping with the principle of sustainable growth. The project will enable PYMES to communicate with business associations and R&D&I organizations about their particular needs and any issues related to energy efficiency, transport optimization and logistics. This flow of information will facilitate the detection of opportunities and will encourage the development of solutions adapted to their needs. The project nucleus is innovation in and for PYMES, including knowledge management and the customization of available technologies.

**FUNDING BODY:** Project co-financed by the European Commission through the MED Programme

**WEB:** [www.coefficient-project.eu](http://www.coefficient-project.eu)



#### 2.2.4. Security and Protection

The maritime shipping industry (for both freight and passengers) is characterized by its highly complex nature, attested to by the high number and variety of agents involved, such as transport, loading and unloading, handling, inspection and freight storage service providers, etc. The growth of international trade, with the advent of the shipping container as a standard unit of transport, has led to the creation of huge port infrastructures while the advances in technology have led to larger and larger ships and facilities, with a greater capacity and a greater operational scope.

These factors, together with the special characteristics of certain freight items shipped in vessels and handled in the ports, have led to a varied series of risks, the potential consequences of which could be of great harm. For these reasons, security and protection, in the widest sense of the term, is an important action point dealing with accident prevention, emergencies, environmental disasters and other events that could be detrimental to normal port activities and maritime transport.

In the ports sector, the modern concept of security covers three aspects. Firstly, given that it forms the foundations for any initial preventative action, we speak in terms of technical port security or industrial port security for the part in charge of risk management associated with operations that take place in the port.

The second perspective focuses on so-called environmental safety, namely the prevention of environmental risks. Huge advances have been made in this field of action in recent

years due to the growing concerns for the environment and the effects that accidents involving hazardous goods that could potentially contaminate delicate ecosystems.

Lastly, port protection comprises the procedures, technologies and resources that are capable of neutralizing threats from illicit acts such as robbery, sabotage, illegal entry and even terrorist attacks.

The significant geopolitical role of Europe, together with the strategic position of Spain, connecting as it does the main maritime transport links between Asia, America and Africa, makes security and protection essential factors that must be integrated into port logistics chains associated with the activities of the Valenciaport Cluster. The main challenge consists of achieving integration without harming the performance or competitiveness of the Cluster, while at the same time minimizing any risks stemming from unlawful activities.

Furthermore, the growth and the interdependent nature of the infrastructures and the so-called info-structures (information exchange systems, industrial control platforms, etc.) make cybersecurity a new point of action, and as such increasing the overall scope of protection to include the networks, exchange facilities and information management.

Improvements in R&D&I capacity and bolstering the reputation of both the Valenciaport Cluster and the Port Authority of Valencia through their participation in national and international research projects, makes innovation the cornerstone of any endeavours to position the Port of Valencia at the forefront of breakthroughs in port logistics security and protection.





### MITIGATE - MULTIDIMENSIONAL, INTEGRATED, RISK ASSESSMENT FRAMEWORK AND DYNAMIC, COLLABORATIVE RISK MANAGEMENT TOOLS FOR CRITICAL INFORMATION INFRASTRUCTURES

#### WORK TEAM

**FV Coordinator:** Rafael Company

**Research team:** Purificación García, Vincent Ernoux, Pablo Giménez

**Project Partners:** Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V., University of Piraeus Research Centre, Austrian Institute of Technology, Maggioli Spa, SingularLogic Romania Computer Applications S.R.L, Instituto Portuario de Estudios y Cooperación de la Comunidad Valenciana (FEPORIS), University of Brighton, Piraeus Port Authority, Fondazione Accademia Italiana della Marina Mercantile, Fundación Valenciaport, Port of Ravenna Authority, DBH Logistics IT AG

**TIMEFRAME:** October 2015 - March 2018

**FUNDING BODY:** Project co-financed by the European Commission through the H2020 Programme



#### PROJECT JUSTIFICATION AND RESULTS:

It is indisputable that critical infrastructures in the supply chain, primarily associated with port operations are key when it comes to evaluating different risk methodologies. However, the wide range of stakeholders and users involved throughout the chain as well as the numerous

communication and information systems make it difficult to establish a holistic methodology for all security processes.

In the case of the maritime supply chain, a great variety of activities, processes, services, systems, users, etc. can be found, all of which play a role in risk management through "cascading effects". That is why MITIGATE



analyses each of those subprocesses before then integrating them into a common framework.

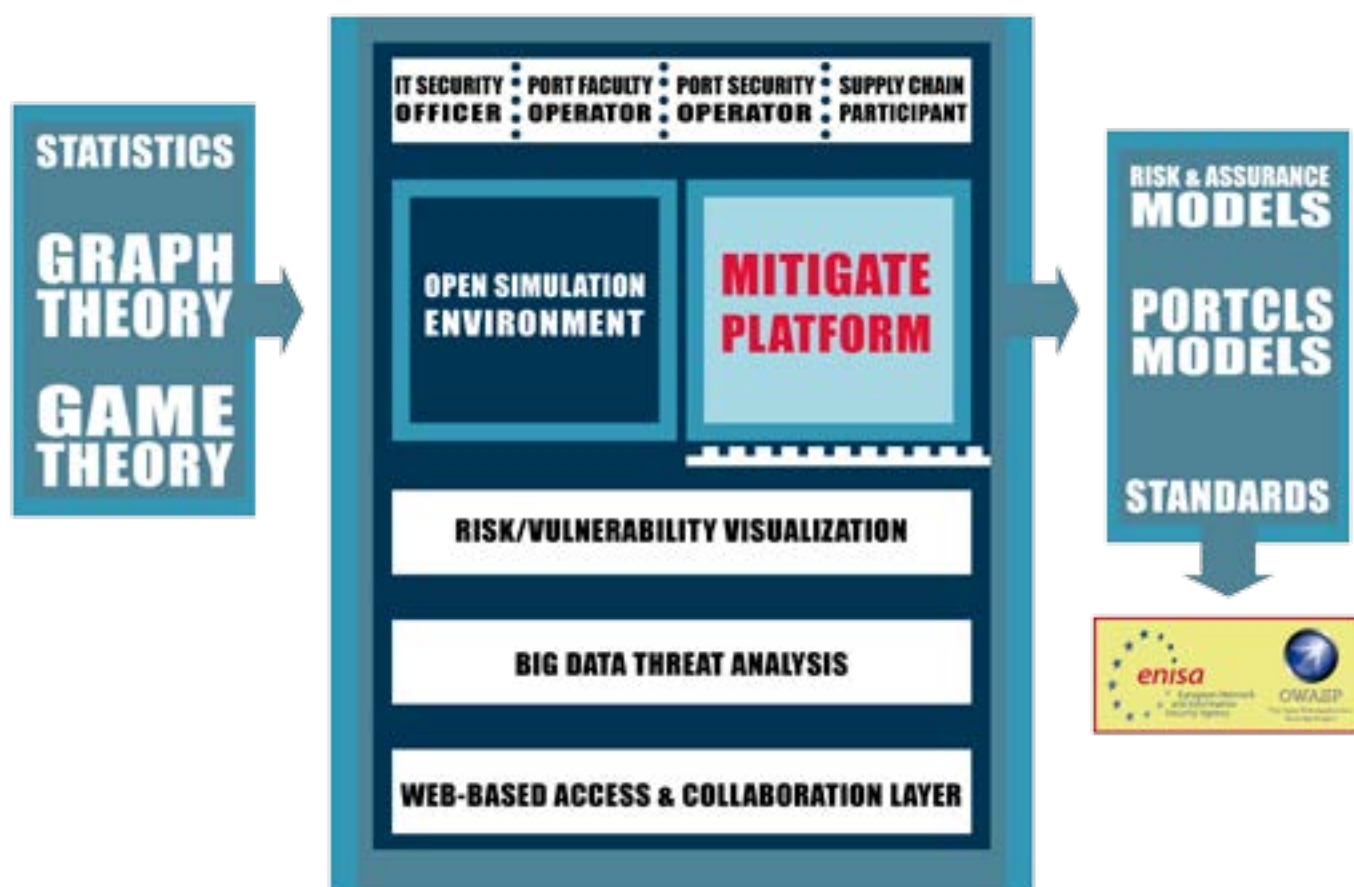
Critical Infrastructures (CIs) are thus gradually becoming ever-more dependent on ICT technologies (networks, telecommunications, the cloud, sensors and SCADA technologies), making Critical Information Infrastructures (CIIs) a vital part of the analysis. This is particularly important in the case of port infrastructures, which tend to be highly dependent on the operation of complex and dynamic maritime supply chains based on ICTs. Maritime supply chains comprise a set of interconnected, globally distributed organizations, including port authorities, ministries, shipping companies, shipping industries, customs, customs agencies, shipping and insurance companies, other transport CIs (e.g. airports) and other CIIs (e.g., transport networks, people, processes, services, products, etc.). The linking of these stakeholders and organizations relies on an interconnected network of infrastructures and transport routes, information technology, and logical, cybernetic and energy networks.

## EXPECTED RESULTS OF THE PROJECT

The project will integrate, validate and commercially exploit an effective risk management system based on existing standards in port CIs. This model will examine all threats identified in the global supply chain as well as those relating to the interdependencies and “cascading effects” associated with Critical Infrastructure for ports and users.

This integrated risk management system will be an open environment and will enable stakeholders to simulate risks and evaluate mitigation actions as well as to prevent and predict future risks. MITIGATE complies with the main safety regulations as well as standards ISO27000, ISO28000, ISPS, etc.

This system will be built with reference to partners’ available technologies, which will ensure the project has a high-TRL product for deployment in the market, evaluating both technological and socio-economic aspects.





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### PILOT PROJECT

The outcome of MITIGATE will be validated on the basis of a real-life pilot project taking place in five EU ports (Bremen, Livorno, Piraeus, Ravenna and Valencia) with the active participation of more than 200 users (security agents, terminal operators, facilities operators, standardization experts, etc.).

The pilot projects, which are to be implemented in the final year of the project, will allow the development and

validation of a standards-based risk management framework for CII in (cyber-security) ports. The system will be accessible through cloud-based ICT tools, which will allow for risk assessment, threat simulation and the formulation of mitigation strategies.

The pilot in the Port of Valencia centres on a real-life scenario concerning the transport of containers, which shows all the actors involved in the different processes and subprocesses, as well as the systems engaged in the transfer of information.



Regarding the validation of the risk management tool, a tutorial will be organized for the different agents of the supply

chain, who will then evaluate the effectiveness of the system and help perfect it ready for its launch.



**WEB:** [www.mitigateproject.eu](http://www.mitigateproject.eu)

## PICASSO – PREVENTING INCIDENT AND ACCIDENT BY SAFER SHIPS ON THE OCEANS

### WORK TEAM

**FV Coordinators:** José Andrés Giménez, Josep Sanz

**Research team:** Lucía Calabria, Emma Casanova, Clara Peña, Pilar Sánchez, Vicente del Río

**Project Partners:** Maritime Safety and Rescue Society, Fundación Valenciaport, Centro Internacional de Métodos Numéricos en Ingeniería, Associação para a Representação de Interesses Portugueses no Exterior, Administração dos Portos do Douro, Leixões e Viana do Castelo, Swedish Maritime Administration, Chalmers Tekniska Högskola AB, Ministero delle Infrastrutture e dei Trasporti, Dover Harbour Board, Anonimi Naftiliaki Etairia Kritis, National Technical University of Athens, Tandu Technologies and Security Systems, Authority for Transport in Malta, Cyprus Port Authority

**TIMEFRAME:** May 2016 - June 2018

**FUNDING BODY:** Project co-financed by the European Commission through the CEF (Connecting Europe Facility) Programme



Co-financed by the European Union  
Connecting Europe Facility

### PROJECT JUSTIFICATION AND RESULTS:

The maritime transport sector is undergoing far-reaching changes that will transform the way goods and freight are transported in the coming decades. The development of information technologies, mainly in the field of internet communications, are accelerating this transformation. Such changes can be clearly seen in the field of maritime safety. The PICASSO project aims to take advantage of the opportunities offered by this new scenario to develop novel solutions that help improve the safety, efficiency and sustainability of maritime transport.

PICASSO combines state-of-the-art technological developments with the study of the human factor, incorporating training as a key element that enables the efficient combination of these two elements.

The project proposes the development of new communication systems targeting maritime safety both in the field of navigation and in the port, where ship-shore interaction involves operations that are critical for maritime and port security.

The PICASSO project is aligned with the objectives of the Motorways of the Sea, which aim to promote the use of short sea shipping through safe, efficient and environmentally sustainable sea routes.

### METHODOLOGY AND ACTIVITIES

The PICASSO project consists of three technical activities, described below.

#### Activity 1 - Safety on board and on land

The objective of this activity is to study new tools and solutions that help improve operational safety during maritime navigation as well as during a ship's stay in port. The proposed solutions rely on the integration of new communication and information transmission systems based on the use of unmanned vehicles (terrestrial, marine and aerial drones) equipped with sensor networks for real-time communication of information.

As part of Activity 1, several pilot projects will be carried out, involving these vehicles in real operating scenarios, with the aim of validating the proposed technologies and demonstrating the feasibility of using drones in maritime and port areas.

The scenarios to be analysed range from the perimeter protection of the port area, to the underwater surveillance of port waters, and to the protection of critical infrastructures (fuel reception centres).

#### Activity 2 – Emergency drills

Activity 2 of the project is focused on the design and execution of exercises and drills that recreate port maritime emergency situations. These situations cover events that could potentially affect a large number of people in the same scenario, such as a massive evacuation of a cruise ship.

Activity 2 aims to improve the procedures associated with the management of emergency situations, including the

## PROJECTS

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training of personnel involved in this type of events: security forces and organizations, firefighters, medical personnel, port managers, maritime rescue, etc.

The project will evaluate the management of emergencies in unique locations such as islands and tourist enclaves, with limited medical infrastructure and logistics to respond to potential emergencies. The bulk of the business in the tourism sector, particularly in the Mediterranean regions and islands, is concentrated in a short period of time

(summer holidays) in places with a limited capacity to cover a large number of people affected by an emergency situation such as a mass evacuation of a cruise ship or port. PICASSO will take the Island of Malta as its case study and carry out a real-life evacuation exercise with a passenger ship, involving the crew and agents responsible for managing all aspects of an offshore emergency with repercussions on land, such as the evacuation of injured persons, managing land-based services, medical attention, etc.



Evacuation Exercise – Maritime Rescue Society

### Activity 3 – Training and the Human Factor

Lastly, Activity 3 of the project focuses on the training needs and management aspects of the human factor involved in maritime-port security.

This activity will involve various technological developments aimed at improving the human factor in the management of rescue operations. In this regard, there is a planned development of a system for the inspection and detection

of castaways on the high seas, which will automatically detect people drifting in conditions of bad weather or low visibility. The search for people adrift is currently carried out by rescue workers, who visually inspect the sea. However, this procedure is fairly ineffective due to the limitations of human vision and to fatigue.

In addition, Activity 3 will develop new training tools for crews, including so-called “serious games” and simulation exercises that recreate emergency situations.



Source: STM Validation Project - European Network of Marine Simulators

WEB: [www.picassoproject.eu](http://www.picassoproject.eu)



### MEDUSA - MULTI-ORDER DEPENDENCY APPROACHES FOR MANAGING CASCADING EFFECTS IN PORTS' GLOBAL SUPPLY CHAIN AND THEIR INTEGRATION IN RISK ASSESSMENT FRAMEWORKS

#### WORK TEAM

**FV Coordinator:** Rafael Company

**Research team:** David Calduch, Vincent Ernoux

**Project Partners:** Piraeus University (coordinator); Europhar - European Protection Harbour Area; Singular Logic (Greece); Austrian Technology Institute; Cyprus University



With the financial support of the Prevention of and Fight against Crime Programme  
European Commission - Directorate-General Home Affairs

**TIMEFRAME:** July 2014 - July 2016

**OBJECTIVE:** The MEDUSA project is primarily aimed at designing a methodology for analysing the risks in Critical Infrastructures, associated with the identification and evaluation of “cascading effects” in the global port supply chain. The project will evaluate how they affect the vulnerability and the threat level of other sectors and infrastructures in port security. In this context, the main role of EUROPHAR is to identify the specifications, needs and requirements of the different stakeholders that interact with ports, such as port authorities, operators, shipping companies, customs, ship owners, etc. in order to prevent any kind of risk and/or threat to ports stemming from the interdependence of critical infrastructures and the interaction of different entities in the supply chain.

**FUNDING BODY:** Project co-financed by the European Commission through the Directorate-General of Home Affairs

### CYSM - COLLABORATIVE CYBER / PHYSICAL SECURITY MANAGEMENT SYSTEM

#### WORK TEAM

**FV Coordinator:** Noemí Monterde

**Research team:** David Calduch, Rocío García, Arturo Monfort

**Project Partners:** Feports (coordinator), Singular Logic, Università Degli Studi di Genova, University of Piraeus, Port of Piraeus, Fundación Valenciaport



Co-funded by the Prevention, Preparedness and Consequence Management of  
Terrorism and other Security-related Risks Programme of the European Union

**TIMEFRAME:** April 2013 - April 2015

**OBJECTIVE:** CYSM primarily aims to substantially improve the protection of critical port infrastructures (CIIs) taking into account both their cybernetic and physical nature. The project analyses the whole spectrum of port CII threats, both direct and indirect, identifying their interrelations, correlations, spread and impact levels. Furthermore, a dynamic CII management methodology will be developed, accounting for this dual nature (cybernetic and physical), and assessing risk against the specific requisites of the International Ship and Port Facility Security Code (ISPS, physical security) and of ISO 27001 Information Security Standard (cybernetic security).

**FUNDING BODY:** Project co-financed by the European Commission through the “Prevention, preparedness and consequence management of terrorism and other security-related risks” programme.

**WEB:** [www.cysm.eu](http://www.cysm.eu)

## CONTAIN – CONTAINER SECURITY ADVANCED INFORMATION NETWORKING

### WORK TEAM

**FV Coordinator:** Rafael Company

**Research team:** Miguel Llop, José Andrés Giménez, Rocío García, Antonio Torregrosa, Salvador Furió

**Project Partners:** FOI - Swedish Defence Research Agency; BMT Group; COTECNA Inspection Limited; INLECOM Systems; Interporto Bologna; Joint Research Centre; ELSAGDATAMAT; Thales; Telespazio; MARLO; Savi; Lithuania Customs; VTT; MJC2; eBos Technologies; Nautical Enterprise; European Organization for Security, ItalContainer, Italian Customs



**TIMEFRAME:** October 2011 - March 2015

**OBJECTIVE:** The primary aim of CONTAIN is to specify and demonstrate a European Shipping Container Surveillance System. The system will encompass standardization and protection policy recommendations, new business models and advanced management systems.

**FUNDING BODY:** Project co-financed by the European Commission through the 7th Framework Programme.

**WEB:** [www.containproject.com](http://www.containproject.com)

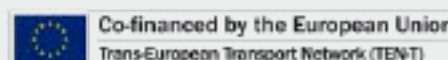
## MONALISA 2.0 - SECURING THE CHAIN BY INTELLIGENCE AT SEA

### WORK TEAM

**FV Coordinators:** Vicente del Río, José Andrés Giménez

**Research team:** Miguel Llop, Gabriel Ferrús, Mercedes De Juan, Rafael Company, Jorge Lara, Seán Deehan

**Project Partners:** Swedish Maritime Administration; Fraunhofer-Gesellschaft Zur Förderung der Angewandten Forschung E.V.; Bundesministerium Für Verkehr, Bau Und Stadtentwicklung; Luftfartsverket (Lfv); Chalmers Tekniska Högskola AB; Sspa Sweden AB; Deutsches Zentrum Für Luft- Und Raumfahrt E.V.; Maritime Safety and Rescue Society - SASEMAR; National Technical University of Athens; Viktoria Swedish Ict AB; Corporacion Maritima Lobeto Lobo S.L.; Port Authority of Valencia; Centre International de Mètodes Numèrics en Enginyeria – Cimne; Ministero delle Infrastrutture e dei Trasporti – Direzione Generale per il Trasporto Marittimo e Le Vie D'acqua Interne; Madrid Polytechnic University; Carnival Plc; Transas Marine International AB; Industrias Ferri, S.A.; The Swedish Meteorological and Hydrological Institute; Polytechnic University of Catalonia; Carmenta AB; Danish Meteorological Institute; Gatehouse A/S; World Maritime University; Navicon A/S; Danish Maritime Authority; Jeppesen GmbH; Rheinmetall Defence Electronics GmbH; Marsec-XI International Ltd; Yrkeshögskolan Novia



**TIMEFRAME:** January 2012 - December 2015

**OBJECTIVE:** The primary objective of the project was to help to promote Motorways of the Sea in Europe by implementing a number of different activities according to the requirements and recommendations of the European Commission with regards to maritime security.

The specific objectives of the project were as follows:

- Develop a European-wide Traffic Management System, STM - Sea Traffic Management, a counterpart to the SESAR air traffic control system.
- Provide support to specific aspects of navigation covered by STM, with the development of operational procedures and standard technical protocols.
- Provide robust support tools for decision making, including a formal safety assessment.
- Show the viability of specialized ICT solutions and how they can help to improve the Management of Resources on the Command Bridge and the management of search and rescue operations.
- Ensure the security of the transport chain in ports and coastal areas.

**FUNDING BODY:** Project co-financed by the European Commission through the TEN-T Programme

**WEB:** [www.monalisaproject.eu](http://www.monalisaproject.eu)

### 2.2.5. Internationalization

From the outset, one of Fundación Valenciaport's greatest assets has been internationalization or International Technical Assistance. This activity centres on the international collaboration projects in Fundación Valenciaport has participated, whether in a leadership role or in consortium with other firms.

The range of organizations with which Fundación Valenciaport collaborates in this area includes private companies, always linked to the port logistics sector, or public institutions such as Port Authorities, Transport Ministries, and International Banks, among others.

The source of these international cooperation projects can differ widely, ranging from a call for tenders or bidding process to direct contracting by a company, or even a collaboration agreement with a public institution.

When we talk about the internationalization of the Fundación Valenciaport, we are not referring to the R&D&I projects developed within the European Union, but rather the next step, that is, the transfer of knowledge and results obtained in research projects to other ports or port communities that are in the process of development and growth, following in the footsteps of the Port of Valencia.

In short, it is a question of transferring the best practices stemming from the development and growth of the Port of Valencia, without neglecting the important objective of promoting the internationalization of the Valenciaport cluster.

Again, because of the obvious convenience of sharing a common language, and also because it is an area where most countries are in the midst of development processes, it is logical that the main actions in the field of international collaboration have been in Latin America. Notwithstanding, commercially important steps have already been taken in Asia, where, following a trade mission in 2016, technical assistance to the Indonesian Port Authorities is planned for February 2017, in collaboration with the firm SGS.

Regarding SGS, both 2015 and 2016 have been milestones in the development of this collaboration; during this period, International Collaboration Agreement has been signed with the Vice-presidency of the head office of the Swiss multinational, and in particular with its SGI (Services to Governments and Institutions) department. This agreement began with a three-day seminar, held in January 2016, which was attended by over 20 senior managers from around the world. The event was held at Fundación Valenciaport facilities and the aim was for attendees to be trained about our services and products.

As a result of this seminar, a new brand was established, called SGS & FV Port Services. Under this brand, SGS will attempt to globally market the experiences and expertise of Fundación Valenciaport. Specifically, this new brand encompasses six different areas: Port Management and Quality; Technology, Logistics and Operations; Security; Professional Excellence (Training); Energy Management; and Environmental Management of Ports.

It is clear, therefore, the important role of internationalization for Fundación Valenciaport, as evidenced by the development of this new approach that Fundación Valenciaport chose for this area of activity in the period 2013-2014, the period covered by this report and a time of consolidation of key ideas and restructuring of the team responsible for this area.

Fundación Valenciaport continues to strive towards the objective of increasing its presence in new countries and ports, in addition, obviously, to maintaining and strengthening the current relationships with those with whom it has traditionally collaborated.

Part of this new strategy is also to increase the visibility of Fundación Valenciaport by participating as speakers in different international specialized seminars and forums, including:

- 14th Annual Congress of the American Association of Port Authorities (AAPA) held in Arica, Chile
- Hemispheric Cruise Congress. CIP OAS. Mar de Plata, Argentina
- TOC Americas 2016. Cancun, Mexico
- CIP OAS Hemispheric Conference on Logistics and Competitiveness. Montevideo, Uruguay
- ADEX Logistic Forum. Lima, Peru
- Hemispheric Conference on Port Management, Logistics and Innovation CIP OAS. Veracruz, Mexico
- Uruguay Maritime Conference. Capacity Analysis of the Port of Montevideo, Uruguay
- Workshop PRECOP 13. University of Veracruz, Mexico
- Conference on Innovation and Training in the Port Sector. ITBA. Technological Institute of Buenos Aires, Argentina
- 15th Annual Congress of the American Association of Port Authorities (AAPA) held in Merida, Mexico

## CORMAGDALENA - DESIGNING THE METHODOLOGY FOR THE RIVER ACTION PLAN, RIVER PORT EXPANSION PLAN AND DEVELOPING A MANAGEMENT MODEL FOR RIVER PORT CONCESSIONS AND OTHER NON-PORT USES, AS WELL AS OTHER MEANS OF USING PUBLIC GOODS IN THE RIVER FOR TRANSPORTATION PURPOSES, TARIFFS AND REMUNERATIONS

### WORK TEAM

FV Coordinator: Arturo Monfort

Research team: Miguel Garín, Noemí Monterde, Amparo Mestre

Project Partners: CORMAGDALENA

TIMEFRAME: August 2016 - March 2017

FUNDING BODY: CORMAGDALENA



### PROJECT JUSTIFICATION AND RESULTS:

Cormagdalena requires technical support, innovation and development, as well as administrative and financial elements, in order to promote actions for the formulation and coordination of development plans, as well as the Magdalena River port expansion plan. As part of this study, an exhaustive review will be conducted of the current tariffs and remuneration plan adopted through Decree 1099 of 30th May 2013 and incorporated into the document on public policies on port development CONPES 3744 - "Port Expansion Plan - Port Policy for a More Modern Country".

### OBJECTIVES:

To combine technical, administrative and financial efforts to draw up the river action plan, a river port expansion plan that includes

the development of a model for managing river port concessions as well as those for non-port uses and use of public goods in the river for transportation purposes. This will form part of the Cormagdalena 2016-2018 action plan.

### METHODOLOGY:

In the last quarter of 2015, the government presented the Intermodal Transportation Master Plan (PMTI in Spanish), which forms part of the 2014-2018 National Development Plan (PND) and included input from the Strategic Intermodal Transport Infrastructure Plan (PEIT) and the Master River Plan (FMP), with the Rail, Air and Logistics Plans still to be drawn up. The River Action Plan (FAP) and River Port Expansion Plan (PEPF) - part object of the agreement for their collaborative drafting - connect with the other abovementioned plans as shown in the figure.

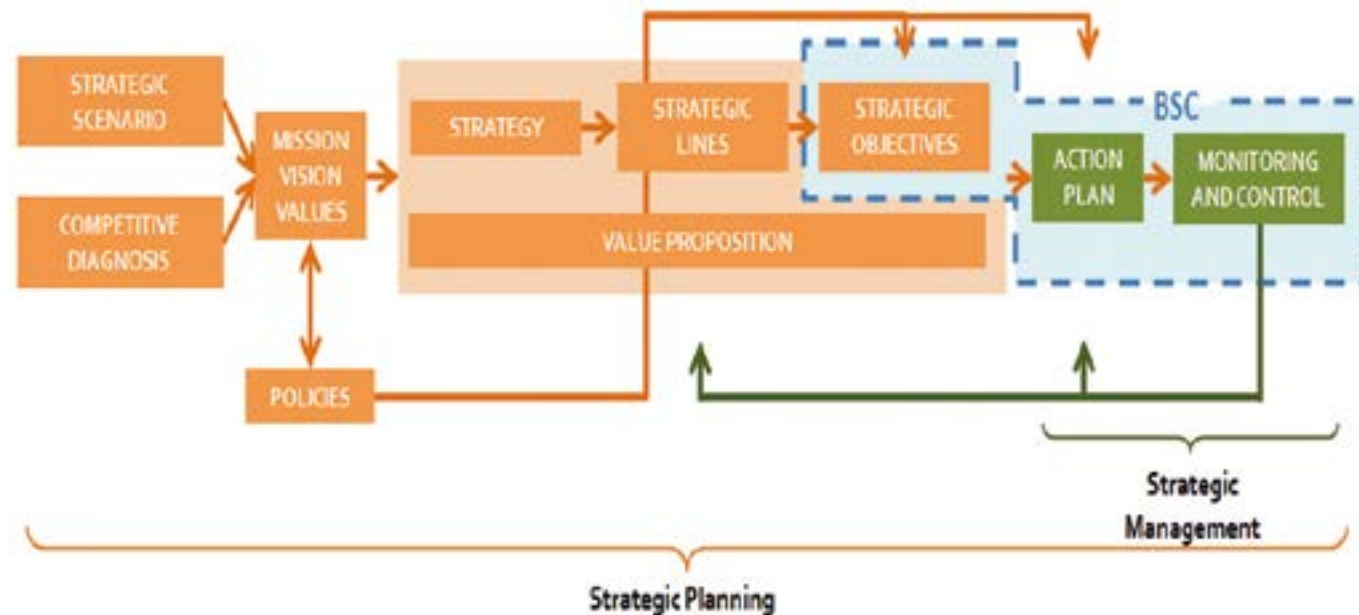


Interconnection of plans relating to the PND and PMTI



## PROJECTS

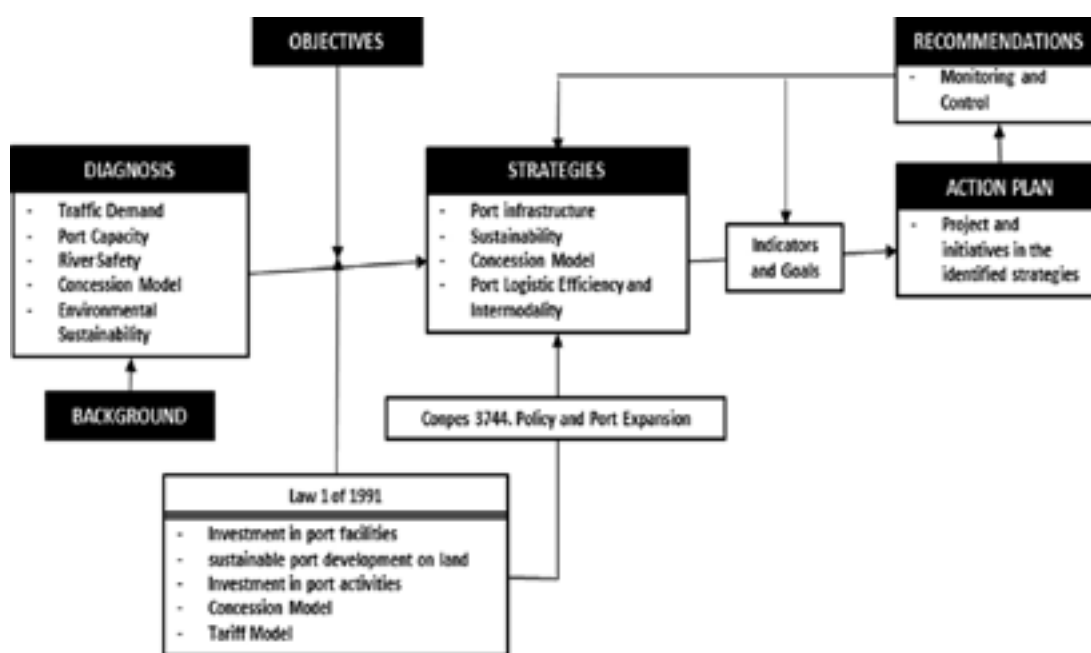
The Action Plan should arise from the corresponding strategic planning and management exercise that yields the specific strategic objectives.



Embedding the Action Plan into a strategic management model based on the Balanced Scorecard

Under the consensus methodology, the drafting of both the PAF and the PEPF is part of a participatory process with the cluster linked to activity relating to the Magdalena River. Likewise, the use of the strategic management tool known as the Balanced Scorecard is proposed. This tool facilitates

the achievement of the strategic objectives and provides indicators that enable the evaluation of progress towards goals, as the projects that make up the corresponding action plan progress. In the case of the PEPF, the process is illustrated in the following diagram.



Proposed PEPF Methodology

## EXPECTED RESULTS:

The expected results are as follows:

- Preparation of the River Action Plan (PAF) and River Port Expansion Plan (PEPF) to be developed within the framework of a participatory methodology incorporating the whole cluster linked to the activity centring on the Magdalena River. The strategic management tool, the Balanced Scorecard, will be used to this end. This will help produce better results in terms of synergies with the projects developed by Cormagdalena.
- Preparation of a Tariff Study (river toll) in accordance with CONPES 3758, which calls for a tariff study framed within the intermodal public policy as well as a tariff that helps reduce the fiscal effort.
- As part of the PEPF and the PAF, there will be a technical, administrative and financial survey of the current application of the methodology for calculating the remuneration to each and every one of the concessions granted by CORMAGDALENA that are currently in effect. In addition, there will be an analysis of the criteria for applying the related formulas, resulting in guidelines and recommendations to standardize the criteria.
- Improve the administrative, legal, technical and financial processes required to carry out a revenue projection for tariffs and remuneration, and to perform a cross-country comparative analysis of how charges are levied for the use of public goods in the river for non-port purposes and for access rights for transportation. With respect to all the above, the aim is to work together to develop a methodology for collecting payment that is simple, objective, clear and effective.
- Establishment and implementation of a mechanism for transferring knowledge through face-to-face and online training for selected personnel from the Corporation, and other national/territorial entities that require such training under the agreement, as well as, if applicable, from the cluster.



### URUGUAY PCT CAPACITY - CAPACITY OF THE CUENCA DEL PLATA PORT TERMINAL (PCT) AND PORT CAPACITY FOR THE PORT OF MONTEVIDEO

#### WORK TEAM

**FV Coordinator:** Paula Vieira

**Research team:** Noemí Monterde, David Caldach, Miguel Garín

**Project Partners:** Cuenca del Plata, S.A. Terminal (PCT) - Katoen Natie Group

**TIMEFRAME:** June 2015 - September 2015

**FUNDING BODIES:** Cuenca del Plata, S.A. Terminal (PCT) - Katoen Natie Group



#### PROJECT JUSTIFICATION AND RESULTS:

The capacity of a port facility can be defined as the maximum traffic volume (measured in tonnes, containers, TEUs, or Units) that it can handle in a given period and scenario (boundary conditions).

In this context, the definition of port capacity has not been decisively established. Since there may be a number of different conditions or scenarios in which maximum capacity can be calculated, there are different concepts of capacity.

The implementation of this study has helped provide the PCT with a good overall picture of its current situation in terms of port capacity, thus enabling it to anticipate the required actions by the company and the opportunities that exist in future scenarios. Consequently, this study will help the PCT achieve its goal; namely, "to transform the company into the main logistics support for maritime transport in the region, integrating the Terminal into the international distribution circuit through its link with Katoen Natie."

#### OBJECTIVES OF THE TECHNICAL ASSISTANCE AGREED WITH THE CLIENT

- Determine the maximum traffic that the terminal can handle.
- Provide a tool to assist planning

- Potential analysis of future improvements (expanding or changing the use of an existing facility), assisting decision-making.

#### METHODOLOGY AND DEVELOPMENT

**Deliverables:** Report in Word and presentation in Power Point. In addition, there was a public presentation of the results in the Uruguayan Navigation Chamber.

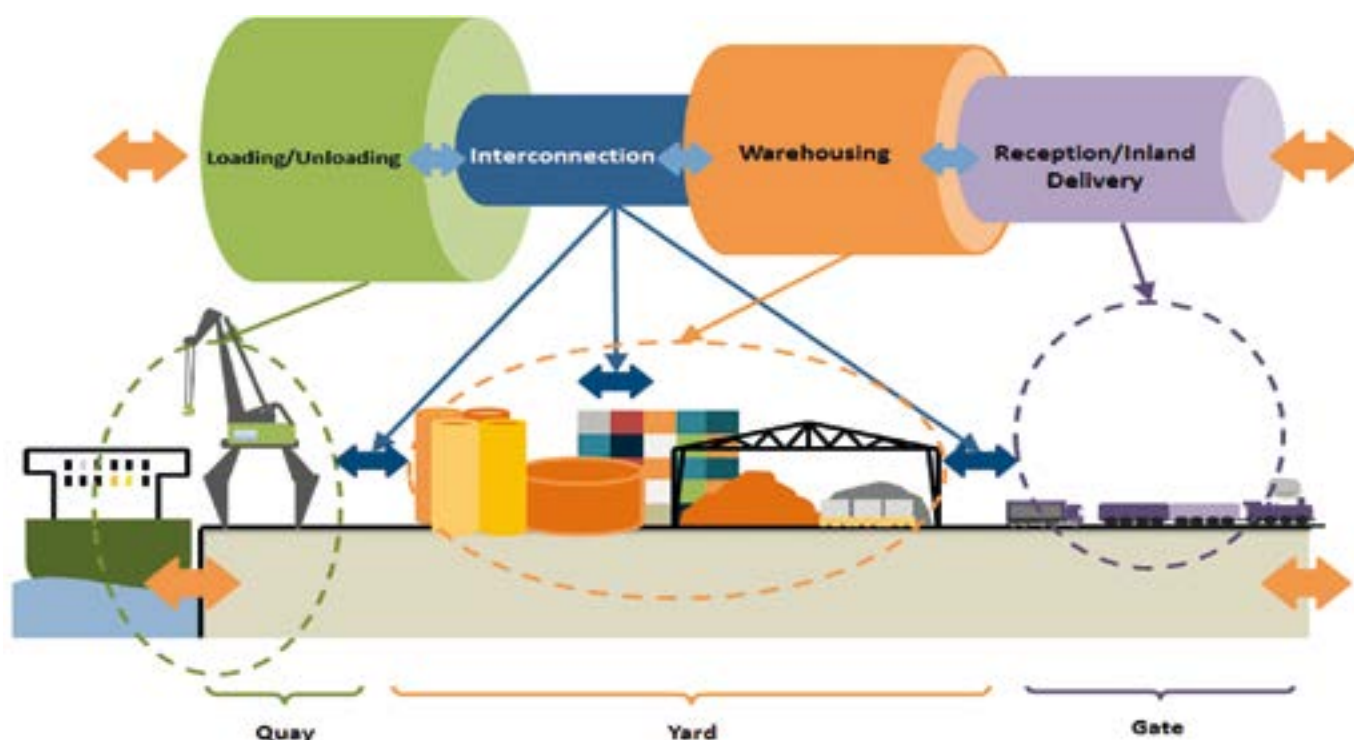
**Development and Results:** There were several limiting conditions for the calculation of the capacity, linked to the economic optimization of the facilities:

- Limits set by the saturation of the facilities.
- Those corresponding to the minimum permissible service quality as perceived by the customers, given that as the traffic increases, there is a fall in service quality as perceived by terminal customers.

**Taking all of the above into account, three different calculations were performed:**

#### CALCULATING PORT CAPACITY BY SUBSYSTEMS

The methodology for calculating port capacity takes into account the systemic concept of a container terminal, whereby the terminal is composed of four subsystems:



Starting with a simplified analytical vision, a series of working hypotheses is generated in order to isolate each subsystem.

From a **planning perspective, neither the interconnection subsystem nor the reception and delivery subsystem should exert capacity constraints**, assuming that they are well-equipped enough to avoid bottlenecks:

- Interconnection subsystem: The number of interconnection teams required to perform the work, so that they do not hold up the work of the dock crane or in the port yard. Therefore, this subsystem is not considered to be a limit on terminal capacity.
- Reception and delivery subsystem:
  - External lorries: the access flow depends on the number of gates, the operating hours and the time required for the entry or exit operation.
  - Rail: it is assumed that the terminal will have enough tracks to handle the incoming and outgoing freight traffic.

## BERTHING LINE CAPACITY

When calculating berthing line capacity several aspects were taken into account, in particular:

- Statistical distribution of ship arrivals

- Ship characteristics (length, depth and stowage height on board)
- Characterization of docking alignments (dock length and depth)
- Statistical distribution of service times
- Productivity and number of dock equipment
- Permissible quality level associated with the relative wait time
- Terminal operating time per year

A hybrid methodology was used in this study for calculating berthing capacity: it combined the analytical calculation with the simulation for this subsystem.

In the analysis of the capacity of the ship loading/unloading subsystem, two separate operations were identified: berthing, and loading and unloading of the ship itself. The annual capacity of the berthing line is equal to the number of berthing spots multiplied by the occupancy rate, by the annual operating hours, and by the average hourly production of the vessels during their berthing.

For the detailed analysis of the berthing line capacity using analytical and simulation methods, it was necessary to determine the distribution of ship arrivals and the distribution of service times of the terminal.



### STORAGE CAPACITY

In this task, an analysis was carried out of the Storage Capacity or capacity per surface area of the PCT. The aim here was to determine the maximum traffic that can be handled given the storage surface area of the terminal. In this analysis, the following aspects were taken into account:

- The surface density and productivity of the container storage system.
- Stacking height.
- Duration of stay of the goods in the terminal.
- The seasonality of traffic.
- The layout of the terminal plant.
- The management of the yard (operating system employed).

### RESULTS:

- Profile of operational infrastructures, superstructures and services at the PCT.
- Profile of the PCT subsystems.
- Calculation of PCT capacity and analysis of its level of service



## IDB COURSES ON THE INTERNATIONAL TRADE SINGLE WINDOW

### WORK TEAM

**FV COORDINATOR:** Salvador Furió

**RESEARCH TEAM:** Miguel Llop, Carolina Navarro, José Giménez, M<sup>a</sup> Luisa Escamilla, Paula Vieira, Jonas Mendes

**TIMEFRAME:** Renewed annually since 2011

**OBJECTIVE:** Trade facilitation policies must be accompanied by “hard” development and adaptation of infrastructure, as well as “soft” actions, where electronic single windows represent one of the key elements for improving efficiency in the international transport and logistics chains.

The main objective of the course is to help public servants from agencies involved in foreign trade (customs, agriculture etc.) as well as those from the private sector to better understand the function of the Single Window, implementation procedures, characteristics, benefits and requirements.

The course is structured in the following modules:

- Module 1: Introduction, concept and models of the Single Window
- Module 2: Bases for the construction of a Single Window
- Module 3: Review and compatibilization of processes
- Module 4: Interoperability
- Module 5: Strategies for the implementation of Single Windows
- Module 6: Lessons learned in the Implementation of Single Windows

**FUNDING BODY:** Inter-American Development Bank



## STUDY FOR THE CREATION OF A MASTER PLAN FOR THE NATIONAL PORTS SYSTEM OF URUGUAY

### WORK TEAM

**FV Coordinator:** Paula Vieira, Miguel Garín

**Research team:** Eva Pérez, Amparo Mestre, Alexandre Sánchez, Arturo Monfort, Jonas Mendes y Andrea Munoz

**TIMEFRAME:** October 2016 - April 2017

**OBJECTIVE:** This study aims to determine the operational priorities and necessary infrastructures to be able to meet the forecast demand of the National Ports System of Uruguay for the next 15 years. The study will focus on growth broken down into business units: containers, bulk handling, passengers, fisheries, vehicles, project cargo and logistical partners.

**FUNDING BODY:** Andean Development Corporation

## DEFINING A PORT COMMUNITY SYSTEM (PCS) STANDARD FOR LARGE SCALE NETWORK LOGISTICS (RLGE) – PCS CHILE

### WORK TEAM

**FV Coordinator:** Miguel Llop

**Research team:** Ma Luisa Escamilla, Paula Vieira, Andrea Munoz

**TIMEFRAME:** February 2016 – August 2016

**OBJECTIVE:** The aim of the consultancy project is to define data exchange standards to ensure interoperability between the different actors that are part of the foreign trade processes, within the framework of a Port Community System (PCS), with a high level of security and a high degree of information transparency.

**FUNDING BODY:** Inter-American Development Bank

### MASTER PLAN FOR THE LAMBAYEQUE REGION PORT TERMINAL

#### WORK TEAM

**FV Coordinator:** Arturo Monfort

**Research team:** Noemí Monterde, Antonio Torregrosa, Salvador Furió, Andrea Munoz, Paula Vieira, Amparo Mestre



**TIMEFRAME:** September 2013 – June 2015

**OBJECTIVE:** The objective is to develop the Master Plan for the Lambayeque Region Port Terminal, defining port infrastructure needs and the equipment required to establish a harmonious development of port facilities in the short-, medium- and long-term. The physical, economic and strategic potential are also identified in alignment with a number of elements including: forecasted traffic flow and demand for services; the evolution of international trade and transport; the requirements of the port's area of influence, including the location of a logistics zone; and the expected regional and national economic development.

The project is divided into fourteen phases / products that combine to respond to the Master Plan structure and contents, as defined in the National Plan.

**FUNDING BODY:** Lambayeque Regional Government

### DIAGNOSIS OF ROAD TRAFFIC IN BUENOS AIRES PORT. PROPOSED SOLUTIONS AND CLIENT ACTION PLAN

#### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Paula Vieira, Miguel Garín

**Project partners:** SGS



**TIMEFRAME:** September 2016 – January 2017

**OBJECTIVE:** The main objective of this study was to review and analyse the operation of the road traffic in the Port of Buenos Aires and its environs, identifying the main problems that exist currently as well as those that might arise with the planned port expansion. Based on this analysis, the second objective of the study was to identify and propose solutions to address the problems detected, developing a plan of action to guide the future development of the Port of Buenos Aires, its access points and its surroundings.

In order to achieve the proposed objectives, the following activities have been carried out:

- Analysis of traffic flows (import, export, full, empty).
- Review and analysis of import and export processes and flows, by means of interviews with all stakeholders (Port Authority, Customs, Terminal Operators, Transport Operators, Freight Forwarders and Customs Brokers, etc.).
- Process Analysis, with a particular focus on the current systems of traffic management (Shift System and Port Vehicular Traffic Control) and on the controls at the terminal gates.
- Diagnosis and identification of problems.
- Survey and review of good practices in port traffic management.
- Proposal of solutions to the problems detected.

**FUNDING BODY:** General Administration of State Ports Society - Port of Buenos Aires

## TECHNICAL SUPPORT FOR THE IMPLEMENTATION OF THE INTELLIGENT PORT LOGISTICS CHAIN PROJECT: INTERNATIONAL EXPERIENCE IN PORT COMMUNITY INFORMATION MANAGEMENT

### WORK TEAM

**FV Coordinator:** Miguel Llop

**Research team:** Paula Vieira, Noemí Monterde, Salvador Furió, Ma Luisa Escamilla

**External team:** Guilherme Vieira

**TIMEFRAME:** March 2013 - March 2015



**OBJECTIVE:** The project structure was divided into two phases.

The principal objective of Phase 1 is to establish an international benchmark for matters related to the Intelligent Port Logistics Chain project. It is then further divided into the following sub-objectives:

- Identify international initiatives and cases related to the Intelligent Port Logistics Chain project, analysing information from both before and after the implementation of the solutions and technologies employed in each case;
- With respect to international cases, estimate the initial investment required for the implementation of a system similar to the 'Intelligent Port Logistics Chain' system, as well as the monthly/annual costs of the solutions and determine who is to assume responsibility for paying said costs;
- Analyse the financial impact of the implementation of this type of project on those involved; • Identify the economic, social and environmental benefits stemming from the implementation of this type of project.

The principal objective of Phase 2 is to provide support to SEP/PR initiatives concerning the implementation of the Intelligent Port Logistics Chain project and the interoperability of existing and planned future systems in Brazil. Within Phase 2, the following sub-objectives were defined:

- Analyse the interoperability of existing and planned future systems in Brazil;
- Identify common international practices and elements regarding the initiative carried out in Brazilian ports, as well as an analysis of synergies between them;
- Determine needs and opportunities for the implementation of cluster platforms and propose formal agreements with participating organizations and systems;
- Identify and assess the parties responsible for investing in, developing, managing and maintaining the cluster platforms;
- Carry out a pricing study to establish the costs for the port and determine the financial impact on the interested parties in the 'Intelligent Port Logistics Chain' project;
- Propose a business model for the port logistics chain information management, including legal and institutional aspects;
- Propose a process harmonization plan based on internationally-used models.

**FUNDING BODY:** Federal Government of Brazil – The FEESC of the Federal University of Santa Catalina (UFSC)

## MULTIDIMENSIONAL SURVEY OF THE LOGISTICS CHAIN PROCESSES OF THE PORT OF SAN ANTONIO AND PROPOSALS FOR OPTIMIZATION SOLUTIONS

### WORK TEAM

**FV Coordinator:** David Calduch

**Research team:** Gabriel Ferrús, Ma Luisa Escamilla, Miguel Llop, Salvador Furió

**TIMEFRAME:** October 2016 - September 2017



**OBJECTIVE:** Identify suggested improvements to optimize the logistics chain of the Port of San Antonio (Chile) through the implementation of new procedures, business rules, regulatory elements (locations or other), Technology Implementation using Information Systems such as PCS (Port Community System), hardware platform for the operating of the services associated with the systems, technological elements for the automated collection of data, identification of all interactions necessary for process integration between companies, in addition to improving site configurations where activities linked to the aforementioned processes are carried out, and lastly, business models for the operational activities of these technology platforms and sites where logistics activities occur.

**FUNDING BODY:** San Antonio Port Company (ESPA)



### 2.2.6. Others

Beyond the research programs described in the previous sections, which have incorporated a considerable number of actions structured around topics of undoubted interest for the ports and their associated chains, over the last two years Fundación Valenciaport has developed a whole range of initiatives that have had a double purpose. On the one hand, these activities have supported the development of Valenciaport's strategic plan, providing innovative solutions to the challenges contained within. On the other hand, these initiatives have met the specific needs of key players in the Valenciaport cluster and its environment, supporting companies and organizations involved more or less directly in the promotion of foreign trade and transport policies.

As will be described in more detail over the following pages, the first category includes projects oriented towards the development of the Guarantee Mark of the Port of Valencia, the improvement of financing for infrastructure and innovation projects, the provision of value added information on European transport policy, the development of cruise policy or innovation in the field of container terminal planning and management. In addition to these initiatives, other projects have been carried out to improve the information available for decision-making in the port maritime field.

The second category covers Fundación Valenciaport's participation in the MESA (Maritime Europe Strategy Action) project, which contributes to drawing up European maritime policy, in collaboration with top European R&D advisory centres.



## MESA - MARITIME EUROPE STRATEGY ACTION - FOSTER WATERBORNE

### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Antonio Torregrosa, Gabriel Ferrús, Miguel Llop, Clara Peña, Marina Sáez

**Project partners:** European Community Shipowners Associations

- CESA (Belgium) - (coordinator); Centre of Maritime Technologies EV (Germany); Hamburgische Schiffbau-Versuchsanstalt GMBH (Germany); Fincantieri - Cantieri Navali Italiani Spa (Italy); Centre d'études Techniques Maritimes et Fluviales (France); Norsk Marinteknisk Forskningsinstitutt AS (Norway); Corporación Marítima Lobeto Lobo S.L. (Spain); Inlecom Systems Ltd (United Kingdom); D'appolonia Spa (Italy); Brookes Bell LLP (United Kingdom); Safinah Limited (United Kingdom); European Council for Maritime Applied R&D Association (Belgium); Stichting Centrum Voor Maritieme Technologie en Innovatie (The Netherlands); Meyer Werft GmbH (Germany); Germanischer Lloyd SE (Germany); BMT Group Limited (United Kingdom); Scheepswerf Damen Gorinchem BV (The Netherlands); Rheinisch-Westfälische Technische Hochschule Aachen (Germany); Danaos Shipping Company Ltd (Cyprus); Rolls-Royce Power Engineering PLC (United Kingdom); University of Strathclyde (United Kingdom); DCNS SA (France); Bureau Veritas-Registre International de Classification de Navires Et D'Aéronefs SA (France); International Council of Marine Industry Associations (Belgium); Foundation Wegem - a European Association of Universities in Marine Technology and Related Sciences (The Netherlands); Flensburger Schiffbau-Gesellschaft GmbH & Co KG (Germany)

**TIMEFRAME:** September 2013 – August 2016

**FUNDING BODY:** Project co-financed by the European Commission through the 7th Framework Programme



### PROJECT JUSTIFICATION AND RESULTS:

The primary objective of the MESA project is to bolster the effectiveness of the R&D&I capacity of the European maritime industry.

The specific objective of the project is to support the WATERBORNE Technology Platform for updating the strategic research agenda and creating an innovation agenda that contributes to shortening the gap between research and the subsequent adoption of results in the market.

### METHODOLOGY

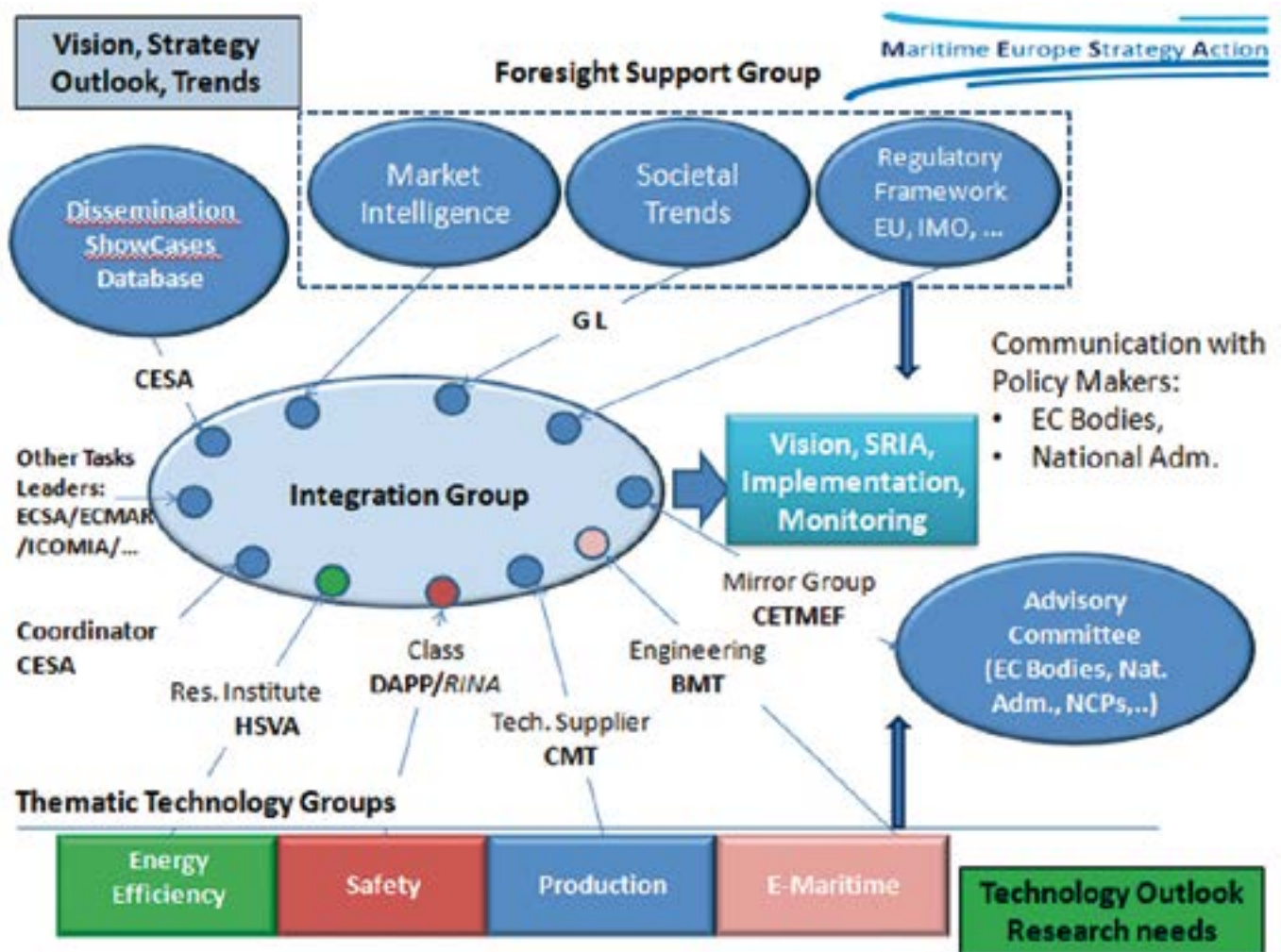
To develop the MESA project, four thematic technology groups were created with sector professionals and scientists,

in order to identify the main R&D&I challenges in different areas:

- TG1 – Energy Efficiency
- TG2 – Safety
- TG3 – Production
- TG4 – e-Maritime programmes

The work of these thematic groups is complemented by the identification and analysis of long-term market, regulatory and societal needs. The integration group is then responsible for translating these needs and the main R&D&I challenges into the new Waterborne platform strategy.

## PROJECTS



The project also has a dissemination team, to ensure communication of the results and information obtained over the course of the project.

## RESULTS

The results of the MESA project are set out in the Strategic Research and Innovation Agenda of the Maritime Sector, where a review of the state of the art is carried out for each of the four thematic areas (Energy Efficiency, Safety, Production and e-Maritime), as well as the identification of priority research areas and the proposal of the innovation paths to be followed in order to bring the research results to market.

The 'Waterborne Vision 2030 and Innovation Opportunities' and 'ICT Maritime Opportunities 2030' documented briefly below provide a useful summary of the project results:

## VISION

Powered by continuing research and innovation, the EU maritime industry will maintain its position as a global leader in high value maritime business. Our ships will be the smartest, greenest and safest on the world's seas; our autonomous vessels will be an increasingly common sight around the world and our passenger ships will be renowned globally for their safety and sophistication.

Smart ships, smart ports and smart infrastructure will be facilitated by the growing EU maritime data highway which will provide high capacity, low cost and secure data communications around our coasts. Close to zero environmental impact will be achieved by clean engines and clean fuels, low resistance hulls and rigorous management of all emissions. Adoption of green technologies on the operating fleet will be facilitated by plug-in refitting solutions.



Electric vessels in and around our maritime cities will be the norm. Port facilities will include clean, shore based power for larger vessels, and smaller vessels will routinely enter and leave ports and harbours under electric propulsion.

New sensors, data management and communications technologies will not only pave the way towards reduced manning and vessel autonomy but will also allow for smarter, cleaner and safer vessels. Fully integrated transport logistics will ensure the seamless transfer of materials and goods from source to final destination.

Safety and security of our shipping will be enhanced further by the development of improved materials for impact and fire resistance, by a better understanding of ship behaviour in abnormal conditions and by improved emergency planning and execution.

The EU will continue to lead the way with the design, build and operation of innovative, flexible, modular, and highly efficient working boats. With the inexorable increase in shipping and offshore activity, these vessels will take on an even more important role in the provision of the day to day services that keep our maritime industry on the move. The new challenges of Blue Growth will be met with specialized vessels, that are modular and reconfigurable throughout their entire operational life.

Increasing wealth around the world will lead to a growing middle class, with more disposable income to spend on goods, services and leisure. The EU will retain its lead in the design, build and operation of cruise vessels to satisfy this market and the recreational marine sector will lead the world with innovative craft responding to ever increasing customer expectations.

Advanced production technologies will underpin the high value products being built, using advanced modelling techniques, joining technologies and new materials to deliver flexible and cost effective solutions.

The future for the EU maritime industry is bright, with global trends clearly indicating an increasing market for the sophisticated, high value technologies and products for which our industry is renowned.

### Smart vessels, fleets and ports

Waterborne transport will be an integral part of an efficient logistic chain. Connection with other transport modalities, or inland-waterway transport, will be seamless. Smart vessels will communicate with smart ports to limit congestion, waiting time and thus costs. Smart vessels will adapt their sailing speed to match harbour slots automatically.



An important facilitator for seamless integration of transport modalities will be the further harmonization of administration between EU member states and regions.

Smart vessels will automatically file the necessary paperwork, and provide port authorities with cargo information.



## PROJECTS

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Constant real-time connected and monitored vessels worldwide will see ships become more closely integrated into logistics or supply chains. Global companies will focus on using a whole fleet to best effect, generating cost savings and improving revenue generation. This has the potential to create new shipping services, such as online cargo service marketplaces, more efficient pooling and leasing of assets, and new alliances.

Smart vessels will be able to adapt their operations not only to congestion in ports, but also to for instance weather conditions. Fuel consumption over the whole sailing route will be minimized by taking weather predictions and loading condition into account for selecting the optimal route and speed.

Ports will facilitate the energy transition of the fleet, by providing bunkering possibilities for different fuels, as well

as recharging capabilities for electric or hybrid vessels. Safe solutions for bunkering of LNG will be provided, possible away from the quay.

### Automated and autonomous vessels

With the increasing possibilities of ICT technologies, ships will become fully connected throughout the world. This will create a wealth of opportunities in automated and autonomous vessels. Remote monitoring of vessels is already possible, allowing for condition-based maintenance. Building on the increasing automation on-board, remote operations of vessels will become possible, eventually moving towards full autonomy of vessels. The wider use of Unmanned Autonomous Vessels (UAVs) – either aerial, underwater or on surface – will increase flexibility and energy efficiency of operations.



Remote operations require automation of all main systems on-board, and integration into a single communication channel to shore. A critical component will be the advanced navigation system, that will be able to maintain a vessel's course, detect and adapt to changing sea and weather conditions, avoid collisions and operate the ship efficiently within specified safety parameters. The system will be flexible to allow for different levels of autonomy, depending on location, congestion, or emergencies.

Onshore control centres will be responsible for operating vessels in congested sea lanes, or in proximity

to ports and terminals, and in emergency situations. These control centres will be equipped with system simulators designed to swiftly simulate scenarios including all ships involved, and facilitate human intervention.

Reliability and security of communication will be key to the success of the connected vessel.

Inland waterway transport and short-distance ferries will be early adopters of the newest technology for autonomous shipping.

### Ultra-low energy and emissions vessels and systems

LNG will be the main fuel, with uptake first on short-sea ships operating in areas with developed gas bunkering

infrastructure. Large ocean-going vessels will follow when bunkering infrastructure becomes available around the world. All new-builds will be equipped with multi-fuel engines, to allow for a smooth transition of main fuels.



Ultra-low or zero emissions will be achieved by electric propulsion in special areas, such as ports or ECAs. Locally operating vessels will be fully electric; other vessels will have hybrid propulsion systems. Ships will become wind-assisted, and batteries for non-propulsion workload will be recharged by solar energy.

The power required to propel the ship will be minimal due to high efficiency propulsors, air lubrication or special coatings, and a hull design optimal for actual operational

conditions. Latest virtual reality and simulation tools will be used to design the ship fit for operations.

### Safe, secure and adaptable passenger vessels for inland, inshore and offshore duties

The increasing population in coastal areas will require safe and swift Waterborne transport. Ferries will be built according to high safety standards and with low emissions.



## PROJECTS

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Many ferries will be all electric, recharging in ports and from solar energy.

Demand for cruises will be driven by the growing middle class worldwide. Next generation cruise vessels will not only be larger, but also more diversified to match local market requirements and environmental restrictions. Use will be made of the newest light-weight materials to save energy. Noise emissions under water will be low to comply with strict regulations. Customer experience will be enhanced by more open spaces and glass in the superstructure, and by an integrated interconnection between ship's IT infrastructure and passengers' personal devices.

The structural and safety aspects will be tackled by the latest insights in composites with regards to strength and fire resilience, hydrodynamic loads in the structure in intact and damaged situations, and in human behaviour for evacuation. Innovative rescue equipment will be applied.

Many technologies developed for cruise vessels and ferries will be applied to the newest recreational craft. On the other hand, recreational craft will be used as test beds for larger vessels, because of their relatively low power demand. Examples will be the electrification, and use of

light-weight new materials. Super yachts will be used as launching customer for cutting edge technologies.

In a polarizing world, security of passenger vessels against outside external attacks is a growing concern. The newest vessels will be able to withstand terrorist attacks, and be invulnerable to digital hijacking.

### **Flexible craft for coastal and offshore duties**

With the onset of the Blue Economy, an increasing number of vessels for coastal and offshore duties will be in operation. Although many of these activities require dedicated vessels, all activities benefit from lowering of costs by employing a modular design of vessel and equipment. Within a relatively short period of time, ships can be refurbished to facilitate new offshore activities. Many of the vessels will be deployed as search-and-rescue vessels in case of emergencies.

The offshore workboats will be characterized by a large operation window in adverse sea states. Cost of operation will be minimized by allowing crew to perform their tasks in a safe and healthy manner for



most of the year. Although energy efficiency will not be the main economical driver for these vessels, dedicated ship design and propulsors will ensure a low power

consumption in transit and operation. Noise emissions, both into the ship and under water, will be low to comply with strict regulations.



## Green, efficient and flexible inland-waterway vessels

The new generation inland-waterway vessels will provide an integrated, energy-efficient, and flexible alternative to road transport.

Emissions from inland shipping will be very low through the use of low-carbon fuels, and hybrid propulsion. Dedicated shallow-water propulsors, and air lubrication will increase the efficiency of ships significantly.

All ships will be digitally connected to shore and each other to exchange information on local water depth, current profile, operations of locks, and congestion. Based on this information, the operation of the vessel is optimized with respect to fuel consumption and interaction with the logistic chain. Parts of the river navigation will be autonomous.

Flexibility of the inland fleet will be achieved by modular concepts, and the further application of barge trains.

## ICT RESEARCH PRIORITIES

Four research priority topics for future research, development and innovation have been identified, to address the impacts and challenges for Maritime Connected and Automated Transport, and to implement the main ICT opportunities.

The requirements for Maritime Connected and Automated Transport needed to address the opportunities and activities identified are given below:

**Smart and Autonomous ships:** vessels with reduced manning levels, real-time monitoring of ship performance with automated information management and surveillance.

Improved integration with shore support centres for technical operation and remote maintenance. As data networks, data management, and sensors become more vital for ship operation, these systems will need to be carefully protected from cybersecurity risks.



**Smart and Connected Ports:** Smart ports with Digital infrastructure and ICT innovation: Robotics and automation; autonomous vehicles; the Internet of Things and Big Data Analytics, simulation and virtual reality, cybersecurity. Integration of national single windows with trade portals and port community systems: providing one entry point for all logistics, operational and administrative information.

**European Marine Digital Highway:** Integration of navigation technologies with shore based data networks and centres (SafeSeaNet, (AIS, LRIT), GNSS, National Single Window, VTS, route planning etc.) with the corresponding navigational and communication facilities aboard ships to provide an accurate, safe and secure "e-Navigation-based" ship traffic and transport management system for a marine digital highway.

**European Integrated Transport Information System:** Improved interconnectivity and integration between transport modes, based on semantic interoperability or common reference models and established systems, such as: Maritime national Single Windows, RIS, e-Customs, TAF, ERTMS, rail one stop shop, "access points", "data pipelines"; digitalization of transport documents and acceptance of e-transport documents.

Open, reliable and transparent access to transport and trade information can also create new or change existing business models. The new models can be based on using the increased opportunities for transparent risk and profit sharing. This is a prerequisite for full optimization of the transport and trade systems.



### CONPESO

#### WORK TEAM

**FV Coordinator:** Salvador Furió, Miguel Llop

**Research team:** Alexandre Sánchez, Andrea Muñoz, Mark Tanner, Marina Sáez, Gonzalo Vázquez-Illà, Laura Pérez,

**TIME FRAME:** June 2016 - indefinite

**FUNDING BODY:** Port Authority of Valencia



#### PROJECT JUSTIFICATION AND RESULTS:

This project entailing the deployment of information and communication technologies (ICT) in real environments enables users of the ports managed by the Port Authority of Valencia to comply with the regulations regarding the verification of containers' gross mass. These new regulations were passed by the IMO Maritime Safety Committee under the SOLAS Convention, which began to be applied worldwide from 1st July 2016

ConPESO is a tool that enjoys the support of the Port Authority of Valencia. It provides shippers or their representatives with a network of properly calibrated scales connected to the valenciaportPCS portal, which enables automatic sending of the information to the shipping companies and terminals, thus avoiding errors and eliminating wait times.

Users of this service can consult the available scales on a map and on a list, where they will also find relevant information regarding the exact location of the scale, total price of the service and opening hours.

This Marketplace offers users multiple advantages such as being able to choose the scale that requires the smallest detour in their route; reducing the time and paperwork required for weighing the lorry; avoiding

double weighing of the lorry to obtain the verified gross mass of the container; and reducing transport operation costs.



The operation of this Marketplace begins when the shipper or their representative places the weighing request. With the weighing request confirmation or the valenciaportPCS admission order, the carrier then goes to the scale for weighing. From here, the calculation of the verified gross mass is automatically sent to the shipping company and the terminal.

## Alta de Solicitud de Pesaje | Datos de la Solicitud

## SOLICITUD DE PESAJE ACTIVA

Su saldo actual es de 0,00 €

Nro. Solicitud <b>426454787608</b>	Localizador <b>98990</b>	Fecha Solicitud <b>21-03-2017</b>	Fecha Pesaje <b>No disponible</b>	Fecha Notificación <b>No disponible</b>
VGM <b>0 Kg</b>	Contenedor <b>MRKU8623470</b>	Método <b>1 - Báscula</b>	Descripción de la Solicitud <input type="text"/>	

Respuesta VERMAS:

## Datos del Solicitante

Solicitante <b>CONPESO</b>	Nombre <b>CONPESO</b>
CIF del Solicitante <b>12345</b>	Dirección del Solicitante <b>Cifredo 114, Valencia, 46011 Valencia</b>

## Datos del Cargador

Razón Social <b>CONPESO</b>	CIF <b>12345</b>	Dirección <b>Cifredo 114, Valencia, 46011 Valencia.</b>
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## Transporte

Localizador admisión puerto: <input type="text" value="R2RFY7"/>	Trámite:		
Matrícula camión: <input type="text" value="383TCB5"/>	Matrícula remolque: <input type="text" value="V17477R"/>	Nivel depósito:	<input type="text" value="Medio"/>
Referencia orden admisión puerto: <input type="text"/>			
Booking: <input type="text" value="JBC0329204"/>	Contenedor: <input type="text" value="TCLU8442455"/>	Naviera (SCAC):	<input type="text" value="CMDU    CMA CGM"/>
Código barras de la orden: <input type="text" value="06207918737113373963"/>			
Agente marítimo: <input type="text"/>	CIF Agente marítimo: <input type="text"/>		

IMPRIMIR TICKET

IMPRIMIR SOLICITUD

Since the launch of conPESO on 1st July, a total of 21 scales have been incorporated into this platform. All these scales fully comply with the requirements set out by the Merchant Navy Resolution of 15th June 2016 and offer weighing services to shippers and users. In addition to the scales that provide services to third parties, there are private scales that are for the exclusive use of their owners, increasing the total number of registered conPESO scales.

The public scales that provide weighing services to third parties are strategically located (many of them within the

port precinct) and cover the main routes connecting the three ports of the Port Authority of Valencia.

Furthermore, conPESO continues to arouse the interest of the different stakeholders involved in the container export logistics chain. There are currently more than 400 companies from the port community and Valencian business network that have registered with conPESO, including shippers, freight forwarders and customs agents as well as haulage firms.



This tool is useful not only for those who need to weigh a container, but also those who, when calculating the VGM of their container, need a tool that enables them to communicate that weight.

Through these initiatives, Fundación Valenciaport reinforces its commitment to serve and support companies and associations of the port logistics community, providing innovative solutions to the new challenges that arise.

## ASSISTANCE TO THE R&D&I COORDINATION STRUCTURE OF THE STATE-OWNED PORT SYSTEM THROUGH THE TECHNICAL SECRETARIAT OF THE R&D&I INTERPORT COMMITTEE

### WORK TEAM

**FV Coordinator:** Arturo Monfort

**Research team:** Noemí Monterde, Miguel Llop, Antonio Torregrosa, Rafael Company

**TIME FRAME:** July 2014 - July 2015

**OBJECTIVE:** The contracted services of Assistance to the Technical Secretariat of the R&D&I Interport Committee, overseen by the State Port Authority, focus on providing organizational support and technical assistance. Technical assistance covers the following areas: providing support for SPE communications with the framework of national and European R&D&I subsidies for developing consortium projects; technical assistance and organizational support for the activities of the Working Groups (WG1, Smart Ports; WG2, Sustainability; and WG3, Infrastructures); and performing tasks such as organizing port-related R&D&I seminars, carrying out surveys and providing statistical information on SPE activities in this area, as well as incorporating new content to the SPE's R&D&I web page (WIDISPE at [www.puertos.es](http://www.puertos.es)).

**FUNDING BODY:** State Ports



## MONITORING OF EUROPEAN TRANSPORT POLICY: FINANCING PROJECTS AND ANALYZING TRANSPORT POLICIES

### WORK TEAM

**FV Coordinator:** Antonio Torregrosa

**Research team:** Vicente del Río, Remedios Cebriá, Arturo Monfort, Eva Pérez, Amparo Mestre, Salvador Furió, Carolina Navarro, Clara Peña, Rocío García, David Calduch, Jaime López, José Andrés Giménez, Lorena Sáez, Miguel Llop, Noemí Monterde

**TIME FRAME:** January 2012 - December 2014

**OBJECTIVE:** The objective is two-fold, on the one hand, to improve information that the PAV and businesses from the Valenciaport cluster handle regarding European transport policy, providing in depth knowledge of the rules and regulations that affect our activities; and on the other, the regular and systematic provision of information concerning the different financing programmes that might affect the activities of the Port of Valencia.

**FUNDING BODY:** Port Authority of Valencia

## QUALITY IN THE PORT COMMUNITIES OF VALENCIA AND SAGUNTO: DEVELOPING A QUALITY GUARANTEE MARK

### WORK TEAM

**FV Coordinator:** Antonio Torregrosa

**Research team:** Vicente del Río, Remedios Cebriá, Arturo Monfort, Eva Pérez, Amparo Mestre, Salvador Furió, Carolina Navarro, Clara Peña, Rocío García, David Calduch, Jaime López, José Andrés Giménez, Lorena Sáez, Miguel Llop, Noemí Monterde

**TIME FRAME:** January 2014 - December 2017

**OBJECTIVE:** The overall objective of the project is to provide technical support to the Quality Boards of Valencia and Sagunto, and to their different work groups, analysing the specific issues that affect the correct functioning of the Port Community, and helping to find a set of potential solutions.

THE PAV is currently the head of the aforementioned Quality System. Its role is closely linked to the aim of Fundación Valenciaport; namely to serve the port and logistics community to strengthen its structure and to boost its competitiveness.

**FUNDING BODY:** Port Authority of Valencia



### STRENGTHENING THE PORT-CITY RELATIONSHIP BY BUILDING UP CRUISE SHIP TRAFFIC AND IMPROVING URBAN LOGISTICS

#### WORK TEAM

**FV Coordinator:** Salvador Furió

**Research team:** Ana Rumbeu, Mar Monzó, Carolina Navarro, Antonio Torregrosa, Pilar Sánchez, Pilar Blaya, Andrea Munoz

**TIME FRAME:** January 2014 - December 2017

**OBJECTIVE:** The objective of the project is to improve the expertise of agents from the Valenciaport cluster in a number of fields with close ties to them: cruise tourism, mobility and innovation in urban freight logistics.

**FUNDING BODY:** Port Authority of Valencia

#### 2.2.7. Databases and simulators

As part of its role as a tool for the port-logistics community to enhance its competitiveness and improve the structuring of member companies and institutions, Fundación Valenciaport is undertaking a series of actions aimed at developing market-oriented information and making it available to the Port Authority of Valencia and the companies that make up the cluster. This information helps

these organizations in their strategic and operational decision-making. In this regard, Fundación Valenciaport uses databases and simulators to produce comprehensive, quality information, which in turn is used for input into studies for a range of projects. Thus, Fundación Valenciaport maintains the databases Lineport, LineRail and Trade-Data-Flows, VESSL Database and VESSELS4VESSL Database as well as the twice-yearly newsletter SSS and Rail Services in Spanish Ports

### TRADE-DATA-FLOWS: "TRADE AND TRANSPORT FLOWS IN SPAIN"

#### WORK TEAM

**FV Coordinator:** Amparo Mestre

**Research team:** Purificación Albert, Eva Pérez

The purpose of this database is to collect, systematize and validate information on foreign trade operations provided by the Customs and Excise Department of the Tax Agency, as well as to complement the available information with various variables and indicators on these operations, thus boosting the information capacity of the original source.

### LINEPORT: A TOOL FOR ANALYSING SSS IN SPAIN

#### WORK TEAM

**FV Coordinator:** Lorena Sáez

**Research team:** Purificación Albert, Amparo Mestre, Eva Pérez, Julián Martínez, Núria Alonso

The Lineport database periodically compiles information on the characteristics of the regular short sea shipping (SSS) services connecting Spanish ports with other EU ports or ports in countries bordering the Adriatic, Baltic, Aegean, Mediterranean, Black and North Seas.

The information contained in Lineport offers a comprehensive view of the SSS services offered in Spain and enables detailed analysis of the characteristics of such services in each of the ports, thereby contributing to a better understanding of the current state of SSS in Spain, its limitations and potential as an alternative / accompaniment to road transport.

## LINERAIL: A TOOL FOR ANALYSING RAIL SERVICES IN SPAIN

### WORK TEAM

**FV Coordinator:** Lorena Sáez

**Research team:** Amparo Mestre, Eva Pérez

The LineRail database continually collects detailed information about regular rail services offered in Spanish ports with the aim of providing quality information to shippers and operators interested in using rail to transport their goods.

The potential outputs of the LinePort and LineRail databases are:

- Provide the Spanish Port-Logistics Community with comprehensive, quality information on the SSS and rail service offering, thus better equipping them for decision-making in their respective fields.
- Publication of a twice-yearly newsletter on the state of SSS and rail freight transport in Spanish ports. The LinePort Newsletter can be downloaded free from Fundación Valenciaport's website: [www.fundacion.valenciaport.com](http://www.fundacion.valenciaport.com).



Front cover of the newsletter SSS and Rail Services in Spanish Ports

## VESSL DATABASE: "VALENCIAPORT EUROPEAN SHORT-SEA SHIPPING LINES DATABASE"

### WORK TEAM

**FV Coordinator:** Jorge Lara

**Research team:** Amparo Mestre, Purificación Albert, Lorena Sáez, Josep Sanz, Núria Alonso, Eva Pérez, Mark Tanner, Julián Martínez

This database includes information about the SSS services operating in European ports, including the basic characteristics of such services such as route, frequency, seasonality, shipping or traffic type, among others. As such, it represents a key input in the analysis of maritime transport services in Europe

## VESSELS4VESSL DATABASE: "VESSELS FOR VALENCIAPORT EUROPEAN SHORT-SEA SHIPPING LINES DATABASE"

### WORK TEAM

**FV Coordinator:** Jorge Lara

**Research team:** Eva Pérez, Lorena Sáez, Josep Sanz, Purificación Albert, Amparo Mestre, Núria Alonso

The Vessels4Vessl database complements the previous one and includes information on all the vessels assigned to the abovementioned services. It covers the defining characteristics of the vessels (dimensions, type of cargo transported, capacities, operators or classification societies) as well as detailed information on the ships' engines (type, fuel consumption, design, main and auxiliary power, cylinders, among others).



3

**ASSOCIATIONS**





### 3. FUNDACIÓN VALENCIAPORT'S MEMBERSHIP OF ASSOCIATIONS

- Asociación Española de Fundaciones (Spanish Association of Foundations)
- Asociación Española de Promoción del Transporte Marítimo de Corta Distancia (Spanish Association for the Promotion of Short Sea Shipping)
- Asociación Internacional de Ciudades y Puertos (AIVP) (International Association of Cities and Ports)
- Asociación para la colaboración entre puertos y ciudades (RETE) (Partnership for collaboration between ports and cities)
- WISTA Spain
- Forética
- Instituto Tecnológico de Informática (ITI) (Technological Institute of Computer Sciences)
- International Association of Maritime Economics (IAME) (International Association of Maritime Economics)
- International Maritime Statistics Forum (IMSF)
- Plataforma Tecnológica en Logística Integral, Intermodalidad y Movilidad – Logistop (Technological Platform for Integrated Logistics, Intermodality and Mobility)
- Plataforma tecnológica del sector marítimo español (Technology platform of the Spanish maritime sector)
- Plataforma Tecnológica Europea de Logística (Alliance for Logistics Innovation through Collaboration in Europe - ALICE)
- PPP Vessels for the future
- Waterborne European Technology Platform





4

**SEMINARS AND  
CONFERENCES**

## RESULT OF THE RESEARCH / "EXCHANGE OF IDEAS WITH THE PORT LOGISTIC COMMUNITY"

### 4.1. INTRODUCTION

Fundación Valenciaport organizes a programme of research seminars, targeted at the port logistics cluster. The aim of these events is to maximize the dissemination of the results of its projects and promote the exchange of ideas with the Port Community. In the period 2015-2016, Fundación Valenciaport has organized 18 seminars and conferences, several of them in collaboration with other organizations.

### 4.2. LIST OF SEMINARS AND CONFERENCES

#### 21 JANUARY 2015

**"CONTAIN Demo Day".** Organized by Fundación Valenciaport in collaboration with the Port Authority of Valencia within the framework of the project "CONTAIN - Container Security Advanced Information Networking". Valencia (Spain).

#### 12 FEBRUARY 2015

**"Closing session BUNKERLOGIX project".** Organized by Fundación Valenciaport within the framework of the project TEN-T "BUNKERLOGIX - Flexible LNG bunkering value chain in the Spanish Mediterranean coast". Valencia (Spain).

#### 28 APRIL 2015

**"Smile Final Conference".**

**Energy Efficiency in Urban Logistics".** Organized by Fundación Valenciaport within the framework of the project MED "SMILE - Smart Green innovative urban logistics for energy efficient Mediterranean cities". Valencia (Spain).

#### 1 JULY 2015

**Free seminar "Veterinary and phytosanitary certification for the export of agrifood products".** Organized by Grupo Aula Portuaria with the collaboration of the Ministry of Agriculture, Food and Environment and the Government Delegation in the Valencian Community. Valencia (Spain).

#### 14 AND 15 OCTOBER 2015

**"LNG Transport Forum".** Organized by Actia Forum in collaboration with Fundación Valenciaport and the Port Authority of Valencia. Valencia (Spain).

#### 19 OCTOBER 2015

**"Self-employment workshop for vulnerable groups".** Organized by Fundación Valenciaport in collaboration with Fundación Emplea. Valencia (Spain).



Image Contain Demo Day. Valencia, 21 January 2015



Image Smile Final Conference. Valencia, 28 April 2015

#### 21 OCTOBER 2015

**"Energy efficiency in ground transportation and last mile distribution".** Seminar organized by Fundación Valenciaport in the ENCAJA trade fair, within the framework of the projects MED "SMILE - Smart Green innovative urban logistics for energy efficient Mediterranean cities" and "COEFFICIENT - Collaborative framework for energy efficient SME systems". Valencia (Spain).

#### 10 NOVEMBER 2015

**Free workshop "How to adapt to the new customs and tax scenario: great challenges for the logistics sector".** Organized by Grupo Aula Portuaria with the collaboration of Deloitte. Valencia (Spain).

#### 26 NOVEMBER 2015

**"SEA TERMINALS Demo Day".** Organized by Fundación Valenciaport in collaboration with the Port Authority of Valencia and Noatum within the framework of the TEN-T project "SEA TERMINALS - Smart, Energy Efficient and Adaptive Port Terminals". Valencia (Spain).



## SEMINARS AND CONFERENCES

### 2 DECEMBER 2015

**Free Conference “The international convention for the control and management of ships’ ballast water and sediments: a challenge for the maritime industry”.**

Organized by Port Authority of Valencia, The College of Naval and Oceanic Engineers and Fundació Valenciaport. Valencia (Spain).

### 16 DECEMBER 2015

**“Digitalization of the documentation for Maritime Transport and Single Window”.** Organized by Fundació Valenciaport in collaboration with the Port Authority of Valencia within the framework of the TEN-T project “B2MOS - Business to motorways of the sea”. Valencia (Spain).

### 27 JANUARY 2016

**“The new extension of the Suez Canal and its economic impact for the maritime sector”.**

**Organized by Fundació Valenciaport and delivered by Akram Soliman and Ihab Mahmoud El-Kassas.** Valencia (Spain).

### 16 MARCH 2016

**“GAINN open conference”.** LNG as marine fuel: the moment of truth”. Organized by Fundació Valenciaport within the framework of the CEF projects “GAINN4MOS y GAINN4SHIP INNOVATION”. Valencia (Spain).

### 4 MAY 2016

**Conference “The logistics of commercial distribution and the supply chain: a vision from experience”.**

Organized by Fundació Valenciaport in collaboration with Universitat Politècnica de Valencia. Valencia (Spain).



Image of the schedule for the “LNG Transport Forum”  
Valencia, 14 and 15 October 2015



Group photo at the GAINN Open Conference. Valencia, 16 March 2016



Image of the schedule for the "SEA TERMINALS Valencia Demo Day" Valencia, 26 November 2015

**6 MAY 2016**

**"MEDUSA international conference".** Cyber-security in the Supply Chain: New approaches and challenges". Organized by Fundación Valenciaport within the framework of the European project "MEDUSA - Multi-Order dependency approaches for managing cascading effects in ports' global supply chain and their integration in risk assessment frameworks", financed by the programme CIPS DGHOMÉ. Valencia (Spain).

**7 JUNE 2016**

**"Port Governance: towards a better port industry".** Organized by Fundación Valenciaport and delivered by Dr. Peter de Langen. Valencia (Spain).

**23 JUNE 2016**

**"Mobility and logistics in construction".** Organized by The Valencian Federation of Construction Businesspeople - FEVEC in collaboration with Fundación Valenciaport within the framework of the H2020 project "SUCCESS - Sustainable urban consolidation centres for construction". Valencia (Spain).

**13 DECEMBER 2016**

**"Fiscal News".** Organized by Grupo Aula Portuaria in collaboration with Fides. Valencia (Spain).

**14 DECEMBER 2016**

**"Criminal compliance".** Organized by Grupo Aula Portuaria in collaboration with Fides. Valencia (Spain).





5

PUBLICATIONS  
AND  
PARTICIPATION  
IN FORUMS AND  
CONFERENCES

## 5.1. INTRODUCTION

In order to publicize the results of the research carried out at Fundación Valenciaport, representatives of different areas have participated in numerous congresses, scientific meetings, forums, etc., to present papers. They have also published books, book chapters and research articles on port logistics. The following is a summary of the work that has been published during this period:

## 5.2. LIST

### 5.2.1. Articles

#### **"The limits of innovation".**

In Harbours Review. Pages 6-7.  
Giménez, José Andrés; Olmeda, Eduardo. (March 2015).

#### **"Characterization of containers' logistic chain".**

In the Congress Proceedings of the Industrial Simulation Conference 2015. Pages 68-72.  
Giménez, José Andrés; Olmeda, Eduardo. (June 2015).

#### **"Feasibility of LNG Fuel for the Mediterranean SSS Fleet: Profitability, Facts and Figures".**

In the Congress Proceedings of ECONSHIP, Chios (Greece).  
Pérez, Eva; Mestre, Amparo; Sáez, Lorena; Lara, Jorge. (June 2015).

#### **"Towards paperless transport for consolidated shipments".**

In the Conference Proceedings of the European Conference on ICT for Transport Logistics (ECITL), Bordeaux (France).  
Sáez, Lorena; Lara, Jorge; Llop, Miguel. (October 2015).

#### **"Using information and making more of existing infrastructure".**

In Port Strategy.  
Mendes, Jonas. (February 2016).

#### **"Learn from past mistakes".**

In Port Strategy.  
Mendes, Jonas; De Langen, Peter. (April 2016).

#### **"Adaptación del primer buque ropax de alta velocidad utilizando gas natural licuado como**

#### **combustible marino". (Retrofitting the first high-speed ropax vessel to run on liquefied natural gas)**

In the Conference Proceedings of the International Conference on Energy and the Environment (GENERA), Madrid (Spain).  
Sáez, Lorena. (May 2016).

#### **"Coordination in Ports: A comparative Study of the Ports of Valencia and Santos".**

In International Journal of Transport Economics. Volume 43, Pages 67-84.  
Bergmann, Guilherme; Kliemann, Francisco José; Do Santos, Luis Alfonso; Mendes, Jonas; De Langen, Peter. (March- June 2016).

#### **"Primera adaptación de un buque ropax de alta velocidad utilizando gas natural como combustible marino". (First retrofitting of a high-speed ropax vessel to run on liquefied natural gas)**

In the Congress Proceedings of the National Congress on the Environment (CONAMA), Madrid (Spain).  
Sáez, Lorena. (November 2016).

#### **"The innovation dilemma in the port and shipping sector".**

In Port Strategy. Pages 39-41.  
Mendes, Jonas; Pérez, Alexandre. (December 2016).

#### **"Procesos de planificación estratégica de sistemas portuarios: un análisis comparativo de Brasil y España". (Strategic planning processes for port systems: a comparative analysis of Brazil and Spain)**

In Harvard Deusto Business Research. Volume 2, Pages 87-106.  
Mendes, Jonas; Giner, Arturo; Lunkes, Rogério Joao; Ripoll, Vicente. (December 2016).

#### **"Issue paper on the development of priorities for pillar 2: Maritime transport integration in the global logistics chain".**

In Simpson, Brian (Uu Coordinator For Motorways Of The Sea): Motorways Of The Sea Detailed Implementation Plan. Move/ B1/2015-201 | Study On The Ten-T Motorways Of The Sea Horizontal Priority.  
Pérez, Eva (2016).

#### **"Decision support system to design feasible High-Frequency motorways of the sea. A new perspective for public commitment".**

In The Engineering Economist.  
Carmen, Juan; Olmos, Fernando; Pérez, Eva (2016).





### 5.2.2. Books

**"La industria de cruceros: características, agentes y sus funciones" (The Cruise Industry: features, agents and their functions)**

ISBN: 978-84-940351-8-0

Esteve, Jerónimo; García, Antonio. (2015)

**"Feasibility of LNG as a Fuel for the Mediterranean SSS Fleet: Profitability, Facts and Figures"**

ISBN: 978-84-940351-9-7

Pérez, Eva; Mestre, Amparo; Sáez, Lorena; Lara, Jorge. (2015)

**"Maritime container safety"**

ISBN: 978-84-940351-9-7

Soler, Alfredo. (2016)

### 5.2.3. Book Chapters

**"The multiple functional roles of port community systems roles in the Mediterranean countries" Perspectives and recommendations for competitiveness of Mediterranean ports.**

In Outcomes of the Futuremed strategic project of the EU MED Programme. Chapter 5, Pages 65-79; Maggiori Editore. Llop, Miguel; Navarro, Carolina; Furió, Salvador. (2015).

### 5.2.4. Speeches

**"Aplicación del GNL a la maquinaria portuaria. Proyecto GREENCRANES".**

(Application of LNG to port machinery. GREENCANES project) Conference "Natural Gas in Land and Maritime Transport". Valencia (Spain).

Giménez, José Andrés. (January 2015)

**"Renewable Technologies Project: Greencranes and Sea Terminals Projects: Applied technologies for container terminals"**

Conference "Renewable Technologies. SME and Port Community Experiences" Valencia (Spain).

Giménez, José Andrés. (February 2015)

**"Building a PCS. Role and Actual Perspectives of Port Community Systems: from Compliance to Port Efficiency and Competitiveness".**

Expo Conference Center. Olbia (Sardinia).

Furió, Salvador. (March 2015)

**"Sea Terminals Seminar: Energy efficiency management in port terminals".**

Transport Week, Strategies for European transport industry's competitiveness. Gdańsk (Polonia).

Olmeda, Eduardo. (March 2015)

**"Business to Motorways of the Sea".**

Efficient shipping operations – Transport and traffic management, safety and the human element. Motorways of the Sea Conference. Liverpool (United Kingdom).

Pérez, Eva. (March 2015)

**"Energy Efficiency: Impact on Money Savings".**

3rd MED Ports Transport Events. Casablanca (Morocco).

Enoux, Vincent. (March 2015)

**"Linking Single Windows to Port Community Systems: The Valenciaport Case".**

Caribbean Sub-Regional Meeting of the Inter-American Network of International Trade Single Windows (Red VUCE). Port of Spain (Trinidad and Tobago).

Navarro, Carolina. (April 2015)



**"From MOS4MOS to B2MOS".**

Optimising and integrating maritime, port and hinterland logistics infrastructure in order to maximise supply chain efficiency and international trade. Motorways of the Sea Conference. Liverpool (United Kingdom).

Pérez, Eva. (May 2015)

**"Business to Motorways of the Sea".**

Harmony in Blue. MEDNET Capitalisation Event. Piraeus (Greece).

Pérez, Eva. (May 2015)

**"Port development in the Ten-T programme".**

Optimising and integrating maritime, port and hinterland logistics infrastructure in order to maximise supply chain efficiency and international trade. Motorways of the Sea Conference. Liverpool (United Kingdom).

Pérez, Eva. (May 2015)

**"B2MOS Interoperability Issues for Ports to Become Efficient Gateways".**

MESA e-Maritime Workshop. Brussels (Belgium).

Pérez, Eva. (June 2015)

**"Cooperare per innovare".**

Port Innovation Day 2015. Livorno (Italy).

Pérez, Eva. (June 2015)

**"El impacto de la responsabilidad social In la calidad de vida de las organizaciones". ("The impact of social responsibility on organizations' quality of life")**

Technical workshop "Healthy Organizations", Institut Valencia de Seguretat i Salut en el Treball - INVASSAT. Valencia (Spain). Blaya, Pilar. (June 2015)

**"Feasibility of LNG Fuel for the Mediterranean SSS Fleet: Profitability, Facts and Figures".**

ECONSHIP. Chios (Greece).

Pérez, Eva; Mestre, Amparo; Sáez, Lorena; Lara, Jorge. (June 2015)

**"Designing new models for energy efficiency in urban freight transport for Smart Cities and its application to the Spanish case".**

9th International Conference on City Logistics. Tenerife (Canary Islands, Spain).

Navarro, Carolina; Roca Riu, Mireia; Furió, Salvador. (June 2015)

**"Physical Internet Hub Design".**

2nd International Physical Internet Conference. MINES ParisTech. Paris (France).

Furió, Salvador. (July 2015)

**"Introducción a la Comunidad de Prácticas de Ventanilla Única de Comercio Exterior". (Introducing the Community to International Trade Single Window practices)**

Webinar Inter-American Development Bank (IDB). Bolivia. Furió, Salvador. (August 2015)

**"Capacity4Rail New Concepts For Efficient Freight Systems".**

Dissemination Workshop. Brussels (Belgium).

Furió, Salvador. (September 2015)

**"Towards paperless transport for consolidated shipments".**

8th European Conference on ICT for Transport Logistics (ECITL). Bordeaux (France).

Sáez, Lorena; Lara, Jorge; Llop, Miguel. (October 2015)

**"Estrategias de capacitación en instituciones públicas y privadas del sector logístico y portuario". ("Training Strategies in public and private institutions of the port logistics sector").**

Forum – Workshop "Magdalena, a river of opportunities". Barranquilla and Bogota (Colombia).

Rumbeu, Ana. (October 2015)

**"Designing new models for energy efficiency in urban freight transport for Smart Cities, the**

Valencian case".

8th European Conference on ICT for Transport Logistics (ECITL). Bordeaux (France).

Navarro, Carolina. (October 2015)

**"How to Develop Unprecedented Port-city Synergy. The case of the Port of Valencia".**

Rotterdam ISOCARP- International Society of City and Regional Planners Workshop. Rotterdam (The Netherlands).

Blaya, Pilar. (October 2015)

**"B2MOS General Presentation".**

WIDERMOS Final Conference. La Spezia (Italy).

Pérez, Eva. (October 2015)

**"Mediterranean LNG Bunkering and Ship Retrofitting Projects".**

LNG Transport Forum 2015. Valencia (Spain).

Pérez, Eva. (October 2015)

**"Digitalización de la Documentación para el Transporte Marítimo y Ventanilla Única". (Digitization of Documentation for Maritime Transport and the Single Window)**

B2MOS Conference, Fundación Valenciaport. Valencia (Spain).

Furió, Salvador. (December 2015)

**"B2MOS General Presentation".**

Joint final event: B2MOS, ANNA and WIDERMOS. Athens (Greece).

Pérez, Eva. (December 2015)

**"B2MOS Cost-Benefit Analysis".**

Joint final event: B2MOS, ANNA and WIDERMOS. Athens (Greece).

Pérez, Eva. (December 2015)

**"Mediterranean LNG Bunkering and Ship Retrofitting Projects".**

Motorways of the Sea Ten-T Forum on the Environment.

Brussels (Belgium).

Pérez, Eva. (March 2016)

**"Investing in CSR and Education".**

Third Citizen Port Meeting - AIVP – Worldwide Network of Port Cities

Antwerp (Belgium).

Blaya, Pilar. (April 2016)

**"Estrategias de Creación de Capacidades con Igualdad de Género". (Capacity Creation Strategies with Gender Equality)**

Hemispheric Seminar: Corporate Social Responsibility and Gender Equality in the Port Sector: Creating awareness, taking action. Inter-American Committee on Ports

Organization of American States (CIP/OAS).

Panama City (Panama).

Rumbeu, Ana. (April 2016)

**"Multidimensional, Integrated, Risk Assessment framework and Dynamic, collaborative Risk**

Management Tools for critical information infrastructure".

MITIGATE project. Informative Workshop/Networking

Safe Companies. Valencia (Spain).

Company, Rafael. (May 2016)

**"B2MOS: Efficient cargo clearance procedures".**

Motorways Of The Sea Ten-T Forum On Logistics Integration Of Maritime Transport In The Global Transport Chain. Brussels (Belgium).

Pérez, Eva. (May 2016)

**"Trends and challenges for container ports".**

International Maritime Statistics Forum. Athens (Greece).

Pérez, Eva. (May 2016)

**"La formación en comercio exterior para afrontar con éxito la internacionalización". (Foreign trade training to successfully tackle internationalization)**

Go Global Congress. Feria Valencia, Valencia (Spain).

Rumbeu, Ana. (June 2016)

**"VGM una cuestión de peso". (VGM: a question of weight)**

Congreso Go Global. Feria Valencia, Valencia (Spain).

Rumbeu, Ana. (June 2016)

**"Mediterranean LNG Bunkering and Ship Retrofitting Projects".**

Eurasian Natural Gas Infrastructure – ENGI Conference. Atenas (Greece).

Navarro, Carolina. (June 2016)



## PUBLICATIONS AND PARTICIPATION IN FORUMS AND CONFERENCES

### **"Analytical Methods and Simulation Models to Assess Innovative Operational Measures and Technologies for Rail Port Terminals: The Case of Valencia Principe Felipe Terminal".**

11th Transport Engineering Congress (CIT2016).  
Valencia (Spain).  
Campodilupo, Luiggi; Furió, Salvador; Marinacci, Cristiano;  
Ricci, Stefano. (June 2016)

### **"Smart Steaming: How to Build a Win-Win Solution for all Stakeholders".**

Workshop organized for the SYNCHRONET, SIL projects  
Barcelona (Spain).  
Furió, Salvador. (June 2016)

### **"Soluciones para la Facilitación de la Aplicación del Convenio Solas: Conpeso y Valenciaportpcs". (Solutions to facilitate the application of the SOLAS convention: conPESO and Valenciaportpcs)**

SOLAS regulations on container weight  
CIERVAL. Valencia (Spain).  
Furió, Salvador. (June 2016)

### **"Verificación del Peso de Contenedores: SOLAS". (Container Weight Verification: SOLAS)**

Chamber of Commerce. Valencia (Spain).  
Furió, Salvador. (July 2016)

### **"GAINN PROJECTS OVERVIEW - GNL: Italian Stakeholder Meeting".**

Stakeholders meeting – Italian Ministry of Infrastructure and Transport. Roma (Italy).  
Pérez, Eva. (July 2016)

### **"Gainn4ship Innovation Project".**

Congress: Acceptance test for the Dual-Fuel engine FO3618DF to retrofit the High-Speed Ropax vessel Bencomo Express.  
Cartagena (Spain).  
Pérez, Eva. (October 2016)

### **"GAINN4MOS and GAINN4SHIP INNOVATION: General Project Overview and Current Situation".**

Congress: Poseidon Med II & Gainn IT Workshop. Venice (Italy).  
Pérez, Eva. (October 2016)

### **"GAINN4MOS: General Project Overview and Preliminary Market Analysis".**

Greenport Congress. Venice (Italy).  
Pérez, Eva. (October 2016)



Carolina Navarro giving her presentation at the Eurasian Natural Gas Infrastructure Conference, Athens (Greece), June 2016

### **"Capacitación y Desarrollo de Talento en el Sistema Portuario". (Training and Developing Talent in the Port System)**

Scientific Convention University of Cartagena de Indias.  
Congress "Sustainable economic development and peace building through Science, Technology and Innovation. Panel: Challenges and development strategies  
Sustainable development in the Colombian port sector.  
Cartagena de Indias (Colombia).  
Rumbeu, Ana. (October 2016)

### **"Empleo a bordo: oportunidades de empleo y desarrollo profesional en buques de crucero". ("Employment on board: employment opportunities and Professional Development on cruise ships")**

Seminar on self-employment and entrepreneurship for vulnerable groups promoted by the ICO Foundation, Fundación Emplea and ASHOKA in collaboration with Fundación Valenciaport. Valencia (Spain).  
De Juan, Mercedes. (October 2016)

### **"GAINN Actions: A strategy for the implementation of LNG as marine fuel in the Southern European Countries".**

55th Congress of Naval Engineering and the Maritime Industry  
Barcelona (Spain).  
De Juan, Mercedes. (October 2016)

### **"Primera adaptación de un buque ropax de alta velocidad utilizando gas natural como combustible marino". (First Retrofitting of a high-speed ropax vessel to run on liquefied natural gas)**

National Congress on the Environment (CONAMA). Madrid (Spain).  
Sáez, Lorena. (November 2016)

### **"Cálculo de la Huella de Carbono de la Comunidad Portuaria". (Calculating the Carbon Footprint of the Port Community)**

Workshop on estimating the carbon footprint of ports  
Madrid (Spain).  
Company, Rafael. (November 2016)

### **"Red Logística de Gran Escala en la V Región: Avances y Desafíos". (Large-Scale Logistics Network in the 5th Region: Progress and Challenges)**

Port Community Systems Round Table. Santiago de Chile (Chile).  
Furió, Salvador. (November 2016)



Mercedes de Juan accepting her award for her speech at the 55th Congress of Naval Engineering and the Maritime Industry, Barcelona (Spain), October 2016







6

TRAINING



## 6.1. Background

### 25 YEARS SHAPING THE PORT LOGISTICS SECTOR

After 25 years training professionals from the port logistics sector, both in Spain and abroad, Fundación Valenciaport's Training Division has consolidated its position as the **Training Centre of Excellence for knowledge management for the port logistics sector**, and a pioneer in the development of bespoke training programs for all stakeholders within the Port Community and at all organizational levels of business.

**Its mission** is to train professionals from the sector in their technical skills, competence and expertise to perform their job more effectively, and at the same time to provide comprehensive training to individuals, encouraging habits and values that bolster their talent to make them more competitive, and why not, happier.

**All that, in the field of ports**, international trade, logistics, transport and business management.



Thanks to the work carried out over the years, the Master's in Port Management and Intermodal Transport is celebrating its 25th edition in the 2016/2017 academic year



Back in 1992, the Port Authority of Valencia, together with the Pontificia Comillas University of Madrid, created the **Master's in Port Management and Intermodal Transport (MGPT)**, the Specialist Courses in Maritime, Land Transport, and Intermodal Transport & Port Management, as well as the Advanced Management Training Courses; programs that have consolidated its position as the place for training in Spanish, specializing in ports, international trade, transport and business management, enjoying great international prestige and has been having a far-reaching effect on professionals from the sector in addition to young post-grad students, not only in Spain, but also in other European regions and Latin American countries.



Closing ceremony of the 26th edition of MGPT, June 2016

The training provided is structured around the needs of the global port logistics sector, having developed courses across Spain and in different countries of **Latin America, Europe, Africa and Asia**, such as Peru, Mexico, Guatemala Colombia, Honduras, Belize, Brazil, Uruguay, Ecuador, Costa Rica, Panama, Chile, Argentina, Italy, Ireland, Holland, Jordan, Equatorial Guinea, Egypt, Togo, Sudan and Tunisia.

### 6.2. The cornerstones of training and achievements in the 2015-2016 period

Fundación Valenciaport's Training Division focuses on:



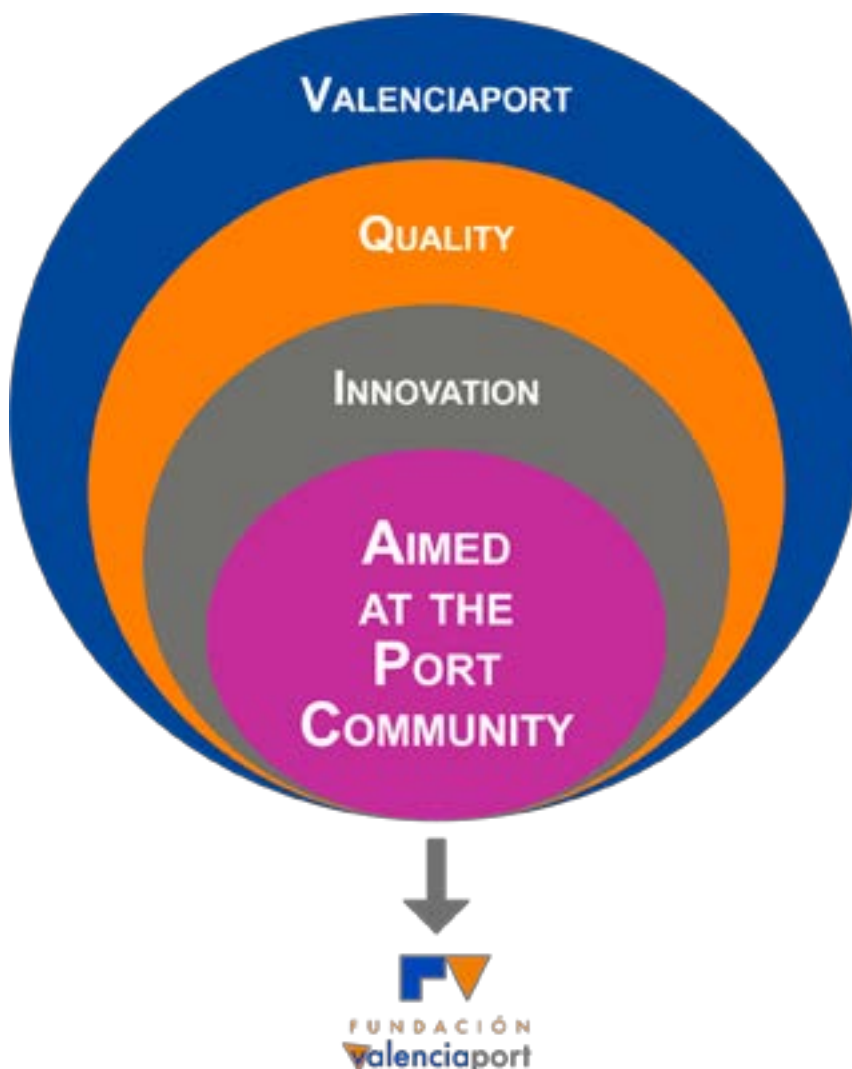
**Innovation** – as a source of growth and a determining factor in achieving a competitive edge, and a way to encourage learning and knowledge generation in the organization.

**Quality** – as the expression of our commitment to meet the requirements and expectation of the clients / students, advocating a culture of quality based on the principles of honesty, leadership and human resources development.

**Employability** – through our training programs we hope to ensure that workers have the necessary skills, facilitating

access to the labor market and the development of their skillsets so that they can effectively and efficiently operate and continually improve at all levels, more specifically regarding people, encouraging training and building ties with the surrounding area.

All of this, comes under the “umbrella” term of Valenciaport, the brand associated with the Port Authority of Valencia, and with close ties to the Port Community, both nationally and internationally.





The notable milestones for the 2015-2016 period for their novel approach to stimulating innovation, for the efforts in internationalization and for what they have meant for the brand image of Valenciaport, for their prestige, academic impact and their effects on society, both in and outside of Spain, are as follows:

### 1. Postgraduate studies:

- The 25 editions of the Master's in Port Management and Intermodal Transport taught in Valencia.
- The high degree of employability of recently graduated students who join the Master's Program. 90% of these students join the sector on *work placements* in companies through the Master's Program, which is indicative of its regeneration and cohesion with the port community.
- The improved opportunity for employment and professional development for former postgraduate students, for whom the Fundación Valenciaport's Alumni Association runs a *Job Bank*.

### 2. Business Skills Training:

- The increase of content dealing with customs in the Business Skills Training program. The implementation of the Union Customs Code (UCC) and the introduction of skills testing for the training of customs representatives, among other matters, have enabled Fundación Valenciaport to position itself as a benchmark in this field, given that it is:
  - A benchmark training entity of the Authorized Economic Operator (AEO)
  - Formerly recognized by the Spanish National Tax Administration as a provider of vocational training for Custom Representatives

- An entity that drafts its own Customs Management programs
- The increase in the availability of English Programs that are essential to the sector:
  - General English
  - Business English
  - Ports and Shipping English
  - Sea speak (IMO's standard maritime communication phrases)
  - English for job-specific collectives (firefighters, stevedores, port police, etc.).
  - Executive Business English
  - The new "Call me" program, specially designed with senior management in mind. 10 minutes of telephone conversation per day based on the needs of the student (meeting preparation, presentations, or negotiating)

All in collaboration with a strategic partner and using a radically innovative approach that has enabled both the number of clients and the prestige to grow.

### 3. International Collaboration:

- The Training Division's involvement in two European projects. **VETPORT** and **SKILLFUL**.
- The development of different activities with public and private sector entities with ties to the ports, trade associations, as well as universities from Panama, Ecuador, Peru, Mexico, and Colombia. Furthermore, collaboration agreements have been signed that will form the foundations for future training initiatives.
- The signing, in 2015, of a collaboration agreement with the Arab Academy of Science Technology and Maritime Transport, based in Alexandria, for the design of new English courses for port professionals from Egypt, Sudan, Jordan, Togo and Tunisia.



#### 4. Outside Collaborations:

- The organizing of forums, seminars and meetings to discuss topics that affect the different collectives, through the collaboration with different Spanish entities, businesses, consulting firms and professional associations. The free activities aim to build their relationship with Fundación Valenciaport, and in the past two years more than 400 people have attended.
- Port logistics meetings whereby renowned experts in the sector share their experiences with Fundación Valenciaport's Alumni Association.

#### 5. Employment and Youth Support:

- The grant program
  - Inter-American Committee on Ports (CIP)-Organization of American States grant to enroll in the Master's program in Port Management and Intermodal Transport for sector-professionals from Latin America
  - Port Authority of Valencia grant from professionals currently working in the port logistics sector
- Work placements
  - Placements for students of the Master's in Port Management and Intermodal Transport in businesses in the sector

- For students from different vocational training centers, through SERVEF (Valencia Employment Service) and from different universities, to provide them practical training that they will need to be able to complete their studies.

- The Job Bank

- Meetings organized with recruiters and job interviews at the cruise ship forum

#### 6. Management field:

- Renewing and maintaining, year after year, the **ISO 9001:2008 Certification** by Lloyd's Register Quality Assurance. The Quality Management System can be applied to the "Design, delivery and management of non-regulated in-house training and subsidized according to the requirements and designs of public and private organizations in the areas of: business management and administration, foreign trade, maritime, land and air transport, logistics and port management. And designed in keeping with the management requirements of port authorities".
- The "VIRTUAL CLASSROOM" On-line Platform has consolidated its position as an educational tool for on-line courses, in addition to providing educational support for all classroom courses.



- The development of especially bespoke **teaching materials** with a focus on customs, trade, logistics, ports and transport
  - One initiative of note is the On-line Course on the implementation of the new rules and regulation on VGM (Verified Gross Mass) with stakeholders, backdrops and an innovative approach to staging using an on-line format.
- The strengthening of **Collaborative Networking** between professionals from the sector, former students and lecturers through the social networks:
  - Facebook
  - LinkedIn
  - Fundación Valenciaport's Alumni Association's Web page
- Achieving a greater participation and involvement of the entire Spanish port community in the aims of Fundación Valenciaport by coming on board the **Tripartite Foundation Business Partnership Agreement**, through which Fundación Valenciaport, as organizer of the subsidized training, processes the allowances awarded by the

Tripartite Foundation, and organizes well-planned business training activities based on their training credits.

### 6.3. Action lines

Fundación Valenciaport firmly believes that training is one of its key areas of business, to which it dedicates significant efforts towards lasting improvements to professional skills training, or those wishing to further develop their activity in the port logistics sector, encouraging them to be open-minded towards greater information, innovation and change, which in turn leads to the gradual internationalization of the economy at each step of the way.

Accordingly, Fundación Valenciaport promotes, manages and develops training programmes with a specialized focus on ports, international trade, logistics, transport and business management - its key areas of activity."





## FORMATS

The Training Division caters to the needs of companies and the requirements of participants.

Practically the entire course catalogue is available in both classroom and on-line formats.

Classroom training takes place in a classroom environment or at the client site for those companies who prefer "in-company" training at their own facilities. Similarly, Fundación Valenciaport transports its teachers to those countries and ports with which it collaborates.

The on-line format has increased in popularity over the years thanks to the deployment of its "Virtual Classroom" Platform and the cost savings this implies. Nevertheless, comprehensive training through the B-Learning (blended learning) format, consisting of both classroom and on-line formats, is gaining ground.

The mixed training format takes the best of both worlds 100% on-line training and 100% classroom training, combining them into one, which streamlines the work of both the teacher and the student.

The advantages usually attributed to this learning method are that the fusion of the two formats combines:

- Those of classroom training: physical interaction, which has a major impact on motivating participants, it allows ties to be established, and provides an opportunity to carry out activities that are somewhat more complicated than purely on-line based ones.
- Those attributed to e-learning: working independently, eliminating special barriers and timetable flexibility, as a large part of the course activities do not require participants to be in the same place at the same time.

Similarly, different methodologies and formats have been developed and by combining these, the programs have undergone a process of internationalization and courses are currently available not only in English but also in Spanish. Likewise, Portuguese and French are also gaining ground.

## STUDENTS

Furthermore, these programs are available both in Spain and abroad, primarily in Spanish-speaking countries and are designed with a target audience in mind: executives, middle management, operational and core staff.

The student body is made up as follows:

TRAINING ACTIVITIES PLAN	TOTAL		
	STUDENTS	CLASSROOM HOURS	ONLINE HOURS
YEAR 2015-2016			
Master Programmes	89	1075	0
Further Business Training	470	1206	70
Training for Managers	131	980	0
In-Company Training	642	2041	95
Online Training	129	0	415
International Training	271	356	0
External Collaborations - Seminars and Conferences	395	187	0

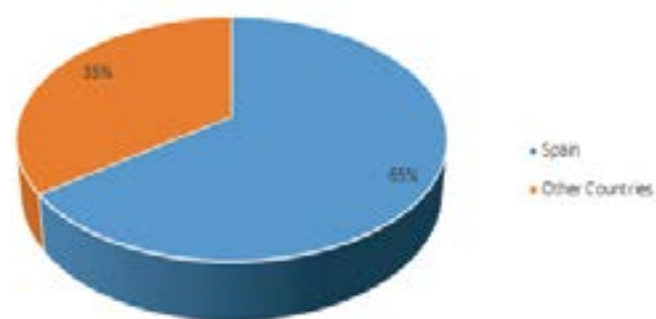
## TRAINING

- **Working professionals**, for the most part from private sector companies from the Port Community and Port Authorities who, through training, are hoping to:
  - Retraining and an opportunity to acquire new expertise
  - Comparing their acquired knowledge with those of other professionals
  - Advocating open-mindedness
  - Advocating a new business approach, facilitating cultural change
- **Young Postgraduates and the unemployed** primarily graduates of technical degree courses. Training provides them with:
  - New skills
  - An introduction to corporate reality and business practices
  - Strengthened personal qualifications
  - Ease of entry into the labor market

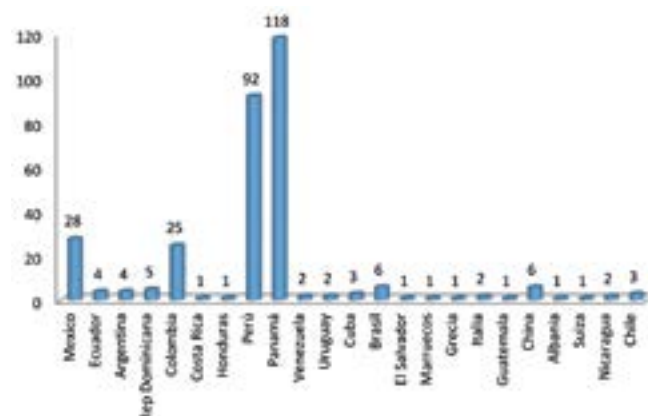
**Student background**, the 25 years of development attests to the diversity and inclusion of all professional and academic profiles in a sector that is continually evolving.

- **Spanish students** are primarily from specialized degree courses, although a broad spectrum of university degree courses is represented (Engineering, Law, Economics, Business Management and Administration etc.) and for the most part come from the regions of Valencia, Madrid, Asturias, Catalonia, Andalusia and the Basque Country.
- **Foreign students** are primarily from Panama, Colombia, Mexico and Peru, through the on-line courses and Postgraduate classroom courses held in both Valencia and in their respective Latin American countries where training has been provided. It is worth noting that in the last two graduating years of the Master's Program and the Specialist Courses, 35% of students were from outside Spain.

Origins of Postgraduate students 1992-2016



Origins of foreign Postgraduate students (1992-2016)



### TEACHING STAFF

The teaching staff is made up of more than 250 professionals from universities and the private sector, with ties to the port community or other sectors such as the public administration, institutions, foundations and port authorities.



#### 6.3.1. University postgraduate training

In collaboration with the ICADE Business School, Fundación Valenciaport runs, on behalf of the Port Authority of Valencia (Spain), an ambitious University Postgraduate Program in business management, logistics, ports and transport that targets upper management and freshly graduated students. The program has been running since 1992 and is comprised of the following courses:

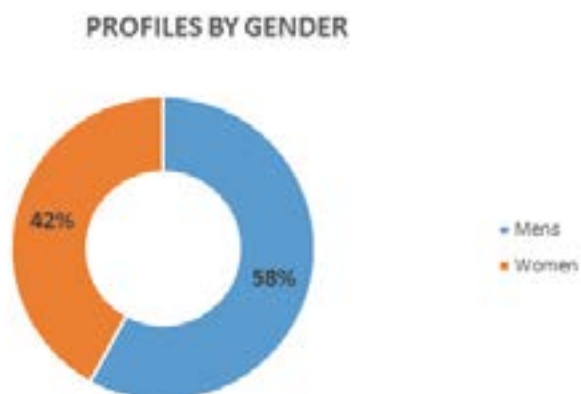
**Master's in Port Management and Intermodal Transport. Valencia** (24th and 25th edition)

**Specialist Courses** (23rd and 24th edition):

- Ground Transport
- Maritime Transport
- Intermodal Transport
- Port Management

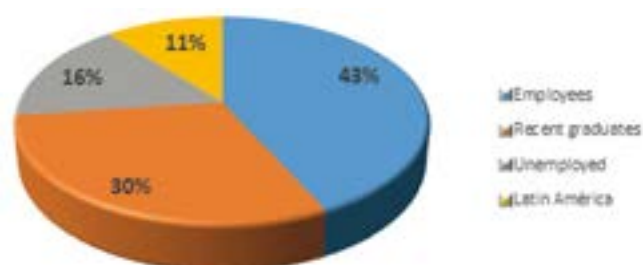
During 2015 and 2016, **1075 classroom hours** of the University Postgraduate Program were taught to **89 students**.

There is a balanced number of men and women on these programs.

**Profiles by gender**

Of note are the similar percentages of the 3 professional student profiles accessing the postgraduate course:

- 30% are recent graduates with a degree in a variety of subjects
- 43% are currently working in the port logistics sector
- 11% are professionals from the Latin American port logistics sector
- 16% are unemployed but from other sectors, normally with an average of ten years of work experience looking to retrain and can start a new career in the port logistics sector

**Profiles by employment status**

Las titulaciones en los programas de postgrado son diversas, no obstante se podrían agrupar en 3 disciplinas, las ingenieras, las jurídicas y las de economía y empresas.

**By university degree**

Over this period, students from more than 25 different degree courses accessed the postgraduate courses:

DEGREE	STUDENTS
Degree in Business Administration and Management	5
Industrial Engineer	8
Technical Engineering of Public Works	10
Civil Engineering (Road, Channel and Port Engineering)	14
Law Degree	16





Photo of students of the 25th edition of the Master's in Port Management and Intermodal Transport

### 6.3.2. Training for the Cluster

#### More for the sector. Evolution...

There is no doubt that the University Training Programs were the seed for what is today is the Fundación Valenciaport's Business Training or Retraining, but the accumulated experience and above all, the response of the sector, has meant that in recent years work has been carried out to bring to the market an Entrepreneur Training Program, comprising short-term courses that focus on the vocational training needs of executives, middle management and operations personnel, of companies that operate in ports and their logistics community. The final aim is to expedite vocational retraining and access to the job market of personnel who work in them, as well as advocating the creation of a group of newly trained professionals who can cover the future needs of the sector.

To this end, in the 2015 – 2016 period, a total of 470 students received a total of 1,206 hours of structured Business Retraining in:

#### Courses

- English
- VAT and IS in International Operations
- Lashing and Stowing of Goods
- Customs procedures of the Consignee
- Customs representatives (3 editions)
- Project Management Course
- Course on Security and Protection in ports and aboard ships. Mass Evacuation
- Course on Efficient Driving.
- Course on modification following the entry into force of the UCC (3 editions)
- Practical course in Custom Representative (2 editions)
- Course of Energy Management in Port Facilities
- VGM Course
- Course on Controlled Temperature Freight Transport (Reefer)

### The Formula: the Port Classroom Group (Grupo Aula Portuaria)



The Port Classroom Group is a work group comprised of professionals and associations from the sector whose aim is to identify the training needs of port logistics professionals, writing new teaching materials that form the basis for the provision of classes and other similar activities, such as seminars, conferences and publications, all aimed at combining efforts and providing an inclusive image of the port community, responding to the market with a consensual series of courses on offer.

This group comprises the following:

- Valencia Shipping Association (ANV)
- Valencia Association of Freight Forwarders, Shippers and Related Companies (ATEIA Valencia)
- Port of Valencia Collective Charity (Montepío del Colectivo Portuario de Valencia)
- Port of Valencia Guarantee of Quality
- The Valencia Association of Customs Agents (COACAV)
- The Spanish Association of Container Repairing Depots (ARCE)
- The State Stevedoring Company for the Port of Valencia, (SEVASA)
- The Association Logistics and Container Transport Companies (ELTC)
- Port of Valencia Mooring Service Providers
- Port Authority of Valencia (PAV)
- Fundación Valenciaport through its IPEC- Training Department

### 6.3.3. In-company Training for the Cluster

The design of programs specifically for businesses, both Spanish and foreign, public and private, based on a definition of their needs.

During the 2015-2016 period, a total of 642 students have been taught during 2,041 classroom hours of In-company Training for the Cluster.

The most recent examples:

- English programs
- Sea speak English
- English for firefighters
- Preparatory course for the EAO certification
- Negotiating workshop for the Logistics Operator
- Database analysis in Excel
- Business management and administration in International trade
- Firefighting
- High performance equipment
- The keys to International trade
- Port Community System
- Preventing and fighting pollution. Entry Level
- Processing Dangerous Goods in Spanish Ports
- Excel intermediate level

### 6.3.4. Accredited Courses

Year after year, Fundación Valenciaport is adding to the list of certified, accredited and officially recognized courses, to respond to the training needs of different collectives and individuals from the sector, who require accreditation to be able to carry out their activities:

- Type approval to run the “Entry Level Security” course in keeping with IMO STCW/95 standard and FOM Order 2296/2002 of 4 September that governs the training programs for professional certifications in Seafarers on the Bridge, Machinery of the Merchant Navy and Harbor Employers, as well as a special accreditation certificate showing professional experience. Two pilot courses have been run with 12 students.
- Renewing accreditation for the “Entry level operator in the prevention and fight against pollution in the loading, unloading and handling of hydrocarbons at maritime and port facilities, as per FOM ORDER 555/2005 of 2 March by the Directorate General of the Merchant Navy. Nine editions of this course have been run and 200 people have been trained.
- Accreditation by the Spanish National Tax Agency to provide professional training as a Customs Representative. Three additions have been run with a total of 97 students taking part and are exempt from the theory test exam.

### 6.3.5. Seminars and forums

Fundación Valenciaport’s Training Division also has the goal of acting as a platform and specialized forum where port agents can share opinions, debate perspectives and make their colleagues aware of future activities. Specialized seminars and one-day conferences are given by expert professionals on port logistics. (See the complete list of seminars on page 101).

### 6.3.6. Teaching materials

The writing of new teaching materials that are technologically adapted to the required teaching approach, on training topics that are urgently needed in the port logistics sector, to act as a basis for training courses it runs, many of which are also published by the Fundación which are for sale and can be consulted at the documentation centre.

In keeping with the latest developments in customs managements, the following modules have been created.

- The European Economic Community and the Union Customs Territory
- Community tariffs
- The summary declaration
- Customs assignments
- Customs procedures
- New Union Customs Code
- Exempt areas
- Dutiable value
- Customs processing according to the origin of goods
- VAT importing and exporting
- Centralized clearance
- Special regimes in the Canary Islands, Ceuta and Melilla
- Excise duty
- Smuggling and customs sanction procedures
- Appeals to the TEAR and disputes
- Basic regulation on purchase contracts and the international shipping of goods and the rules regarding international payment
- Customs representative and duties
- Authorized Economic Operator

Furthermore, thanks to its commitment to continuous improvement and the analysis of new tendencies, Fundación Valenciaport has created the following materials:

- Rail transport
- Rail terminals
- Rail freight company
- Trends and innovation in Foreign Trade
- Ballast water
- VGM (Verified Gross Mass)
- Energy Efficiency in Ports



- Strategic planning in port facilities
- Energy management systems at port facilities
- Calculation, overseeing and checking the Carbon Footprint in port facilities.
- Freight Transport

Furthermore, a result of collaboration with the Arab Academy and its involvement in the VETPORT European project, Fundación Valenciaport has created the following materials in English:

- Port technologies in the port of Valencia and their importance in port development
- TIC in ports and emerging technologies
- Energy efficiency in ports
- A green approach to ports
- Maritime markets
- Port Governance and Port Business Models. Exercise: Understanding your port business model
- Developing and executing your port strategic plan
- Importance of port services and its role in development of international trade port competitiveness
- Best practices in port marketing and promotion
- Planning optimization
- Manage and lead team. Communicate with teams, managers, agents, ship's crew and shipping companies
- Planning the loading and unloading logistics chain

### 6.3.7. International Educational Cooperation

The international dimension of the Fundación Valenciaport has focused most of its effort and dedication on Latin America since its creation in April 2004, acting as an instrument for the Port of Valencia and for the internationalization of the Spanish port logistics community, built around cooperation and acting as an institutional support for them.

In 2013, tending to the newly emerging African market, Fundación Valenciaport had the opportunity to work in Equatorial Guinea on a training project for a multipurpose port terminal and since then, has continued to collaborate in the African continent.

In 2015, with the signing of the collaboration agreement with the Arab Academy in Egypt, courses began to be designed to respond to the training needs of port and port terminal directors, becoming a close collaboration through which courses were run in Egypt and in Valencia to enhance expertise and share best practices.

For Fundación Valenciaport, internationalization through training can be seen in the following:

- To promote scientific and cultural cooperation with expert and student exchanges
- To organize joint conferences, seminars, symposiums and scientific research
- To coordinate weeklong Educational and Business workshops
- Provide grant and subsidies for the training programs
- The exchange of plans, programs, study materials, technical and scientific information and multimedia material



## TRAINING

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In 2015-2016, the following courses were held:

### **EQUATORIAL GUINEA (Bata - Malabo and Valencia)**

Courses on operating port machinery where more than 50 stevedores underwent training in:

- Training course on hydraulics
- Maritime operations
- Lashing containers
- Equipment maintenance
- Business Management and Administration in International Trade – Executive Program - (held in Valencia).

### **Jordan - ALG**

20 students from the Ministry of Transport from Aqaba underwent training in:

- “technology management in the port logistics sector

### **Arab Academy for Science, Technology & Maritime Transport - Egypt**

Fundación Valenciaport’s Training Division, together with the Arab Academy for Science, Technology & Maritime Transport, organized two week-long classroom seminars. Together, they provided training to more than 20 executives from major companies such as DP World Sokhna, the Damietta container terminal, port authorities of Port of Sudan, of the Red Sea Ports and the Management of the Tunisian Merchant Navy.

- Diploma in Port Management and Logistic
- Diploma in Developing strategy & Marketing Plan for Port Services

### **Ositrán - Perú**

OSITRAN, a monitoring organization of investment in public transport infrastructure in Peru, provided on-line training to 15 of its employees in:

- Expertise, performance and service levels in container maritime services

### **Cormagdalena - Colombia**

Two “Magdalena, a river of opportunities” workshops were run within the framework of the Cormagdalena project, one in Barranquilla, another in Bogota, in addition to 4 on-line courses.

There was a total of 80 classroom hours.

- Course 1. Strategic Planning in Ports
- Course 2. Waterways
- Course 3. Port Capacity
- Course 4. Procedure innovation workshop

### **EUROPEAN PROJECTS**

Undoubtedly, the greatest challenge of the Training Division over this two year period has been its role as partner in two European projects:

#### **VETPORT - APPLYING ECVET AND ECTS TO CERTIFY COMPETENCES AND SKILLS IN MARITIME PORT SECTOR**

The VETPORT project, financed by the European Commission through its Erasmus + Program and overseen by the Port Authority of Livorno (Italy), aims to examine and boost the skills of the following professional profiles: Terminal Director, Planning Supervisor and Drivers of Articulated Vehicles, to encourage mobility of these workers between the ports participating in this project (Italy, Holland, Ireland and Spain). The project began in June 2015 and will be completed in August 2017.

#### **SKILLFUL – EXPERTISE AND THE DEVELOPMENT OF SKILLS AT ALL LEVELS FOR FUTURE TRANSPORT PROFESSIONALS**

The SKILLFUL project, financed by the European Commission through its H2020 Program and coordinated through a land-transport research platform called the “Forum of European National Highway Research Laboratories” (Belgium), aims to study the training needs and future projects within the transport sector. This project started in October 2016 and will be completed in August 2019.

**In addition to these international projects, annually, Fundación Valenciaport manages the following project:**

### STRUCTURING OF THE PORT COMMUNITY AND TRAINING BACKED BY THE PORT AUTHORITY OF VALENCIA

In the constantly changing and competitive environment in which businesses find themselves, it has been shown that the best tool available to become more competitive and face up to changes, is human capital. People are what makes a difference and for this reason, the Port Authority of Valencia promotes this annual project to boost the performance of professionals in the sector, both in Spain and in Latin America, through specific training programs, cooperative grants and boosting the infrastructure of the Port Community.

The specific aim of these courses/seminars is to encourage the transfer of the Port of Valencia's Know How in port matters. The cultural connections, but more specifically the linguistic ones, encourage the regions to work closely with each other, creating the perfect setting to foster cooperation.

The activities of this project consist of a program that provides educational grants:

- 2 Grants, through the PAV, targeting Spanish students to study the Master's in Port Management and Intermodal Transport.
- 4 Grants through the CIP-OAS (Inter-American Committee on Ports of the Organization of the American States), aimed at professionals from Latin America to study the Master's in Port Management and Intermodal Transport. Since this grant program was started by the OAS in 2001, professionals from Peru, Colombia, Mexico, Honduras, Dominican Republic, El Salvador, Panama and Argentina have passed through the Training classrooms, complying with its twofold task: on the one hand, provide professionals from Latin America with the very latest expertise on the principles of planning, organizing and business management linked to the world of transport and ports, and, on the other hand, provide a greater affinity and collaboration between the institutions implied. Between 2015 and 2016, students from Peru, Nicaragua, Panama and Chile have been the recipients of these grants.

**List of CIP- OEA and OPPE grant recipients (1994-2016)**



## 6.4. Fundación Valenciaport's Alumni Association



The Alumni Association was founded in 1998 so that its members, former students of the Master's Program and Specialist Courses, could keep in contact with the rest of their graduating year, their lecturers and with alumni from other graduating years, so that each member can have the most updated information as the sector evolves.

Its aims are as follows:

- Feed the interest of people who feel that this period of training is a positive part of their lives.
- Encourage the human and professional contacts between a group of people who all share a common denominator.
- Update relevant information about this vibrant and dynamic sector, as are those of trade and transport.

- Manage potential employment possibilities both in work placements for students and the job pool for those who have already completed their period of training.

### Activities carried out between 2015 and 2016

#### Professional activities

- “Design Thinking” Tools Workshop
  - Talk by Peter de Langen on Port Governance
  - The new extension to the Suez Canal and its impact on the maritime sector
  - “Crisis with the Hanjin Shipping Line” Round Table
  - 4 port logistics meetings: talks / discussions with respected professionals from the sector
1. Rafael Egea. Committee Member. Sevasa

2. Francisco Lorente. President of the Mediterranean Shipping Company Spain
3. Francisco Prado. Director of the “Diario del Puerto” publication.
4. Aurelio Martínez. President of the Port Authority of Valencia.

#### Sporting, Leisure and Cultural Activities:

- Sailing regatta
- Karting competition
- Taking part in Paella-making competitions within the sector
- Calçotada – roasted spring onion picnic
- Christmas and Summer dinners



Annual General Meeting, December 2015





Calçotada, February 2015

### 6.5. What does the Training department bring to the sector?

- Attested to by 25 years of experience and know how providing training at all levels: executives, middle management and key positions, both specialized technical know-how and general skills. Training Port Authorities' personnel as well as employees from private foreign and Spanish companies from the sector.
- Design of bespoke programs, based on the definition of specific jobs enabling each business to upgrade.
- A tested profile assessment process that identifies the best profiles for the programs being designed to ensure the homogeneity of the groups, facilitating the decision making and can highlight the expertise and activities of each program.
- Dynamic and innovative methodology that combines theoretical notions with practical analysis.
- Working together with the sector. The Aula Portuaria (Port Classroom), a solid working group comprising professionals and associations from the sector, which works to identify the training needs of port and maritime professionals, and operates as a primary channel of communication.
- Expert teaching team with a proven track record: subject specialists, university lecturers and professionals from the sector. Programs always have an expert in the chosen specialization, who works with the heads of the Training Division to design the complete program, which forms the basis of the course and program content and which will be taught by the chosen professionals.
- Constantly updated facilities provide students with the very latest audio-visual and ICT technologies.



7

DOCUMENTATION

The 2015-2016 period has shown a marked tendency towards Strategic Surveillance.

As seen in the 2013-2014 report, at the end of the previous year, the Documentation Department began to get involved in projects through the Strategic Surveillance service.

Initially, it began to collaborate on the COSTA project by publishing a dossier every fortnight about the use of liquefied natural gas (LNG) as an alternative fuel for both shipping vessels and machinery used at the port terminal. This then led to other projects, such as the Single Window for Latin America, Cruise ships and then in 2016, it joined the Market Intelligence Working Group which monitors several topics in parallel such as:

Trends in ports and maritime transport, trends in economy and international trade, technological innovation in the port maritime sector, best practices in port management, aspects relating to legislation and port and port terminal rules and regulations as well as port competitiveness.

The work carried out within the framework of the Market Intelligence project led to the creation of a database which at the close of 2016 contained just over 2,000 documents from monitoring a broad selection of information sources. Furthermore, the groundwork has been laid to implement a strategic surveillance software to facilitate and expedite the management of such information and optimize its use in addition to increasing the number of topics it focuses on and therefore the ability to involve itself in new projects.



Strategic Surveillance has consolidated its position as one of the services with the greatest intangible value within the activities carried out by CEDIPORT and a large percentage of time has been dedicated to it which bolsters the primary undertaking of the Documentation Department which is namely to support the Fundación in all research and

development activities that it carries out stemming from projects it takes part in and this undoubtedly implies, making adjustments to the amount of time allocated to the different services and knowing how to prioritize those which, at any given time are identified as those with the greatest utility or relevance.



## DOCUMENTATION

Accordingly, and despite the significant role taken up by Strategic Surveillance, the Documentation Department has continued to work in other activities such as:

- CEDIPORT
- Producing and delivering publications.

CEDIPORT, as a documentation center specializing in port-related and maritime matters, continues focusing its efforts in customer care with the provision of a painstaking selection of documentary and information resources that provide support to its professional activities as well as a series of services that respond to their information needs.

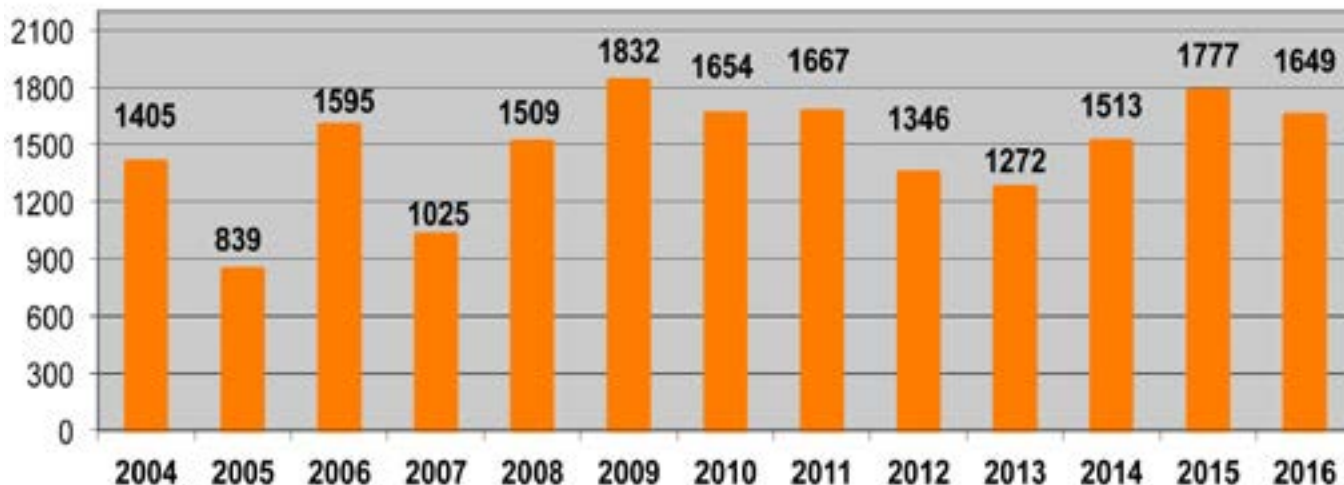
Following on from this, on the one hand, there is a whole technical aspect involving tasks such as cataloguing, circulation (loan and returns management), references (carrying out information searches and writing bibliographical reports) customer care, information alerts,

duplicate handling and managing the sale and distribution of publications by both the Fundación Valenciaport and the PAV and, on the other hand, an open and constantly growing document collection that caters to the information needs of its users.

Following the 2015-2016 period, **the document collection at CEDIPORT** comprises **14,667 documents**, including monographs, reports, sectoral research papers, etc. this figure rises to **almost 25.000** if we consider **its regular publication collection** housed in its newspaper archives, based around more than **50 titles**, both Spanish and foreign, that provide users with the very latest information in addition to the consolidated information contained in the monographs.

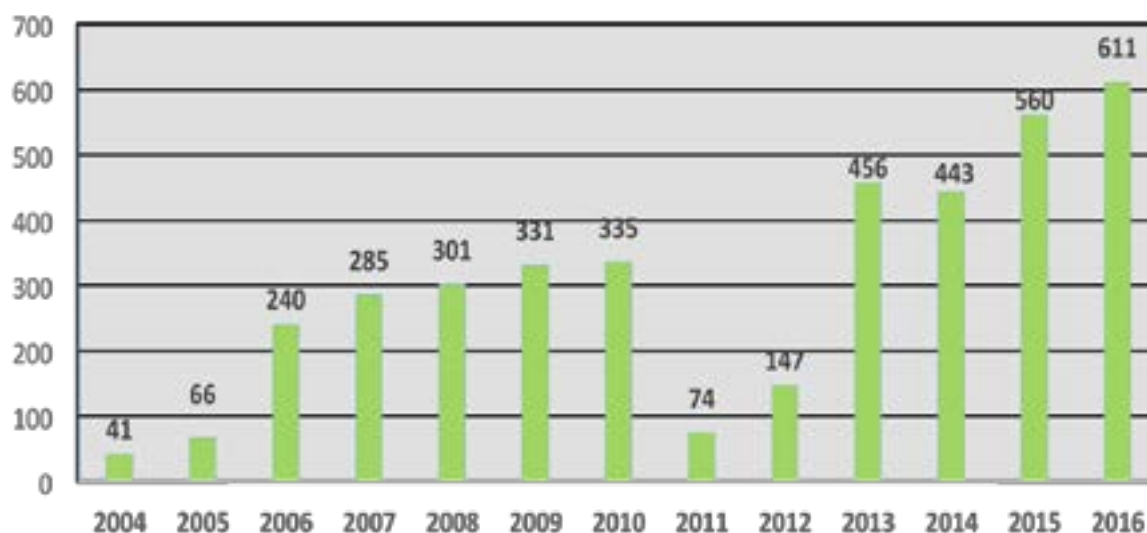
Transversally, CEDIPORT has carried out work to heighten its visibility through info. notifications that highlight the availability of additional information and documents, and this has led to a rise in the use of its services as can be seen in the statistics from recent years.

### BOOK LENDING





## Searches



Publishing activities over this period have resulted in the management of two editorial projects that led to the addition of the following two new titles to the Fundación Valenciaport's Specialized Library:

- **The cruise ship industry: features, agents and their functions (*La industria de cruceros: características, agentes y sus funciones*)** / Jerónimo Esteve Pérez; Antonio García Sánchez. Series: Economía del Transporte. 2015
- **Maritime Container Safety** / Alfredo Soler Martínez. Series: Logistics e Intermodalidad. 2016

Lastly, it is worth mentioning that the Documentation Department, like CEDIPORT have before them a period full of new challenges stemming from the change and implementation of new *software* and improvements to technology infrastructures that are to be carried out to maximize resources, update the provision of services and improve user interaction stemming from the setting up of a technological environment that is much better suited to the current setting.

Also planned is the migration to a new management *software*, the purchasing of a strategic surveillance software and a move towards the world of social networks.





8

**CORPORATE  
SOCIAL  
RESPONSIBILITY  
AND  
COOPERATION**



Corporate Social Responsibility (CSR) covers all activities that organizations voluntarily decide to carry out that benefit their area of influence, ensuring good relations and dialogue with their stakeholder groups. Such activities are carried out through different departments and have a great deal to do with their roles dealing with labour, social, environmental and governance matters.

Fundación Valenciaport continues with its commitment to encourage CSR in the sector, as a strategic tool that strengthens the implication of the port community in society, while at the same time giving a boost to innovation and improvements to competitiveness when integrated into its management approach.

Accordingly, Fundación boasts the means and the resources to promote progress and encourage improvements to related materials, and has a great deal to do with the social impact of organizations, through the provision of counselling, guidance, training, collaboration, the exchange of experiences and spreading knowledge.

The activities that deal with this matter are primarily carried out jointly or supplementary to the activities of the Trustees of the Foundation, and target collectives comprising common interest groups, particularly attention to the nearby neighbourhoods, in collaboration with associations and entities with ties to the surrounding maritime districts and the ports logistics sector.

Activities most closely tied to this area during 2015 and 2016 comprise the following:

- **Promoting CSR best practices within the port community through the APOSTEM - PUERTO SOLIDARIO project VALENCIA**, which includes the participation of the main organizations, businesses and professional and business associations of the Valencia port community. The project, which is open to the whole sector, was launched in 2013 as a working forum and a focus for counselling to encourage the implementation of CSR in the shared areas of influence. Over this period, 18 representative members of the port cluster took part in the project: Port Authority of Valencia, Fundación Valenciaport, Valencia Association of Freight Forwarders, Shippers and Related Companies, Valencia Shipping Association, Official Association of Customs and Commission Agents, Noatum Ports Valenciana S.A.U, TCV Stevedoring Company, S.A., Boluda Corporación Marítima, S.L., Propeller Club of Valencia, Valencia Mooring Service Providers, Grupo Diario, the Stevedoring Company - S.A.G.E.P, URBAMAR Levante, Docks Logistics Spain, S.A., Infoport Valencia,

MSC Terminal Valencia, S.A.U., Tiba Internacional, S.A. and Balearia.



Participants of the APOSTEM project at two of the general meetings held in 2015

Fundación Valenciaport coordinates and boosts the progress of the initiative by giving its backing to regularly scheduled activities through which it provides support and responds to the interests of its members for the benefit of its immediate environment. Regarding its acts of solidarity, APOSTEM regularly provides support to fifteen entities who in turn attend to the needs of the most vulnerable social groups in the Port of Valencia's area of influence. A general collaboration programme has therefore been developed with a total of nineteen activities per year.

APOSTEM also channels the social concerns of the sector. In this way, it acts as a mediator between organizations willing to collaborate with the neighbouring citizens and satisfying the needs and the creation of opportunities for people with a lack of resources that require external support. This work is carried out through collaboration and donations of a wide variety of types: financial contributions, furniture, ICT equipment and other material assets that various entities entrust to APOSTEM who then redistributes them through several different non-profit organizations who work directly with disadvantaged groups.



Images of sporting material purchased for the children



From this perspective, the biennium has consolidated the solidarity component of the 28th and 29th editions of the PAS RAS AL PORT DE VALENCIA, as well as those of the Cross Escolar Anual, both of which are fun runs organized by the Poblat Marítims Athletics Club. The collection by volunteers from the participating runners and the organizing club was used to purchase sports material to facilitate social integration through sport and encourage healthy lifestyles among the vulnerable children attended to in the maritime neighbourhoods.

Similarly, the organizing of the World Paella Making Competition for the maritime sector entrusted APOTEM with the overseeing of the voluntary donations to collectives in need of support. Also, the Official Association of Custom Agents and customs representatives donated 1,500 Euros equating to 50% of the sale of the book “The Free-trade Treaties (Los Tratados de Libre Comercio)” to projects that enjoy the backing of APOTEM. Similarly, the Propeller Club of Valencia donated the money collected from its Annual Christmas Charity Dinner to initiatives as suggested by APOTEM. These contributions have guaranteed, among other matters, the necessary refuelling to maintain the heating system for the Santa Ana Children’s Day Centre in Nazaret, the monitoring of the boys and girls moving into primary education in other schools, the purchase of a scanner for the CAES Ausias March, the adapting of the recreational areas at the Juan Manuel Montoya College in order to encourage social coexistence and learning through games, the purchasing of clothes, food, schools materials and footwear for three nearby state-run schools and compensatory tasks as well as the purchasing of reading glasses for children with eye disorders in schools where the NGO Visió sense fronteres (Sight without borders), together with volunteers from Baleària, carry out eye testing with the backing of APOTEM.



Image of the presentation of the 29th edition of Pas Ras al Port in Valencia





Presentation of reading glasses in one of the schools

In its role as a point of contact, headway has been made to increase mutual understanding of the activities of the participating companies through presentations given at general meetings and has increased the number of boat excursions that it organizes each year to learn about the Port of Valencia. Over the past two years, more than 1,000 people, including staff and family visitors have filled up all the available places.

In short, the aims that APOSTEM has set for itself is to give a boost to shared projects that give a boost to the overall results of the individual efforts and clearly show the cohesion and commitment of the port community with its surroundings and nearby communities.

For these reasons and thanks to the implication of participants, the robustness of the project and the general willingness to continue with its tasks, APOSTEM – PUERTO SOLIDARIO VALENCIA was officially registered as an association, and is open to the whole port community, in December 2016.



Photo of the signing ceremony to mark the official founding of the APOSTEM association.

- Provide backing and guidance to other entities so that they can incorporate social responsibility into their management practices, continues to grow it the defining of socially responsible programmes and initiatives. The Foundation provides support for the analysis, diagnostics, benchmarking, programme design, report and other activities related to social responsibility, improving the expertise and the deployment of CSR into their daily operations.
- In this regard, the closest collaboration occurs with the Port Authority of Valencia, helping to implement corporate social responsibility from the very onset, especially in its social initiatives or those that bolster the integration of the Port of Valencia and its surroundings.

Regarding **publishing** collaborations, activities of interest over this two-year period to **disseminate expertise and the practicalities** of social responsibility include the second technical revision in 2016 of the translation into Spanish of the Accountability AA1000 - Stakeholder Engagement System, of its 2015 edition (pending publication). The translation into Spanish is of great benefit as it disseminates expertise and the practicalities of CSR in the Spanish-speaking business environment, both inside and outside the sector.

- Communicating **best CSR practices**, which are supplemented by the collaboration on various **postgraduate programmes** and presentations given at a variety of different **forums** that include an outline of the Valenciaport experience.



Visit to one of the after-school initiatives to receive the backing of APOSTEM following the presentation of the projects to the executives of the METRO GROUP enterprise group. Valencia. May 2016

- The **boost to corporate social action** stems from the voluntary actions of individuals and groups to provide support to people in greater need in close vicinity to the port. Consequently, campaigns are organized that cover the whole of the port community, targeting non-profit organizations with a social purpose, such as food banks, the basic necessities, toys, school material, books, clothes, mobile phone recycling and other items aimed at children at risk of social exclusion, poor immigrants and families in desperate need. These activities are focused around two main application campaigns, which, thanks to the involvement of people in and around the port community, have enabled the organization to distribute several tons of food, thousands of personal hygiene products and products for the home, school material, sets of clothes and basic necessities to more than fifteen organizations that provide support to citizens with the greatest need for help. Similarly, of this two year period, thousands of games and toys have brought a smile to the faces of over 500 children at Christmas and during the holidays. All the contributions have helped to supplement the breakfast and afternoon snack programmes used to alleviate cases of malnutrition, and the shortcoming of the shower and personal hygiene programmes in the schools in response to the precarious housing situation.



Christmas presents for children at one of the partner centres

Regarding relations with the surrounding area, there continues to be solid dialogue with the priority stakeholders through discussions with agents representing the public and the systematic collaboration with neighbourhood associations and non-profit organizations with close ties to the areas surrounding the port. The monitoring of the social situation of the surrounding area stems from regular interaction with various social organizations with which it works to create long-lasting bonds. The principle partners are as follows:

- The Santiago Apóstol College in Cabanyal: <http://www.santiagoapostolcabanyal.es>
- The Juan Manuel Montoya College in La Punta: <http://juanmanuelmontoya.edu.gva.es>
- The Ausias March College in Nazaret: <http://www.cpausiasmarch.org>
- The Nuestra Señora de los Desamparados College in Nazaret.
- The "Santa Ana" Day Centre for Minors.
- The Arca de Noé Association in Nazaret: <http://elarcanaazaret.org>
- The Alanna Association and Foundation: <http://www.alanna.org.es>
- The Novaterra Foundation: <http://www.novaterra.org.es>
- The Peter Maurin (men) and Dorothy Day (women) Shelters for Sub-Saharan Immigrants: <http://www.isotrabajo.org/casa-peter-maurinpresentacion>  
<http://www.isotrabajo.org/casa-de-acogida-dorothy-presentacion>
- Asociación Street Friends Association: <http://amigosdelacalle.es>
- Nazaret Neighbourhood Association:
- Charity House: <http://www.casacaridad.com>
- Residential centre for mothers and children: <http://www.casacunasanta Isabel.com>
- Valencia Food Bank <http://www.bancodealimentosdevalencia.org/>



Pupils from the Santiago Apóstol college practising music on instruments purchased by APOSTEM thanks to donations made at the Propeller Club Charity Gala Dinner

The monitoring of local, Spanish and International trends and policies and the necessary benchmarking to be able to have access to the latest information, is carried out through the main related forums of debate. Similarly, its involvement in networks enables the Port of Valencia to strengthen its position. In this regard, the Fundación is member of the International Association of Port Cities – AIVP and the Association for the Collaboration between Ports and Cities – RETE, the two leading networks when it comes to port-city relations. Regarding social

responsibility, the Fundación is actively involved in benchmark entities such as FORÉTICA – Forum to Assess Ethical Management Practices, and the ÉTNOR Foundation, which focuses on the ethics of business dealings and organizations, both entities being pioneers in Spain, and international benchmarks. Similarly, it provides support to the activities of DIRSE – Spanish Association of Executives for Social Responsibility, AEDIPE – for the Valencia Region and WISTA - Women's International Shipping & Trading Association.

## ADVOCATING THE IMPLEMENTATION OF CORPORATE SOCIAL RESPONSIBILITY IN VALENCIAPORT

### WORK TEAM

FV Coordinator: Pilar Blaya

**TIMEFRAME:** 2015 and 2016

**AIM:** Advocating the implementation of CSR attests to the willingness of the PAV to strengthen its contribution model towards sustainable development based on a series of principles that govern its management model, which together with legal compliance and cooperative approach, includes social responsibility.

The project has a transversal focus, considering management given that it aims to create consistency in the criteria used for short, medium and long term decision making. It therefore impacts on the positioning of the PAV in its relationships with surrounding area. Includes actions from all its spheres of activity that attend to the needs of its primary stakeholders: clients, personnel, the port logistics community and society.

In this regard, the aim of this activity deals with a variety of different fields that are part of shared initiatives within the framework of the CSR plan, to be carried out jointly by both entities to encourage CSR within the port community.

**FUNDING BODY:** Port Authority of Valencia

These activities, as with many of those undertaken by different departments, are based on the desire, through our work, to generate a shared, inclusive space that acts as a local reference and provides support to activities that either directly or indirectly help to bring about

improvements to the social and economic conditions in the different areas where Fundación Valenciaport carries out its activities in coordination with its trustees, as well as with national and international entities that share the same approach.





9

**FINANCIAL  
INFORMATION**





## VALENCIAPORT FOUNDATION

BALANCE SHEET 31st DECEMBER 2016 (IN EUROS)

ASSETS	2016*	2015
<b>A) NON-CURRENT ASSETS</b>	<b>171,890.86</b>	<b>107,274.41</b>
<b>I. Intangible assets</b>	<b>82,344.38</b>	<b>15,290.17</b>
5. IT applications	82,344.38	15,290.17
<b>III. Tangible assets</b>	<b>65,227.69</b>	<b>82,424.24</b>
2. Technical facilities and other tangible assets	65,227.69	82,424.24
<b>VI. Long-term financial investments</b>	<b>24,318.79</b>	<b>9,560.00</b>
5. Other financial assets	24,318.79	9,560.00
<b>B) CURRENT ASSETS</b>	<b>5,166,818.64</b>	<b>5,597,458.07</b>
<b>I. Inventory</b>	<b>54,605.72</b>	<b>49,236.12</b>
1. Operational assets	44,288.81	44,072.10
6. Advanced payments to suppliers	10,316.91	5,164.02
<b>II. Activity users and other debtors</b>	<b>4,437,070.88</b>	<b>4,661,847.65</b>
<b>III. Commercial debtors and other accounts receivable</b>	<b>333,891.04</b>	<b>200,840.04</b>
1. Provision of services and sales to clients	270,675.37	198,732.99
3. Sundry debtors	58,118.32	0.00
4. Staff	5,097.35	2,107.05
<b>VI. Short-term accruals</b>	<b>5,406.91</b>	<b>0.00</b>
<b>VII. Cash and cash equivalents</b>	<b>371,295.82</b>	<b>685,534.26</b>
1. Cash	371,295.82	685,534.26
<b>TOTAL ASSETS (A+B)</b>	<b>5,338,709.50</b>	<b>5,704,732.48</b>
<b>EQUITY AND LIABILITIES</b>	<b>2016*</b>	<b>2015</b>
<b>A) EQUITY</b>	<b>3,751,318.89</b>	<b>3,792,132.34</b>
<b>A-1) Foundation Funds</b>	<b>1,059,250.07</b>	<b>1,052,526.94</b>
<b>I. Founding Capital</b>	<b>978,382.24</b>	<b>978,382.24</b>
1. Founding Capital	978,382.24	978,382.24
<b>II. Reserves</b>	<b>71,828.15</b>	<b>58,228.71</b>
2. Other reserves	71,828.15	58,228.71
<b>III. Surplus from previous financial years</b>	<b>2,316.55</b>	<b>13,599.44</b>
1. Surplus	2,316.55	13,599.44
<b>IV. Financial year surplus</b>	<b>6,723.13</b>	<b>2,316.55</b>
<b>A-3) Grants, donations and bequests received</b>	<b>2,723,975.38</b>	<b>2,739,605.40</b>
<b>I. Grants</b>	<b>2,723,975.38</b>	<b>2,739,605.40</b>
<b>B) NON-CURRENT LIABILITIES</b>	<b>302,643.77</b>	<b>304,400.65</b>
<b>IV. Deferred tax liabilities</b>	<b>302,643.77</b>	<b>304,400.65</b>
<b>C) CURRENT LIABILITIES</b>	<b>1,288,292.01</b>	<b>1,608,199.49</b>
<b>I. Short-term provision</b>	<b>165,000.00</b>	<b>135,000.00</b>
<b>II. Short-term debts</b>	<b>578,297.23</b>	<b>1,032,436.94</b>
2. Debts with financial institutions	562,564.91	293,877.20
5. Other financial liabilities	15,732.32	738,559.74
<b>IV. Beneficiaries – Creditors</b>	<b>1,121.50</b>	<b>4,177.47</b>
<b>V. Commercial creditors and other accounts payable</b>	<b>543,873.28</b>	<b>436,585.08</b>
1. Suppliers	57,696.00	28,959.74
3. Sundry creditors	156,133.20	144,330.44
6. Other debts with Public Administrations	256,612.54	205,614.65
7. Advance payments received for orders	73,431.54	57,680.25
<b>TOTAL EQUITY AND LIABILITIES (A+B+C)</b>	<b>5,338,709.50</b>	<b>5,704,732.48</b>

## VALENCIAPORT FOUNDATION

### INCOME STATEMENT

A) FINANCIAL YEAR SURPLUS	2016*	2015
<b>1. Income from operating activities</b>	<b>2,077,309.59</b>	<b>2,116,935.48</b>
b) User contributions	636,159.59	562,272.53
d) Grants apportioned to financial year surplus	1,441,150.00	1,554,662.95
<b>2. Spending on aid and other</b>	<b>-64,176.50</b>	<b>-73,078.73</b>
a) Monetary aid	-64,176.50	-73,078.73
<b>5. Supplies</b>	<b>-325,263.98</b>	<b>-244,819.78</b>
<b>6. Other income from activities</b>	<b>1,112,226.27</b>	<b>573,853.52</b>
<b>7. Staff costs</b>	<b>-2,965,936.40</b>	<b>-2,879,671.91</b>
a) Salaries, wages and associated costs	-2,375,765.48	-2,336,731.12
b) Social contributions	-590,170.92	-542,940.79
<b>8. Other operating expenses</b>	<b>-1,146,449.40</b>	<b>-1,130,693.38</b>
a) External services	-1,041,828.48	-1,011,676.97
b) Taxes	-104,620.92	-119,016.41
<b>9. Amortization of Assets</b>	<b>-55,388.70</b>	<b>-48,311.81</b>
<b>10. Grants, donations and capital bequests transferred to the financial year surplus</b>	<b>1,386,839.47</b>	<b>1,694,735.70</b>
a) Capital grants transferred to the financial year surplus	1,386,839.47	1,694,735.70
<b>13. Other results</b>	<b>64.20</b>	<b>3,021.13</b>
<b>A.1 OPERATING SURPLUS (1+2+3+4+5+6+7+8+9+10+11+12+13)</b>	<b>19,224.55</b>	<b>11,970.22</b>
<b>14. Financial income</b>	<b>6,543.63</b>	<b>0.00</b>
b) From negotiable assets and other financial instruments	6,543.63	0.00
b2) From third parties	6,543.63	0.00
<b>15. Financial expenses</b>	<b>-12,189.09</b>	<b>-13,700.34</b>
b) On debts with third parties	-12,189.09	-13,700.34
<b>17. Currency exchange differences</b>	<b>-6,855.96</b>	<b>4,046.67</b>
<b>A.2 FINANCIAL OPERATIONS SURPLUS (14+15+16+17+18)</b>	<b>-12,501.42</b>	<b>-9,653.67</b>
<b>A.3 PRE-TAX SURPLUS (A.1+A.2)</b>	<b>6,723.13</b>	<b>2,316.55</b>
<b>FINAL TOTALS</b>	<b>6,723.13</b>	<b>2,316.55</b>

\*Accounts pending audit





10

**2015-2016  
IN PICTURES**



BunkerLogix closing session. Valencia, February 2015



B2MOS training actions in Valencia, on the Single Maritime Window and adaptations to ValenciaportPCS. net. Valencia, March 2015



Final SMILE conference. Valencia, April 2015



Final Co-Efficient conference. Portoroz (Slovenia), May 2015



## 2015-2016 IN PICTURES

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Visit of the 23rd MGPT to Noatum. Valencia, May 2015



Launch of the SUCCESS project. Luxemburg, May 2015



The European project GREENCRANES declared one the 100 best ideas of the year by the magazine Actualidad Económica. Madrid, May 2015





Fundación Valenciaport takes part in the IACT Conference. Beirut, May 2015



Fundación Valenciaport participates in the 1st Logistics Forum for Foreign Trade. Peru, July 2015



Kick-off meeting for the European project, MITIGTE. Hamburg, September 2015



Kick-off meeting for the European project, VET-PORT. Valencia, September 2015



SGS and Fundación Valenciaport sign a strategic international collaboration alliance. Valencia, November 2015

## 2015-2016 IN PICTURES

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First technical meeting of the European projects GAINN4MOS and GAINN4SHIP INNOVATION. Valencia, October 2015



Public demonstration of SEA TERMINALS project pilots to the port community.  
Valencia, November 2015



Presentation of the book "The Cruise Industry: features, agents and their functions". Valencia, December 2015



Meeting of the European project, STM Validation.  
Valencia, December 2015





Meeting of the European project, GAINN4MOS. Valencia, January 2016



Representatives of the Arab Academy of Sciences, Technology and Maritime Transport visit the Port of Valencia. Valencia, January 2016



Kick-off meeting for the European project, CONNECT Valenciaport. Valencia, January 2016



Fundación Valenciaport wins first place in the Valencian Companies Race. Valencia, February 2016



The President of MSC Spain gives a master class to the students of the 24th Master's in Port Management and Intermodal Transport. Valencia, March 2016



## 2015-2016 IN PICTURES

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Fundación Valenciaport takes part in the CIP-OAS Hemispheric CSR Seminar. Panama, April 2016



"Cyber-security in the supply chain" conference, MEDUSA project. Valencia, May 2016



Fundación Valenciaport gives a course in Port Management to executives from Egypt, Jordan, Sudan and Tunisia. Valencia, May 2016





Meeting of the European project, SUSPORTS. Valencia, May 2016



Peter de Langen gives a presentation on Port Governance at Fundación Valenciaport. Valencia, June 2016



Fundación Valenciaport participates as a speaker at the 10th Regular Meeting of the CIP-OAS. Montevideo, July 2016



First Fundación Valenciaport Padel Tournament. Valencia, July 2016



## 2015-2016 IN PICTURES

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Presentation of the first dual-fuel engine adapted for high-speed ships as part of the GAINN4SHIP INNOVATION project. Cartagena, October 2016



Fundación Valenciaport presents the STM Validation project at the 10th International Maritime and Port Protection Forum and Fair. Colombia, November 2016



Fundación Valenciaport wins two trophies in the 29th *Pas Ras al Port de València* race. Valencia, December 2016



Fundación Valenciaport delivers a course on Port Strategy and Marketing to executives from Egypt, Sudan and Togo. Valencia, December 2016



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