Project co-financed by the European Regional Development Fund

CO-EVOLVE

Promoting the co-evolution of human activities and natural systems for the development of sustainable coastal and maritime tourism

Deliverable 4.6.1

Sustainable Tourism Plan for Cruise Tourism in Pilot Area 4

Activity 4.6

*Coordination patterns and criteria for mainstreaming ICZM in tourism and coastal management / **Pilot Area 4***

VALENCIAPORT FOUNDATION

May 2019

Authors

Carolina Navarro Correcher, Valenciaport Foundation, Valencia (Spain)

cnavarro@fundacion.valenciaport.com

Rafael Company Peris, Valenciaport Foundation, Valencia (Spain)

rcompany@fundacion.valenciaport.com

Gabriel Ferrús Clari, Valenciaport Foundation, Valencia (Spain)

rcompany@fundacion.valenciaport.com

Table of contents

1. Introduction 8

1.1 Alignment with the WP4's objectives of CO-EVOLVE project 9

2. Pilot Area context 10

2.1 The strategic planning of Pilot Area 10

2.2 Brief description of the Pilot Area 11

2.3 Planning SET-UP in the Pilot Area 13

2.3.1 Working team 13

2.3.2 Territorial scope 13

2.3.3 Identification of stakeholders 13

2.3.4 Methodology for the participatory process: 16

2.3.5 Work plan and definition of milestones 17

2.4 Building knowledge framework in the Pilot Area 17

2.5 Defining vision-goals-objectives in the Pilot Area 21

3. The Cruise Sector in Valencia 24

3.1 Main figures of the cruise ship industry 24

3.2 Type of cruise ships 24

3.3 Kind of cruise passengers 25

3.4 Key trends 26

3.5 What are cruise passengers looking for? 27

3.6 Who does what in the cruise ship sector (key stakeholders) 27

3.7 Figures of cruise ships in the Port of Valencia 33

3.8 Type of cruise ships that called at Valenciaport 34

3.8.1 Budget class cruise ship 34

3.8.2 Contemporary class cruise ship 35

3.8.3 Premium class cruise ship 36

3.8.4 Expedition class cruise ship 37

3.8.5 Upper-premium class cruise ship 38

3.8.6 Luxury class cruise ship 39

4. Economic Impact of Cruise Tourism in Valencia 40

4.1 Application of the model in Valencia 40

4.2 Model to measure economic impact of cruising on local destinations 41
4.3 Analysis economic impact of Cruise Tourism in Valencia 45
4.3.1 Initial expenditure on cruise activity: initial effect 45
4.3.2 Results of the economic impact of cruise ship activity 48
4.3.3 Results of the economic impact of the activity of the cruisers 52
4.4 Summary of the economic impact of the cruise sector in Valencia 53
4.5 Economic tool kit results 54
5. Environmental Impact in Valencia 56
5.1 Eco-cruise port/city tool 56
5.1.1 Air emissions 56
5.1.2 Noise 57
5.1.3 Waste management 58
5.1.4 Mobility 58
5.1.5 Resource consumption 58
5.2 Analysis of the environmental impact of cruise ship industry in Valencia 59
5.2.1 Air emissions from cruise ships berthed at Valenciaport 59
5.2.2 Noise impact on residential areas near Valenciaport caused by cruise ships 60
5.2.3 Waste management at Valenciaport 62
5.2.4 Mobility options available for cruise passenger at Valenciaport 64
5.2.5 Resource consumption evaluation at Valenciaport 65
5.3 Eco- tool kit indicators 68
6. Action Plan and recommendations to reduce environmental impacts 73
6.1 Strategic goal: Maximizing local economic benefits from cruise tourism 73
6.2 Strategic goal: Improving the institutional framework and policies affecting sustainable cruise activity 74
6.3 Strategic goal: Reducing the environmental impact caused by cruise shipping industry 75
7. References 76
8. Annexes 77
8.1 Scope of the pilot actions in Valencia 77
8.1.1 Modelling the socio-economic impact on Valencia 77

8.1.2 Port Sustainable generic methodological framework focus on the environmental impacts 79

Index of figures

Figure 1. Characterization of a sustainable cruise destination. 8

Figure 2. Process of tourism-driven strategic planning in coastal areas. 10

Figure 3. Pilot Area limits. 12

Figure 4. Time planning of the Pilot Action to assess the cruise tourism impact on Valencia. 17

Figure 5. Graphical elaboration of Valencia pilot area's priorities that emerged from the analysis of threats. 18

Figure 6. Valencia pilot area's priorities that emerged from the analysis of enabling factors. 18

Figure 7. ICZM High Level Objectives and Sustainable Coastal Tourism Goals. 23

Figure 8. Global picture of the cruise ship industry in 2018. 24

Figure 9. Segmentation by kind of cruise ships. 25

Figure 10: Cruise ship community members. 46

Figure 11. Distribution of the number of cruise passengers arriving at the Port of Valencia (2017) ... 46

Figure 12. Initial effect of the cruise ship industry at Valenciaport. 47

Figure 13. Relationships among Initial, Direct, Indirect and Induced Effect 48

Figure 14. Measurement points at Valenciaport. 57

Figure 15. Main areas of analysis included in the eco-cruise port/city tool 59

Figure 16. Carbon footprint of cruise ships and their passengers in 2017 at Valenciaport. 59

Figure 17. Noise levels measurement at the Cruise Berth. 60

Figure 18. Noise levels measurement at the Western Berth 60

Figure 19. Noise map at Valenciaport for cruise ships. 61

Index of tables

Table 1. Pilot Area Stakeholders' identification. 14

Table 2. Cruise ships and passengers figures at Valenciaport. 33

Table 3. Structure of cruise and crew expenses. 47

Table 4: Economic effects results (thousands of euros). 49

Table 5. Economic effects results (thousands of euros) 52

Table 6 Methodology of the study on economic impact of cruise activity 54

Table 7 Economic indicators evaluation. 54

Table 8 Economic indicators evaluation. 55

Table 9. Indicators used for measuring the waste management at Valenciaport in 2017. 63

Table 10. Mobility evaluation at Valenciaport. 65

Table 11. Energy consumption evaluation. 66

Table 12. Water consumption evaluation. 66

Table 13: Eco-tool indicators 68

Index of graphs

Graph 1. Sources of information for the economic model. 41

Graph 2. Input-Output Table Structure. 42

Graph 3. Aggregate economic effects (thousands of euros) 50

Graph 4. Total sectoral effect of cruise activity in terms of sales (thousands of €) 51

Graph 5. Total sectoral effect on employment of cruise activity (jobs). 51

Graph 6. MARPOL I waste managed in 2017. 62

Graph 7. MARPOL V waste managed in 2017. 62

Graph 8. Mobility options chosen by cruise passengers at Valenciaport in 2017. 64

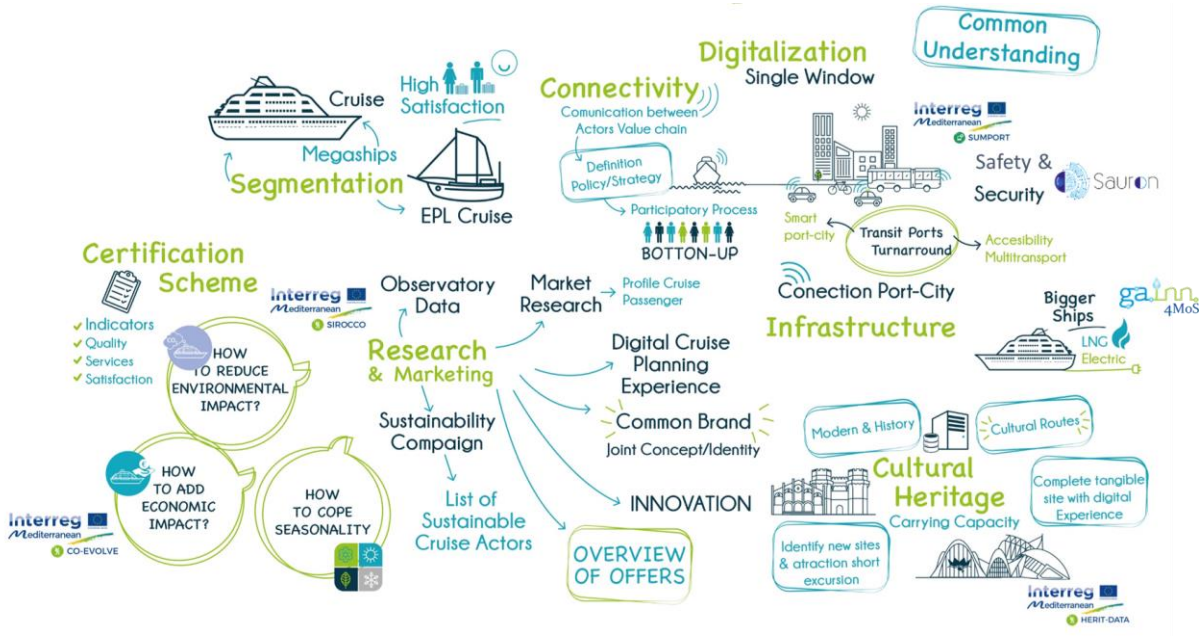
1. Introduction

The aim of this deliverable 4.6.1 is to **present and describe the main features of the ECO-cruise tool developed in order to evaluate the impact of cruise activities within ports and city areas**.

The proposed ECO-cruise tool has been designed in the framework of the WP4 for measuring specifically aspects related to their **socio-economic** (as presented in the section 4 below) **and environmental impact** (included in the section 5). Once the situation is analysed (AS IS), it will be defined an Action Plan (TO BE) including recommendations to contribute for increasing economic impacts of cruise activities and reducing their carbon foot print.

In addition to its theoretical description, a **practical application has been conducted to assess the cruise tourism impact on Valencia** (Spain) **as a first benchmark following the principles of the Integrated Coastal Zone Management (ICZM) Protocol.**

Figure 1. Characterization of a sustainable cruise destination.



Source: Own elaboration by VPF.

1.1 Alignment with the WP4's objectives of CO-EVOLVE project

WP4 started on month 02-2018 and it is ending on month 05-2019; **and it represents the Module 2 "Testing" of CO-EVOLVE, according to the modular structure of Interreg MED projects.**

The WP4 (*M2-Testing*) translates in practice the findings of WP3 in order to implement Pilot Actions (plans, concrete actions and measures), setting the conditions for a sustainable tourism in coastal areas and related maritime space and promoting robust and transparent decision-making processes. CO-EVOLVE recognizes as a key challenge for sustainable coastal and maritime tourism development the strengthening of cooperation among Regions and the joint development and transferring of approaches, tools, guidelines and best practices. The actions envisaged are systemic, ecosystem-based and dynamic, taking into account future scenarios of natural (i.e. climate change) and anthropogenic changes. The Pilot Actions embrace a wide range of case in the Med area, from coastal urbanized or exploited areas (including port areas, structured waterfronts, different kind of beaches with tourism facilities, etc.) to natural protected areas (Natura 200, Ramsar, SIC&ZPS, etc.). Fields of intervention are the **integrated planning of coast-maritime space, governance and management of conflicts between different uses, recovery and valorization of natural areas, developing of integrated tourist offers and deseasonalization of tourist fluxes**.

WP4 has two main specific objectives:

- **Define and test training tools for implementing sustainable tourism** and for sensitizing local administrators / tourism operators. (Output 4.1);
- **Formulate local Action Plans and implement actions for sustainable tourism** in the Pilot Areas, with the participation of main stakeholders and local coastal communities (Output 4.2);

WP4' results and practice experiences on the field. It constitutes the basis of good practices contribution to the "Transferability Plans" at pilot areas and regional scale (WP5).

2. Pilot Area context

2.1 The strategic planning of Pilot Area

The strategic planning process guides the development in the direction of those strategic priorities identified by all stakeholders through a consultative process. In particular, on coastal area, a tourism-driven strategic plan for sustainable development of coastal areas have to integrate main principles and goals provided by the Integrated Coastal Zone Management recommendations (UNEP/MAP/PAPRAC Guidelines for ICMZ, 2012) and the Sustainable Coastal tourism approach guidelines (UNEP, 2009).

The methodology proposed by deliverable 3.18.1 for a definition a strategic planning tourism based on a pilot area is organized in different consequential steps that constitutes an adaptive and cyclical process. It consists of six major phases, each of which includes key tasks and steps. The iterative process of tourism-driven strategic planning in coastal areas is reported in figure below.

Figure 2. Process of tourism-driven strategic planning in coastal areas.

Source: CO-EVOLVE project.

2.2 Brief description of the Pilot Area

Valencia is on the east coast of the Iberian Peninsula, in front of the Gulf of Valencia on the Mediterranean Sea. It is the capital of the autonomous region of Valencia and the third-largest city in Spain after Madrid and Barcelona, with around 800,000 inhabitants and an extension of near 138 km^2, of which around 62.5 km^2 correspond to the city. Its metropolitan area extends beyond the municipality limits, adding up near 76 towns and a population of around 1.8 million people.

The area's development is influenced by economic, environmental and Mediterranean touristic dynamics.

Valencia shows a quite positive trend in terms of tourism development and market. This condition is quite different from the nearby Regions, characterized by coastal destinations hosting a relatively low number of tourists than the Mediterranean average but with a good potential for attracting more tourist fluxes. Valencia's Region shows high potential for strengthening its market share, paying attention to not exceed its carrying capacity and the negative externalities that could affect it. Moreover, the population trend in the area, as in the surroundings regions, is in a positive direction with a high increase in the last years in line with the nearby Regions and the Northern/Western Mediterranean trend.

Valencia has an important commercial Port, known as Valenciaport. Cruise traffic at the Port of Valencia has grown 125% in number of passengers over the last 10 years. At the end of 2018, it closed the year with a total of 194 calls and 421,518 cruise passengers. This traffic will continue increasing according to the cruise industry trends and its growth perspectives in the Mediterranean area.

The Pilot Area includes the port-city system and, in particular the axis port - City of Arts and Sciences - old city.

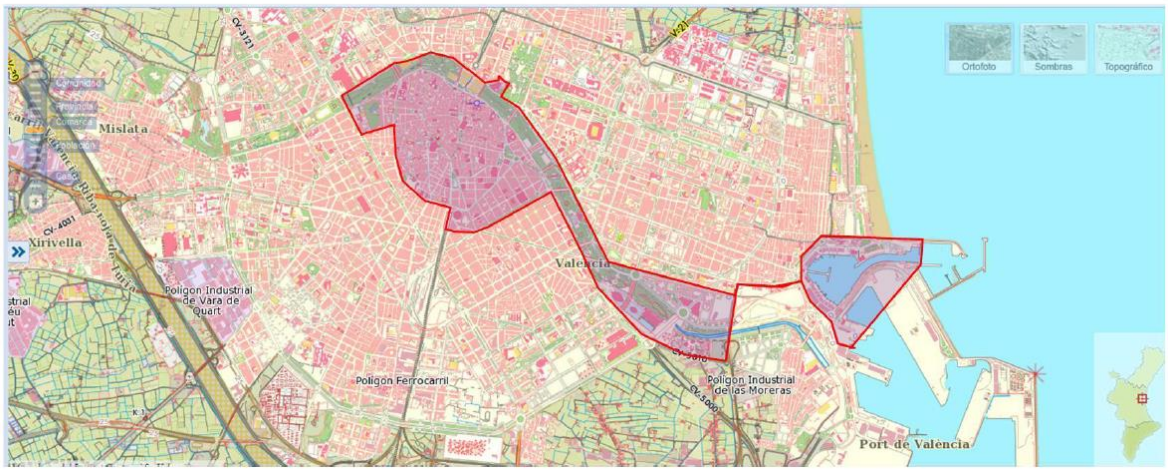
The **port** waterfront extends for 5.2 km of the coastline. The City of Arts and Sciences and the old city are the most demanded tours for cruise passenger. These are also the main attractions for most of Valencia's tourists and same day visitors apart from cruisers.

The **City of Arts and Sciences** consists of an avant-garde collection of buildings (most of them designed by Santiago Calatrava), with Europe's biggest aquarium, a science museum, a 3D cinema and the Palau de les Arts opera house. It is located in the former bed of the Turia River.

The **old city**, known as Ciutat Vella, concentrates most of Valencia's cultural heritage. The district extension is 1.69 km^2 with a population of near 27,000 inhabitants. It concentrates most of the cultural

heritage elements of the metropolitan area, including museums, historical buildings, monuments, art galleries and hosting some of the main thematic routes offered by tourism operators.

Figure 3. Pilot Area limits.



Source: Terrasit (http://terrasit.gva.es)

The economic impact of cruise tourism and its benefit to local livelihoods is a ubiquitous topic for destination policymakers and stakeholders that arises when discussing cruise tourism development. Cruise tourism has been criticized for keeping the majority of associated revenues within the cruise shipping line and not for the local communities (which may make up a large part of the attractiveness and experience) that are not benefitting sufficiently from the cruise passengers. Destinations should routinely monitor, benchmark and seek to improve the spending per cruise passenger and the portion that remains within the local economy and its communities.

Cruise tourism is a key source of Valencia City, but this kind of tourism is also pointed out as a source of pressure and environmental impacts. The presence of cruises at port and high concentrations of cruiser passengers in certain parts of the city, could affect negatively the city in terms of environment. In this sense, the coexistence between ports and cities has had many problems related to the territory sharing.

Information regarding the environmental and economic aspects associated with the cruise tourism activity in Valencia is largely lacking, and it would be very convenient to establish/ integrate/ strengthen the information channels that make it possible to collect quantitative data from the cruise activity in relation to its sustainability, in order to determine a sustainable model for development of this traffic.

2.3 Planning SET-UP in the Pilot Area

2.3.1 Working team

The core working team is composed by:

- Valenciaport Foundation, CO-EVOLVE Project partner. The Valenciaport Foundation, is a non-profit private entity. It has been conceived to further expand the reach of the logistics-ports community by serving as a research, training and cooperation centre of excellence.
- Port Authority of Valencia (PAV), is the public body responsible for running and managing the port of Valencia.
- Turismo Valencia: is a non-profit Foundation with the participation of the Valencia City Council, the Chamber of Commerce, Feria Valencia and the Valencia Business Confederation. It is Destination Management organisation.

These three institutions constitute the "Monitoring Committee" of the participatory process. This committee is responsible for proposing the design and promoting the Action Plan at its inception. It is envisaged that this committee will meet periodically throughout the process to follow and review its progress.

2.3.2 Territorial scope

As mentioned, the Pilot Area includes the port-city system and, in particular the axis port - City of Arts and Sciences - old city.

The area in which planned activities (strategies, measures and actions finally proposed through the participatory process) will be implemented is made up of the port area and the city of Valencia.

2.3.3 Identification of stakeholders

Stakeholders have been identified on the basis of the information produced in the framework of the SIROCCO project (Interreg Med project), which carried out an analysis of the Cruise Tourism Value Chain in Valencia.

The following table shows Key Players, roles and services that make up the cruise tourism value chain in Valencia.

Table 1. Pilot Area Stakeholders' identification.

Entity	Role in cruise tourism	Stakeholders in Valencia
Regulator, Government Level. Destination managers and policymakers (Ministries, NTOs, tourism boards)	Development of policies and management of operations within the destination regarding activities of cruise lines, cruise passengers, environmental monitoring and other value chain entities.	Puertos del Estado, Tourism Ministry, Port Authority of Valencia, Generalitat Valenciana, Ayuntamiento de Valencia, Agencia Tributaria (Aduanas)
Cruise terminal & Port operators	Facility that provides the infrastructure and operations for cruise ship and cruise passenger arrival (turnaround and transit)	Trasmediterranea Terminal. Amarradores Puerto De Valencia, Prácticos de Valencia SLP
Ground handlers and Tour Operators (excursion operators)	Responsible for the logistical operations of providing cruise lines with shore excursion packages	Intercruises, BC Tours, Iberoservices; Iberojet, Mundomar cruceros, Transcoma Tours, Un Mundo de Cruceros, P&ClaCruises and Yachts
Travel agents	Selling cruise tourism products to cruise passengers.	FIL-PER-Randa; ambia Tour, Cititravel Valencia, Cutting Edge; EuropaTravel, Pacific World Valencia, Viajes Globus; Viajes Levante Tour; Viajes Necotur; Aquatravel Spain DMC
Ground transportation providers	Transport cruise passengers within the destination to/ from cruise terminals, hotels, airports, site amenities, attractions and activities or generally within a destination	Valencia Bus Touristic, ALSA; Autibuses Vialco, Autocares Capaz, Autocares Transvia; Avant Grup; Autopullman Jucan; Autocares Rodrigo
Shipping Agents	Facility that provides the infrastructure and operations for cruise ship and cruise passenger arrival (turnaround and transit)	BERGE MARITIMA, S.L; M.S.C. ESPAÑA, S.L.U; ROCA MONZO, S.L; A. PEREZ Y CIA, S.L ; CIA. TRASMEDITERRANEA, S.A; TRANSCOMA, S.A; MARITIMA DEL MEDITERRANEO,S.A.
Ship suppliers	Provide goods and services to cruise ships while at the destination.	BC tour, Intercruises, Incargo, Aljibes Boscá (agua);
Site attraction operators	Operate and maintain the attraction facilities and areas visited by cruise passengers.	L´Oceanografic. Museo de las Ciencias Principe Felipe. Bioparc. Lonja. L´Hemisfèric. Centro Cultural la Beneficiencia. Muvim. Torres de Serrano. Museo nacional de Cerámica González Martí. Museo de Bellas Artes. IVAM. Museo Histórico. Museo Fallero. Centre del Carme

Site amenity operators (retail, food and beverage)	Operate and maintain the facilities and areas visited by cruise passengers, such as restaurants, shopping.	Ambia Tours; Aquavip Valencia Incoming, Aravolo; Art Valencia; Valencia Guías, Arroz Tratana; Boramar, BR Bikes, Descubre L´horta, Discovering Valencia, Doyoubike; Itineris, Liber Tours, Mar y Sombra; Mestalla forever Tour, Mundo Marino, Paseando por los poblados, Passion Bike, Primier Taz Free, Quicksail, Ria Money Transfer, Segway Valencia, Solution Bike, Tour por Valencia, Turiart, Valencia Club Cocina, Valencia Guñia, Visit Albufera, Maximece Group.
Host community(ies)	Intangible heritage as part of the cruise passenger experience while visiting the destination.	World Heritage Monument: Lonja de la Seda and Tribunal de las Aguas. 47 Museums. 13 Theaters. La Albufera Natural Park and Dehesa del Saler
Destination management organizations	Promotion of the destination's brand image and experience to visitors.	Valencia Tourism
Airports	Transporting fly-and-cruise passengers to home port (turnaround) destination	AENA Valencia Aerport, 45 international air connections and 15 national air connections,
Hotels	Accommodation for cruise passengers arriving to the destination prior to the cruise, departing after the cruise or staying overnight within a multi-day port of call.	143 hotels (9396 rooms or 18115 beds)
Destination waste management companies and haulers	Responsible for waste management and resource recovery for waste materials landed by cruise ships	Maporl I: Marpoles del Este and Urbamar Levante Residuos Industriales Marpol V: Seroil Valencia, S.L and Servicios Portuarios Garbaport ; Urbamar Levante

2.3.4 Methodology for the participatory process:

During participatory process in Valencia, the following entities participated:

- The Monitoring Committee, as mentioned above, made up of the FVP, the PAV and Valencia Turismo. This group will be responsible for monitoring, supervising, controlling and reorienting the process and also for presenting and discussing the views of the institutional representatives on the objectives, the strategy followed and the results obtained.
- Cruise Stakeholders, a group made up of all the agents involved in the value chain of cruise ship activity in Valencia, and therefore made up of a large number of companies and institutions with very different profiles (listed in the previous table); as well as citizen groups that may be affected by cruise ship activity in Valencia (neighbourhood associations from areas with more congestion due to the presence of cruise ship tourists, etc.).

The participatory process consists of developing a series of meetings with these two large groups, to shape the strategy to be developed around cruise ship tourism in Valencia. The meetings have been:

- Regular meetings of the **monitoring committee:**
  - Initial meeting (held on April 16, 2018), to organize the participatory process (selection of stakeholders, issues to be addressed, etc.).
  - Intermediate meetings (from May 2018 to February 2019) to follow up on the participatory process (intermediate results), assess the results of the individual interviews carried out, and prepare a draft provisional plan.
  - Final meeting to analyse and draft sustainable strategy lines (March 2019).
- Individual meetings with stakeholders. These meetings are intended:
  - On the one hand, to gather information that allows a more detailed characterization of cruise activity in Valencia, and this in turn allows a reorientation of the strategy during the participatory.
  - On the other hand, these meetings allow us to know in greater detail the sectoral vision of each of the agents involved, as well as their expectations and objectives.
- Multi-stakeholder meetings: These sessions are designed and planned in advance to ensure participation of the different agents involved and the achievement of certain minimum objectives in each session. It is foreseen to organize two multi-stakeholder meetings:
  - A first initial multi-stakeholder meeting, which allows contact with the different agents and sectors potentially involved and/or affected by the development of cruise

activity in Valencia, and which aims to demonstrate the various existing positions. This first meeting was held on 28 May 2018.

- A final multi-stakeholder meeting, organised on 14 March 2019, where the action plan and strategic vision was validated with all identified stakeholders.

2.3.5 Work plan and definition of milestones

Figure 4. Time planning of the Pilot Action to assess the cruise tourism impact on Valencia.

	2018									2019					
PARTICIPATORY PROCESS	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Regular meetings of the monitoring committee	M1											M3			
Individual meetings with stakeholders															
Multi-stakeholder meeting		M2										M4			

M1: Initial Monitoring committee meeting

M2: Presentation of the preliminary documents and collection of the contributions from different stakeholders

M3: Draft results and deninition of Action Plan

M4: Conclusion of the Participatory Processo and Validation Plan

Source. Own elaboration by VPF.

2.4 Building knowledge framework in the Pilot Area

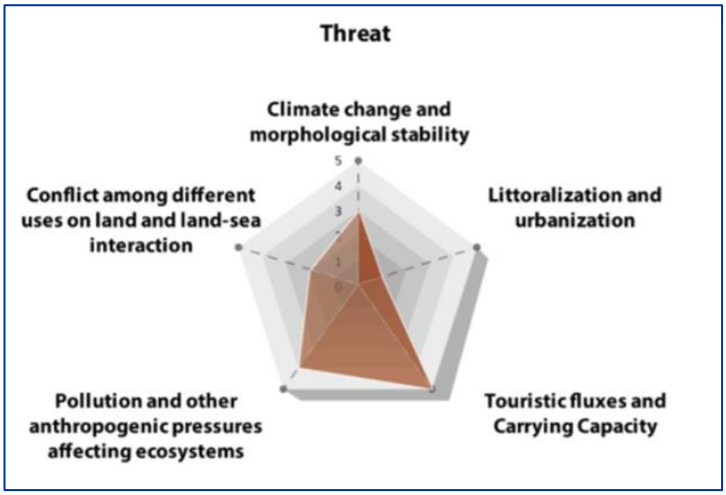
According to the WP3 pilot area analysis the main threats and enabling factors in the pilot area are:

- **Threats:**
  - Concentration of tourist demand on tourism interesting sites.
  - Large number of visitors within the destination and its attractions for short periods.
  - Substitution of local traditional shops by tourism oriented ones.
  - Pollution:
    - Air emissions from cruise ships: the most relevant are NOx, CO2, SO2, PM2,5, PM10.
    - Air emissions from cruisers trips (by car or by bus) in the city.
    - Saturation of waste management channels at specific times (when several cruise ships dock in port at the same time). Waste generated on activities on board by passengers and crew (urban and similar, and dangerous waste) could cause pollution in coastal and marine ecosystems.

- Waste water (lack and grey water that comes from showers, sinks and activities on board) and ballast water (needed for the balance of the ship). If they are not properly treated, can generate water pollution problems (loss of water quality).
- Noise (from cruise ships during berthing).

- High pressures on the quality and quantity of natural resources.

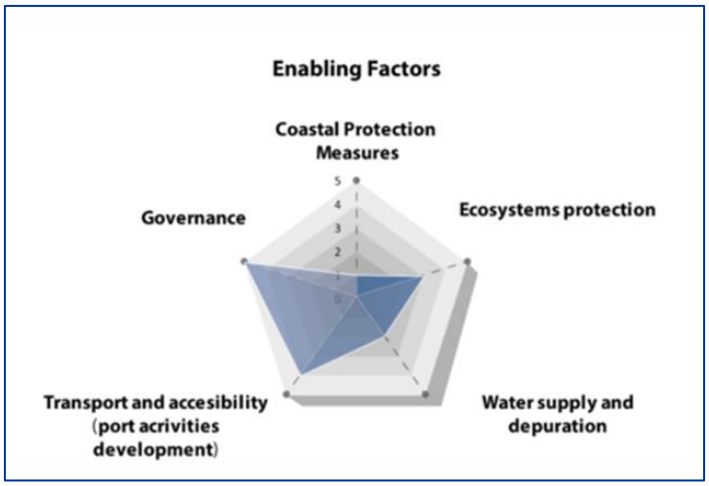
Figure 5. Graphical elaboration of Valencia pilot area's priorities that emerged from the analysis of threats.



Source: Deliverable 3.18.2 Tourism-driven Strategic Planning on Pilot Areas (CO-EVOLVE Project).

- **Enabling factors:**
  - mobility strategies can help to tackle some challenges to cruise tourism mobility
  - SUMPORT Project: update of the current Port Sustainable Mobility Plan of Valencia and related action plan.
  - Valencia Port Authority (VPA) has installed different monitoring and instrumentation networks to obtain information in order to take appropriate actions to reduce negative impacts derived from port activities.
  - VPA has a Plan for the reception and handling of waste from ships. In order to improve control in the waste collection services from ships. To encourage the use of these reception services, the VPA charges a fee to ships that dock in the port, independently of whether they use the waste reception service.

Figure 6. Valencia pilot area's priorities that emerged from the analysis of enabling factors.



Source: Deliverable 3.18.2 Tourism-driven Strategic Planning on Pilot Areas (CO-EVOLVE Project).

Some challenges related to cruise tourism mobility are:

- how to adapt the public transport offer to the cruise mobility demand, since cruise passengers flows have very particular characteristics (e.g. temporal concentration, strong dependency of tourism offer, etc.),
- how to coordinate the routes with the different niches of the tourism offer; or
- how to reduce transport's contribution to the environmental impact generated by tourism activities (e.g. adopting low carbon transport initiatives).

As identified in Deliverable *3.18.2 Tourism-driven Strategic Planning on Pilot Areas*, the main Local and regional planning guidelines that must be taken into account in building the local strategy in Valencia are:

- **At Regional level:**
  - Territorial Strategy of the Community of Valencia (2011) is a territorial planning instrument that includes the territorial model of the Valencian community. In regard to tourism, it is interesting to note that one of the objectives included in this strategy is Driving the Tourism Model towards territorial sustainability (objective 10).
  - Territorial Action Plan for the Green Infrastructure of the Coastal Region of Valencia (PATIVEL). It sets out clear objectives and specific intervention proposals for the coastal area, where the bulk of the Valencian tourism system is concentrated.
  - Valencia Region Tourism Spaces Plan , intended as an instrument that addresses the planning of tourism activity based on an understanding of the territory as a resource and setting out proposals for action under sustainability criteria.

- White Paper for a New Tourism Strategy for the Valencia Region.
- Valencian Climate Change Strategy 2013-2020 (EVCC) reinforces sustainability as a central pillar of the Valencian Community's tourism development strategies in the short, medium and long term. It supports the tourism sector in the implementation of environmental management systems and the improvement of energy efficiency in local tourist companies and organizations, as well as in the planning and sustainable development of tourist destinations. It also invests in sustainable infrastructure and facilities in tourist companies and local organizations.

- **At local level:**
  - Valencia Climate Action Plan 2050. The City of Valencia is aware of the danger posed by climate change to different sectors at the local level. Therefore, a vulnerability analysis was carried out for a number of sectors in the City of Valencia, namely: agriculture; water and water resources; biodiversity; the coastline; energy; health; and transport and urban planning. This analysis reveals, on the one hand, the climatic impacts that Valencia is most vulnerable to, and, on the other hand, the sectors that are top priority for action. Particularly relevant is Goal 5 "Increase the resilience of the tourism sector by reducing its impact on the city".
  - Valencia Strategic Tourism Plan 2017-2020. The programme to boost cruise tourism is intended to (1.6): attract more cruise ships on routes where Valencia can be a port of embarkation or a destination port; attract luxury and niche cruises; coordinate more specialized promotion and marketing in this segment; combine public and private efforts in the different initiatives currently underway in the destination, in order to reach new markets; support the marketing of attractive proposals for cruise passengers, which generate increased spending in the destination; promote a joint action to attract shipping companies identified as appropriate; improve services at the port; offer optimal conditions in terms of charges; improve connections with city attractions; generate consolidated proposals. This product is identified as level II prioritization (average level of demand but with strong assets).
  - Valencia sustainable urban mobility plans (SUMP) 2013 The plan includes the strategies and instruments needed to achieve a coordinated and efficient use of the different means of urban transport for the general public.

- **Port Plans:**
  - Plan for the reception and handling of ship generated waste at the ports managed by the Port Authority of Valencia (2015) in accordance with the provisions of Directive 2000/59 /EC. It assesses the reception requirements, capacity and existing resources and defines the procedures governing these.
  - Port Sustainable Mobility Plan of Valencia (PMS Plan de Movilidad Sostenible) (2012) it is an action plan. Defines the guidelines of the mobility policy, as well as its deployment in concrete actions, which responds to the commitment of the Valencia Port Authority (VPA) to promote sustainable mobility in the Port of Valencia. The aim of the PMS is therefore implement a transport system that gives priority to non-polluting modes of transport (bicycle and walking) and public transport, to the detriment of the use and abuse of private motorized vehicles.
  - Strategic Plan for 2020 of the Port Authority of Valencia, under which the new challenges posed by the current economic scenario will be met. The economic crisis has had a strong impact on sea trade. The 2010-2020 cycle presented new challenges and threats, obliging the PAV to make a new approach to its strategies: profitability levels need to be maintained to offer competitive charges, reduce port call costs due to intensified port competition, and continue to improve the efficiency of services provided to shipping lines and carriers. In a context such as this, economic sustainability is a key factor in allowing Valenciaport to fulfil its mission. Valenciaport aims to sustainably promote the external competitiveness of the business community in Valenciaport's area of influence by providing quality, competitively-priced port, shipping, intermodal and logistics infrastructures and services which are aligned with European transport policies.

2.5 Defining vision-goals-objectives in the Pilot Area

The starting point to create an effective strategy for sustainable tourism development in coastal areas is to set the main direction to which we want to move: the vision and its related objectives.

The construction of the vision for the area and the identification of strategic specific objectives must be constructed, on one hand, addressing the strategic issues emerged from the analytical phase, and, on the other hand ensuring the coherence and compliance with ICMZ and Sustainable tourism principles and main goals.

The development planned for the future, aims to convert the city of Valencia in a European model of sustainable and transparent destination, dynamic, with an efficient and collaborative structure, respectful of the environment and built with the complicity of all the sectors involved. The base of this vision is strongly connected with the integration of the city center and the port (physically, economically and socially) that means:

- promote sustainable cruise tourism development able to improve the quality of life of residents; a model capable of effectively contributing to the preservation and enhancement of cultural and natural heritage, and in which cruise activity is a factor in improving the well-being of citizens.
- Increase the profitability of the cruise tourist activity in the city in terms of creating wealth and quality employment, promoting a sustainable tourism with higher average spending and less environmental impact.
- Adapt the offer to the demands and requirements of the new consumer, improving the value proposal, making the tourist resources and services offered by the city more attractive and accessible.
- Innovate the management models and the instruments and tools used, intensifying and optimizing the use of ICTs in the management of the city. To promote a comprehensive intelligence system that provides companies and institutions with the best knowledge to make decisions.
- Broaden the vision from a transversal perspective, actively involving cruising agents (institutions, companies, residents, professionals), through an institutional framework of collaboration and participation.
- Implement operational instruments that are part of the management of the destination and in which companies and professionals have the greatest role.

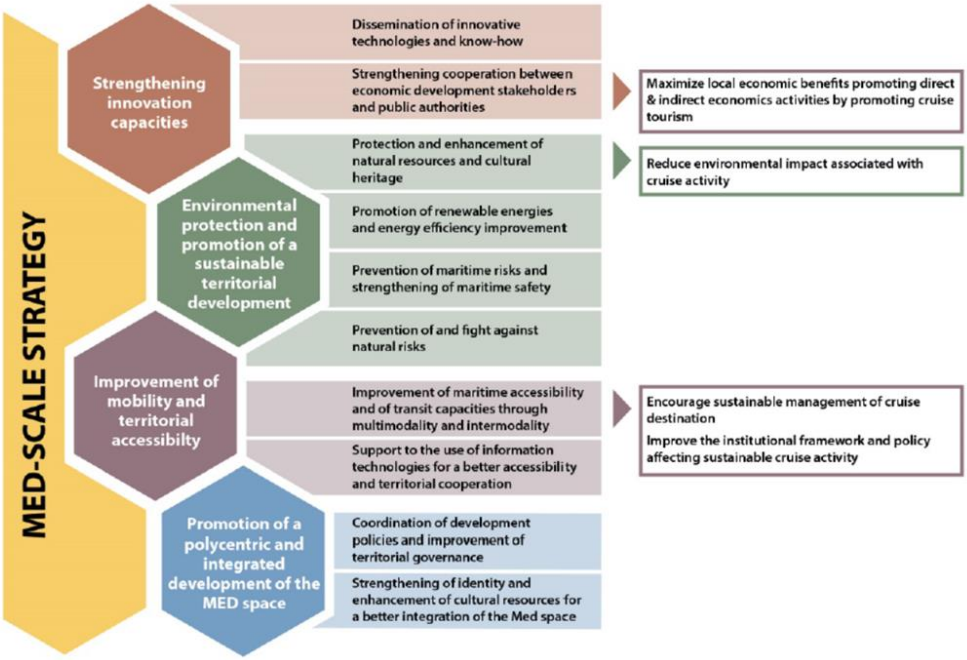
The main planning goals and objectives are:

1. Maximize local economic benefits promoting direct and indirect economics activities by promoting cruise tourism
2. Reduce environmental impact associated with cruise activity
3. Encourage sustainable management of cruise destination (touristic fluxes)
4. Improve the institutional framework and policy affecting sustainable cruise activity.

These objectives are completely coherent with the Med-scale strategy and related main goals, as is possible to notice in the Figure below.

The specific objectives are also in line with the ICZM High Level Objectives and Sustainable Coastal Tourism Goals, especially concerning the development of a healthy and productive economy and environment.

Figure 7. ICZM High Level Objectives and Sustainable Coastal Tourism Goals.



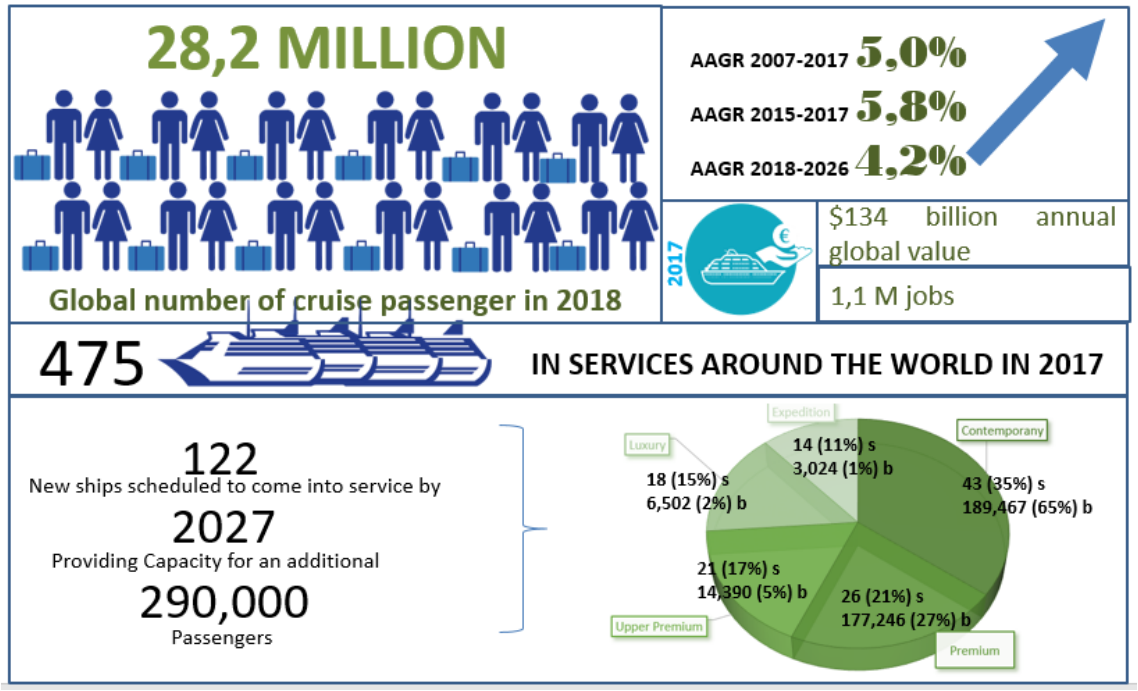
Source: Deliverable *3.18.2 Tourism-driven Strategic Planning on Pilot Areas (CO-EVOLVE Project).*

3. The Cruise Sector in Valencia

3.1 Main figures of the cruise ship industry

In global terms, the cruise sector generated 1.1 million jobs in 2017 and it created a $134 billion annual global value. The number of passenger is experiencing an upward trend in the last years, arising a total number of 28.2 million passengers in 2018, and it is expected to continue to be so in the coming years. When, 122 news are scheduled to come into service in 2027, providing an aggregated capacity for 290,000 passengers.

Figure 8. Global picture of the cruise ship industry in 2018.

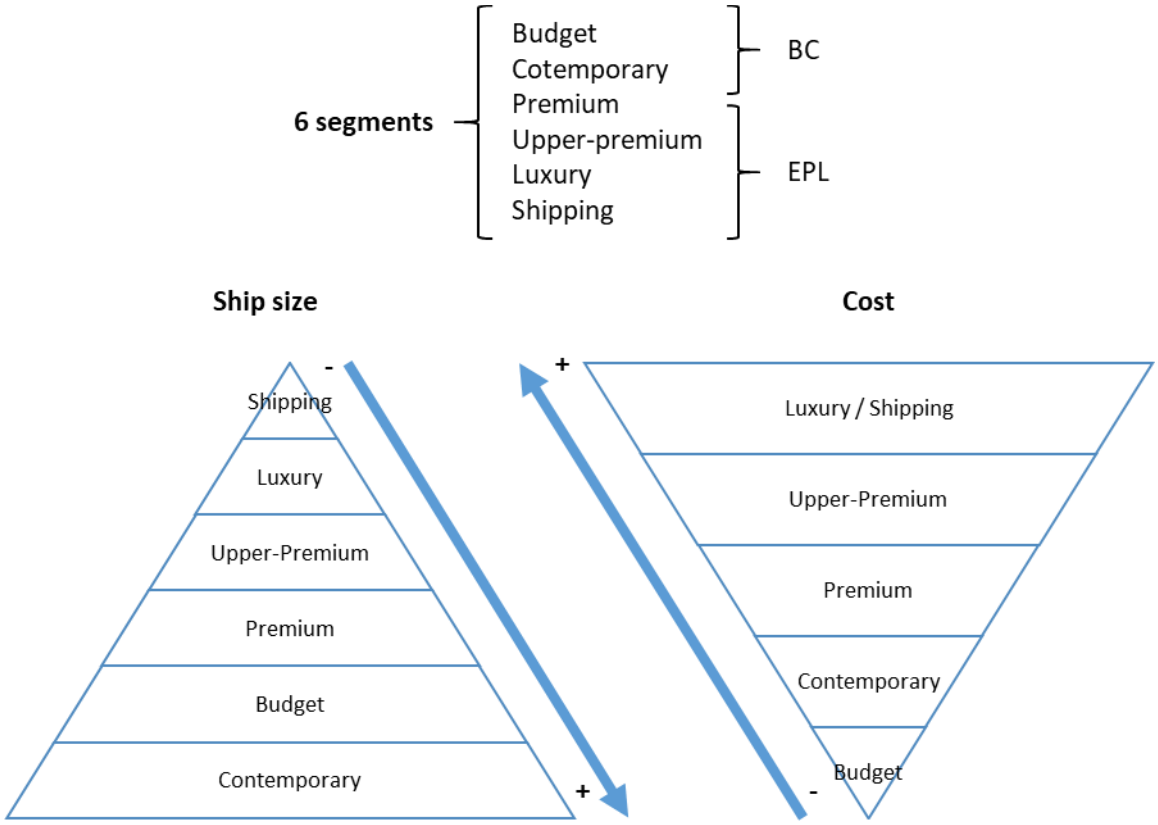


3.2 Type of cruise ships

A cruise ship is a passenger ship used for pleasure voyages, where the voyage and ship's amenities are an integral part of the experience, as well as the different destinations along the way.

Cruise ships trend to fall into different categories. Each cruise ship caters for a different market segment or target market, thus you need to understand these potential 'customers' (be they the cruise passengers specifically or each of the cruise companies visiting Valencia generally) and their respective needs and expectations.

Figure 9. Segmentation by kind of cruise ships.



It should be noted that to successfully market your product to the cruise market takes time and effort, and your success will, in part, be dependent on your undertaking appropriate research to ensure you understand the structure of the sector and the stakeholders you will need to liaise with.

3.3 Kind of cruise passengers

Travellers' needs have changed significantly over the past decade and cruise passenger requirements have changed in line with these. The following information was provided by cruise comparison website 'Cruise Critic' that lists ten key reasons why cruising is the number one choice for many of today's holidaymakers, in general terms they:

1. A cruise offers **great value for money** include food, accommodations, daytime and evening entertainment and transportation between destinations.
2. Cruise passenger can see **multiple destinations** but unpack only once.
3. Cruise ships are family friendly, from tots to teens, grandparents to grandkids; **cruises experiences are fun for all ages.**
4. Cruise ships come in **all shapes and sizes**.

5. Ships offer a **variety of onboard activities**. It is designed to keep everyone happy
6. Cruise holidays are **easy to plan**. Because cruise holidays package together transportation and accommodations.
7. Cruise ships have **everything onboard that** passenger could possible want.
8. Cruise is one of the best ways to see the **most exotic and foreign destinations** in this world in an **easy way**.
9. Cruising is romantic.
10. Cruising **is social** and provides a wonderful opportunity to make **new friends.**

Different age groups are influenced by different factors when they decide to take a cruise. For Boomers, the factors that influence them are the trips, ports and destinations, the itinerary and sight-seeing opportunities. Gen Y/Millennials are more concerned than other age groups with cost, convenience and on board entertainment. Traditionalists are interested in programs for children and families. One of the major benefits of taking cruises, especially for younger Cruisers, is sampling destinations for future non-cruise vacations. Almost all Gen Y/Millennial Cruisers use cruise vacations to sample new destinations. Many cruisers (ranging from 75 percent of Gen Y Millennials to 53 percent of Traditionalists) also typically extend their vacations by spending a few days in the port cities. (CLIA, Cruise Travel report 2017) Gen Z is set to become the largest consumer generation by 2020. This generation like the one before, prefers experiences over material items and is seeking out travel. The appeal of multiple destinations and unique experiences.

Gen Z: 1995-2010
Gen Y/Millennials 1982-1988
Gen X 1967-1981

3.4 Key trends

- The age profile of the cruising market has lowered in recent years. A new generation (Millennials) are taking to cruising in increasing numbers and the future will be Gen Z.
- Responding to this rapidly changing market, cruise line companies have adapted their offers to meet the needs and expectations of today's increasingly sophisticated passengers.
- Passengers expect online connectivity on board ships.
- There is rising demand for luxury travel on cruise ships.
- Cruise ships themselves are increasingly the passenger destination as their range of on-board amenities and experiences expands.
- Overnight stays at ports of call are increasing.
- Inter-generational cruising is increasing as on-board amenities cater for all age groups.
- More cruises are offering passengers volunteering opportunities.

- Cruise ships are increasingly being designed to appeal to the cultures of their main passenger groups.

3.5 What are cruise passengers looking for?

It should be noted that to successfully market your product to the cruise market takes time and effort, there is no such thing as a generic 'cruise passenger' and passengers will have a range of different needs with regard to their onshore activities. Broadly, passengers fall into three categories:

- Those who have booked organised excursions via the cruise companies and their contracted ground handlers.
- Those who have researched and booked their own onshore excursions and experiences.
- Those with no fixed excursion plans, but who may come onshore to explore at their own pace

Important aspects to have into consideration are:

- They want the experience to be personal and individualised
- They want total restoration, stressed out from fast-paced lives
- For them comfort is paramount.
- They work hard thus want a 'hassle-free' holiday
- Time, attentiveness, peace & space are the new luxury goods

3.6 Who does what in the cruise ship sector (key stakeholders)

There are many different types of organisations involved in the cruise ship sector.

CRUISE SHIP OPERATORS /TRAVEL AGENTS

The cruise journey starts at home, with passengers researching itineraries and prices via web portals or agencies including: travel agencies; cruise ship company websites; or cruise 'consolidators'[1]. When passengers book with a cruise ship company they can purchase from a range of shore excursions. These trips and experiences can also be booked on-board at the ship's excursion desk, or online before departing on the cruise.

[1] Place where different cruise options can be compared via a central web portal.

PORT AUTHORITIES

Port authorities are the official organisations that control and manage activities in a port. They are responsible for safely handling ship arrivals and departures.

SHIPPING AGENTS

Shipping agents are licensed agents in a port who transact a ship's business, such as insurance or documentation, on behalf of the owners. They also arrange provisions and fuel.

CRUISE TERMINAL & PORT OPERATORS

Facility that provides the infrastructure and operations for cruise ship and cruise passenger arrival (turnaround and transit).

SHIP SUPPLIERS

Provide goods and services to cruise ships while at the destination.

GROUND HANDLERS AND TOUR OPERATORS

Tour Operators work on contract to the cruise ship companies. Their role is to develop, organise and sell shore excursion itineraries to cruise ship companies, who then sell these on to passengers.

INDEPENDENT EXCURSION PROVIDERS

Independent from the cruise lines, these companies offer shore excursions directly to passengers who may have researched excursion opportunities at individual ports of call.

TOUR GUIDES

At most cruise ports, tour guides are an essential part of the overall visitor experience, providing a guide service to passengers via shore excursion or cruise ship companies, or offering their own tours via the ground handlers or independently.

LOCAL BUSINESSES

At every port of call, local businesses including visitor attractions, activity providers, shops, cafes, bars and restaurants combine to provide memorable onshore visitor experiences.

DESTINATION MANAGERS AND POLICYMAKERS

Development of policies and management of operations within the destination. They have a crucial role to play in marketing a port and co-ordinating / consolidating the onshore visitor offer and experience.

Shore excursions (tours)

These are the 'official' on shore tours offered by the cruise ship companies. The shore excursions are pre-booked by the cruise passengers either at the time of booking their cruise holiday, on-line pre-departure or on-board prior to arrival in port. Availability and content of Shore excursions is determined by the cruise ship companies through their Tour Operator partner generally on a charter basis, ensuring the tours offered are tailored to the needs of their particular clients. Once tours are agreed and contracted at the destination, the cruise ship companies are able to offer a wide range of targeted pre-determined/pre-costed programs which they then heavily promote prior to the ship's arrival at port. Shore excursions are considered an extremely important revenue stream for the cruise ship companies. Participating in shore excursions programs ensures security for the operator/supplier – in that you know in advance anticipated numbers, inclusions/exclusions and payment arrangements, and of course, your product is promoted to the passengers prior the ship's arrival at port. Shore excursions also provide security for the passengers – they are able to familiarise themselves with the itinerary, inclusions etc. prior to arrival, they know the tours have been 'checked' and are of high quality. And most importantly, they are aware that the ship will wait for them if for some reason the tour is held up and the cruise ship company will address issues on their behalf should they arise.

TRENDS

- It has become increasingly challenging for the cruise ship companies to encourage passengers to undertake a Shore Excursion
- The quality of cruise lines' pre-cruise and on-board marketing/information and the uniqueness of the Shore Ex (tours) on offer are increasingly important aspects, thus offering a compelling tour with appropriate inclusions and providing the Tour Operator with enough in-depth and appealing content to enable them to 'market' your product effectively is critical
- There has been a growth in FIT (independent) passengers, with domestic passengers in particular making their own arrangements once they arrive at the destination
- Cruise passengers are increasingly price and value conscious, however they will still expect high quality tours
- Quality and environmental certifications

REMEMBER

- Different target markets/segments for the different cruise lines.
- Different nationalities and age for different cruise lines /ship cruises.
- You need to keep evolving and be flexible.
- Work closely with the tour operator to 'win' the business –this is a relationship building exercise – it takes time.
- Not everyone has a product that is suitable for group sightseeing.
- Not everyone on the ship wants to take a group sightseeing excursion.

REASONS WHY CRUISE SHIP COMPANIES USE A TOUR OPERATOR

- It is too complex and time consuming for them to contact each individual operator/supplier at each destination for each itinerary.
- The geographic distance and time difference between the respective cruise ship Head Offices and each port destination would make individual liaison cost prohibitive.
- Ultimately the cruise ship companies need to utilise an intermediary to ensure seamless coordination prior to and at the destination, for this reason the cruise ship companies task 'their' tour operators with overall contracting and logistical control of the shore excursions being offered.
- Although cruise ship companies tend to engage a tour operator on an annual basis, they do often utilise the same over many years – this enables them to offer their passengers the best itineraries and prices.

As cruise passengers have varying needs, they should be able to access your product in a number of different ways.

Offering your product

- Remember the tour operator companies provide a valuable distribution and coordination role, their relationship with the cruise ship company enables your product to be 'fast-tracked' directly to the cruise passengers
- Set rates competitively and be consistent. The product and price you offer to the tour operator should be an exclusive offer wherever possible, preferably not available for purchase by those cruise ship passengers who may come direct to you, or a product that you offer for sale on the day via other similar distributor.
- Include rate validity dates in all communications e.g. 1 October 2018 - 30 April 2019
- Include child rates and applicable ages e.g. 3 – 14 years
- Be clear on the inclusions and exclusions for your tour
- Include details relating to access and fitness levels
- Advise of minimum and maximum guest capacity – i.e. will you still run the tour with 2 persons?
- Specify departure times and departure and drop-off points for all components in the itinerary.

Other ways to be involved

- There is a growing market for small group private tours, so contact the shore excursion to explore options
- Private tours are a big part of any port visit so make sure your product is available online
- Hotel programs (specifically for homeport passengers) may be an option in the future
- Ensure your website is 'information rich' with content tailored toward cruise passengers, and that it contains effective key words that will deliver search engine optimisation
- Ensure you communicate a level of confidence to cruise passengers, letting them know of your experience, professionalism, knowledge of the destination and understanding of the needs of the respective cruise ships e.g. security arrangements, disembarkation procedure etc.
- Use Facebook, Twitter, Instagram, and other social media sites. Upload your guest book comments online, have your guests share their experiences online via Trip Advisor
- Engage with sites such as Cruise Critic and provide suggested experiences for potential clients
- Be prepared to adapt your product/departure times etc. to suit the needs of the respective cruise ship passenger profiles

CREWS

- Don't forget about the crew! The ratio of crew to passengers is very high, normally about 3:1 but it can be higher.
- Studies suggest that around 30% of crew will go ashore for rest and recreation and to stock up at any port of call. They tend not to be interested in 'touristy' items but are looking for provisions in supermarkets, food outlets and clothing shops.
- Crew members may be unfamiliar with a destination if it's the first time they have visited. The type of arrival information they are likely to need is very similar to passengers.
- If you're a retailer or catering outlet, think about offering a similar range of incentives to crew members as to passengers.

Think about

- How you can create unique experience. Offering that will 'immerse' cruise visitors in local culture, such as traditional music sessions or food & drink tastings.
- Consider whether working in partnership with other like-minded businesses could add unique
- or distinctive elements to your offer and help bring the 'wow' factor.
- Remember that cruise ship passengers only have a limited amount of time in port, so onshore experiences need to be tailored accordingly.
- Passengers have varying requirements and budgets, so your offer needs to be flexible.
- Cruise companies and ground handlers are looking for seamless, hassle-free experiences so your offer must be accessible, safe and well organised.
- How passengers will reach you, and whether you will need to provide transport from the port.
- Consider who your offer is aimed at and how you will you reach them.

3.7 Figures of cruise ships in the Port of Valencia

The cruise sector in Valencia has grown during the last 10 years more than 246% in terms of cruise ship calls and more than 468% in terms of passengers as shown in the following table:

Table 2. Cruise ships and passengers figures at Valenciaport.

		
2006	83	88,170
2010	157	253,743
2017	203	412,328
2018	194	421,518
CAGR 17-18	-4%	0,02%

CHANGE 2006-2017	245%	468%

Source: Port Authority of Valencia

3.8 Type of cruise ships that called at Valenciaport

3.8.1 Budget class cruise ship

BUDGET
CRUISE COMPANIES: 3 (FTI Cruises Hellas Ltd; MARELLA CRUISES (THOMSON CRUISES); CELESTYAL CRUISES)
CRUISE SHIPS: 5 (BERLIN, THOMSON CELEBRATION; TUI DISCOVERY 2; THOMSON MAJESTY; THOMSON DREAM)
NUMBER OF PORT CALLS: 19 (9,4%) 25.700 PAX
AVERAGE PORT CALL TIME (HOURS): 10,2
OVERNIGHT STAYS: NO
DAYS CALLING: 4 (V-L-S-D)
MONTHS CALLING: 9 (MAY-JUL-OCT-ABR)
AVERAGE GT: 45.880
AVERAGE FLEET AGE: 19
AVERAGE PASSENGERS PER SHIP: 1681
AVERAGE CREW MEMBERS PER SHIP: 587
CRUISE PASSENGERS CHARACTERISTICS: Nationality: 94% Reino Unidos; 2,3% Alemania; 1,1% Irlanda Average age (years): 56
PERCENTAGE OF PASSENGERS DOING CITY TOURS: 25%

3.8.2 Contemporary class cruise ship

CONTEMPORANY
CRUISE COMPANIES: 5 (COSTA CROCIERE; NORWEGIAN CRUISE LINE; MSC CRUISES; AIDA CRUISES; ROYAL CARIBBEAN)
CRUISE SHIPS: 18 (COSTA MEDITERRANEA; NORWEGIAN SPIRIT; MSC MUSICA; COSTA PACIFICA; MSC FANTASIA; AIDAAURA; MSC SPLENDIDA; INDEPEND OF THE SEAS; AIDASTELLA; NAVIGATOR OF THE SEA; NAVIGATOR OF THE SEA; AIDAPERLA; AIDABELLA; COSTA FAVOLOSA; AIDABLU; JEWEL OF THE SEAS; MSC MAGNIFICA; MSC ARMONIA; MSC ORCHESTRA)
NUMBER OF PORT CALLS: 89 (43,8%) 243.000 PAX
AVERAGE PORT CALL TIME (HOURS): 10
OVERNIGHT STAYS: SI (2%)
DAYS CALLING: 7 (J-X-L)
MONTHS CALLING: 12 (MAY-OCT-NOV-SEP)
AVERAGE GT: 105.808
AVERAGE FLEET AGE: 12
AVERAGE PASSENGERS PER SHIP: 3.376
AVERAGE CREW MEMBERS PER SHIP: 1.071
CRUISE PASSENGERS CHARACTERISTICS: Nationality: Italy (27,8%); Germany (19,9%); France (15,2%); United Kingdom (7,6%); Switzerland (4,5%) Average age (years): 48
PERCENTAGE OF PASSENGERS DOING CITY TOURS: 25%

3.8.3 Premium class cruise ship

PREMIUM
CRUISE COMPANIES: 9 (P&O CRUISES; PRINCESS CRUISES; TUI CRUISES; CELEBRITY CRUISES; STAR CLIPPERS; VOYAGES TO ANTIQUITY; NOBLE CALEDONIA; SAGA CRUISES; P&O CRUISES)
CRUISE SHIPS: 18 (AZURA; MAJESTIC PRINCESS; MEIN SCHIFF 2; CELEBRITY CONSTELLAT; ROYAL CLIPPER; AEGEAN ODYSSEY; ISLAND SKY; MEIN SCHIFF 5; SAGA PEARL II; SERENISSIMA; ADONIA; CELEBRITY SILHOUETTE; MEIN SCHIFF 3; ROYAL PRINCESS; AURORA; VENTURA; SAGA SAPPHIRE; ORIANA)
NUMBER OF PORT CALLS: 26 (12,8%) 60.000 PAX
AVERAGE PORT CALL TIME (HOURS): 12,6
OVERNIGHT STAYS: SI (8%)
DAYS CALLING: 7 (S-M-L-D)
MONTHS CALLING: 9 (SEP-OCT-NOV-ABR)
AVERAGE GT: 74.300
AVERAGE FLEET AGE: 20
AVERAGE PASSENGERS PER SHIP: 1.995
AVERAGE CREW MEMBERS PER SHIP: 784
CRUISE PASSENGERS CHARACTERISTICS: Nationality: Germany (33,8%); UK (33.7%); USA (14,5%); Canada (4,5%): Japan (2,3%) Average age (years): 57
PERCENTAGE OF PASSENGERS DOING CITY TOURS: 40%

3.8.4 Expedition class cruise ship

EXPEDITION
CRUISE COMPANIES: 6 (GRAND CIRCLE CRUISE LINE; PEACE BOAT; POSEIDON EXPEDITION; INCHCAPE SHIPPING SERVICES; CRUISE & MARITIME VOYAGES (CMV); VARIETY CRUISES)
CRUISE SHIPS: 8 (CLIO; OCEAN NOVA; OCEAN DREAM; HEBRIDEAN SKY; WORLD ODYSSEY; ASTORIA; CORINTHIAN; VARIETY VOYAGER)
NUMBER OF PORT CALLS: 15 (7,4%) 1.800 PAX
AVERAGE PORT CALL TIME (HOURS): 11,8
OVERNIGHT STAYS: SI (7%)
DAYS CALLING: 7 (L-D-M-X)
MONTHS CALLING: 6 (OCT-SEP-ABR-MAR)
AVERAGE GT: 8.014
AVERAGE FLEET AGE: 31
AVERAGE PASSENGERS PER SHIP: 125
AVERAGE CREW MEMBERS PER SHIP: 259
CRUISE PASSENGERS CHARACTERISTICS: Nationality: USA (66%); Belgium(13.9%); France (8%); Australia (5.8%) Average age (years): 53
PERCENTAGE OF PASSENGERS DOING CITY TOURS: 82%

3.8.5 Upper-premium class cruise ship

UPPER PREMIUM
CRUISE COMPANIES: 4 (VIKING OCEAN CRUISES SHIP; PONANT; OCEANIA CRUISES; AZAMARA CLUB CRUISES)
CRUISE SHIPS: 12 (VIKING SEA; VIKING SKY; VIKING STAR; LE PONANT; NAUTICA; MARINA; RIVIERA; SIRENA; AZAMARA JOURNEY; LE LYRIAL; VIKING SUN; AZAMARA QUEST)
NUMBER OF PORT CALLS: 22 (10,8%) 17.500 PAX
AVERAGE PORT CALL TIME (HOURS): 12,5
OVERNIGHT STAYS: SI (2%)
DAYS CALLING: 6 (S-X-J-V)
MONTHS CALLING: 10 (OCT-MAR-MAY-DIC)
AVERAGE GT: 44.254
AVERAGE FLEET AGE: 7,2
AVERAGE PASSENGERS PER SHIP: 888
AVERAGE CREW MEMBERS PER SHIP: 492
CRUISE PASSENGERS CHARACTERISTICS: Nationality: USA (67,7%); UK (8,7%); Canada (7,8%); Australia (4,9%) Average age (years): 65
PERCENTAGE OF PASSENGERS DOING CITY TOURS: 81%

3.8.6 Luxury class cruise ship

LUXURY
CRUISE COMPANIES: 6 (SILVERSEA CRUISES; SEA CLOUD CRUISES; SEADREAM YACHT CLUB; REGENT SEVEN SEAS CRUISES; SEABOURN CRUISES LINE; HAPAG LLOYD CRUISES)
CRUISE SHIPS: 12 (SILVER SPIRIT; SEA CLOUD II; SEADREAM II; SEVEN SEAS EXPLORER; SILVER WIND; SILVER CLOUD; SEVEN SEAS VOYAGER; SEABOURN ENCORE; SILVER MUSE; SEADREAM I; SEA CLOUD; EUROPA)
NUMBER OF PORT CALLS: 32 (15,8%) 13.000 PAX
AVERAGE PORT CALL TIME (HOURS): 11.9
OVERNIGHT STAYS: SI (3%)
DAYS CALLING: 7 (J-M-V-S)
MONTHS CALLING: 7 (MAY-SEPT-AGO-NOV)
AVERAGE GT: 31.842
AVERAGE FLEET AGE: 16
AVERAGE PASSENGERS PER SHIP: 488
AVERAGE CREW MEMBERS PER SHIP: 333
CRUISE PASSENGERS CHARACTERISTICS: Nationality: USA (47%); UK (13,6%); Australia (6,5%) Canada (6,1%); Germany (4,4%) Mexico (4,1%) Average age (years): 61
PERCENTAGE OF PASSENGERS DOING CITY TOURS: 87%

4. Economic Impact of Cruise Tourism in Valencia

4.1 Application of the model in Valencia

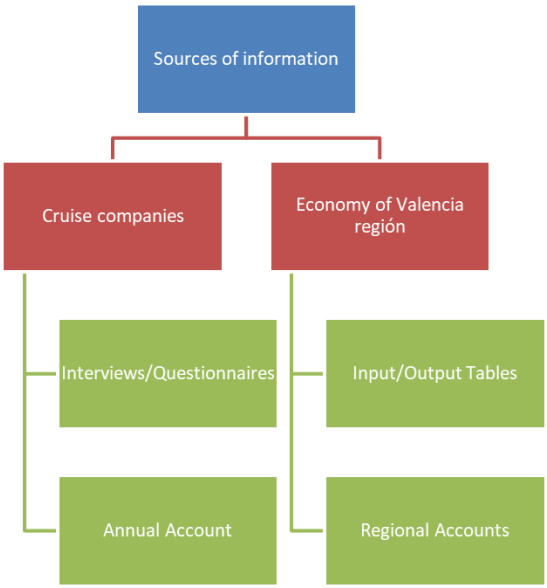
In recent years, the cruise activity of the port of Valencia is acquiring a notable relevance in the economy of the municipality, and everything predicts that this upward trend will continue. Specifically, Valenciaport expects to closed the year 2018 having served 3% more cruise passengers than the previous year, following the line of growth experienced throughout the country. Cruise tourism is being able to dodge the deceleration of foreign tourists experienced in 2017.

This holiday option requires constant investment to introduce the latest innovations that increase its attractiveness, not only by the shipping lines but also in the hinterland of each port of call. Specifically, cruise companies continue to increase their performance, offering the latest innovations in technology and comfort, in order to attract new cruisers and maintain demand for existing ones.

Valencia Tourism, in collaboration with the Valencia Port Authority (APV), strives every year to improve the tourist offer offered by the city and its surroundings. They are looking for new itineraries through unexplored and difficult to access places, as well as entertainment programs for the youngest. All these novelties are aimed at achieving an unforgettable holiday, which encourages the cruise to include Valencia in their future itineraries.

The aim of this study is to quantify the economic impact that cruise ship activity has on the economy of the city of Valencia. It will be valued in terms of production (sales), employment and income generated (GVA). In addition, the results will make it possible to identify which productive sectors have benefited the most in terms of sales growth due to the demands made by the members of the Community of Cruise Ships.

Graph 1. Sources of information for the economic model.



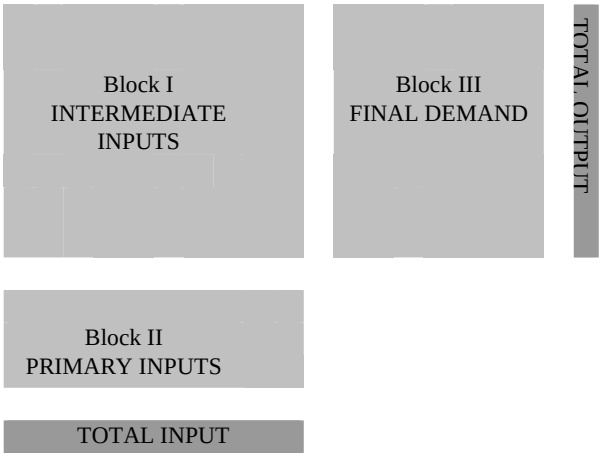
Source: Own elaboration

4.2 Model to measure economic impact of cruising on local destinations

The methodological development used in this study is based on an accounting tool, the Input-Output Table (TIO), published at certain intervals by national or regional statistical institutes, according to their competencies. This table describes in accounting terms the productive framework of all the activities carried out in the assigned area, establishing the relations between the different industries, in order to be able to know for each one of them how much they need to consume from the others and reach their production level. In short, it is a double-entry matrix, which, while respecting certain accounting identities and in conjunction with intersectoral relations, determines the destination of the production of each sector (row), as well as the use made of that production acquired from the different sectors (column).

It is constructed from the economic data of the geographical unit where it is located, whether at the national, provincial or municipal level. There are three main blocks:

Graph 2. Input-Output Table Structure.



Source: Own elaboration

- Central Block: describes the intersectorial relations, that is to say, purchases and sales between the productive sectors.
- Block of Primary Inputs: collects all the items that define the added value of each one of the analysed sectors (wages and salaries, benefits, taxes, imports, etc.), being the sum of each column the "Total of resources".
- Final Demand Block: provides information on the final demand of each activity (consumption, investment and exports), naming the aggregate of each row "Total jobs".

The problem inherent to its use is usually the temporal separation between the last table published by the statistical institute and the year corresponding to the study to be undertaken. Working with a very outdated TIO would lead to results that are far removed from reality.

Therefore, before applying the Input-Output methodology, it must be updated.

The one corresponding to Spain 2010 published by the National Statistics Institute has been used as the original TIO. The regional accounts have been updated to 2017 and subsequently municipalized. Obtaining a TIO representing the municipality of Valencia with a sectoral breakdown of 19 productive branches.

Next, the application of the Input-Output model proposed by Leontief facilitates the quantification of the feedback effects produced in the productive system from a disturbance in the final demand. In short, this methodology is based on the fact that an increase in demand is transmitted, so that

production not only increases by the amount necessary to satisfy it, but also by a greater quantity in order to be able to supply the intermediate needs of the rest of the branches and thus be able to achieve its increase in production.

The application of this model makes it possible to quantify the number of jobs, wage income, surplus and tax burdens generated, as well as the GVA, as well as the aggregated and disaggregated information on production corresponding to the management of cruise ship activity itself. Its mathematical expression is as follows:

$$[X_i] = [I - A_{ij}]^{-1} \cdot [Y_i] \qquad (1)$$

where:

X: Total Outputs (Xi), Total Inputs (Xj) vector

Yi: vector of final demands of the sector i

$[I - A_{ij}]^{-1}$: Leontief's inverse matrix

I: matrix identity

A_{ij} :matrix technical coefficients a_{ij}

The technical coefficients express the use that each industry makes of another per unit of production.

$$a_{ij} = \frac{x_{ij}}{X_j} \qquad (2)$$

The coefficient a_{ij} is defined as the use that industry j makes of industry i per unit of production. This information for all productive sectors facilitates the obtaining of the matrix of technical coefficients $[A_{ij}]$.

The effects resulting from this analysis facilitate the quantification of the economic impact of the CC on the area where it exerts its influence, being able to decompose into Direct, Indirect and Induced. The sum of all of them provides a measure of the relevance that this business has on the city of Valencia.

The Direct Effect (ED) is the one provoked by the CC's own economic activity, identified in its interaction with the set of economic agents that participate or are directly related to it. The mathematical expression used for its calculation is:

$$[E_D] = [Y_i] + [A_{ij}] \cdot [Y_i] \quad (3)$$

The Indirect Effect (IA) refers to all those activities necessary to meet the requirements of the agents mentioned in the ED, due to the increase in final demand produced in the municipality where the activity is carried out. The mathematical expression used for its calculation is:

$$E_I = [A_{ij}] \cdot [A_{ij}] \cdot [Y_i] + [A_{ij}] \cdot [A_{ij}] \cdot [A_{ij}] \cdot [Y_i] + \ldots + R\,[Y_i] \quad (4)$$

where R is the rest representing the successive powers of A_{ij}

The Induced Effect (ID) is the one generated by the consumption and investment capacity of the companies and economic agents directly related to the CC. It will be calculated using the following expression:

$$[X_i] = [I - A_{ij}]^{-1} \cdot [Y_i^{R*}] \quad (5)$$

where $[Y_i^{R*}]$ is a vector of consumption and investment generated by the income of agents (workers, entrepreneurs and the same companies) related to cruise activity.

The sum of the ED, EI and ID will give rise to the so-called Total Effect. This gathers the goods and services coming from the productive sectors of the economy of its surroundings necessary for the development of this tourist activity, as well as the repercussion registered by its realization through the incomes of the agents (workers and companies) participants.

Finally, studies of economic impact on the productive sectors of the city require a series of necessary starting hypotheses to carry out their calculation.

In particular, the following have been specified in this analysis:

1. Territorial scope: this is the geographical area on which impacts are estimated, in this case the city of Valencia.
2. Time horizon: the study is carried out for 2017 as it corresponds to the most recent information available.
3. Community of Cruise Ships (CC): made up of the companies involved in the activity, the cruisers and the crew.
4. Results: in terms of public sector revenues (taxes and surplus), and private sector revenues (wages and surplus), as well as employment and sectoral sales.

The total expenditure of the CC will make it possible to determine its economic impact on the productive framework of Valencia using the aforementioned methodology.

4.3 Analysis economic impact of Cruise Tourism in Valencia

The results of the economic impact analysis are structured as follows:

- **Sub-section 4.3.1**. It explains the expenses of cruise ship sector's stakeholders. Additionally, it contains their economic effects' definition. It has been called **Initial Effect** in the framework of the present deliverable.
- **Sub-section 4.3.2**. It presents the **analysis of the cruise activity based on Direct, Indirect, Induced and Total Effects**.
- **Sub-section 4.3.3**. It focuses on the **economic impact of the cruise passengers**.

4.3.1 Initial expenditure on cruise activity: initial effect

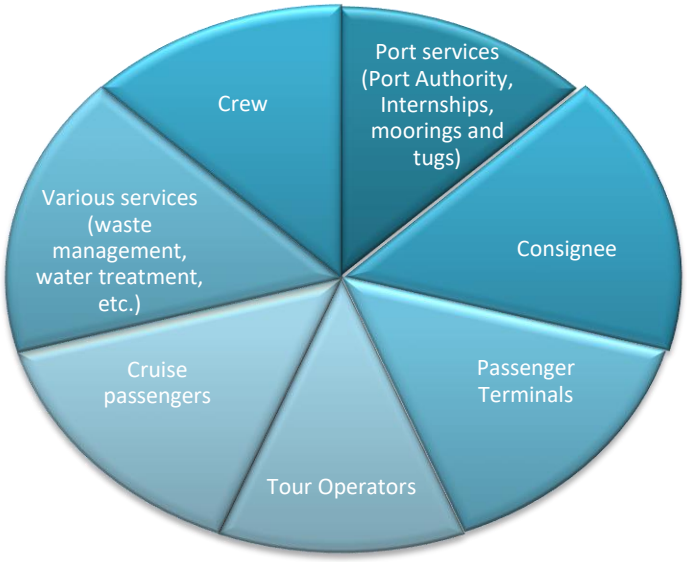
The activity of the cruises gives rise to a series of demands concentrated mainly in the tertiary sector, which originates not only a significant growth of the Valencian economy, but also awakens the tourist interest of the municipality.

First, the impact study requires the identification of the companies that make up the CC, the type of cruisers and the crew. Subsequently, questionnaires will be designed to collect the expenditure made by all of them, called the Initial Effect.

In short, the cruise ship community encompasses all agents partially or fully dedicated to this business, covering the needs of ships docking in the port of Valencia.

The Valenciaport Foundation together with the research team of the Polytechnic University of Valencia have identified the following agents belonging to the CC:

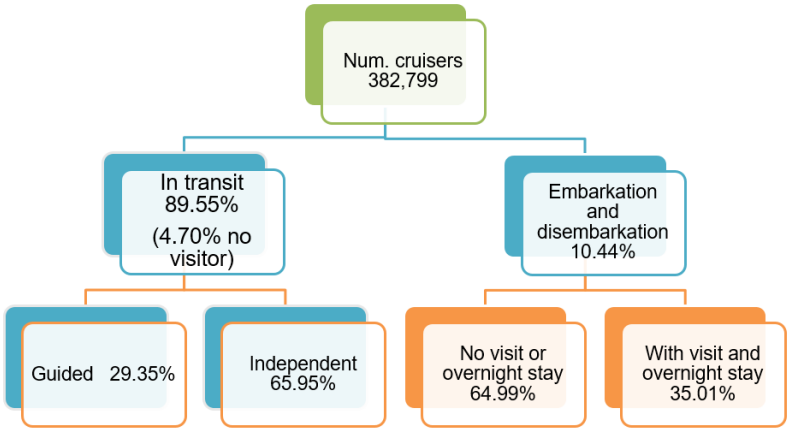
Figure 10: Cruise ship community members.



It also includes all the cruise passengers (Figure 11) who make this activity possible, distinguishing between "transit" and "embarkation and disembarkation" passengers, given the different behavior of each of them.

- Transit cruisers: visit the city during the course of their journey. Depending on how they make their excursions around the city, they are classified as guided and independent.
- Embarkation and disembarkation passengers: they start or finish the cruise in the port of Valencia, being able to distinguish between those who make excursions and spend the night, and those who do not.

Figure 11. Distribution of the number of cruise passengers arriving at the Port of Valencia (2017)



Finally, the crew is identified as one more CC agent who buys goods and uses services from the city where they call.

The Table 3 shows that the disbursement made by cruise passengers includes that intended to cover excursions, visits to museums and other cultural and entertainment activities; accommodation; catering (restaurants and cafés); commerce (*souvenirs*, clothing and footwear, ...) and internal transport in the city (including transfers from the airport/train station to the port and vice versa).

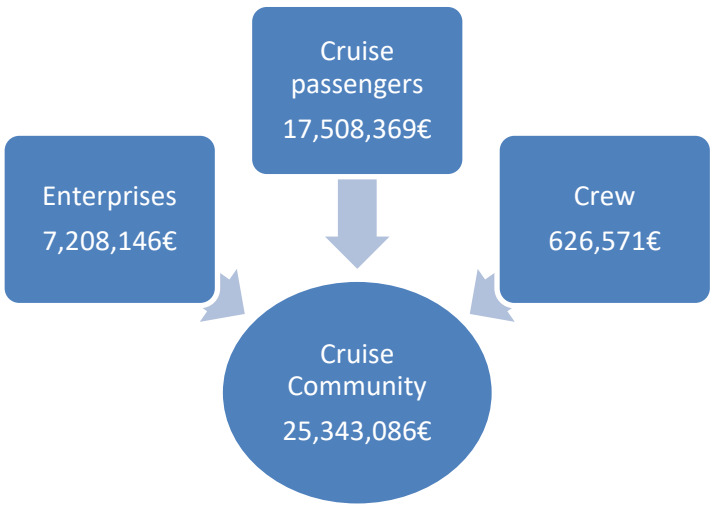
Table 3. Structure of cruise and crew expenses.

	Tourist of Transit		*Passengers of E/D*		*Crew*
	Guided	Independent	No visit or overnight stay	With visit and overnight stay	
Trade and repair	25.27%	57.22%	14.29%	22.40%	57.58%
Hotels and tour operators	74.73%	16.84%	28.57%	52.30%	27.27%
Transport and communications	0.00%	14.97%	19.05%	13.20%	15.15%
Other market services	0.00%	10.96%	38.10%	12.10%	0.00%
TOTAL	100%	100%	100%	100%	100%

For their part, the crew spends mainly on retail trade, visiting the city and buying souvenirs, clothes or other items.

Therefore, the activity of the cruises entails a significant expense for all the groups involved, together means an injection of money that will grow the economy of the city of Valencia. In the impact study all this initial expenditure is referred to as the Initial Effect.

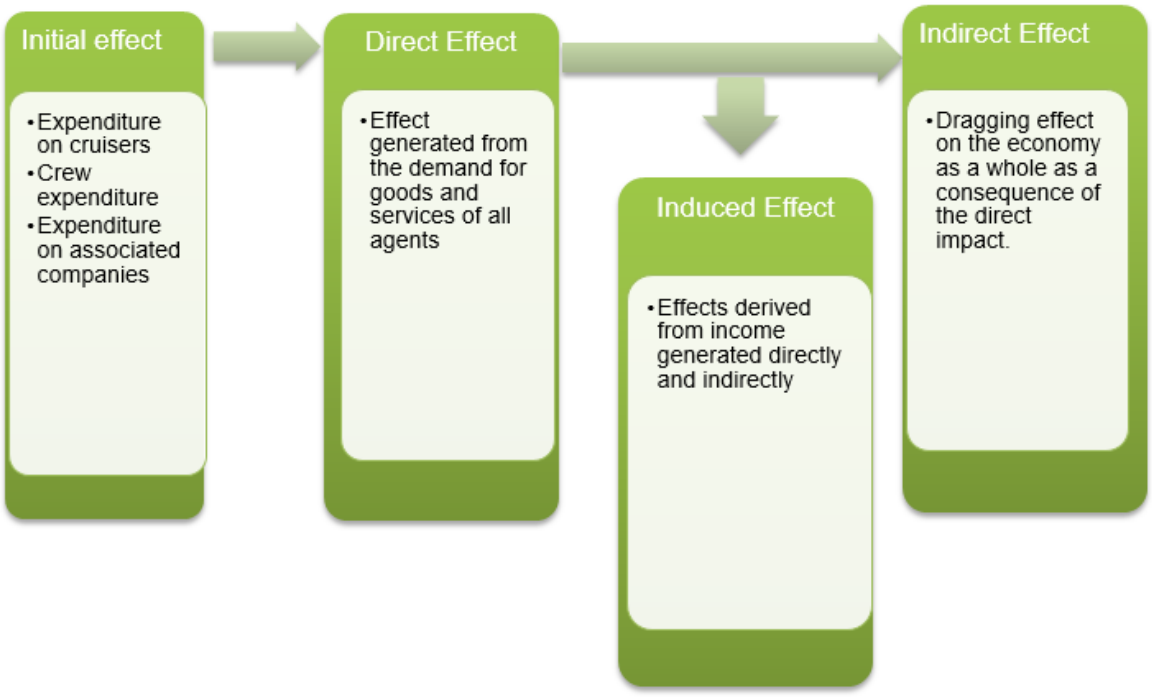
Figure 12. Initial effect of the cruise ship industry at Valenciaport.



As can be seen in the graph above, the largest share of the CC's initial expenditure falls on cruise passengers (69%) and the companies involve[2] (28.44%), the most residual being that spent by the crew. A total of 382,799 cruise ship tourists arrive in Valencia, those who visit the city (356,816) generate an initial average turnover of approximately 49€/cruiser[3].

This information, collected through surveys of all members of the CC, allows to calculate the economic impact of this business. The total result includes the so-called Direct, Indirect and Induced Effect, defined below.

Figure 13. Relationships among Initial, Direct, Indirect and Induced Effect.



Each of these effects is calculated in terms of the main economic variables (wages, tax revenues, income, employment), making it possible to reflect the impact of cruise ships on the growth of the city of Valencia.

4.3.2 Results of the economic impact of cruise ship activity

The estimation of the economic impact of the cruise activity requires the calculation of the Direct, Indirect and Induced Effect using the Leontief quantities model, explained in the section 4.2.

[2] The main companies/entities involved are: Port Authority, practical moorings, tugboats, consignees, terminal, waste management companies, water treatment companies and tour operators.

[3] It is obtained by dividing the cost of the cruisers (17.5 M€) among those who visit the city (356,816).

First, Table 4 shows the aggregate effects obtained as a consequence of the expenditure generated by this activity, in terms of the main macroeconomic variables. The public sector will collect additional revenue through taxes, while the private sector will derive a significant amount of benefits in addition to the wages earned for the work done. The sum of all this makes it possible to calculate the additional GVA generated by the CC.

The results reveal that cruise ship activity directly generates GVA of almost 20 M€, distributed homogeneously between salaries and surplus, with 393 jobs needed to meet the direct demands resulting from this tourist activity.

The Indirect Effect is much smaller, but in no case can the 54 jobs created or the 381,000 euros collected by the public authorities be ignored.

On the other hand, in the Induced there is a similar distribution between benefits and salaries resulting from workers' incomes (5.5 and 5.6 M€, respectively), without forgetting to mention the 189 jobs.

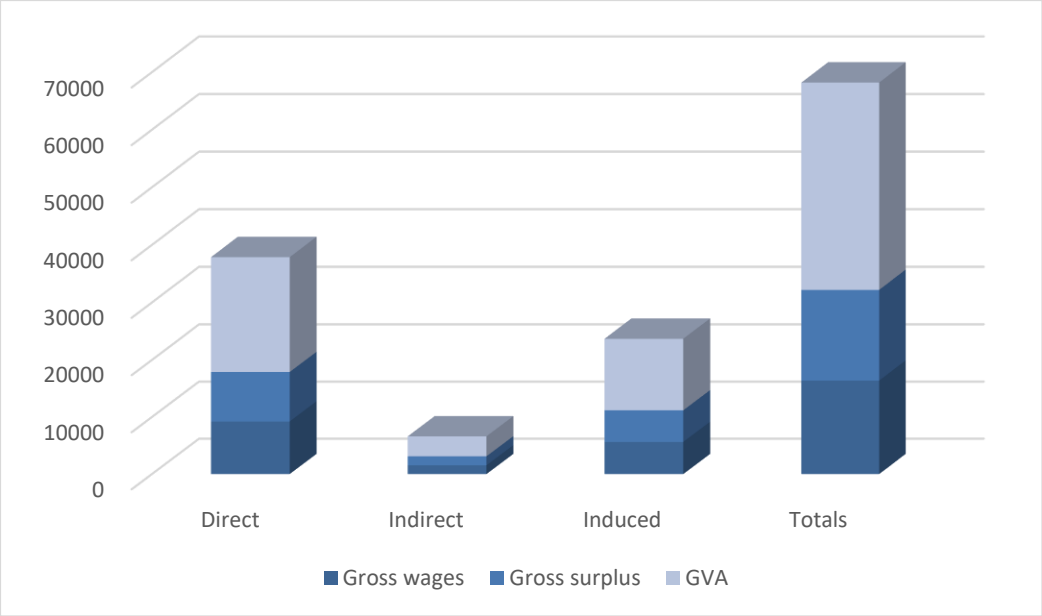
The sum of Direct, Indirect and Induced forms the Total Effect, that is, the economic impact generated by the cruises, in addition to their own activity (Initial Effect). This represents a total income of 36 M€ (GVA pm) and an additional employment of 637. The figures alone reveal the relevance of tourism, requiring institutional support at both regional and national level to position the port of Valencia among the key destinations of maritime journeys through the Mediterranean.

The increase in activity of the companies that supply products or services to the Autonomous Community has an immediate repercussion on the entire Valencian productive framework, distributed by the different economic sectors that define it.

Table 4: Economic effects results (thousands of euros).

	Direct	Indirect	Induced	Totals
Gross wages	9,207	1,536	5,630	16,373
Gross surplus	8,684	1,585	5,541	15,810
Tax revenue	2,090	381	1,355	3,825
GVA at basic prices	19,981	3,502	12,525	36,008
Jobs (* people)	393	54	189	637

Graph 3. Aggregate economic effects (thousands of euros)



Source: Own Elaboration

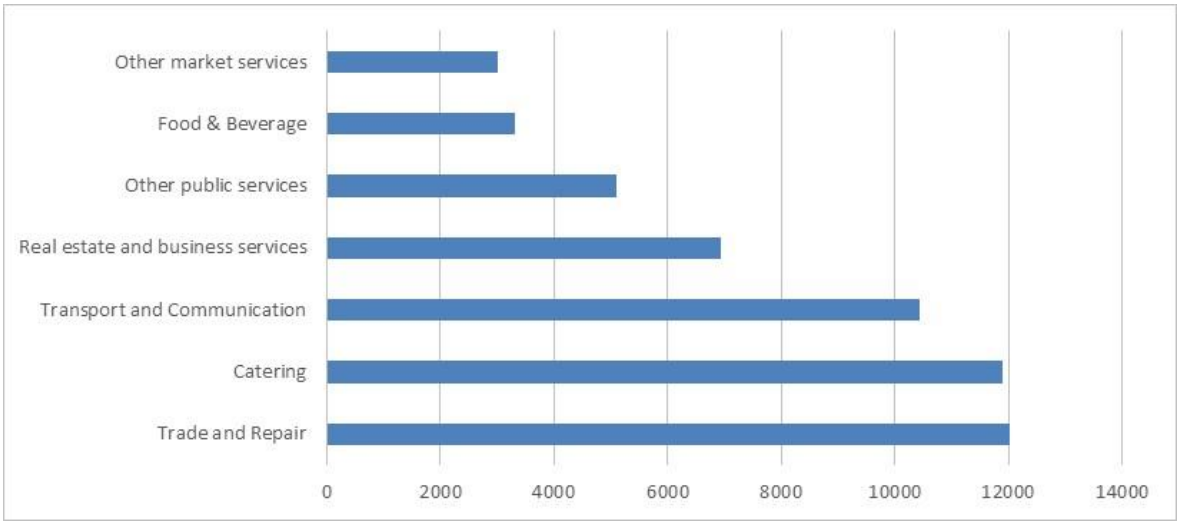
From an initial expense of just over €25m, a total of €30.7m of intermediate inputs was generated[4]. Therefore, if both amounts are added, the CC produces an activity that exceeds 56 M€. Each euro absorbed by cruise activity has a multiplier effect of 1.21 euros on the productive fabric of the municipality.

In terms of sales, a total increase of almost 71 M€ is quantified, of which 40.2 M€ goes to the final consumer and, as mentioned, 30.7 M€ to the different sectors that define the economy of the municipality.

The Graph 4 below shows the sectoral effect of the cruise activity in terms of sales. In the first place, "Commerce and Repair" is the sector that increases its sales the most. The sales volume of souvenirs, gift items, etc. grows considerably. In second place, "catering businesses" where the bars, coffee shops and restaurants are agglutinated in addition to the hotels and businesses of lodging that see increased their business by the cruise ship sector's impact. Thirdly, the "Transport and Communication" sector where public and private services also get benefits from this tourist activity. Other benefited sectors are "Real Estate and Business Services" and "Other Public Services" including related services such as real estate, rental companies, and dedicated advertising, as well as museums and other cultural service companies.

[4] Economic sectors that define the Valencian economy

Graph 4. Total sectoral effect of cruise activity in terms of sales (thousands of €)

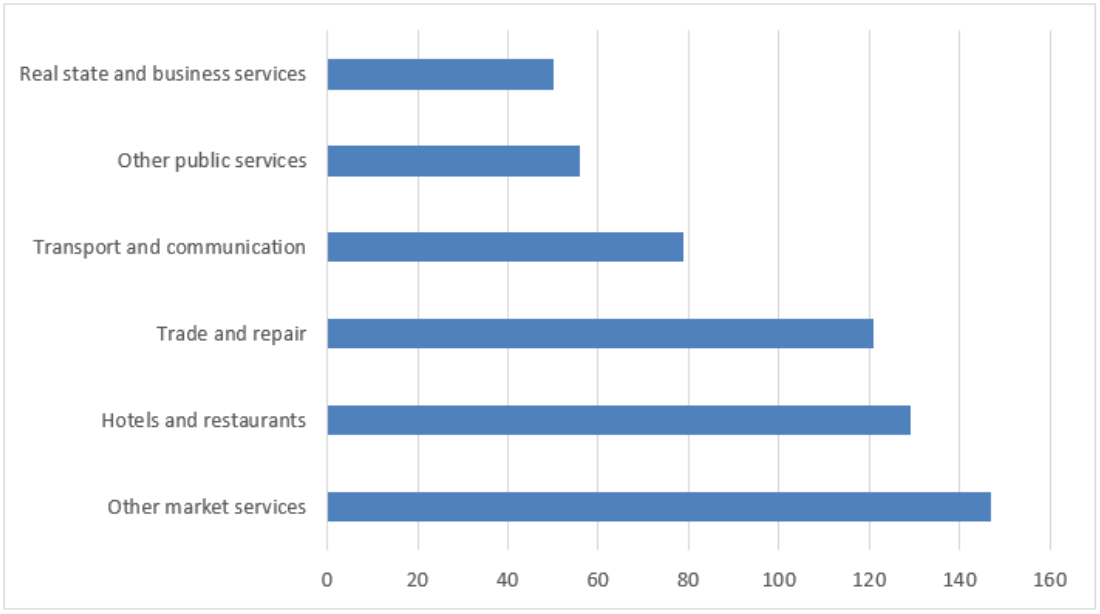


Source: Own Elaboration.

In addition to the growth in sales, the employment generated is also relevant for the city.

At an aggregate level, the cruise industry has created a total of **637 jobs in Valencia**, mainly related to "Other market services", "Other public services", "Hotels", "Real Estate and business services", etc. as it is shown in the following Graph 5.

Graph 5. Total sectoral effect on employment of cruise activity (jobs).



Source: Own Elaboration.

4.3.3 Results of the economic impact of the activity of the cruisers

The great relevance of the activity of cruise passengers in the city of Valencia requires an individual analysis in order to determine whether the economic impact they generate in the city outweighs the associated negative effects in terms of agglomeration in the streets, bars or any other activity that harms the daily life of Valencian citizens.

In 2017, the number of tourists who entered Valencia by sea reached almost[5] 383,000, with an initial outlay of more than €17.5 million, mainly concentrated in the service sector (hotels, transport, trade, etc.).

This has a multiplier effect on the economy of the municipality, which is not negligible and needs to be put into value.

The results reveal that the initial expenditure of the cruise passengers who visited Valencia during 2017 (17.5 M€) produced a multiplier effect in the economy which is quantified in terms of GVA of more than 25 M€, distributed mainly between salaries and benefits. In addition to the 461 jobs needed to meet the needs arising from these sightseeing tours.

Table 5. Economic effects results (thousands of euros)

	Direct	Indirect	Induced	Totals
Gross wages	6,543	1,004	3,954	**11,500**
Gross surplus	6,118	1,059	3,891	**11,068**
Tax revenue	1,516	250	951	**2,717**
GVA at basic price	14,178	3,313	8,796	**25,286**
Jobs (workplaces)	292	36	133	**461**

Source: Own Elaboration

[5] The cruise ship movement surpassed 412,000.

4.4 Summary of the economic impact of the cruise sector in Valencia

The city of Valencia considers the activity of cruises to be very important as an engine for the development of its economy and, specifically, its tourism.

In 2017, cruise activity entailed expenditure of over €25 million, of which 69% came from cruisers, 28% from companies in the sector and, more residually, 2.4% from the crew.

The expenditure associated with the activity of cruise ships has given rise to a total economic impact on the economy of the city of Valencia of approximately 71 M€ in terms of production, of which 32.6 M€ correspond to income (wages and salaries, taxes, benefits), which represents a job creation of 637 jobs.

By branches of activity, the services sector accounts for almost 71.5% of the economic impact of cruise ship activity, with hotels, commerce, transport and communication being particularly noteworthy, as well as other private and public services, including recreational, cultural and sports activities.

Every euro spent as a result of cruise activity has generated 1.21 euros in the productive framework of the Valencian economy of which almost 55% have been produced directly, i.e., in the economic activities that meet the immediate demands arising from the cruises.

If you add the Initial Effect and the Total, you can say that this business has an initial outlay of 66.2€/cruiser[6] and generates more than 80.3€/cruiser[7] in the productive framework of the city. In short, each tourist who disembarks in the port of Valencia produces business in the municipality that amounts to almost 147 €.

Therefore, it is an activity of great importance for the city, is an additional engine to its tourism sector. There is no doubt that it could become one of the drivers of the city's economic growth.

[6] This amount is the result of dividing the Initial Effect (25.3 M€) by the number of cruisers.

[7] This amount is the result of dividing the increase in activity of all the Valencian productive sectors (30.7 M) by the number of cruise passengers.

4.5 Economic tool kit results

As a summary the methodology for measuring the economic impact is described in the following table:

Table 6 Methodology of the study on economic impact of cruise activity

OBJETIVE	COMPLETION OF FIELD WORK		GEOGRAPHICAL AREA
Total economic impact generated by cruise activity from its direct, indirect and induced effects.	January - December 2017		City and Port of Valencia
DIRECT SPENDING	**SOURCE**		**Initial & Direct effect**
Quantification of spending generated by each of the main agents involved in cruise activity (shipping companies and suppliers, cruise passengers and crew)	Cruise passenger survey for CO-EVOLVE project / Questionnaires to suppliers of goods and services with Shipping agents, Cruise terminal and Tour Operator / Financial Statements / Bibliographical sources and other sources of information		Measuring the initial and direct spending made by the main agents of the activity under study.
INDIRECT AND INDUCED EFFECTS	**Indirect effect**	**Induced effect**	**SOURCE**
Specific multipliers from the input-output tables of the valencia economy, were used to translate this spending in terms of impact on GDP, employment and tax income.	As a result of direct spending, supply sectors generate a series of indirect effects through the purchases they make in other sectors of the economy to produce goods and services demanded by the agents. Multipliers derived from the Input-Output tables are used to calculate these. This is the multiplier effect of the economy.	This corresponds to the effect of consumer spending produced by income from work generated by the direct and indirect effects.	Input-output tables

The economic tool indicators should include the following data:

Table 7 Economic indicators evaluation.

ECONOMIC INDICATOR					
INITIAL EFFECT	**CRUISE PASSENGER**	**ENTERPRISES**		**CREWS**	**CRUISE COMMUNITY**
	17,508,369 €	7,208,146 €		626,571 €	25,343,086 €
DIRECT ECONOMIC IMPACT	**GDP**	**Employment**	**Gross Surplus**	**Tax Income**	**Wage Income**
	19,981,000 €	393	8,684,000 €	2,090,000 €	9,207,000 €
INDIRECT ECONOMIC IMPACT	3,502,000 €	54	1,585,000 €	381,000 €	
INDUCE ECONOMIC IMPACT	12,525,000 €	189	5,541,000 €	1,355,000 €	

Table 8 Economic indicators evaluation.

SECTORIAL EFFECT IN TERM OF SALES				TOTAL ECONOMIC IMPACT				
Multiplier effect	CONSUMER (M)	SECTORIAL (M)	TOTAL	GDP	Employment	Gross Surplus	Tax Income	Wage Income
1.2	40,200,000 €	30,700,000 €	71,000,000 €	36,008,000 €	637	15,810,000 €	3,825,000 €	16,373,000 €
Average of movements cruise passenger, according to type of stopover. Embar-Desembar/Transit.				18%-82%	Average of stopover according to type of category of the cruise (Budget, Contemporany, EPL)			9%; 44%; 7%; 13%; 11%; 16%
Seasonality of cruise activities per quarter (%)				5%;29%;33%,34%	Average of cruise passenger according to type of category of the cruise (Budget, Contemporany, EPL)			7%; 72%; 1%; 13%; 4%; 3%
Number of days with call (days)				149	Average length of stay of visitors shoreside organized (hours)			4.1
Average length of stay of cruise ships (hours)				10.94	Average length of stay of visitors shoreside independent (hours)			4.7
Number of cruise company with call				33	% number transit cruise passenger taking organized shoreside tour			26
Number of Cruise Ship wih call				73	Gender (women; men;na)			52,4%; 47,4%, 0,2%
Average spending of a cruise passenger per visit (€)				45.7	Average Age (years old)			52
Initial outline per cruise passenger per visit (€)				66.2	Age by groups (0-20; 21-40; 41-60; 60)			13,6%; 15;4%; 33,2%; 37,9%
Economic Impact of a cruise passenger per visit (€)				146	Nationality (Italia; Alemania, Reino Unido, Francia, EEUU, España; %)			19,3%; 19%; 17,98%; 10,6%; 10,2%; 5,8%
Each ship cruise ship that stop over in Valencia generated a billing of (€)				349,754				
Average spending of a cruise ship per stop over (€)				35,508				
Economic Impact per stopover of cruise ship to GDP (€)				177,379				

5. Environmental Impact in Valencia

5.1 Eco-cruise port/city tool

The proposed eco-cruise port/city tool is a reference guide to support ports and cities interested in being aware of the environmental impact produced by cruise ships in its measurement and analysis in order to define their future strategies.

The tool proposes a three-step approach:

1st) Definition of parameters to measure (WHAT), the best way to do it and their metrics (HOW).

2nd) Measurement and analysis in order to evaluate the starting point (AS IS).

3rd) Establishment of an action plan (TO BE) including recommendations to minimize its negative impact.

The tool focuses on five aspects (areas of analysis) related to the environmental impact of the cruise ships' activity. I.e.:

- **Air emissions.** It addresses the air quality analytics by measuring GHG emissions related to cruise ships traffic, and focusing on their impact on the quality of the air at port areas.
- **Noise.** It investigates the noise produced by cruise ships when berthed at port and that it frequently results in complaints from people living near ports.
- **Waste.** It evaluates the waste management policies at cruise ships.
- **Mobility.** It identifies the availability of sustainable low-carbon mobility options for cruise passengers.
- **Resource consumption.** This module of analysis pays attention on the use of resources on the cruise ships in order to promote resource efficiency policies.

The proposed methods followed for the practical application of the eco-cruise tool at Valenciaport, as well as their particular objectives, are explained in more detail in the following sub-sections.

5.1.1 Air emissions

Maritime transport has an impact on the global climate and on air quality, because of the carbon dioxide (CO_2) emissions and other emissions that it generates, such as nitrogen oxides (NO_x), Sulphur Oxides (SO_x), methane (CH_4), particulate matter (PM) and black carbon (BC).

The particular objective in Valencia was to improve the data collection process on air emissions coming from cruise ships as part of the calculation of the Carbon Footprint in the Port of Valencia.

It was followed the methodology proposed by the World Ports Climate Initiative (WPCI) in its Carbon Foot printing for Reports Guidance Document Draft. This method to estimate emissions quantifies the energy consumption (KWh) of berthed ships considering the following variables:

- Number of ships distinguishing by kind of ship.
- Their main engines' power.
- Their auxiliary engines' power.
- Engine use characteristics (main or auxiliary).
- Time at berth, anchoring time and arrival process time (from traffic area to berth) and departure process time (from berth until leaving port waters).
- Distance sailed on port waters.
- Speed.

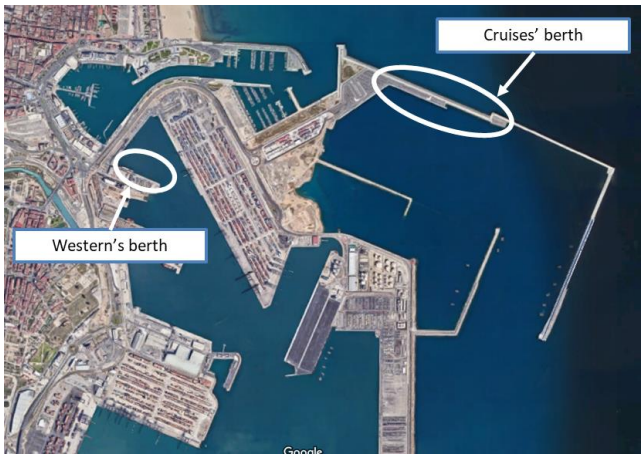
Once measured these variables, it is applied a factor of emission depending on the used fuel. The final calculation of emissions (GHG) results from multiplying energy consumption data by the documented factors of emissions.

Currently, the regulation 2015/757 of the EU of 29 April 2015 is the point of reference for monitoring, reporting and verification of carbon dioxide emissions from maritime transport.

5.1.2 Noise

This area of analysis focuses on studying the level of noise caused by cruise ships berthed at port. In Valenciaport, the methodology followed to perform the noise impact assessment consisted on in situ measurements campaigns.

Figure 14. Measurement points at Valenciaport.



Moreover, predictive models were used to define a noise map and assess its impact on residential areas near the port.

In this case, the main regulation to be considered at EU level is the Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise - Declaration by the Commission in the Conciliation Committee on the Directive relating to the assessment and management of environmental noise.

5.1.3 Waste management

This area seeks to evaluate the waste management on cruise ships. The idea behind it is to recognize the value of waste and to promote "waste valorization" plans aimed at reusing, recycling, or composting from wastes, useful products, or sources of energy; aligned with circular economy initiatives.

The MARPOL Convention includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes. In the case of the application of eco-cruise port/city tool at Valenciaport only two of them were considered. I.e. Annex I: Regulations for the Prevention of Pollution by Oil and Annex V: Prevention of Pollution by Garbage from Ships.

5.1.4 Mobility

This factor aims to promote a sustainable low-carbon mobility among cruise passengers.

It is necessary to identify the mobility options for cruise passengers nearby the port and categorize them depending on their environmental impact (from the most pollutant ones as taxis or buses to the more environmental friendly transport options as bikes, e-bikes, electric scooters, etc.).

5.1.5 Resource consumption

This area of the eco tool aims to measure resource use in the cruise ships looking for improving their resource efficiency.

In its application at Valenciaport, it was performed a characterization of the main consumptions and innovative solutions were studied (outstanding the potential implementation of cold ironing technology at port allowing cruise ships to turn off their engines).

5.2 Analysis of the environmental impact of cruise ship industry in Valencia

This section presents the results of the practical application of the eco-cruise tool to assess the cruise tourism impact on Valencia (Spain). It can be considered as a first benchmark that could be replicated on other ports/cities following the principles of the Integrated Coastal Zone Management (ICZM) Protocol.

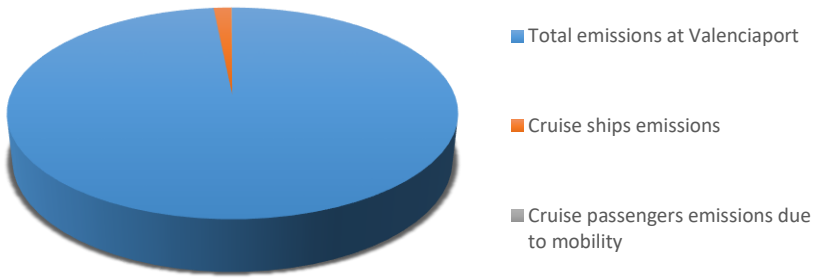
Figure 15. Main areas of analysis included in the eco-cruise port/city tool

Source: Own elaboration by VPF.

5.2.1 Air emissions from cruise ships berthed at Valenciaport

On the one hand, according to the yearly calculation of the Carbon Footprint in the Port of Valencia performed by the Port Authority of Valencia, **cruise ships at port** produced **2511.09 tons of CO_2 in 2017**. This amount represents a 1.5% of the total carbon footprint of Valenciaport. On the other hand, the **mobility options** used by **their passengers generated 114 tons of CO_2**, meaning only the 0.07% of the total CO_2 emissions at Valenciaport that year.

Figure 16. Carbon footprint of cruise ships and their passengers in 2017 at Valenciaport.



5.2.2 Noise impact on residential areas near Valenciaport caused by cruise ships

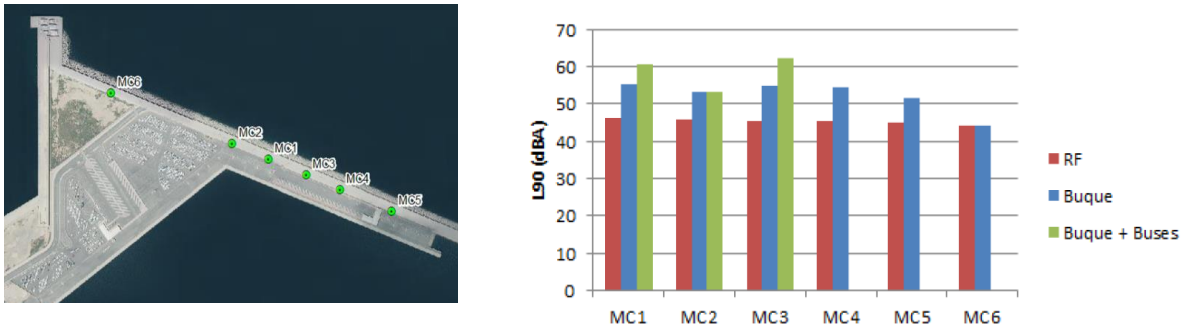
In the case of the Cruise Berth, we compared the level of noise in six points (locations at berth) and in three different scenarios/situations:

- Background noise (without any cruise ship berthed).
- Noise caused by cruise ships.
- Noise caused by cruise ships plus the buses picking up or leaving passengers at berth.

The results showed that the noise increased between 6 dB and 9 dB in all the locations except in the one furthest away from cruise ships situated at 250 metres away where no difference was registered.

Whereas the presence of buses at berth increased the noise between 5 dB and 7 dB, compared with the scenario with only the cruise ship berthed.

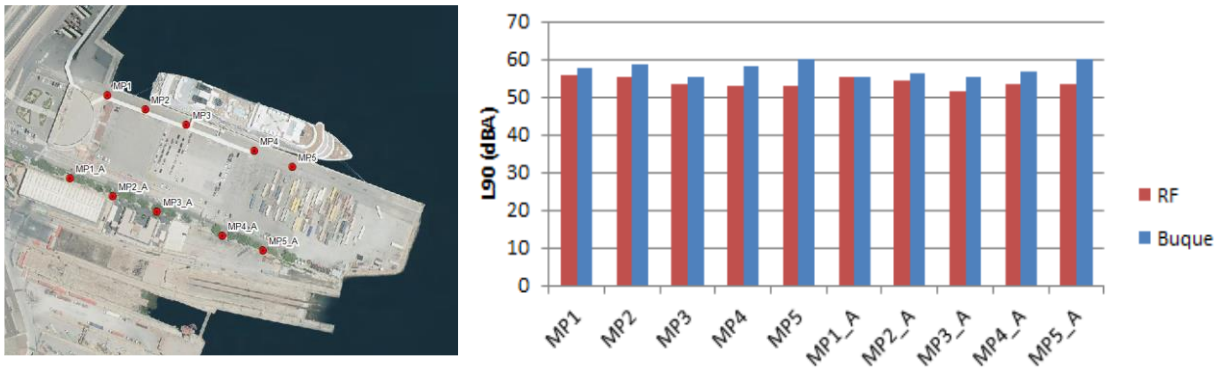
Figure 17. Noise levels measurement at the Cruise Berth.



In the case of the Western Berth, we compared the level of noise in ten points (locations at berth) and in two situations:

- Background noise (without any cruise ship berthed).
- Cruise ships at berth.

Figure 18. Noise levels measurement at the Western Berth.



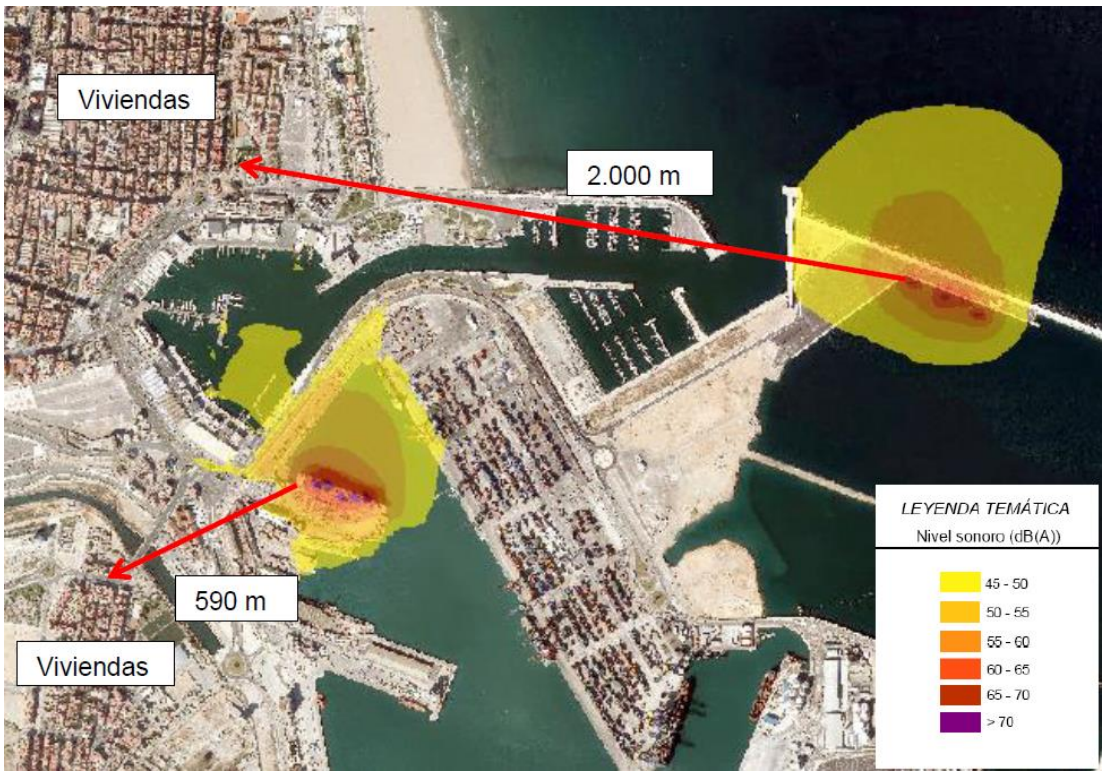
The noise caused by ships was lower than 3 dB in three of the locations (MP1, MP2 AND MP3), however it was registered an incensement of 7 dB in MP5 due to its proximity to the ship's ventilation grilles.

The measurements located at 100 metres from the ships were:

- There was no difference of level of noise at the MP1_A point.
- Noise increased around 3 dB at MP2_A, MP3_A and MP4_A points and it was perceived relevant noise coming from the chimney of the ship during the measurement.
- Measurements at the MP5_A are not taken into account due to construction work being done on so close and the values are not representative.

Additionally, we complemented the in-situ measurement with a predictive model of analysis, obtaining the isophonic line map shown in Figure 19. It was carried out by a regional company specialized in noise studies.

Figure 19. Noise map at Valenciaport for cruise ships.



Source: Software Predictor Type 7810 V.10.1 (Brüel&Kjaer). Mathematical model of "Harmonoise-Nomeports".

The isophonic line (noise level) map obtained revealed that the sound propagation speed is higher at the Cruise Berth because there are no obstacles around it. Whereas at the Western Berth there are buildings in its surroundings, and they reduce the noise impact.

The noise propagation ranges from 100 to 600 metres as indicates the 45-50 isophonic line.

It can therefore be concluded that the Port of Valencia complies with the targets for noise quality without affecting residential areas near the port. Its level of noise does not exceed the 45 dB which is the target level at night time.

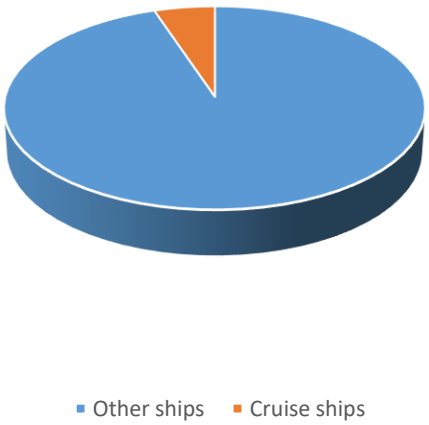
5.2.3 Waste management at Valenciaport

We selected 12 different indicators for evaluating the waste management related to cruise ships at Valenciaport. The main figures are presented in the table below.

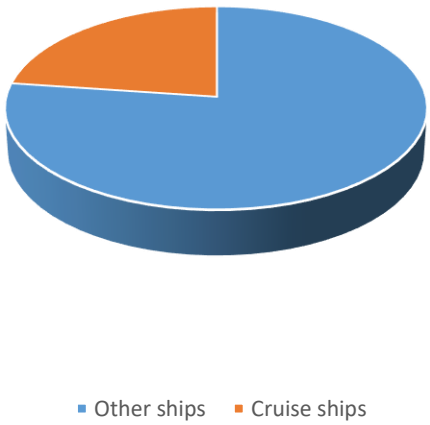
The reception facilities for MARPOL waste at Valenciaport dealt with 2.765 m^3 of MARPOL I waste and 4009 m^3 of MARPOL V waste from cruise ships in 2017.

It means that cruise ships were responsible of 5.16% over the total of MARPOL I waste handled at Valenciaport that year. Nevertheless, in the case of MARPOL V waste this percentage rises 22.82% that reveals the significant volume of garbage produced by these ships.

Graph 6. MARPOL I waste managed in 2017.



Graph 7. MARPOL V waste managed in 2017.



On the bright side, 60% of this garbage was valorized and 66% of cruise ships calling at Valenciaport held Waste Certificate.

Table 9. Indicators used for measuring the waste management at Valenciaport in 2017.

Indicator Ref. #	Indicator description	Assessment type	2017	Data Source / Collection Method	Actor Involved
C.5.1	Availability of port reception facilities for MARPOL waste	Yes/No	Yes	Interview	Port Authority
C.5.2	Annual MARPOL I waste provided by cruise ships	m^3	2.765 m^3	APV data	Port Authority
C.5.3	m^3 MARPOL I / cruise passenger	m^3/cruise passenger	0,007 m^3/cruise passenger	APV data	Port Authority
C.5.4	% of MARPOL I from cruise ships / total MARPOL I waste from ships calling at port	%	5,16%	APV data	Port Authority
C.5.5	Total capacity of port reception facilities for MARPOL I waste	m^3	1950 m^3	APV data/ Interview	Port Authority/ MARPOL waste service provider
C.5.6	Annual MARPOL V waste provided by cruise ships	m^3	4009 m3	APV data	Port Authority
C.5.7	m^3 MARPOL V waste /cruise passenger	m^3/cruise passenger	0,01 m^3/cruise passenger	APV data	Port Authority
C.5.8	% of MARPOL V from cruise ships / total MARPOL V waste from ships calling at port	%	22,82%	APV data	Port Authority
C.5.9	% of valorised MARPOL V waste	%	60%	Interview	MARPOL waste service provider
C.5.10	% of cruise ships calling at Valenciaport which hold Waste Certificate (art.132.10.a TRLPEMM)	%	66%	APV data	Port Authority

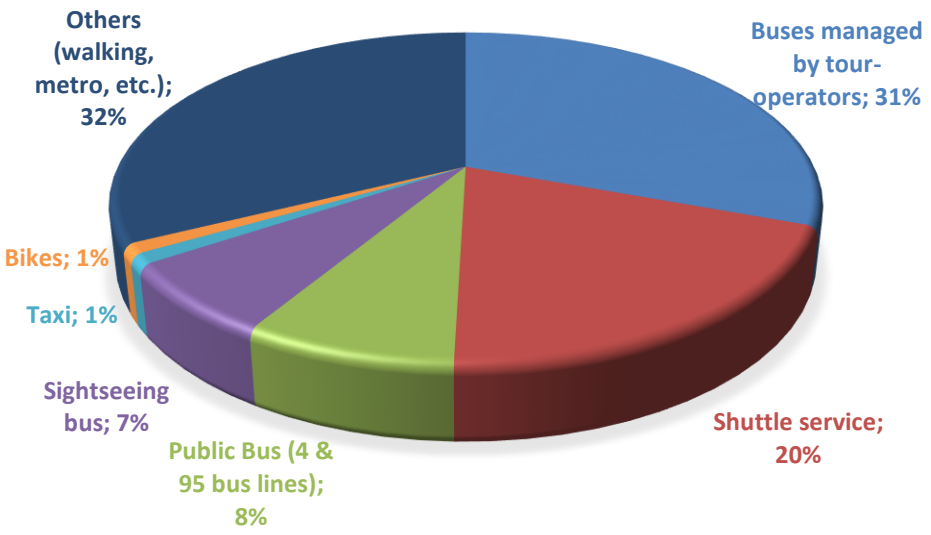
C.5.11	% of cruise ships which hold Waste Certificate (art.132.10.a TRLPEMM)	%	49%	APV data	Port Authority
C.5.12	% of companies providing MARPOL services which hold environmental certification (ISO 14001 or EMAS)	%	100%	Interview	MARPOL waste service provider

5.2.4 Mobility options available for cruise passenger at Valenciaport

We interviewed both cruise passengers in Valencia and key stakeholders (Port Authority, Public Bus Company (EMT), Sightseeing Bus Company, taxi drivers and private bus companies) in order to assess the mobility options available at Valenciaport.

The most common mobility option are the buses managed by tour-operators and that are contracted on board the cruise ships, being the option chosen by 31% of the passengers. A similar percentage of passengers decided just walking around the port surroundings. 8% of cruise passenger chose either of the two bus lines going to the old town from the port.

Graph 8. Mobility options chosen by cruise passengers at Valenciaport in 2017.



The rest of the indicators used are described and assessed in the table below.

Table 10. Mobility evaluation at Valenciaport.

Indicator Ref. #	Indicator description	Assessment type	2017	Data Source / Collection Method	Actor Involved
C.1.1	Number of tour buses per port call	Number of tour buses	12	APV data/ Interview	Port Authority, Shipping Agent, Tour operator
	Number of shuttle service per port call	Number of buses (shuttle services)	6	APV data/ Interview	Port Authority, Shipping Agent, Tour operator
C.1.2	Main destinations of organized shore side tours	%	Old town: 54% CAC: 26% Urban fringe: 15% Others:5%	Interview	Tour operator
C.1.3	Share of cruise passengers using sustainable (public) transport means to get around the destination	%	8%	Statistic / survey	Public transport Operator / cruise passenger
C.1.4	Share of cruise calls made at the destination by LNG-powered ships	%	0%	Interview	Port Authority
C.1.5	Access to public transport system	Yes/no	Yes	Desktop research and interview	Public transport operator

5.2.5 Resource consumption evaluation at Valenciaport

We considered four indicators for evaluating the energy consumption of cruise ships at port and five of them in the case of the water consumption.

Nowadays, there is no availability of shore-side electricity at the port of Valencia yet.

Table 11. Energy consumption evaluation.

Indicator Ref. #	Indicator description	Assessment type	2017	Data Source / Collection Method	Actor Involved
C.2.1	Availability of shore-side electricity at the port	Yes/no	No	Interview	Port Authority
C.2.2	Share of cruise ship calls that receive shore-side electricity	%	0%	Interview	Port Authority
C.2.3	Share of public transport fleet powered by electricity at the destination	%	0%	Desktop research / Interview	Public transport operator
C.2.4	Share of excursion coach fleet powered by electricity at the destination	%	0%	Interview	Public transport operator

A growing number of cruise ships are equipped with systems to desalinate and purify water. However, they still need fresh water provision to satisfy specific demands on board the ships.

The company providing this service at Valenciaport worked with 113 cruise ships in 2017 and supplied them 18,195 m^3 of fresh water.

Table 12. Water consumption evaluation.

Indicator Ref. #	Indicator description	Assessment type	2017	Data Source / Collection Method	Actor Involved
C.6.1	total m^3 provided in one year	m3	18.195 m3	Interview	Water supplier / shipping agent

C.6.2	Number of cruise ships requesting water provision	Number of cruise ships	113	Interview	Water supplier / shipping agent
C.6.3	Origin	%	100% from drinking water network	Interview	Water supplier / shipping agent
C.6.4	% of cruise ships calling at Valenciaport which hold a Certificate of good housekeeping practices (art.245.1.a TRLPEMM)	%	75%	APV data	Port Authority
C.6.5	% % of cruise ships which hold a Certificate of good housekeeping practices (art.245.1.a TRLPEMM)	%	59%	APV data	Port Authority

5.3 Eco- tool kit indicators

As a result of the pilot the following indicators are proposed to measure the environmental impact of the cruise sector in the port-city area:

Table 13: Eco-tool indicators

Criteria	Indicator Ref. #	Indicator description	Assessment type	2017	Data Source / Collection Method	Actor Involved
C.1 Mobility	C.1.1	Number of tour buses per port call	Number of tour buses	12	APV data/ Interview	Port Authority, Shipping Agent, Tour operator
		Number of shuttle service per port call	Number of buses (shuttle services)	6	APV data/ Interview	Port Authority, Shipping Agent, Tour operator
	C.1.2	Main destinations of organized shore side tours	%	Old town: 54% CAC: 26% Urban fringe: 15% Others:5%	Interview	Tour operator
	C.1.3	Share of cruise passengers using sustainable (public) transport means to get around the destination	%	8%	Statistic / survey	Public transport Operator / cruise passenger
	C.1.4	Share of cruise calls made at the destination by LNG-powered ships	%	0%	Interview	Port Authority

	C.1.5	Access to public transport system	Yes/no	yes	Desktop research and interview	Public transport operator
C.2 Energy consumption	C.2.1	Availability of shore-side electricity at the port	Yes/no	No	Interview	Port Authority
	C.2.2	Share of cruise ship calls that receive shore-side electricity	%	0%	Interview	Port Authority
	C.2.3	Share of public transport fleet powered by electricity at the destination	%	0%	Desktop research/Interview	Public transport operator
	C.2.4	Share of excursion coach fleet powered by electricity at the destination	%	0%	Interview	Public transport operator
C.3 Carbon footprint	C.3.1	CO^2 equivalent tones/year emitted by cruise ships	CO^2 equivalent tones/year	2511,09 tons of CO^2	APV data (Carbon Footprint Study)	Port Authority
	C.3.2	CO^2 equivalent tones/year emitted by mobility options used by cruise passengers	CO^2 equivalent tones/year		Statistic / interview / survey / Desktop research	Port Authority, Shipping Agent, Public transport Operator, Tour operator, Cruise passenger

C.4 Noise	C.4.1	Increase in the level of noise LA90 due to cruise ships at the Cruise Berth	dB	Between 6 and 9	Specialized company in noise studies	Port Authority /specialized company
	C.4.2	Increase in the level of noise LA90 due to cruise ships plus buses at the Cruise Berth	dB	Between 7 and 17	Specialized company in noise studies	Port Authority /specialized company
	C.4.3	Increase in the level of noise LA90 due to cruise ships at the Western Berth	dB	Between 2 and 7	Specialized company in noise studies	Port Authority /specialized company
	C.4.4	Population affected by noise in the port surroundings.	Number of houses affected by noise caused by cruise ships	0	Specialized company in noise studies	Port Authority /specialized company
C.5 Waste management	C.5.1	Availability of port reception facilities for MARPOL waste	Yes/No	Yes	Interview	Port Authority
	C.5.2	Annual MARPOL I waste provided by cruise ships	m3	2.765 m3	APV data	Port Authority
	C.5.3	m3 MARPOL I / cruise passenger	m3/cruise passenger	0,007 m3/cruise passenger	APV data	Port Authority
	C.5.4	% of MARPOL I from cruise ships / total MARPOL I	%	5,16%	APV data	Port Authority

		waste from ships calling at port				
	C.5.5	Total capacity of port reception facilities for MARPOL I waste	m3	1950 m3	APV data/ Interview	Port Authority/ MARPOL waste service provider
	C.5.6	Annual MARPOL V waste provided by cruise ships	m3	4009 m3	APV data	Port Authority
	C.5.7	m3 MARPOL V waste /cruise passenger	m3/cruise passenger	0,01 m3/cruise passenger	APV data	Port Authority
	C.5.8	% of MARPOL V from cruise ships / total MARPOL V waste from ships calling at port	%	22,82%	APV data	Port Authority
	C.5.9	% of valorised MARPOL V waste	%	60%	Interview	MARPOL waste service provider
	C.5.10	% of cruise ships calling at Valenciaport which hold Waste Certificate (art.132.10.a TRLPEMM)	%	66%	APV data	Port Authority
	C.5.11	% of cruise ships which hold Waste Certificate	%	49%	APV data	Port Authority

	C.5.12	% of companies providing MARPOL services which hold environmental certification (ISO 14001 or EMAS)	%	100%	Interview	MARPOL waste service provider
C.6 Water consumption	C.6.1	total volume (m3) provided in one year	m3	18.195 m3	Interview	Water supplier / shipping agent
	C.6.2	Number of cruise ships requesting water provision	Number of cruise ships	113	Interview	Water supplier / shipping agent
	C.6.3	Origin	%	100% from drinking water network	Interview	Water supplier / shipping agent
	C.6.4	% of cruise ships calling at Valenciaport which hold a Certificate of good housekeeping practices (art.245.1.a TRLPEMM)	%	75%	APV data	Port Authority
	C.6.5	% % of cruise ships which hold a Certificate of good housekeeping practices (art.245.1.a TRLPEMM)	%	59%	APV data	Port Authority

6. Action Plan and recommendations to reduce environmental impacts

Taking into consideration the economic and environmental results, the cruise community of Valencia carried out an analysis in order to define an Action Plant to reduce the environmental impact and to optimize the economic impact of the cruise industry in Valencia. As a result, the Action Plan includes lines of actions and specific tasks organised in 3 strategic goal:

1. Maximizing local economic benefits from cruise tourism
2. Improving the institutional framework and policies affecting sustainable cruise activity
3. Reducing the environmental impact caused by cruise shipping industry

The action plan is summarized in the following sections:

6.1 Strategic goal: Maximizing local economic benefits from cruise tourism

Line of action	Proposed actions
Optimising cruise passengers' expenditure	• Reviewing and updating the strategy for promoting the cruise tourism involving both destination and port stakeholders. This strategy will focus on analysing new lines, services and cruise experience offers. It will aim to optimise the expenditure of the cruise passengers by promoting local economy in a sustainable manner. • Elaborating a joint strategy of communication and marketing to promote the consumption of local products and services. • Adapting the shorex offers (shore experiences), according to the different requirements of cruise lines and cruise passengers by diversifying the offer for the decentralization and de-seasonalize. • Supporting the development of specific training programmes for staff involved in services provision to cruise ships and cruise passengers. • Designing and implementing customized strategies depending on cruise passengers profiles in order to encourage the expenditure in specific products and services of the local market. • Informing local and regional companies about the potentialities of the cruise tourism. • Fostering a working group for developing and improving the tourist offers available for cruise passengers, including daily route and excursions. • Looking for synergies between cruise tourism and other kinds of sustainable tourism (eco-tourism, agro-tourism, fishing tourism, etc.) which create a wider offer at regional level.

Increasing the number of cruise passenger embarking and disembarking in Valencia (ideally with an overnight stay) and their expenditure	• Defining a coordinated action plan with key stakeholders to stablish new flight connections with America (both north and south) in order to offer attractive cruise and fly packages. • Fostering commercial cooperation with cruise shipping companies to promote Valencia as embarking port at both national and international level. • Encouraging intermodality (cruise and rail packages) for cruise services. • Extending the offer of vacational packs including activities in Valencia before the cruise departs and once it has arrived (pre and post).
Optimising the expenditure of shipping companies and their crew	• Promoting (creating incentives) re-fuelling at Valenciaport with emphasis on alternative fuels (i.e. Natural Gas) and other supplies (water and waste collection). • Incentivising the purchase of local products to be consume on-board. • Studying the crew profile and services and products needs in order to design special incentives promoting the expenditure in port and destination. • Defining a marketing action in order to promote the services and products for the cruise crews.

6.2 Strategic goal: Improving the institutional framework and policies affecting sustainable cruise activity

Line of action	Proposed actions
Fostering a coordinated environment of all the administrations involved (such as City Council, Valencian Tourist Agency, Port Authority, Chamber of Commerce, business associations and Valencia Region Council).	• Sharing systematically with the interested parties the results and conclusions of studies evaluating the impact of the cruise ship tourism. • Fostering a working group formed by destination stakeholders to planning and monitoring the cruise tourism. • Creating and promoting the brand of “Valencia Sustainable Cruise Destination” in order to enhance the city status as cruise destination. • Stablishing formal mechanisms to co-create, consolidate and disseminate the best practices.

6.3 Strategic goal: Reducing the environmental impact caused by cruise shipping industry

Line of action	Proposed actions
Optimising waste management	• Including an extra field in the GEDES tool (the Waste Management System of Valenciaport) to filter the analysis by kind of ship such as cruise ships, container ships, car-carriers, etc. It will facilitate to categorize the waste volumes caused by the different kind of traffics. • Providing a Waste Management Reference Guide to the person responsible of waste management in each cruise ship. Ensuring that they meet the current regulations on that regard and preventing wrong labelling, spills, etc. • Including specific rules in the specifications for the tendering of a new MARPOL service contracts regarding the data provision related to waste's final destination (i.e. percentage of valorised waste, percentage of dumped waste, etc.).
Improving air quality and reducing CO_2 emissions	• Designing economic incentives in port taxes for eco- cruise ships and promoting eco-cruise practices. • Improving the data collection systems to gather information about the air quality at the port area. • Including the ESI (Environmental Ship Index) provided by the shipping companies as environmental indicator. • Getting information about how ships apply the (UE) 2015/757 legislation.
Reducing the noise impact caused by cruise ships	• Conducting awareness raising campaigns among bus drivers about noise and emissions caused when they leave the buses with their engines running.
Improving cruise passengers' mobility	• Creating a sub-committee of the "Valencia Sustainable Cruise Destination" focus on the cruise passengers' logistics coordination. • Improving signalization both outside and in the port (promoting pedestrian paths, bike lanes, zero-emission shuttles, ...). • Decentralizing shorex offers and promoting alternative transport options in order to reduce the concentration of cruise passengers in certain areas of the city.

7. References

Australian Aid, Carnival and IFC (2014), Assessment of the Economic Impact of Cruise Ships to Vanuatu.

Autoridad Portuaria de Valencia (2018), Memoria de Sostenibilidad 2017.

Autoridad Portuaria de Valencia (2017), Memoria medioambiental 2016.

Ayuntamiento de Valencia (2011), Estrategia frente al cambio climático en Valencia 2020.

Ayuntamiento de Valencia, Plan de acción medioambiental del municipio de Valencia.

Ayuntamiento de Valencia (2011), Informe de seguimiento del plan de acción para la energía sostenible de la ciudad de Valencia.

M. Marco (2017), Deliverable 3.2.1 of the LOCATIONS project: Operational model for Low Carbon Transport Plans for cruise destination cities.

Steneck, R. S., M. H. Graham, B. J. Bourque, D. Corbett, J. M. Erlandson, J. A. Estes, et al. (2002). Kelp forest ecosystems: biodiversity, stability, resilience and future. Environ. Conserv. 29:436–459.

UNEP/MAP-Plan Bleu (2008), The Blue Plan's sustainable development outlook for the Mediterranean, UNEP/MAP.

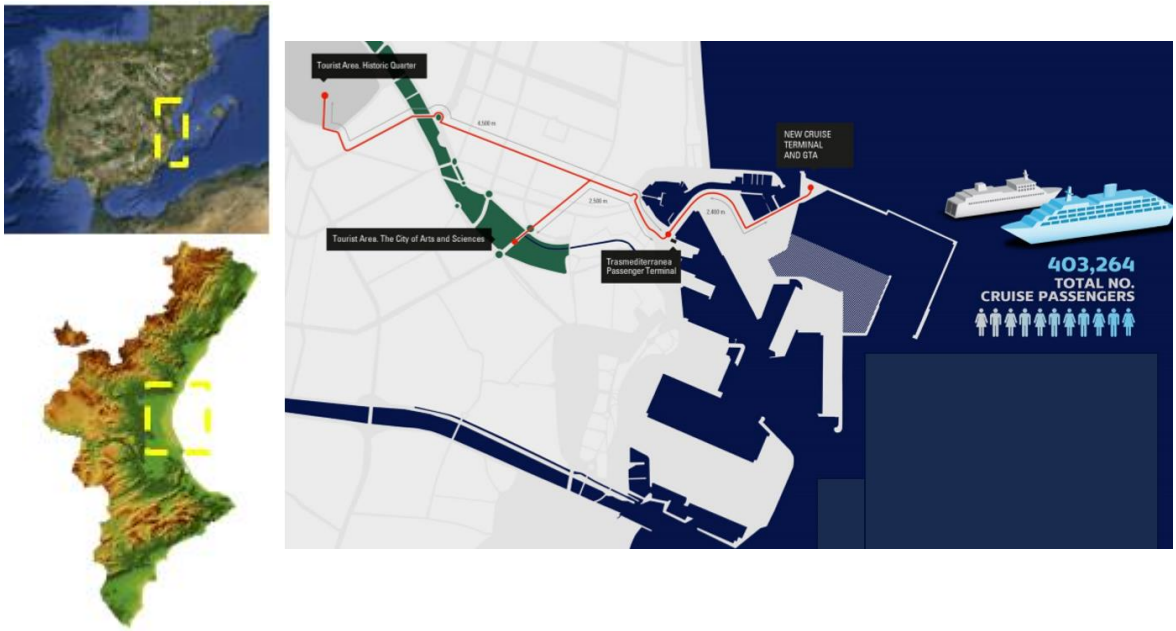
UNEP/MAP/PAPRAC (2012), Guidelines for ICMZ.

WWF (2016). Sustainable economic activities for Mediterranean marine protected areas (Sea-Med project). Third Year Report. Pp.16

8. Annexes

8.1 Scope of the pilot actions in Valencia

8.1.1 Modelling the socio-economic impact on Valencia

Pilot Area #4	**4-B**
Name	Modelling the socio-economic impact on Valencia
Country	Spain
Responsible partner	Valenciaport Foundation
Reference map 	
General description of the area	Valencia is a tourist destination. The city offers an attractive array of activities and sights; suitable for all ages. Valencia also has an important commercial Port, known as Valencia port. Cruise traffic at the Port of Valencia has grown 125% in number of passengers over the last 10 years. At the end of 2018, it closed the year with a total of 196 calls and over 400,000 cruise passengers. Valencia has become a popular tourist destination in the Mediterranean sea; with an annual growth of over 7%. This traffic will continue

	increasing according to the cruise industry trends and its growth perspectives in the Mediterranean area.
Main problems to be tackled/objectives to achieve for sustainable tourism maintenance/development	The economic impact of cruise tourism and its benefit to local livelihoods is a ubiquitous topic for destination policymakers and stakeholders that arises when discussing cruise tourism development. Cruise tourism has been criticized for keeping the majority of associated revenues within the cruise line and not for the local communities (which may make up a large part of the attractiveness and experience) that are not benefitting sufficiently from the cruise passengers. Destinations should routinely monitor, benchmark and seek to improve the spending per cruise passenger and the portion that remains within the local economy and its communities. Common methodologies for determining passenger spend and economic social impact will enable benchmarking and data aggregation, as well as improve monitoring's effectiveness of destinations. It is important to consider that the economic impact and passenger spending calculations are limited to the instance of visitation and do not account for potential future gains. Cruise tourism passengers who have a positive experience within a destination may decide to return to that destination. The destination should encourage and seek to maximize return visits through various channels as a strategy for increasing spending over the long-term and weigh the potential for positive or negative reputational impact. Possible objectives include: o Identification and measuring of socio-economic impact of cruise tourism at Valencia destination and how benefits are distributed. o Improve training of local community to promote knowledge of cruise tourism

Local actors and stakeholders to be involved	Valencia Port Authority, Region of Valencia Tourism Board, Valencia City Council, Cruise Committee of Valencia, Tourism Operators, Cruise Companies, Chamber of Commerce, etc.
Demonstration actions to be carried out under WP4 (Integrated Plans, tools/Services, Small-scale investments if foreseen, etc.)	The demonstration action will focus on develop model to measure economic impact of cruise tourism in local destination. Main tasks that will be develop: o Design of the model for measuring socio-economic impact o Application of the model in Valencia Destination o Analysis socio-economic impact of Cruise Tourism o Proposal of Action Plan and recommendations to contribute that economic impacts of cruise tourism are appropriately distributed o Create, or spread quick best practices guides for businesses related to cruise tourism o Increase training mechanisms to promote knowledge of cruise tourism.

8.1.2 Port Sustainable generic methodological framework focus on the environmental impacts

Pilot Area #4	**4-A**
Name	Modelling environmental impact on Valencia (Valenciaport)
Country	Spain
Responsible partner	Valenciaport Foundation
Reference map	

General description of the area	The port is one of Valencia's most important institutions for both the city and the region. Historically, port activities have been responsible for the economic growth of the region through trade exchanges, passenger movements and maritime services from which the modern city of Valencia has developed. Through the years, the Port of Valencia has grown and changed. The port has grown towards the sea creating breakwaters and other protection works making possible the construction of new basins. At the same time, some already-existing inner basins have been reshaped for urban related activities such as leisure ports. Over the last decade, and especially during the last five years, the Port of Valencia has succeeded in attracting a new market of international cruise passengers. The city of Valencia is becoming an attractive tourist destination by itself so the Port of Valencia call for cruises liners operating in the Mediterranean. This fact would have a significant economic impact on both the city and the

	region with a feedback effect on the tourist sector but also has an environmental impact and several pressure coming from society.
Main problems to be tackled/objectives to achieve for sustainable tourism maintenance/development	Obviously, Cruises vessels is a key source of revenue for the MED Coastal Areas and particularly for the Valencian Region, but this kind of tourism is also pointed out as a source of pressure and environmental impacts. The vessel impact at ports and nearby areas affecting negatively to the city in terms of environment. In this sense, the coexistence between ports and cities has had many problems related to the territory sharing. Ports receive pressure from the city about high noise levels, ships emissions, visual impacts, heavy traffic near the port-city accesses, etc. In this sense, there are identified environmental impacts in the pilot area in several projects such as SIMPYC (Port – city environmental integration system_ (LIFE), CLIMEPORT (Climate change mitigation by Port and city) and GREENBERTH (Green berths in city areas)_ (MED): among others, greenhouse gas emissions (CO2, NOX, CH4) and pm10, pm2,5 from vessels, waste management, high noise levels, dirty waters, etc. in terms of conflicts regarding the port-city area
Local actors and stakeholders to be involved	Valencia Port Authority, Infrastructure Ministry, Directorate-General for the Environment (Valencia Regional Ministry of Agriculture and Environment), Valencia City Council, ship suppliers, providers, etc.
Demonstration actions to be carried out under WP4 (Integrated Plans, tools/Services, Small-scale investments if foreseen, etc.)	The pilot action aims to improve governance and facilitate the mainstreaming into public action of the guiding principles set out in the ICZM Med Protocol. A Port Sustainable generic methodological framework focus on the environmental impacts (resources consumption, noise levels, GHG emissions, use of alternative fuels such as LNG and other renewable energy can be used to supply electricity, waste collection, dirty water management, etc.) taken into account how

	to affect the city. In this sense, it will be established in the form of an **ECO-cruise port/city tool** for assessing the impact of cruise activities within the port and city area, in a systemic way as well as linked with a setup of **good environmental practices**. This structured approach will enable the identification of existing inefficiencies and gaps as well as potential good practices for improvement where targeted measures may be implemented for enhancing the sustainability of cruise activities considering the local characteristics of the region addressed as well as the needs of relevant actors. The demonstration action will focus on an ECO- cruise port/city tool to reduce environmental impacts from vessel calls and validating them at the city of Valencia and the surrounding areas. This tool aims to improve the city-port relationship reducing the environmental impacts and promoting a sustainability awareness between port and city.