International Transport Forum

Cruise Shipping and Urban Development

The Case of Piraeus

Case-Specific Policy Analysis

OECD

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The International Transport Forum

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Case-Specific Policy Analysis Reports

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During this study visit, interviews were conducted with the following stakeholders: Stavros Hatzakos (Piraeus Port Authority), Dimitris Agripidis (Piraeus Port Authority), Theodoros Tsitouras (Piraeus Port Authority), Anastasia Frantzeskaki (Piraeus Port Authority) Nektarios Demenopoulos (Piraeus Port Authority), Petros Kokkalis (Piraeus Municipality), Maria Poulou (Piraeus Municipality), Natassa Kannavou (Piraeus Municipality), George Gavrilis (Region of Attica), Kostas Vassiliadis (Region of Attica), Stavros Malagoniaris (Region of Attica), John Stefanou (Region of Attica), Vassilis Korkidis (Piraeus Chamber of Commerce and Industry), Tassos Vamvakidis (Piraeus Container Terminal S.A.), Christina Baboulaki (Piraeus Container Terminal S.A.), Thanos Pallis (MedCruise) and Christos Makriales (Inchcape Shipping Services).

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Executive summary

What we did

This study assesses the impacts of cruise shipping on urban development in Piraeus, Greece. It reviews current economic and environmental policies relating to cruise activities and provides recommendations on how Piraeus could better seize opportunities for local development from cruise shipping. The study was carried out as part of a programme on Cruise Shipping and Urban Development at the International Transport Forum (ITF) at the OECD and benefits from a study visit to Piraeus as well as a series of interviews conducted with relevant stakeholders.

What we found

With around one million cruise passengers in 2015, Piraeus is Greece's largest cruise port and one of the largest cruise ports in the Mediterranean. More than two-thirds of the passengers are transit passengers, staying on average less than half a day in the region. Although the number of cruise passengers has doubled since 2001, the growth rate in Piraeus lags behind the average in Mediterranean cruise ports which saw their passenger numbers triple over the same period. Yet the port has extensive dedicated infrastructure for cruise shipping and offers a wide range of services. The presence of a number of important tourist attractions within easy reach is also making it an attractive destination for tourist excursions.

Despite its success in attracting cruise passengers and significant benefits for Greece and Athens, the local economic benefits from cruise remain low for Piraeus: They are estimated at a fifth of the total economic impact. Because the port mainly attracts transit calls, cruise tourists only have a few hours in the city, which means their spending is limited. They also tend to skip Piraeus in favour of Athens where the major tourist attractions are located. This is due to a lack of awareness of the tourist offerings in Piraeus and the absence of a tourism strategy.

There are various negative impacts from cruise shipping for local residents, most importantly air emissions and traffic congestion. As a large passenger port, Piraeus generates significant air pollution. Cruise ships also contribute to the often heavy congestion on Piraeus's main road, especially during the peak of the cruise season where up to ten ships can be simultaneously berthed at the port.

What we recommend

Develop a strategy to attract tourists to the city of Piraeus

The municipality of Piraeus has recently initiated a commendable city branding initiative under the label "Destination Piraeus". This could form the basis for an expanded strategy to attract cruise tourists to Piraeus. Other initiatives could be launched to encourage cruise passengers to visit the city, e.g. via events and cultural activities targeting cruise passengers. Piraeus would achieve larger local economic benefits through adapting to the needs of potential spenders, both cruise passengers and crews. This would imply greater flexibility in shop opening hours, enhancing of the port's surroundings to make them more welcoming, and providing a more targeted offer of shops, food and beverages around the port. In a

2014 report, the OECD already recommended liberalising Sunday shop openings and abolishing restrictions on hotels, which constitute a barrier to entry for newcomers, harm competition and potentially lead to higher costs for tourists. The municipality's plan to make Piraeus more pedestrian-friendly could also help to increase its attractiveness for cruise passengers.

Facilitate stakeholder co-operation to boost competitiveness of Piraeus as a cruise destination

With the privatisation of the port authority completed, effective strategies for the future of cruise shipping in Piraeus can now be put in place. The new status of the port authority can make it easier to expand services to cruise lines and cruise passengers. Greater collaboration with local authorities and other local cruise stakeholders should lead to a more integrated offer and co-ordinated solutions. A stakeholder platform or cluster could be built on the Piraeus Municipality's efforts to develop a Blue Growth strategy, and on plans for an incubator that could stimulate maritime entrepreneurship and job creation in Piraeus. The economic benefits of cruise shipping for Piraeus could be further enhanced by improving the efficiency of logistics, e.g. via the development of logistics areas in the Attica region, and collaborating with Athens airport, e.g. to provide plane-to-ship baggage handling.

Work to reduce the environmental impacts of cruise shipping on Piraeus

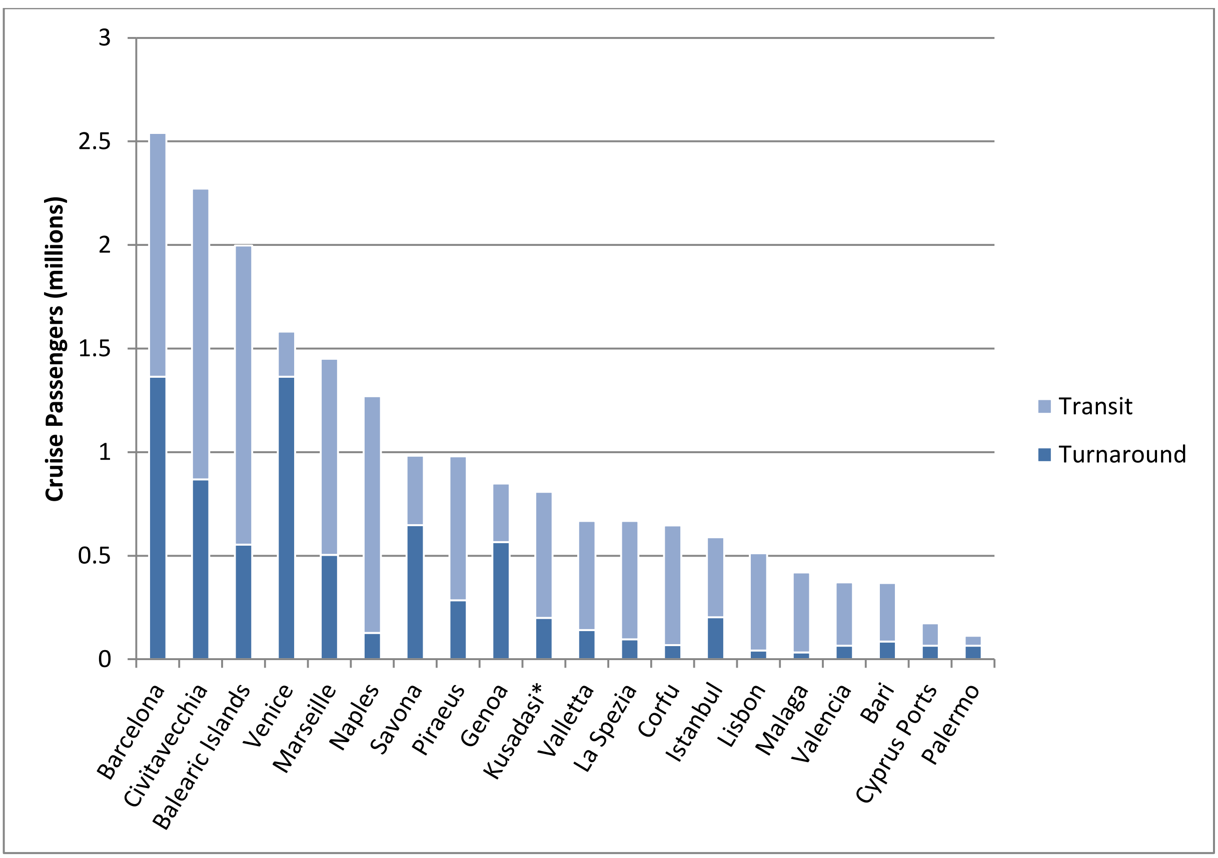
The Piraeus Port Authority should systematically assess the environmental impacts of cruise shipping and then act to mitigate them. Measurements of air emissions from cruise shipping should be made publicly available. Upgrades and new investments in cruise terminals are planned for the coming years and mitigation measures could be fruitfully incorporated into these plans.

Piraeus as a cruise port

The leading cruise port in the East Mediterranean

Piraeus ranks among the largest cruise ports in Europe, receiving close to a million cruise visitors in 2015 (980 000 passengers). It is the largest cruise port of the east Mediterranean region, larger than all cruise ports in the Balkans, Turkey and Greece (Figure 1). Cruise passenger traffic consists mainly of transit calls but Piraeus also acts partly as a turnaround port, with 29% of the passengers starting or finishing their cruise at the port in 2015. This ranks Piraeus among the top ten turnaround ports in the Mediterranean region, with almost a third more home-port passengers than Istanbul, the second largest turnaround port in the area.

Figure 1. **Top 20 Cruise ports in the Med in 2015**

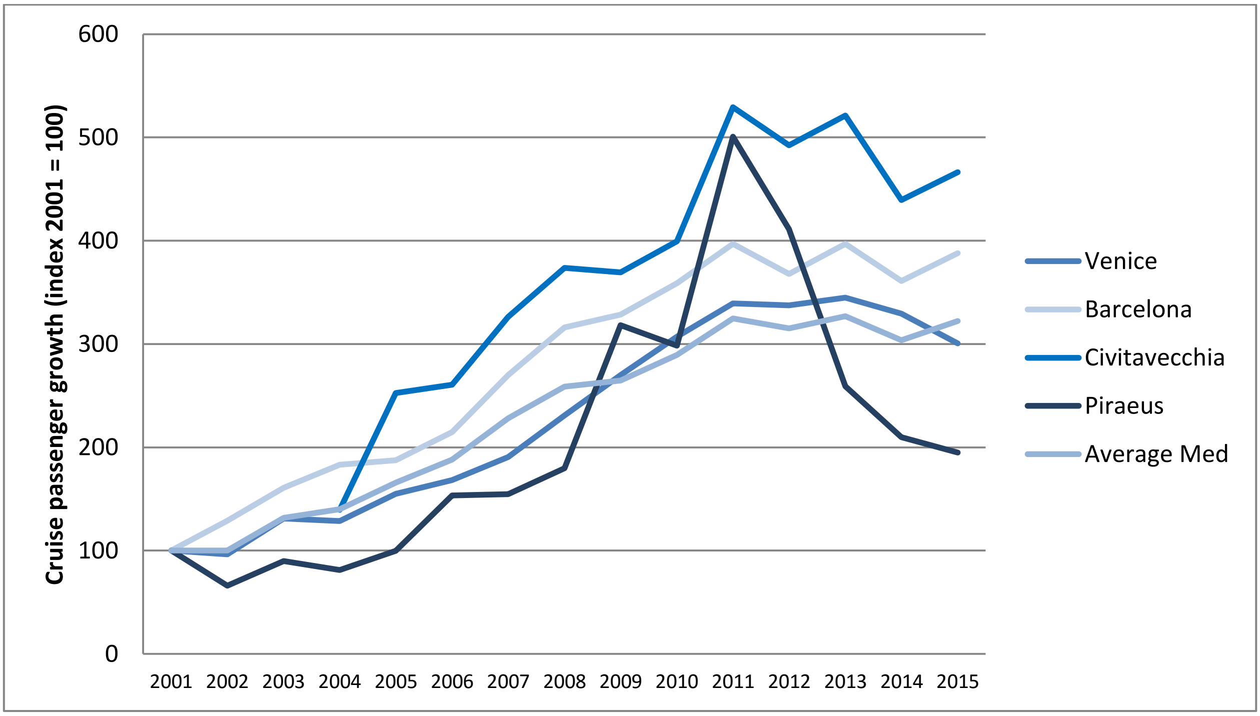


*Traffic figures for Kusadasi also take into account traffic at both the ports of Bodrum and Antalaya
Source: Own elaborations based on Medcruise data.

After strong growth between 2005 and 2011, passenger numbers have been declining almost all years from 2011 to 2015. The general tendency in the Mediterranean region overall has been different with a stabilisation of passenger numbers rather than a decline. Over the last fifteen years, growth in

cruise passengers in Piraeus has been lower (95%) than the average in the Mediterranean (222%) (Figure 2). Whereas the average growth rebounded in 2015 with 6%, Piraeus showed a decline of 7% (MedCruise, 2016). The tendency might have started to reverse in 2016. During the first six months cruise passenger numbers increased by 21% compared to the same period in 2015, according to the Piraeus Port Authority. Overall in 2016, passenger numbers have increased by over 10% compared to the previous year, home-port calls rising by 24% over the period.

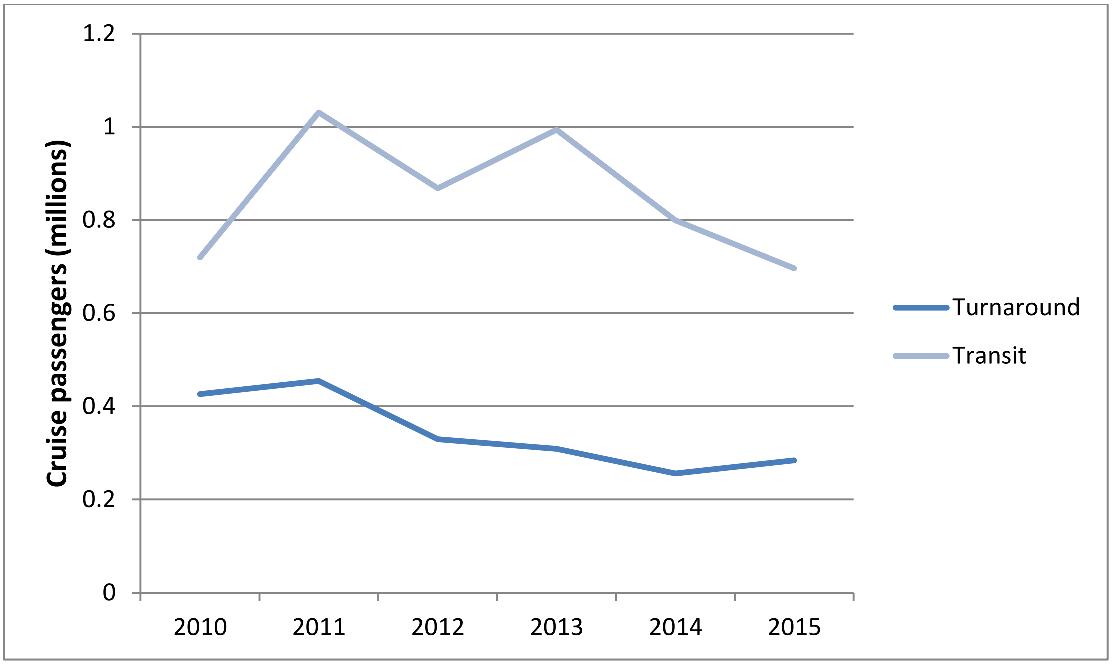
Figure 2. **Development of cruise passengers in main Mediterranean ports (2001-2015)**



Source: Own elaborations based on data from Cruise Industry News 2014; Medcruise (2015; 2016).

The decrease in traffic is reflected in both transit and turnaround passenger numbers. The share of turnaround passenger numbers has significantly decreased - from 42% to 29% - between 2010 and 2015 (Figure 3). This could be related to the development of other cruise ports in the area. For instance Istanbul, the second largest East Mediterranean home-port has more than doubled its number of turnaround passengers between 2010 and 2015. However, it appears part of the turnaround traffic is coming back in 2015 with an increase of 11% in turnaround passenger numbers compared to 2014, whilst transit passengers decreased over that same period. The first six months of 2016, there was a further encouraging increase of 16% in turnaround passengers compared to the same period the previous year, according to the Piraeus Chamber of Commerce. This could possibly be attributed to geopolitical developments related to Turkey, which is boosting the relative attractiveness of Piraeus as a turnaround port compared to Istanbul. It is uncertain to what extent the extra traffic Piraeus receives due to this situation will remain.

Figure 3. **Passenger numbers evolution per type (2010-2015)**



Source: MedCruise (2016).

Long cruise season and short port stays

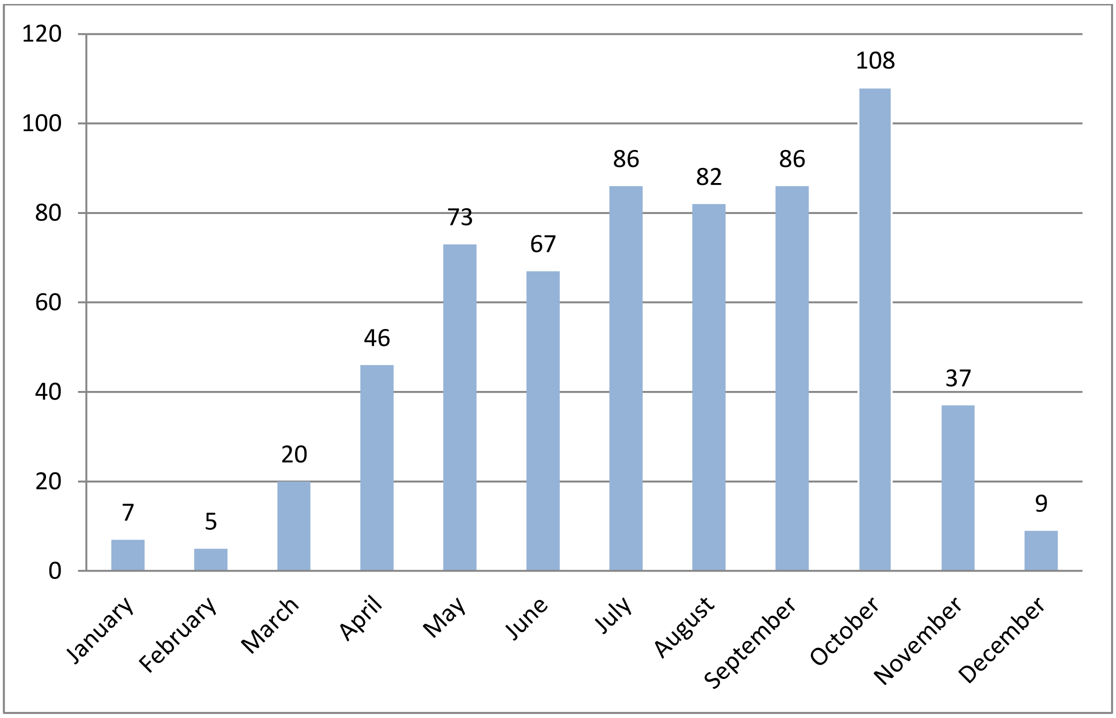
Cruise activities in Piraeus are concentrated in seven months of the year. 88% of cruise calls in 2014 took place between April and October (Figure 4). However, there are cruise calls every month, which is not the case at all cruise ports. The number of calls during the three least busy months is also not that insignificant; ranging between five and nine calls. October was the month with most calls in 2014. Greece has an attractive climate when the rest of Europe has cooler temperatures. The busiest cruise months also generally coincide with the tourism high-season resulting in very busy tourist attractions and sites around that period.

Cruise ships stay in Piraeus for less than half a day on average. 73% of the cruise calls in 2014 in Piraeus had a duration ranging between 5 to 13 hours (Figure 5). The ships arrive in great majority very early in the morning; 78% of all cruise ships to Piraeus in 2014 arrived before 08:30 (Figure 6). They tend to depart in the end of the afternoon; 55% of all cruise ships in 2015 departed from Piraeus between 16:00 and 19:00 (Figure 7).

The number of cruise ship calls is relatively small compared to other types of ships. Cruise is especially small when put in perspective with the number of other passenger ship calls. In 2015, there were 619 cruise ship calls and close to 14 000 calls of other passenger ships. Cruise ship calls have remained relatively stable over the last ten years as opposed to other passenger calls that have sharply decreased from 2007 to 2013. Cargo calls have also remained relatively stable, after the activity peaked in 2011 following COSCO's takeover of the container terminals. Hence, the share of cruise calls over the total number of calls at the port has increased. In 2006, cruise ship calls represented 2.9% of the total calls and in 2015 they represent over 3.5%. Due to developments in the shipping industry and markets, the average ship size calling at the port has also increased over the same period. This means that despite little growth or decrease in the number of ship calls, cargo volumes and passenger numbers may have

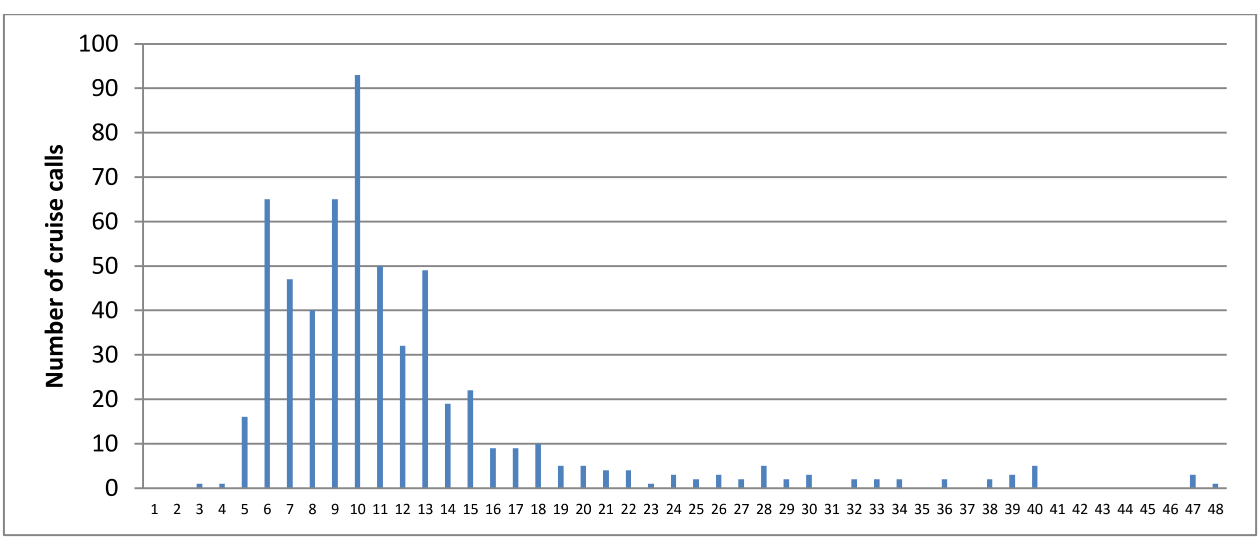
increased or remained stable. For instance in the container segment, there was no significant increase in the number of calls but the amount of cargo passing through the port increased by close to 700% between 2010 and 2015.

Figure 4. **Number of cruise calls in Piraeus per month (2014)**



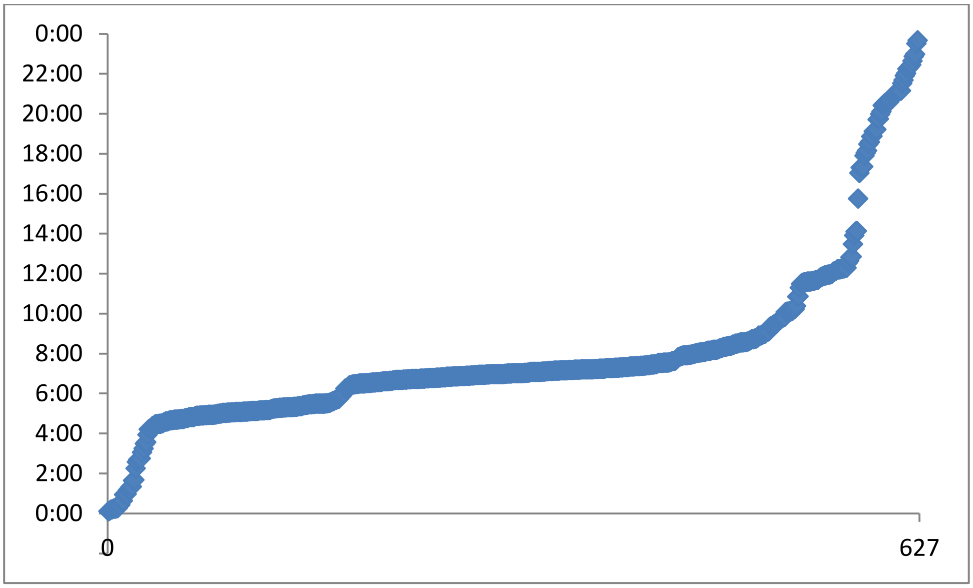
Source: Own elaboration based on data from Lloyds Marine Intelligence Unit.

Figure 5. **Cruise call duration in Piraeus (hours)**



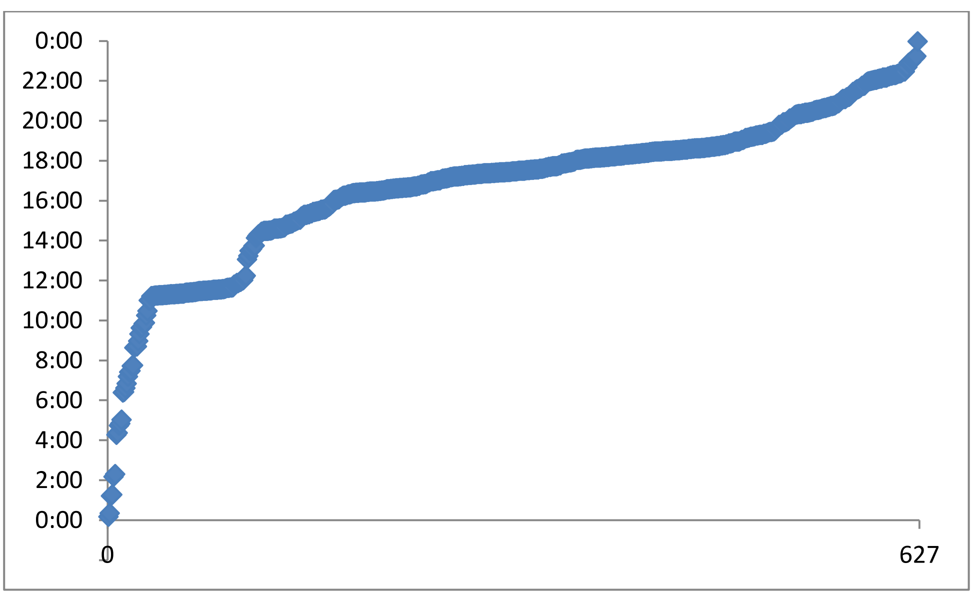
Source: Own elaborations based on data from Lloyds Marine Intelligence Unit.

Figure 6. **Cruise ship arrival times in Piraeus**



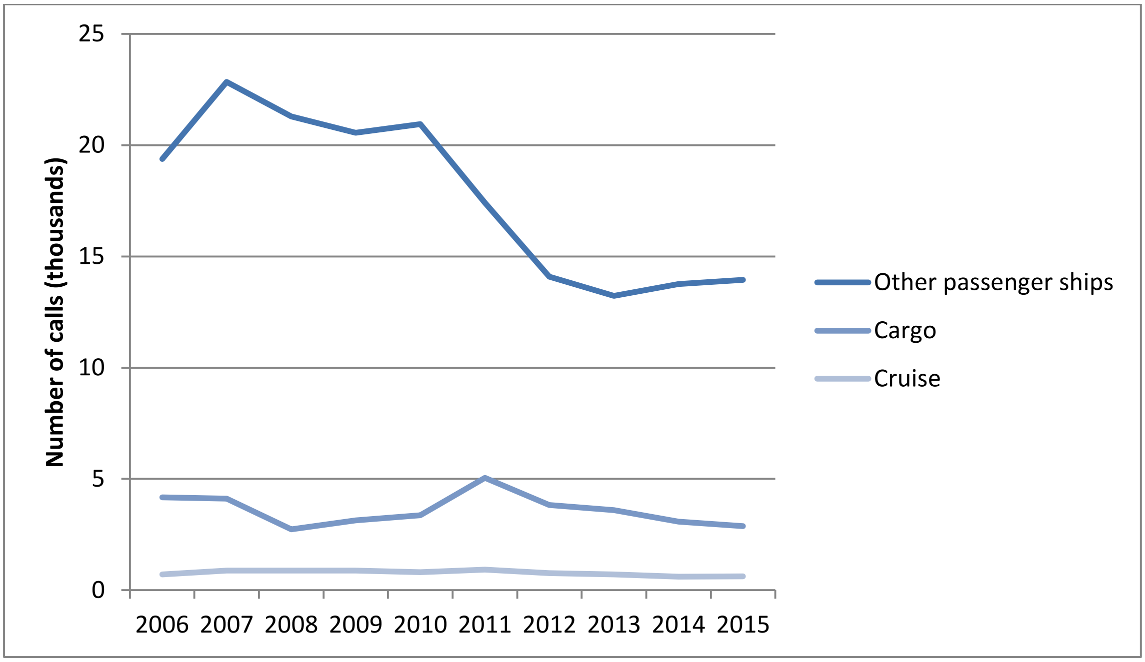
Source: Own elaborations based on Lloyds Marine Intelligence Unit.

Figure 7. **Cruise ship departure times in Piraeus**



Source: Own elaborations based on Lloyds Marine Intelligence Unit.

Figure 8. **Calls per ship type at the Port of Piraeus (2006-2015)**



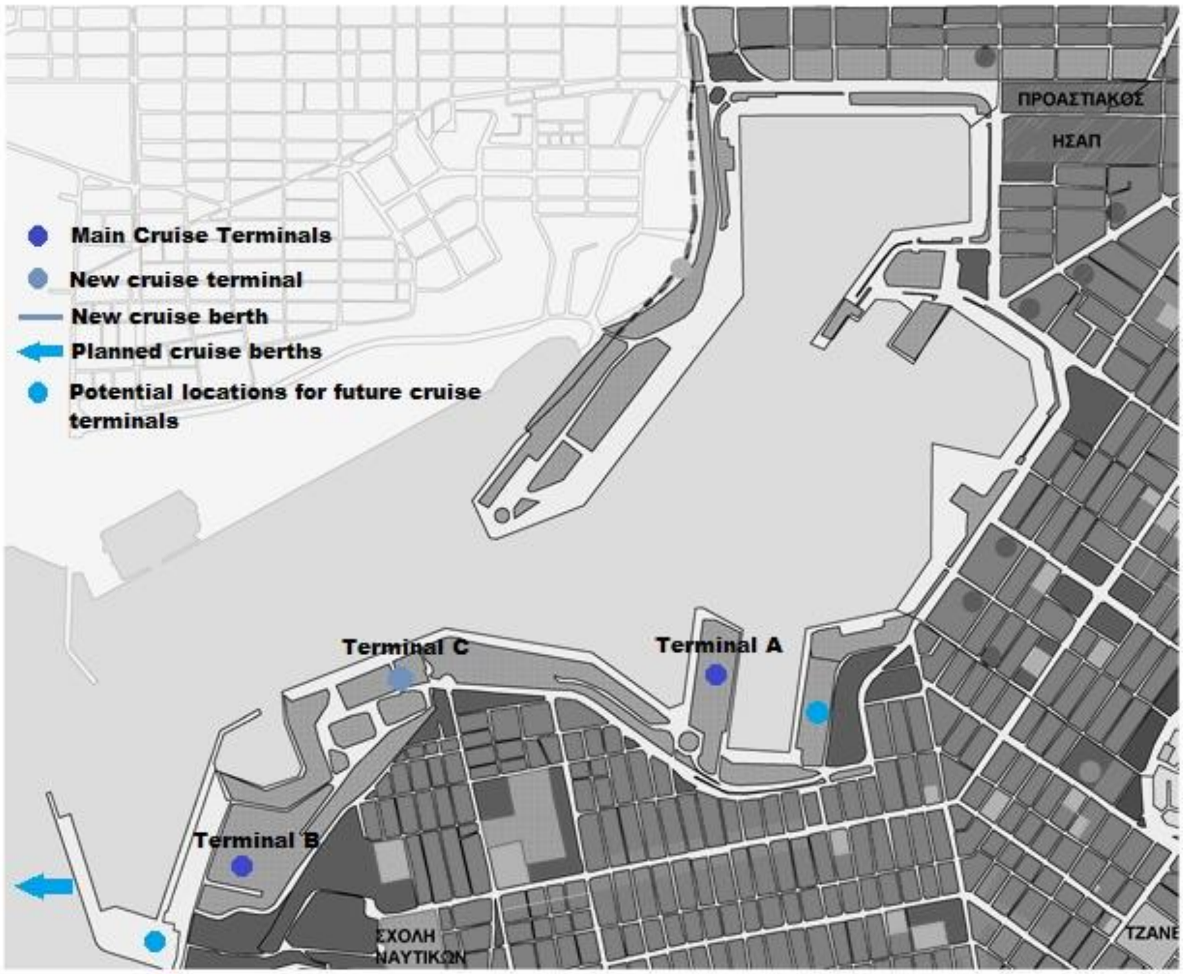
Source: Piraeus Port Authority (2016).

Competitiveness of Piraeus as a cruise port

The main asset of Piraeus as a cruise port is its dedicated infrastructure. There are currently 9 to 11 simultaneous berthing positions (depending on ship size) for cruise ships. The total berth length is 2.8 km, with the recent opening of an extra berth at the heart of the cruise port. Within its infrastructure, the port is ready to host the largest ships given that its longest berth line is 480 metres (m) long and depth at the terminals ranges between 11.5 and 12 m. As an indication, the largest ship on the market, The Harmony of the Seas is 362 m long, 9.3 m deep and 66 m large. The largest ship that has called at the Port so far was the Quantum of the Seas which is 347 m long. In addition to the existing capacity, the cruise port is set to expand at the southwestern end of the port with three new berthing spots for very large cruise ships. For passenger handling, three state of the art terminal buildings are in use. Terminal A is the busiest and closest to the city centre. Terminal B is located at the west extremity of the port, further away from the city centre and the main public transport infrastructure. Terminal C was updated and delivered recently to operate some of the turnarounds of the latest Carnival ship, the Carnival Vista. The ship has called at the port several times since June 2016 (Figure 9). The port offers quick processing of passengers and luggage in and out of the terminal. The whole cruise area complies with ISPS regulations.

Because it is an important cargo and passenger port, cruise activities benefit from a wide range of services at the port. This is critical to the attractiveness of the port for cruise lines knowing that no other cruise port in Greece is able to provide them with such services. For instance, provisioning the ship with containerised goods (i.e. especially for fresh produce), drinking water and fuel is less possible in most other Greek ports due to their reduced scale. This could explain why the port attracts some turnaround traffic, especially for Greece-only cruises.

Figure 9. **Cruise terminal location in Piraeus**



Source: Municipality of Piraeus, "Piraeus Cycling Implementation Plan", INTERREG IVC–CYCLECITIES (1307R4) (2014).

The Attica region – in which Piraeus is located – is an attractive tourist destination and a strategic stop for cruise excursions. It benefits from a number of world-renowned tourist attractions as well as a very rich cultural heritage and a wide range of archeological sites. The city centre of Athens, where the Acropolis and the Plaka district are located, can be visited within a few hours, which is compatible with the time constraints imposed by transit calls. The proximity of other sites outside of the city also enables different types of excursions, such as going to Corinth. Piraeus itself offers a number of attractions for tourists, numerous restaurants and leisure facilities that could provide a different type of experience for cruise passengers, especially those that have already visited Athens and its main tourist sites.

The decision in 2016 to award 67% (initially 51% and an additional 16% after five years) of the shares of PPA to COSCO Shipping has brought clarity after what has been a period of sustained flux and uncertainty. This new certainty will bring more stability and opportunities for cruise to grow. COSCO Shipping has indicated that it will take care of the cruise activities itself. It has also confirmed its willingness to implement the project for new cruise berths.

Challenges to the attractiveness of Piraeus

One of the main challenges is connectivity both to the city centre and to the rest of Piraeus. The passenger port of Piraeus benefits from a good connectivity to the centre of Athens due to its proximity to the main train station, but it is not the case for the cruise terminal. It takes around 20 minutes to walk to main stations and the environment is not pedestrian friendly since it is along one of the busiest roads of Piraeus. There is a new express bus (X80) running between the main cruise terminal (Terminal A) and Syntagma Square in the city centre; it takes half an hour to reach the city at a fare of EUR 4. The problem is that there is a lack of information concerning buses (routes, stops, schedules, lack of translation) and heavy traffic that makes the option not very attractive. As a result, most cruise passengers are dependent on private buses from tour operators.

The cruise terminal is also visually and physically separate from the most attractive parts of Piraeus. Current works to upgrade connectivity in Piraeus are contributing to making the environment hostile but they should end within the next couple of years. Connectivity to the main transport infrastructure is also an issue for reaching the airport; it is possible to get there with the train by taking the green and blue (ISAP train) Metro lines, changing at the Monistiraki station, but the ride is long (at least 70 minutes). A direct bus service is available from the passenger terminals but it is not easy to find and the ride is long. If there is traffic and on weekends, this is generally not a realistic option.

Piraeus lacks most of the fundamental criteria required to attract a larger amount of turnaround calls. The Greek source market for cruise is small, Athens International Airport has limited air connectivity and Piraeus lacks adapted tourist infrastructure. Greece is not very populated (11 million inhabitants) and the economic climate implies that the majority of the population does not necessarily have the buying power to take a cruise. If there is no important local market for cruise, it is very important to make sure people can easily access the port city by plane. There again, Athens is not very competitive compared to other homeports. For instance, it only has direct flight connections to the United States through New York, no more than once a day and only during some parts of the year. Istanbul, Piraeus's main competitor for cruise turnaround calls, has daily flights to seven US destinations. This is mainly explained by the high costs incurred for airlines due to high tax and duties.

The Athens International Airport is one of the most expensive airports in Europe (Steer Davies Gleave, 2013). Restaurants, cafes and shops have to pay high rents and airlines high landing and passenger fees. Efforts to bring fees down to attract more flights have been introduced in 2013 when the airport was the most costly in Europe (Georgakopoulos, 2013). Despite this, it remains expensive (according to COSCO). Other than access to the city, there are also restricted options to stay in Piraeus by the cruise port. The other element is that Piraeus lacks hotel capacity and a range of choices. Cruise passengers have few options if they wish to stay close to the terminal. There is only one, old 5-star hotel with a capacity of 57 rooms and almost no recent hotel facility in the area. Yet, his should change as two new 5-star hotels are set to open in Piraeus within the next few years with a respective capacity of 500 and 200 beds.

Piraeus Port Authority and the city of Piraeus are also losing business opportunities due to excessive red-tape. High logistics costs are imposed on Greek exporters by lengthy and costly administrative procedures. The Piraeus Chamber of Commerce found that four to five documents are needed to export goods from Piraeus to ships at the port; several copies of the documents must be filled out which means exporters or importers have to involve a third person to take care of the procedure. Other ministerial provisions contribute to inefficiencies and reduce competition in the transport of goods, according the OECD Competition Assessment Review of Greece (2016). A number of restrictions on both retail and tourism-related sectors were also identified (OECD, 2014b). For instance most retail shops are not

allowed to open on Sunday with the exception of specific shops authorised by law, such as restaurants and cafes shops in tourist areas, but this does not apply in Piraeus. The state also intervenes in the economic activity of various sectors of the industry - such as accommodation - creating barriers to competition. For instance, all hotels and licensees need to submit their price lists to the Hellenic Chamber of Hotels. There are also restrictions concerning price stability over defined periods of time, on the possibility to change them and on discounts. All these restrictions require the intervention of a competent authority, leaving little freedom to accommodate businesses.

Figure 10. **Pedestrian routes, paved roads and green areas in Piraeus**

Source: Municipality of Piraeus (2014).

Impact of cruise shipping on the port and the city

Economic impacts: Benefits for the region, but limited spillover to Piraeus

Cruise tourism's economic impact in the country is significant but remains rather low for the amount of cruise visits the country receives. The total direct revenue attributed to cruise shipping in the whole of Greece was estimated at EUR 489 million, for a total of 1.988 million passengers in 2015 (CLIA, 2016; P&S Advisory, 2016). This corresponds to 0.25% of the country's GDP and 4.1% of the direct economic impact of travel and tourism in Greece.[1] Many indicators show us that the Greek economy does not benefit from cruise shipping to the same extent as other cruise countries in Europe. Greece received 5.3% of Europe's cruise passengers but only 2.9% of the direct revenues generated by cruise lines and passenger expenditures and 2.8% of the jobs created by the cruise industry in Europe.[2] The average yearly salary for each cruise-generated full-time job in Greece is EUR 18 882. This is significantly lower than the European average of EUR 30 650.[3]

Two main factors can explain the limited revenues generated by cruise shipping in Greece per passenger. A large part of the direct expenditure generated by the cruise industry goes to ship construction and repair for which Greece has little available capacity. Cruise line commercial expenditures (advertising, market research, travel agencies) happen mostly in countries with large source markets, which is not the case of Greece. Around half of total cruise industry expenditures are generated by these two sectors in Europe (National Bank of Greece, 2012). This contributes to the fact that Piraeus does not attract many turnaround calls, which is the last major way to generate high economic returns from cruise shipping. Nevertheless, this does not mean that the economic impact of cruise shipping is not significant in the Athens region, which remains the largest cruise port in the country and the only one to be able to provide a wide range of services to cruise lines.

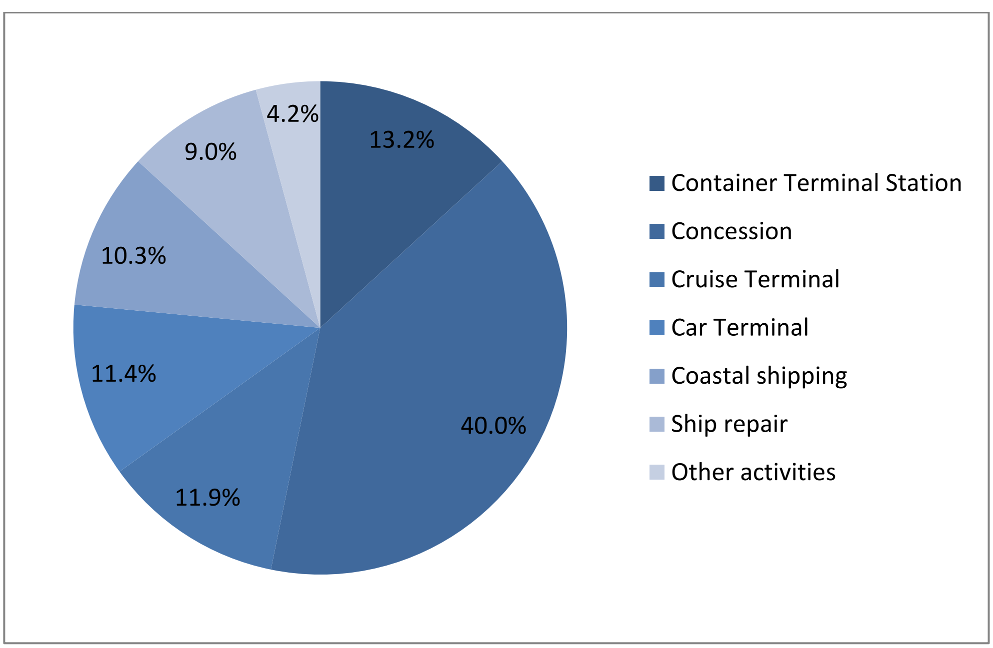
The direct economic impacts of cruise shipping in the Attica region presumably represent a major part of the total national impacts. Piraeus Port Authority receives close to 50% of the cruise traffic of the country and the totality of turnaround calls. Due to the volume of passengers passing through the port and the higher revenues generated by home-porting, the economic impact of cruise shipping is likely to be more concentrated in Piraeus than any other region in the country. However, little knowledge has been produced to assess precisely the local contribution of the activity. A few academics have done research on the issue on the basis of input-output analysis and passenger interviews. Only one study by Stefanidaki and Lekakou (2012) focused on the case of Piraeus, but without clear distinction of the final destination of passenger expenditures in the region. Another study by Diakomihalis et al. (2009) accounted for the economic impact of cruises at Greek ports in general, but using mostly data originating from Piraeus. Stefanidaki and Lekakou (2012) estimate the total direct economic impact of cruise activities generated by the port of Piraeus was EUR 668 million in 2008. That sum includes revenues whose impact is not necessarily local, since it takes into account elements such as cruise line revenues or oil company revenues which might not be directed to the Athens region or Greece. Their analysis confirmed that passenger expenditures remained a critical part of the local economic spinoffs of cruise shipping along with port revenues.

The cruise business is a significant contributor to Piraeus Port Authority's revenues. In 2015, it constituted close to 12% of the total revenue of the port (Figure 11.), whereas cruise calls only represented 3.5% of total ship calls. A study commissioned by the National Bank of Greece (2012)

estimates that cruise lines spend around EUR 300 per passenger in home-ports and around EUR 20 per passenger in Greek transit ports. Much higher expenses are attributed to home-porting as cruise lines tend to use home-ports as their base for refuelling, provisioning for food and other items and repairs.

The overall contribution of passenger expenditure in the Attica region could be substantial but detailed information about it is lacking. Stefanidaki and Lekakou (2012) found that direct passenger expenditures amounted to EUR 140 million in 2008 and EUR 202 million after the addition of the local multiplier effects (indirect impact). This would mean that the average passenger spend is EUR 120 according to the number of cruise passengers calling at the port in 2008 (own calculation based on data from the PPA SA). Diakomihalis et al. (2009) found that the average passenger spend at Greek ports was EUR 105 based on a sample of 180 cruise passengers interviewed in 2005. This is more than the European averages determined by CLIA (2016) and Policy Research Corporation for both transit and home-port passengers (Table 1). There is no consensus on the local spending patterns of different types of cruise passengers (Table 1). According to a passenger survey based on 200 participants at the Port of Piraeus, it was estimated that homeport passengers spend on average USD 146 in the Attica region (Lekakou et al., 2007 in Stefanidaki and Lekakou, 2012). Diakomihalis et al. (2009) had found that the average spend per passenger on hotels was EUR 240. The average stay length recorded is two days but it is not specified if this figure includes two nights or not. These figures are however based on answers from a very small number of respondents and are not representative. They also appear very high compared to an average of EUR 70 spent per cruise passenger per night estimated by Policy Research Corporation (2009) for Europe. No data for the average transit passenger expenditure in the Athens region is available. According to a meta-assessment of cruise impact studies covering 75 different ports, the OECD (2014a) finds that the average cruise passenger spend at a port is USD 100. In Athens, transit passengers shop mostly for souvenirs and clothing, and to a lesser extent for jewellery, cosmetics and electronics (Diakomihalis et al., 2009).

Figure 11. **Port of Piraeus revenues per source (2015)**



Source: Ports & Shipping Advisory (2016).

Table 1. **Expenditure per type of cruise passenger and crew according to different sources**

Study	Scope	Average passenger expenditure (EUR)	Average crew member expenditure (EUR)
Diakhomalis et al., 2009	Athens, 2005	105	27
Stefanidaki and Lekakou, 2012	Athens, 2008	120	-

*Including flights.
Source: Own compilation of studies.

The average expenditure per cruise visitor in Piraeus rarely exceeds EUR 20, according to internal research by the Piraeus Port Authority. This can be explained by the fact that most passengers pass through the city to reach Athens. Based on the results of transit passenger interviews by the port, it is estimated that no more than 16.5% of passengers asked stayed in Piraeus, most of them going directly to Athens or elsewhere. Expenditures concern mostly beverages, transport and occasionally supermarket items or tickets to the archaeological museum (which remains rare). This confirms the findings of Diakomihalis et al. (2009) since 40% of the passengers surveyed who had not booked excursions went to the Acropolis. 52% of the cruise passengers used a local means of transportation, outside of those who bought excursions, probably to reach the city centre of Athens. The Port Authority also established that among tourists staying in Piraeus, 20% do not spend any money (PPA SA, 2015).

Crew members, unlike passengers, tend to stay in Piraeus. They have less time than cruise passengers and cannot necessarily go to the city. Diakomihalis et al. (2009) have developed a separate questionnaire for crew members. The results show that each crew member spends EUR 27 on average while disembarked, which is consistent with the figures of EUR 25 and EUR 23 advanced for Europe by both Policy Research Cooperation (2009) and CLIA (2016). According to the sample of crew members interviewed 52% of these expenditures are allocated to food and beverage (mostly coffee), 43% for shopping and 5% for transportation. The low level of transportation expenditures suggest the possibility that most of them stay in Piraeus while disembarked. Given the number of crew members on each ship, they could contribute significantly to the local economy if most of them get off the ship. Crew expenses differ from those of cruise passengers as they shop mostly for clothing and fresh market products and they commute only by bus or metro (not by taxi). These finding are indicative as the respondent sample remains small (around 20 individuals). Nevertheless, studies on other cruise ports that assessed crew spending seem to confirm these findings (Failte Ireland, 2012; Dosi et al., 2013).

Little provisioning of Greek products is done on cruise ships calling the port, meaning the economic impact of provisioning remains low as well. This is partly due to the administrative procedures. It is currently cheaper to ship fresh products from Italy rather than to source them locally because of the excessive red tape imposed on the process, according to the Piraeus Chamber of Commerce. Local observers estimate that the average cruise ship in Piraeus needs eight containers of provisions, so there is a missed opportunity for local providers. The Piraeus Chamber of Commerce also estimates that Greece-sourced products are spares or items needed for emergencies. Many other goods could be sourced locally, especially fresh products.

Employment generated by the cruise industry in Athens could be substantial but there is a lack of information on this topic because no study has assessed this since the liberalization of cabotage. Previous figures do not reflect the current reality. Overall, CLIA (2016) estimated that the cruise industry in Greece has almost 10 000 jobs generating EUR 188 million in wages. Where these benefits are realised is quite uncertain. As an indication, there are around 300 persons working in cruise operations at the Port

of Piraeus, and around half of them are thought to live in Piraeus itself, the rest in a circle of 20 kilometres around Piraeus (Piraeus Port Authority).

Environmental impact: Important air emissions and congestion

Other than economic and social benefits, port traffic generates negative externalities that reduce overall benefits from port activities. Piraeus is no exception to the rule and traffic density at the port implies that these are significant. Cruise is an important contributor, generating especially air pollution and extra-urban congestion.

Cruise ship air pollution

The port of Piraeus is located in the most populated metropolitan area of the country and it is also a busy passenger port. This implies that large amount of people are exposed to strong ship-generated air pollution. Several local academics have pointed out the issue, quantifying emissions volumes and establishing their costs for Greece as well as the metropolitan area of Athens. The reference point is a study by Tzannatos (2010a) that focuses on both coastal passenger shipping and cruises emissions in Piraeus. Data was collected between 2008 and 2009. Tzannatos' (2010a) findings were later confirmed by another study by Maragkogianni and Papaefthimiou (2015) based on 2013 data. This later paper focuses only on cruise shipping and has a larger scope since it considers the five largest cruise ports in Greece. Both studies use the same methods. They consider the types of engines, their fuel consumption depending on the cruising modes (maneuvering or hoteling in these cases) to assess emissions of ships when they are in the port area over the year. With the results they apply different methodologies and frameworks to calculate the costs of these emissions based on the quantification and pricing of direct health damages and their side effects. Overall, passenger shipping at the port of Piraeus has generated 6.3%, 56.9% and 14.7% of all emissions of NO_x, SO_2 and $PM_{2.5}$ for the Athens metropolitan area for the year 2008/2009 (Tzannatos, 2010a). Cruise shipping alone in Piraeus contributed to 0.4% of all national emissions of NO_x and 0.83% of all national SO_2 emissions according to the same study. Maragkogianni and Papaefthimiou (2015) found that a third of all cruise ship emissions at the five largest Greek cruise ports come from Piraeus, which makes their findings consistent in terms of volume with those of Tzannatos (2010). Cruise ship emissions at the port would represent 0.49% and 0.74% of national NO_x and SO_2 emissions for that year according to their study. Further investigation would be required to estimate more accurately the main sources of air emissions in the city. Taking into account elements such as the meteorological conditions of the region and the contribution of ships and cruise passenger coach traffic as opposed to emissions stemming from car commuting in the area would also allow for a more accurate picture of the situation.

The Piraeus Port Authority hasn’t elaborated any specific study concerning the estimation of emission costs based on data from these studies, since it believed a more comprehensive and focused approach should be taken. A more recent assessment should also be conducted as figures would be expected to have changed significantly since the application of the EU Sulfur Directive (2012/33/EU). From January 2015, ships in Northern Europe have to use fuels with sulfur content of no more than 0.10%, and no more than 3.5% elsewhere to align with the revised Annex VI to MARPOL. This has likely also had an impact on fuels used in the Mediterranean.

Coastal passenger ships are the largest emitters in Piraeus due to very high traffic density, generating around double the emissions of cruise ships. If cruise ships contribute to less overall air pollution, emissions per cruise passenger are much higher than per coastal passenger. Cruise ships are larger emitters because they have to keep running their engines fully while at berth where they stay for several hours (Figure 12 and Figure 13). It was found that 88.5% of cruise ship generated emissions at

Greek ports are due to hoteling mode fuel consumption (Maragkogianni and Papaefthimiou, 2015). Tzannatos (2010a) finds that ship emissions at berth were between three and five times higher than those produced during the ship maneuvering activities.

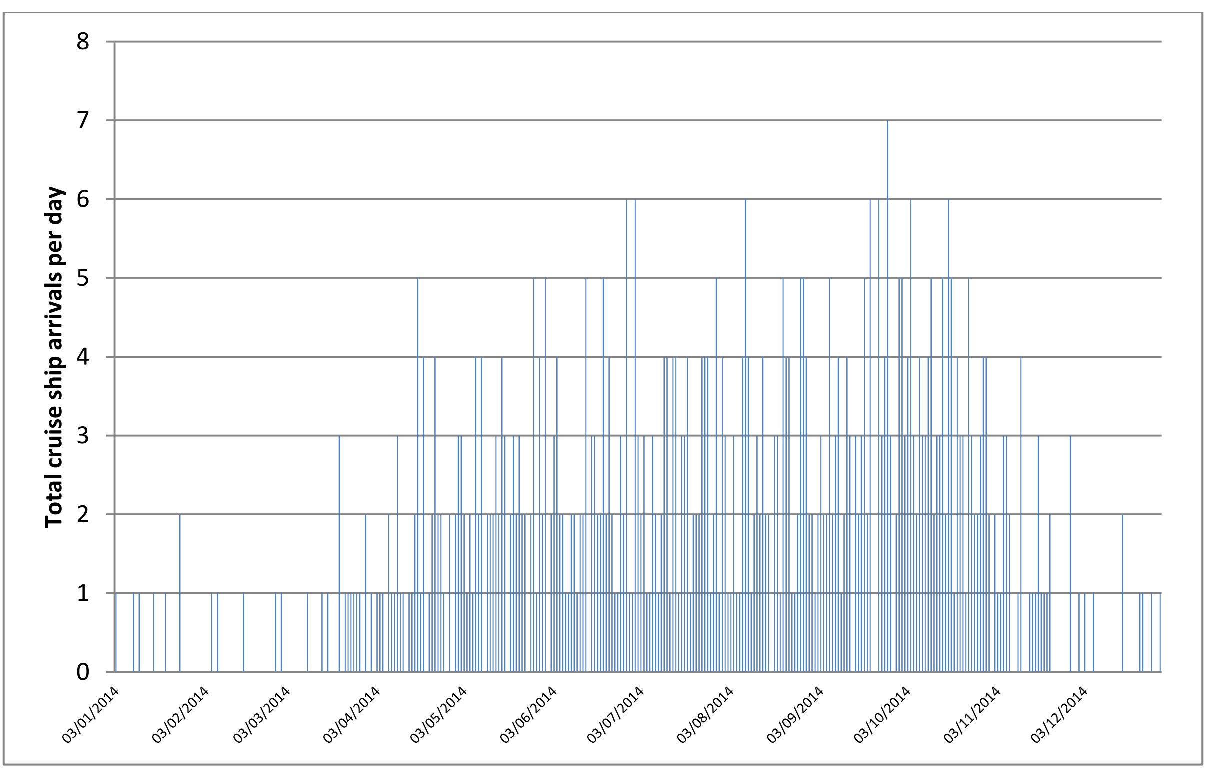
Table 2. **Cruise shipping emissions at the Port of Piraeus**

Study	Year of data	NO_x (tonnes)	SO_2 (tonnes)	$PM_{2.5}$ (tonnes)	Overall emissions cost (EUR million)	Emissions cost per passenger (EUR)
Tzannatos, 2010a	2008-09	597	241	n.c.	15	10
Maragkogianni and Papaefthimiou, 2015	2013	629	256	32	12	9

While coastal shipping emissions are distributed rather evenly during the year, emissions from cruise shipping are highly concentrated during the six-month period from May to October (Tzannatos, 2010a). According to Maragkogianni and Papaefthimiou (2015), 58.5% of the emissions for the year where produced during the summer while winter contributed to only 0.9% of them. It is also important to note that cruise shipping generates a significant amount of detrimental emissions stemming from trucks, buses and cars used to take the passengers in and out of the port (Tzannatos, 2010a).

Traffic congestion in Piraeus

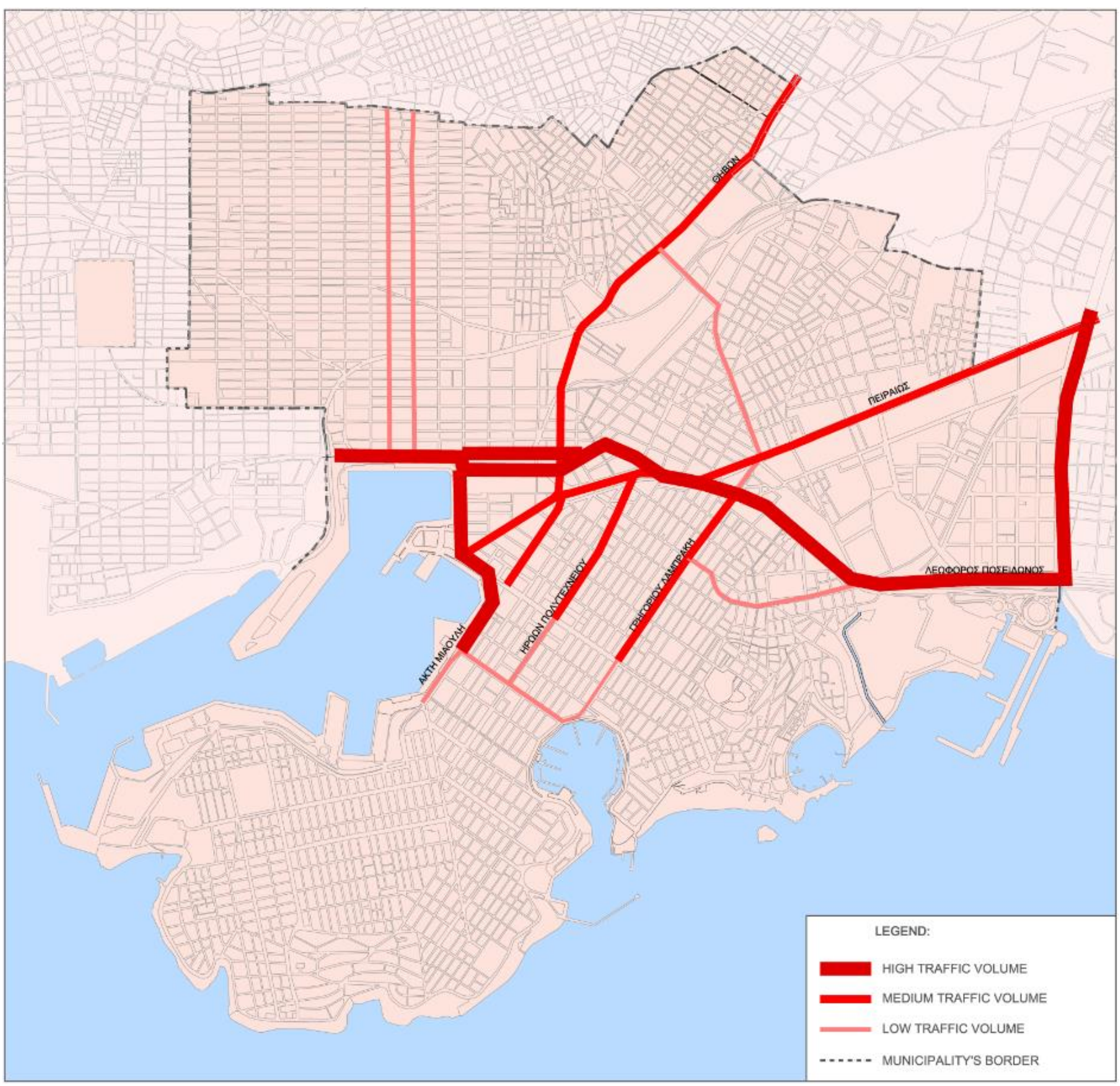
Figure 12. **Total cruise ship arrivals per day in 2014**



Source: Own elaborations based on data from Lloyds Marine Intelligence Unit.

Given that Piraeus is mostly is a large transit port, the bulk of cruise tourists only get off the ship for a few hours during the day, leaving the port in the morning and returning at the end of the afternoon as shown earlier (Figure 6 and 7). This means that passengers are typically using the Piraeus transport network at times when local commuter traffic is also heavy, and this not only in the two main summer months but for a period stretching from April to October (88% of cruise calls in 2014 took place in this period, Figure 4). This also coincides with the high tourism season. All over the cruise season there are days with important peaks in passenger numbers. In 2014, the Port of Piraeus had 25 days in 2014 with five of more ships arriving at the same day (Figure 12). During busy days, over 20 000 cruise passengers can arrive in the city around the same time, generating a very important flow of extra traffic on the roads, since most cruise passengers leave the port by coach. It is estimated that around 70 buses are needed four times a day to process cruise passengers in an out of the port on a day where there are seven or eight ships calling, and this around peak hours. This is all the more problematic that the only access to the cruise terminals is one of the busiest roads in Piraeus, often congested at peak times (Figure 13).

Figure 13. **Road traffic volume in Piraeus**



Source: Municipality of Piraeus, "Piraeus Cycling Implementation Plan", INTERREG IVC–CYCLECITIES (1307R4) (2014).

Policies to make cruise shipping a driver of local development

Develop a strategy to attract tourists in Piraeus

The main challenge for Piraeus is that cruise passengers do not perceive it as an area to visit. This is because they are not aware of it and also because the immediate surroundings of the port do not help to attract passengers to stay. More measures would be needed to promote Piraeus and make it more attractive to cruise passengers.

Promote Piraeus as a tourism destination

Efforts are starting to be made to promote Piraeus as a tourist destination. The municipality has launched its first city promotion campaign called “Destination Piraeus”. There is now a dedicated website in English to promote the assets of the city of Piraeus. The city has also developed smartphone and tablet applications as well as pocket and more extensive guides so that visitors have wide range of access to information. All the necessary information about cultural sites, entertainment venues, sports infrastructures, shops and restaurants are shared via the application along with practical information about how to reach places and useful numbers to call. The campaign has been echoed in advertisements and leaflets spread across the city. This was needed to create a promotional image for the city of Piraeus. Further efforts are necessary to promote it to the public, to share it more specifically with cruise tourists, and to foster the integration of potential local beneficiaries into the strategy and communication.

Box 1. **Dublin city promotion (We Are Dublin Town Association)**

In Dublin, the tourism promotion association We Are Dublin Town is very active in promoting local businesses through the elaboration of urban itineraries guiding tourists in function of their preferences. Several themed routes have been created depending on whether people are interested in gastronomy, arts and culture, shopping, etc. Specific district guides where also developed to make sure tourists can make the most of the city without missing places they might like. The Association also supports initiatives by individual businesses to provide a cruise specific offer (special services in function of their tastes, time restrictions, etc.). For instance the main department store in the city offers to deliver purchased items directly to the ship. Some restaurants also offer to cater for large groups, offering special menus and making sure cruise passengers are served fast so they can further enjoy the city. This type of initiative is not only successful to bring tourists to local businesses but it also shows tourists they can go on their own tours to discover the city without necessarily booking an excursion. This communication is not specifically targeting cruise tourists, but efforts are being made so that cruise passengers have access to the information at the terminal or on the ship.

Source: ITF (2016b).

Raising awareness among cruise passengers could be done through different channels. Greater physical presence at the arrival area is important to convince people to spend more time in the city and make them feel welcome. The distribution of pocket format leaflets and maps with suggested stops would be a good way to encourage people to visit the area as well, giving them more confidence about what to do and where. The organisation of happenings in the port area with bands, folk dances, advertising of traditional Greek products and gastronomy could also help achieve that. The construction

of interactive tourism signs at the port and in the city of Piraeus would help tourists find their way around, know about what they can do in the area and enable them to reach places they want to go to. In a second time, communication should be refined to propose different city tours that passengers can engage in on their own once they get off the ship. In Dublin, the association We Are Dublin Town has made many efforts to provide information to different tourist profiles so as to encourage them to go on their own tour of the city (Box 1).

Adapt to the needs of potential spenders

Piraeus has the potential to get more benefits from the cruise tourists it hosts, provided it adapts to a larger extent to the needs of cruise passengers and crews. Currently, passenger and crew expenditures remain fairly low in Piraeus for the reasons evoked above, but also because in the immediate surroundings of the port, little is being done to attract them to spend more time and money in Piraeus.

A passenger survey conducted every year from 2013 to 2015 by the port authority recorded ratings from transit passengers on their experience in Piraeus (30 respondents in 2013, 153 in 2015). Results show that for most items, a large number of passengers are unable to provide a rating because they did not experience it (food and shopping especially). Efforts to encourage more people to shop and eat out should be done. Among passengers who rated these items, there seems to be a general satisfaction but concerning the quality of food, shopping and the urban environment especially, improvements could be made.

Transit passengers could spend more than they do currently in Piraeus despite the fact most cruise passengers will likely keep favouring Athens to Piraeus. A few measures to adapt the offer could help boost their expenses in Piraeus. For instance they would probably spend greater sums at the port if the duty free shops where opened over longer hours. Currently, shops are not open on Sundays, which also reduces the economic impact of cruise ship visits and city breaks in Piraeus and Athens (SETE). Surrounding shops could open on more flexible hours so that passengers whom need to buy souvenirs; other items or food around the port can do so. As mentioned earlier, 78% of all cruise ships to Piraeus in 2014 arrived before 08:30 (Figure 6). Developing Piraeus excursion packages could also provide an attractive alternative for cruise passengers that have already been to Athens to join an alternative tour. Spending more time in the city would also be encouraged through more comprehensive and targeted communication as developed earlier.

Piraeus would gain from focusing its efforts on attracting crew members as well. There is a need to make sure there are adapted places for them to shop, eat, drink and communicate with their peers. Crew members tend to mostly spend in these areas as they have a limited access to them on board the ship. When at ports they need to have easy access to Internet, retail (clothing and convenience shops) as well as coffee shops or affordable restaurants. There is no clear signposting of these elements outside the port, despite the fact that there are a number of places that could cater to cruise ship crews. Special deals by local businesses could also be proposed and promoted.

Enhance the quality and accessibility of the urban environment

Enhancing the quality of the environment surrounding the port would also send a better image of Piraeus to cruise tourists. Currently it is partly responsible for not attracting cruise tourists to spend time in the area. Plans have been developed by the municipal government to enhance the walkability of the city of Piraeus and also potentially to develop a bike network around the city. The main issue remains to secure funding to actually implement these ideas. The Attica region has managed to get European Union funding in the context of its Integrated Territorial Investment program, part of which will be direct to Piraeus (it should represent EUR 90 million in total). These plans could help to create a nicer walking

environment on the main road from the port to the city centre (Akti Miaouli). The end of transport infrastructure works in the city centre will contribute to enhancing accessibility and the quality of the environment. The port could also build on the current port shuttle system between cruise terminals and extend it to a couple of designated tourist hotspots in the city such as the main marina or the municipal theatre from which they can more easily walk to shops and restaurants. The port of Marseille implements a similar initiative, offering a port shuttle going around all the terminals and dropping passengers off in the heart of the old town (Box 2).

Box 2. **Port shuttle in Marseille**

In 2013 the Port of Marseille (GPMM) decided to introduce a free shuttle bus between the Môle Léon Gourret and Joliette station for cruise passengers. Since the different parts of the port are rather spread out along the coast, Marseille already had its own coaches to move around port employees from one terminal to the other. Because this was already available, the port decided to offer this service to cruise line passengers as well. One bus is allocated to getting the passengers from the terminal to the city centre when cruise ships are calling at the port. It drops passengers at a point in the city where the public transport network enables passengers to reach every part of the city. It arrives at pick up points every 30 minutes and is completely free of charge. The shuttle is due to continue indefinitely, even though cruise lines are not informing passengers about this competitor to their own shuttle buses.

Source: ITF (2016b).

Facilitate stakeholder co-operation to boost a port-city cruise strategy

One of the main issues of Piraeus, whether it concerns cruise or other port activities, is that there is a lack of co-operation and collaboration between various stakeholders. This prevents Piraeus from reaping greater economic benefits from cruise shipping. The scale of the maritime community and the willingness of local authorities to take part in the development of cruise activities could allow the port-city to develop its potential. There are several ways in which Piraeus could boost co-operation and gain from it.

Taking advantage of new ownership

Over the last few years, there has been a lot of uncertainty concerning the future governance of the Piraeus Port Authority and the way cruise activities would be developed. Due to Greece's geography, the government had traditionally kept control of the country's ports to integrate the mainland with the many islands the territory comprises. But since 1999, the central government has gradually been allowing private actors to undertake these roles at some ports, in an effort to modernise and make the system more efficient. The first step in this process was the designation and delegation of 12 ports of national interest to port level entities and the listing of the two largest - the ports of Piraeus and Thessaloniki - on the Athens stock exchange. The change in governance and the reorganisation paved the way for further reform and the integration of commercial operators in terminal operation. This became concrete in 2009 with the start of the 35-year concession of Pier II and III container terminals by Piraeus Port Authority to COSCO Shipping Ports Limited's subsidiary Piraeus Container Terminal (PCT). This brought impressive changes to the port. The success of the operation pushed the trend for privatisation of public infrastructure in the country but not only.

The privatisation of Piraeus Port Authority has been the major topic on the table since the PCT concession and created a lot of instability up until recently. Upon its election in 2015, the Syriza government decided to halt the planned privatisation processes. It resumed after the third renegotiation of

the financial rescue plan after the election. After two bids and the exit of APMT and International Container Terminal Services (ICTS) as bidders, COSCO won the sale, which was finally agreed on and signed in April 2016. COSCO will pay a total of EUR 368.5 million in two times; first EUR 280.5 million for 51% of the shares and another EUR 88 million after five years if it commits to invest EUR 350 million in the port's development in the next decade. The decision led to significant strikes at the port, but with the new management in place, the situation is stabilising. The company now owns a majority share in the Port Authority, and is able to exercise regulatory and strategic decisions for the development of the port of Piraeus. It has also more clearly communicated its intention to contribute to the development of the cruise business at the port, whether it concerns infrastructure or service improvements.

With the completion of the sale and the arrival of new management, there is more stability and optimism concerning future development at the port. The new owners of the Piraeus Port Authority will bring a number of resources which will have direct and indirect benefits for cruise activities. The concession contract was granted on the basis that COSCO invests EUR 300 million in the port within the first five years. Given all the investments realised before to upgrade and adapt the container terminals, most of these funds will be directed to other activities at the port. The company will especially focus on three: enhancing logistic services at the port, developing ship repair activities and cruise shipping. COSCO will take part in the development of new infrastructure, whether it is at the future three berths for large ships at the south-eastern end of the port or at the current cruise terminals. The new port authority owner is also considering whether or not new terminal buildings should be added at the future berths or at the existing ones. This would provide significant new capacity to host ships. There are opportunities for real-estate development at the outskirts of the port, which could be taken advantage of to develop facilities such as shopping malls, hotels or cinemas. The company could also consider more security and police staff for the cruise terminal as public authorities do not have the means to do it themselves. Other initiatives for service quality improvement should be considered.

Other investments planned by COSCO could greatly benefit the cruise industry in Piraeus as well. Among other things, the company is in the process of bringing a floating repair dock for large vessels, which will also be available for cruise ships. Currently, there are no facilities to operate repair services but such possibility is very valuable to cruise lines and could bring important new economic contributions to the port. Improvements sought in logistics should also benefit the ability of the port to offer more competitive provisioning services to cruise lines. To that effect, greater participation of the port authority in working with the city on traffic relief around the port is planned. All these initiatives should be adequately promoted to cruise lines so Piraeus benefits and becomes more attractive as a cruise port.

The new private status of the company will also enable the port authority to benefit from less constraining regulation that has hindered its competitiveness in the past. For instance, the cruise terminals would be able to hire their own private customs services which would enable them to work more flexibly on extended hours; this was not the case before. This has already been implemented at the container terminals but was not possible up to now for other activities of the port. Other opportunities that can be brought by the privatisation should be identified and exploited so as to make the cruise port services more accommodating for cruise lines. The port should also take advantage of both the international- and business-oriented culture of COSCO to boost communication with cruise lines and expand the visibility of the port at international cruise events.

Pursuing and developing port-government collaboration to align strategies

Effective cruise development strategies benefit from the involvement of a number of non-maritime stakeholders whose activities have a role in passenger experience while on land. There should be greater and possibly institutionalised collaboration between the port and local authorities but also more involvement from other businesses and actors that have a stake in shaping tourism in Piraeus.

Recently, efforts are being made at the national level to promote Greece as a cruise destination. The National Coordination Committee for Cruise Affairs (supported by the Hellenic Ports Association and the Hellenic Chamber of Shipping) was created for that purpose, with the involvement of the Greek Alternate Tourism Minister. Their aim is to represent Greece at worldwide cruise events such as Seatrade Miami. The Piraeus port community has a strong role to play there as the leading cruise port in the country. The Greek National Tourism Association is also leading the effort to gather Greek stakeholders at the table to discuss cruise-related issues for the country. However there is no tourism strategy for the Attica region. Establishing one to highlight its diversity and the different municipalities would enable to boost the attractiveness of places other than Athens's centre as they also have interesting resources to exploit for the benefit of the whole region.

At the local level, there is no shared initiative to promote Piraeus itself as a tourist destination and cruise port. The Municipality has developed "Destination Piraeus" as a way to attract more tourists, but it remains an isolated initiative. Yet, there are signs the relationship between the Port Authority and the local government is strengthening, which would provide a sound basis for the development of a joint cruise strategy. The mayor of Piraeus has a seat as a board member of the Port Authority. A financial compensation to the city by the port based on its revenues has also been established recently. The contribution should reach EUR 1 to 1.5 million per year, but it is yet to be determined how it will be spent. This could indicate willingness to intensify the interaction and co-operation between port and city. Forces could be joined with the Piraeus Port Authority but also with the Piraeus branch of the Regional government as it wishes to conduct efforts to promote other assets of the region to shift the overwhelming focus on Athens' touristic core. The Piraeus Chamber of Commerce is also a key actor to involve given its relationship to the local shipping community. All these actors could unite and strengthen each other's efforts. Other cruise ports have made this effort to create a platform mixing different local institutions to discuss cruise issues. Le Havre, for instance, has institutionalised this relationship in its "Cruise Club" created by the Port of Le Havre, Le Havre Town Council, the Urban District Council and the Chamber of Commerce. It aims at finding new resources among public and private partners who benefit from cruise development so as to create sustainable model of development for the local cruise business. The board is also in charge of defining a co-ordinated cruise strategy.

Such partnerships foster collaboration between a wide range of local actors. Actors such as business associations, excursion companies, hotels, restaurants and cultural institutions can all have a role to play to ensure the Piraeus cruise product answers all the requirements of the cruise passenger experience at a the port. The first of such partnerships have already emerged, generating interesting offers for cruise passengers. For instance the Piraeus Municipal Theatre has been appearing on promotional videos on-board cruise ships and has offered dedicated performances on cruise ships. A local start-up company competition for the development of innovative cruise services was also organised on-board a ship while it was in the port. A number of public and private investments will contribute to enriching the tourist offer in the city (such as the creation of two new 4- and 5-star hotels, and the rejuvenation of bars and nightlife). Such initiatives should be exploited and promoted within a local tourism offer. Building on current work, there are possibilities to develop an integrated tourism strategy beneficial to the wider Piraeus economy. This could help design inclusive Piraeus-based excursions for cruise lines where passengers are looked after throughout the day (coming from and to the port). Several cruise cities have

successfully developed a wide offer for cruise passengers and other tourists. Among them, Hamburg has created a specific cruise tourism association which gathers over a hundred members of different sectors. It provides a platform for them to co-operate in order to boost economic impacts of cruise shipping and guarantee a quality experience for cruise lines and cruise passengers in the city (Box 3).

Box 3. **Hamburg Cruise Center**

Hamburg Cruise Center emerged in 1998 as an association composed of twelve members ranging from shipping lines and port companies to catering enterprises and hotels. The idea was to revive the cruise business in the city of Hamburg in a joint effort. Now the association counts over a 100 members and has been recognised "best practice" in the cruise industry for destination marketing and its continuous efforts over the last two decades to make Hamburg one of the Northern Europe's biggest home-ports. In 2000, Hamburg was hosting less than 20 000 passengers. In 2014, it had close to 600 000 of them with a share of 95% turnaround calls and 5% transit calls.

Hamburg Cruise Center is a platform that brings together actors and businesses that might gain from the cruise activity in the city. It is financed by fixed membership fees and individual non-monetary contributions from members. The main actions HCC undertakes are marketing the city in front of cruise lines and raising public awareness about the local economic benefits the cruise industry brings. Its structure is such that it is governed by a wide range of actors which facilitate a coherent cruise development strategy for the city, enables to boost cruise tourism demand and increase the benefits generated in the city by the cruise business. The executive board of the association is composed of leaders from cruise lines (TUI Cruises and Aida Cruises), from ports and logistics services (HHLA), and from the Hamburg Chamber of Commerce and from city planning (HafenCity Neighbourhood Management). It is completed by an advisory board that mixes representatives of local tourism institutions (marketing and business association), cruise experts, the port authority (through its CEO), terminal operators, other cruise lines and port companies association (representing stevedores, agents, etc.). Since 2011, Hamburg Cruise Center is also in direct collaboration with the Hamburg Chamber of Commerce and the Hamburg Tourism Association to establish a cruise development plan, continue marketing efforts, use the synergies between the three institutions and push forward policy making and conditions for cruise tourism in the city.

Source: ITF (2016b).

Collaborating with external stakeholders to increase Piraeus's attractiveness as a homeport

If Piraeus wants to generate more turnaround calls at the port, the link between airport and cruise port connection needs to be improved. The current quality of the transfer from the airport to the terminal is fairly weak because there is no dedicated service. There are direct bus connections from the airport to the passenger terminal in Piraeus but this is not an attractive option. The ride is very lengthy and it takes an additional 15-20 minutes to reach the closest cruise terminal by foot. The metro arrives at the same location meaning its access is also restricted for cruise passengers. Taxis rides to and from the airport are also rather expensive compared to local costs of living (between EUR 45 and 65). The Port Authority could work with the Athens International Airport (Eleftherios Venizelos) to provide a better experience to home-port passengers by providing adapted services such as pre-checking at the cruise terminals and luggage handling by cruise lines from airport to ship. This is current practice in Venice and Barcelona. Both of these services are proposed to ensure cruise passengers are free to go around the city before reaching the port so they can spend more time there. It contributes to enhancing passenger satisfaction. In the case of Piraeus it could also be interesting to work with cruise lines to offer dedicated shuttle buses from the airport to the port for cruise passengers starting their cruise from the port.

Greater co-operation among cruise ports could participate to attracting more turnaround calls in Piraeus and benefit the Greek economy. To that effect, supporting and expanding the efforts of the Greek Cruise Cluster could be a strategy. An important number of Greek cruise ports are already members of the network, which today mainly acts as an information platform on the specificities of each port. It could also act as a stage for cruise ports to co-operate on the design and promotion of Greek itineraries to sell to cruise lines and as a representative at international cruise events. It would make sense that Piraeus leads the effort as the home-port for the country, but would also require convincing the other Greek Cruise ports not to see each other only as competitors. In Italy, the Italian Port Association (Assoporti) has been working on uniting Italian cruise ports to involve them in international cruise events (through Cruise Italy). It is also setting up an internal division drawing in stakeholders of all major cruise ports to share information and collaborate on marketing and promotion of Italy as a cruise destination.

Seeking improvements in the logistics sector for a great economic impact in the area

The cruise business would benefit from improvements in the Greek logistics sector. The recent upgrades of the port and its greater integration in international supply chains require that it adapts more than ever to today's and tomorrow's business requirements. More efficient logistics could attract cruise lines to provision its ships with more Greek products rather than sourcing them elsewhere. It could also participate in smoothening roads around the port, and enhancing the environment and passenger transport in Piraeus.

The development of logistic centres in the region should be prioritised. Advancements towards completion of a large logistics centre in Thriassio (Attica) in the region are also necessary to bring back some jobs currently lost to central Europe (mainly assembly lines) and relieve roads around the port from congestion. Several steps were already taken as companies are interested in expanding their presence now that COSCO has expanded its presence in the region, especially in western Attica. DB Schenker launched new 6 000 square metre installations in Aspropyrgos in October 2016. After being postponed several times in 2016, a tender for a 588 000 square metres plot could soon be granted to the consortium GOLDAIR - ETVA Industrial Parks in Thriassio as well. Within this context, COSCO is looking at co-operating with the winner of the tender for the privatisation of the former national railway company TRAINOSE (Ferrovie dello Stato Italiane) to secure access to large storage spaces at the Thriassio freight centre. These initiatives should be facilitated and highlighted in the national transport agenda. Rail connectivity and the transition towards greater freight transport by rail is also one of the key policies to focus on, in relation to the creation of logistics hubs. As of today, almost all freight transportation in Greece is done by road (OECD, 2016). The implementation of an Electronic General Commercial Registry (G.E.MI) for keeping track of transport and logistics companies would also be a step towards ensuring greater efficiency and road relief.

Given that red-tape is an issue for the competitiveness of Greek logistic services, efforts towards the reform of inefficient pieces of regulation should also be considered. As pointed out by the OECD (2016), the Greek transportation sector would benefit from the abolition of a number of laws that restrict competition in the logistics sector or are redundant and therefore create an unclear legal environment for both service providers and public administrations. Currently, there are regulations discriminating old and new transport operators, restricting means of transportation for wholesalers, and imposing to hire specialised stevedores for non-specialised handling operations (at higher costs). Many other restricting laws are no longer enforced but are still not abolished, which should be done explicitly by the competent authorities. At the local level, some regulations are responsible for more lengthy and costly procedures as well especially concerning exporting procedures (as explained earlier). Amendments to these would help Greek products to be more attractive for cruise lines.

Organisation the local maritime community into a "cluster"

Local policies have stressed the importance of developing a “maritime cluster”. The focus on Blue Growth is an important component of the new Integrated Development Plan developed by the municipality. The Piraeus Chamber of Commerce estimates it could provide a platform to reduce inefficiencies and offer better services. Piraeus would gain from the creation of a platform for maritime actors to organise, meet, share experience and potentially develop new products and services together.

Within the strategy established in its last Integrated Development Plan, the municipal government is starting to create initiatives to foster the local blue economy. Piraeus has a high youth unemployment rate (37% in 2016, according to the Piraeus Municipality) and job creation is the one of main targets of the local government. The Municipality's idea is to boost entrepreneurship by creating a shared space where start-up companies can benefit from shared training but also offices and tools to help them grow their business. The local government is currently looking for the physical space to develop the infrastructure. It also works with universities and an incubator to design the project. The Blue Growth strategy implementation is still young but nine start-ups and 22 jobs have been created so far. Within "Blue Growth", the municipality integrates tourism and cruise shipping as potential value added sources for Piraeus. The local government also believes co-operation with a wider range of actors is essential to make it succeed. This initiative could be the starting point for the creation of a wider maritime community association. Similar innovation initiatives mixing together academia, businesses have emerged elsewhere within a wider blue economy collaboration platform. Examples can be found in Ireland and Iceland where these structures are powered by a wider maritime cluster.

On many accounts, Athens/Piraeus could be considered one of the leading maritime clusters in the world. It is the seat of a large community of ship-owners, and some of the related services, such as ship brokers, registries and financial services. Yet, this cluster is far from comprehensive (OECD, 2014) and fairly fragmented as many of the headquarters have moved out of Piraeus (Lowry, 2016). This network of inter-related firms has grown organically and is fairly uncoordinated and unstructured, unlike maritime clusters in many other port-cities, where the interaction between the different components of the cluster is more intense and organised.

Maritime community clustering initiatives in Europe have proven successful in bringing maritime stakeholders together. Most institutions provide a basis for stimulating competence, information and skills sharing by regularly bringing their members together to discuss given issues. As such, some of them emerge as key contact points for the wider political class acting as defenders of the interests of the industry and pushing for reform where needed. They also promote the maritime industry within the country and internationally through their presence at international events, speaking and organising seminars or other events. By structuring and bundling activities together, they enable the identification of key sub sectors of interest, so special focus groups can be developed to work more specifically on them. They generally have as an objective to foster innovation and cross-sector collaboration to provide more tailor-made, cheaper, all-in-one services. Some also offer specific services for clients that are not necessarily members such as consulting services. There are clusters of all sizes in terms of membership and they cater for maritime communities of all sizes as well (Table 3).

The creation of a platform to gather and organise the maritime community could be beneficial to the cruise business in Piraeus in several ways. First it could facilitate the identification of the critical improvements needed to enhance service quality and boost competitiveness of both the cruise sector and other that have an impact on it. Once these are identified, it would provide a platform for defining adapted strategies to achieve these improvements in consultation with all the actors involved. The federation of a large number of actors with a single voice would also make up a stronger power to face

the government when negotiating for needed reforms. More specifically, it could solve inefficiencies identified in logistics services provision. It could also provide a basis to develop a strategy to enhance the potential of Piraeus as a cruise port.

Table 3. **National maritime "clusters" in Europe**

Country	Name	Creation date	Number of members	Member sectors of activity
Belgium	Flander's Maritime Cluster	2011	120	Port administration and operations, Energy, Research and education, Manufacturing, Consulting, Sea shipping, Logistics
Bulgaria	Marine Cluster Bulgaria	2007	21	Port operations, Sea shipping, Logistics and transport, Law, Classification, Ship services, Research and education, IT and technology
Denmark	Maritime Development Center of Europe (MDCE)	1999	140	Sea shipping, Shipbuilding and Services, Public authorities, Port administration and services, Research and education, Finance, Insurance, Law, Classification
Finland	Finish Maritime Association	1926	300	Sea shipping, Ports and port operations, Maritime industries, Shipbuilding and services, Defence and maritime security, Others interests
France	Cluster Maritime Français	2006	360	Port administration and operation, Sea shipping, Energy, Research and education, Defence and maritime security, Shipbuilding and services, Nautical industry, Finance, Insurance, Law, IT and technology, Consulting, Fisheries, Leisure and tourism
Germany	Maritimes Cluster Norddeutschland	2011	107	Energy and power, IT and technology, Shipbuilding and services, Manufacturing, Logistics and transport, Consulting
Iceland	Iceland Ocean Cluster	2010	70	Fisheries, IT and technology, Seafood industries
Ireland	Irish Maritime and Energy Resource Cluster	2010	45	Environment and energy, Sea shipping, Logistics and transport, Maritime safety and security, Leisure and tourism, Research and education, IT and technology, Law, Manufacturing
Italy	Federazione del Mare	1994	17	Port administration and operation, Sea shipping, Shipbuilding and services, Yachting, Insurance, Law, Classification, Research and education
Luxembourg	Cluster Maritime Luxembourgeois	1991	50	Sea shipping, Finance, Insurance, Law, Consulting, Research and education, Logistics, Equipment suppliers, Telecoms
Malta	Malta Maritime Forum	2015	40	Port administration and operations, Sea shipping, Ship repair, Yachting, Unions, Law
Norway	Maritimt Forum	1990	700	Sea shipping, Research and education, Shipbuilding and services, Manufacturing, Consulting, Law, Finance, Classification, Public sector, Environment and energy
Poland	Polski Klaster Morski	2009	51	Public sector, Ports and port operations, Research and education, Technology, Energy, Ship design and building
Portugal	Forum Oceano	2009	125	Port administration and operations, Sea shipping, Research and education, Public authorities, Shipbuilding and services, Food industries, Leisure and tourism, Environment and energy, Consulting, IT and technology

Table 3. **National maritime "clusters" in Europe (continued)**

Country	Name	Creation date	Number of members	Member sectors of activity
Spain	Clúster Marítimo Español	2007	80	Port administration and operation, Sea shipping, Environment and energy, Research and education, Defence and maritime security, Shipbuilding and services, Nautical industry, Yachting, Finance, Insurance, Law, IT and technology, Fisheries, Leisure and tourism
Sweden	Sjöfarts Forum	1996	110	Sea shipping, Port operations, Public sector, Research and education, Manufacturing, Leisure and tourism
Netherlands	Nederland Maritiem Land	1997	12 000	Ports and port operations, Equipment suppliers, Shipbuilding and services, Research and education, Logistics and transport, Defence, Leisure, Fisheries
United Kingdom	Maritime UK		13	Sea shipping, Port administration and operations, Manufacturing

Source: Own elaboration from various sources.

Engage in lowering the environmental impacts of cruising on the city

Future support for cruise shipping might depend on reducing environmental impacts from cruise shipping. The Municipality's first integrated development plan and objectives have lately put an emphasis on the need to enhance the quality of the environment in Piraeus and to build more sustainability through smart energy consumption and building more sustainability. The environmental impact of cruise tourism on port cities is an important topic that might need to be dealt with in a more structural manner by the Piraeus Port Authority.

Evaluate the impact of cruising on the city

Piraeus Port Authority has made efforts to comply with a number of standards that are developed for service quality and environmental impact. It is the first Greek cruise port to be certified by two certification bodies (Lloyd's Register Quality Assurance and Bureau Veritas Greece) for compliance with the ISO 14001:2004 standard. This means that Piraeus Port Authority's cruise services have been certified to make continuous efforts to improve environmental performance and to control the impacts related to the activity. The authority implements a certified Environmental Management System for the entire port area since 2004 according to ESPO's PERS system (Port Environmental Review System). In order to implement this monitoring program, an air quality monitoring station was installed at the passenger and Cruise Terminals, in collaboration with the National Technical University of Athens. The station is equipped for the inventory of air pollutants' concentrations on 24-hour basis.

Still, there is not enough visibility on the implications or results of monitoring. The Piraeus Port Authority has not published any official environmental impact assessment of its activities. The regional government is working on the development of an air emissions inventory with the Athens Observatory on its side, but no study exists on that side yet either. Yet an Environmental Impact Assessment Study was conducted in the context of the plans for the cruise terminal expansion at the southern end of the port. Within its framework, the enhancement of the air quality monitoring programme is foreseen. The Piraeus Port Authority should keep stimulating these efforts, make results public, and take steps to mitigate air emissions impacts according to the findings. This would help to enhance the image of the port as well as its relationship with local public actors and the general public.

Continue to develop efforts to mitigate the environmental impact of the Port

A number of measures are in place to enhance the environment at the port and mitigate the impacts of its activities. Acoustic environment quality is monitored and actions are taken, such as the installation of noise barriers at critical spots or plantations around the port to absorb noise. The port also monitors seawater quality through regular sampling of water and sediments. Particular care is given to the quality of the environment around the port with projects to use landscaping as a way to not only enhance the visual quality of the port area but also to protect local ecosystems. The other area on which Piraeus Port Authority makes efforts is the optimisation of energy management. Several measures are implemented such as the introduction of energy-saving lamps in place of the former incandescent ones or the construction of a green roof-top on the Piraeus Container Terminal (Pier 1) to reduce its need for both heating in the winter and heating in the summer. The port also segregates and recycles part of the waste that it receives. It is also developing adequate waste reception facilities especially for sludge.

Still, nothing specific has been done at the port to reduce air emissions from ships, which remain very harmful locally (as shown earlier). The European Union has issued in 2014 a Directive on the Deployment of an Alternative Fuel Infrastructure (2014/94) requiring Member States to ensure that shore side electricity (SSE) supply shall be installed as a priority in ports of the TEN-T Core Network, and in other ports, by 31 December 2025. Given that infrastructure investments are planned in Piraeus for new ship berths, the Port Authority should anticipate future requirements by considering the development of on shore power supply, LNG bunkering, or other alternatives to reduce air pollution from ships. The Port is already engaged in the POSEIDONMED II Project (LNG Bunkering) and to the ELENGI Project (electrification) to look at the development of alternative energy options for Piraeus. In anticipation of the 0.5% global sulphur cap that will enter into force in 2020, Piraeus should start developing plans to gradually be ready to provide these options for ships. Cruise lines calling at the port of Piraeus are also starting to make efforts and several ships equipped with scrubbers have been calling at the port. Clarification of legislation with regards to wastewater from scrubbers could increase the possible uptake of scrubbers by cruise ships calling Greek ports. As of today, waste water rejection remains out of PPA's jurisdiction.

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Annex 1. National maritime "clusters" in Europe

Country	Name	Creation date	Number of members	Main roles	Jobs supported
Belgium	Flander's Maritime Cluster	2011	120	- Networking - Innovation and valorisation - Identification of opportunities - Facilitate (cross-sector) co-operation - Test locations at sea - International promotion	46 000
Bulgaria	Marine Cluster Bulgaria	2007	21	- Industry development - Co-operation to improve competitiveness - National and international promotion - Facilitate international transport network integration - Member support	16 038
Denmark	Maritime Development Center of Europe (MDCE)	1999	140	- Cooperation strengthening - Project development among members and international stakeholders - Innovation development through research - Exchange of best practice and knowledge - Match-making between industry and academia, nationally and internationally	115 000
Finland	Finish Maritime Association	1926	300	- Arrange meetings between members and with external organizations and groups - Briefing on actual matters of interest - Arrange excursions and visits - Attend ship model exhibitions	
France	Cluster Maritime Français	2006	360	- Represent the French maritime industries - Institutional Communication - Create operational synergies between members - Lobbying	304 150
Germany	Maritimes Cluster Norddeutschland	2011	107	- Create platforms for dialogue between maritime industry players - Promotes contacts to other relevant industries and networks - Supports members in ideas, services and products development	113 000

Country	Name	Creation date	Number of members	Main roles	Jobs supported
Iceland	Iceland Ocean Cluster	2010	70	- Networking - Incubation - Research - Consulting - Tours - Speaking	25 000 to 35 000
Ireland	Irish Maritime and Energy Resource Cluster	2010	16 292	- Promotion - Expertise integration (research and industry) - Provide a platform and tools for collaboration and knowledge exchange	16 292
Italy	Federazione del Mare	1994	17	- Give unitary representation of the country to the maritime world - Allow the appreciation as a factor of development - Affirm the commonality of values, culture and interests also through international experience comparison	471 000
Luxembourg	Cluster Maritime Luxembourgeois	1991	50	- Contribute to the development of the maritime sector and associated services - Observe and analyse legal and economic issues as well as other related topics - Inform and exchange through networking and thematic meetings - Represent the sector and participate in relevant events and discussions.	
Malta	Malta Maritime Forum	2015	40	- To promote the interests of the Maltese maritime industry - To assist in the development of new maritime activities - To promote research, education and training within the Maltese maritime industry - To act as a constituted body so as to consult and be consulted by government in the development of public policies that can have a bearing on the Maltese maritime industry	20 000
Norway	Maritimt Forum	1990	700	- Enhance cooperation between maritime companies - Create greater understanding and awareness of the industry's importance to the Norwegian economy and society - Organise local industry networks through regional offices	100 000

Country	Name	Creation date	Number of members	Main roles	Jobs supported
Poland	Polski Klaster Morski	2009	51	- Co-operation in the area of Polish and international maritime industries - B2B marketing and international projects in the Baltic Sea Region, European Union and global market - Co-operation with the parliament, government and local administrations - Knowledge transfer between business, universities and administration - Education and market research - Conferences and seminars	8 867
Portugal	Forum Oceano	2009	125	- Work with supply chains and customers to establish international contact - Promote and develop innovation - Monitor and anchor projects and studies - International participation (projects, networks, B2b, missions) - Organise yearly Sea Forum in Portugal	55 700
Spain	Clúster Marítimo Español	2007	80	- Promote the development and competitiveness of enterprises and Spanish maritime industries. - Work to improve the competitiveness of enterprises through co-operation, complementarity and communication - Co-operate with associations and other forums or clusters	448 000
Sweden	Sjöfarts Forum	1996	110	- Lobbying - Seminars organisation on its own or together with other shipping partners - Acts as moderator and speaker at events - Organise the Swedish celebration of World Maritime Day - Arranges networking activities for the shipping industry	
Netherlands	Nederland Maritiem Land	1997	12 000	- Join-up the various maritime sectors and link them with government and academia - Create joint initiatives which strengthen individual sectors and promote the Netherlands as a significant maritime nation - Share knowledge across the network - Co-finance a range of projects to further the interests of the Dutch maritime community	253 000
United Kingdom	Maritime UK		13	- Bring together the UK's shipping, ports, marine and business services sectors - Drive forward an agenda for growth - Promote the UK as a world-class maritime centre - Unite the maritime community in meeting the challenges of tomorrow	537 000

Source: Own elaboration from various sources.

Notes

[1] Own calculations based on data from OECD Data (2016) and World Travel and Tourism Council (2016).

[2] Own calculations based on data from CLIA (2016).

[3] Own calculations based on data from CLIA (2016).

International Transport Forum

Cruise Shipping and Urban Development

The Case of Piraeus

This report assesses the impacts of cruise shipping on Piraeus. Piraeus is the largest cruise port in Greece, but its growth has slowed recently and the benefits of cruise shipping for the local economy are not as high as they could be. Cruise ship visits also contribute to worsening air quality and road congestion in the city. This study reviews current economic and environmental policies relating to cruise activities and provides recommendations on how Piraeus could better seize opportunities for local development from cruise shipping.

This report is part of the International Transport Forum's Case-Specific Policy Analysis series. These are topical studies on specific issues carried out by the ITF in agreement with local institutions.

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