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# EUROPEAN CRUISE PORTS: CHALLENGES SINCE THE PRE-PANDEMIC ERA

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## Abstract

This study provides an empirical analysis of the challenges that cruise ports in Europe were facing before the outbreak of the COVID-19 pandemic. COVID-19 triggered an unprecedented global health and economic crisis with severe, and potentially structural, consequences for the cruise world. In this context, knowledge of the key challenges that cruise ports need to address builds capacities for conceptualising, but also better responding in the post-COVID-19 conditions to both pre-existing challenges and the ones produced by the pandemic. The study examines the former group of challenges. It does so analysing a survey answered by 155 cruise ports in 34 countries in the two European markets (North Europe and the Med) just before the pandemic outbreak. The survey identifies the significance of different types of challenges (operational, strategic, societal, environmental), and the hierarchy of challenges referring to the relationships between ports and cruise lines. Detailing which issues were (not) shared by the entire cruise port industry, the findings reveal that the pre-pandemic search for sustainable growth of the cruise activities hosted had led to diverging challenges in each of these two cruise markets. They also establish that port governance models do matter when it comes to the variation of the confronted challenges. These results imply that policy initiatives based on a 'one size fits all' approach would provide a rather ineffective helping hand in resolving the major of the identified challenges.

**Keywords:** Cruise ports, Port governance, European cruise policy, Cruise shipping

## 1. Introduction

In 2019 more than 30 million persons enjoyed a cruise worldwide (Cruise Lines International Association (CLIA), 2019a). Having survived what had been thought to be (see: Peisley, 2012), the 'perfect storm' of the late 2000s (i.e. Costa Concordia, the financial crisis of 2008-09, Arab Spring), cruise activities remained in the course of uninterrupted growth, the pace of which was faster than that of other transport or tourism (MacNeill and Wozniak, 2018) industries.

The COVID-19 pandemic triggered an unprecedented global health and economic crisis with potentially structural consequences for the cruise world. In February-March 2020, COVID-19 outbreaks associated with three cruise ship voyages caused more than 800 laboratory-confirmed cases among passengers and crew (Moriarty, et al 2020). The whole industry voluntarily suspended worldwide operations, with the timing and the conditions of return remaining questionable. In late-April 2020, 100% of global destinations had COVID-19 travel restrictions

(UNWTO, 2020a), while the 2020 prospects suggested declines in arrivals of 60%-80% (UNWTO, 2000b). Six months later, the second wave of the pandemic resulted in the postponement of cruise calls in most world ports, including the regions (e.g. in Europe, Japan etc) that have seen a restart of cruising happening (Notteboom and Pallis, 2020). As the post-COVID-19 normal continues to evolve, making a precise assessment of the longer-term implications is a puzzling task.

In this context, knowledge of the key challenges that cruise ports need to address stands vital. Has the pre-pandemic search for enhancing a sustainable growth of the cruise activities hosted led to diverging challenges? Given the presence of distinctive cruise regions, do 'regional' perspectives exist? With cruise port governance models in transition (Pallis et al, 2019), do different ports, or different players (such as Port Authorities (PAs) acting as operators, non-operating PAs, terminal operators) face different pressures? On the one hand, answering these questions allows advancing the conceptualisation of the evolution of cruise shipping and ports. On the other hand, it builds capacities for better responding in the post-COVID19 conditions to both existing challenges and the ones produced by the pandemic.

The study presents an empirical research that reveals the former group of challenges: the ones that cruise ports are facing since the pre-pandemic period. As in any economic activity, growth and the quest for adaptation are associated with several challenges: strategic, operational, environmental and societal. This is also true for stakeholders involved in cruising, including cruise lines, ports, cities, and destinations. The size of cruise has been such that can neither be served with given operational practices of ports nor is happening unnoticed by local communities.<sup>1</sup>

The focus is on the European cruise market and the challenges that cruise ports operating in the region face. In 2019, European cruise ports hosted 28,4% of the capacity deployed worldwide (CLIA, 2018). The research examines and compares (a) the North European region that hosts 11,1% of the deployed fleet, standing as the fourth major cruise region of the world, and (b) the Mediterranean and its adjoining seas that hosts 17,3% of the deployed cruise ships capacity around the globe, being a cruise region lagging in terms of size to the Caribbean only (34,4%). Selecting to study the European market has been also motivated by its additional unique characteristics in comparison to other major cruise regions. First, the presence of distinctive sub-markets provides the opportunity to explore potential regional specificities. Second, the variety of port governance settings results in the presence of different cruise port governance entities, even within individual national contexts.

The empirical research grounds on a survey of cruise port managers in 155 cruise ports located in 34 countries in the two European markets (*Section 3*). Port managers assessed four categories of potential challenges (*strategic; operational; societal; and environmental*). The statistical analysis of the replies received (descriptive statistics, one-way ANOVA, Kruskal Wallis) reveals the major challenges that ports faced in the pre-pandemic period. It also identifies the extent that

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<sup>1</sup> To give an example, a 4.000 lower berth ship on annualized 50 weeks deployment in a standard seven-day itinerary of six ports (one homeport, five transit ports) Mediterranean itinerary, and excluding any effect of inter-porting, generates almost 1.4 million passenger movements, plus 300.000 crew visits, per annum. The annual number of cruises on board the approximately 300 operating cruise vessels translates to over 160 million cruise passenger movements in ports around the globe.

parameters such as the geographical region, size, and governance dimensions do matter when it comes to the significance of each of these challenges.

Conceptually, the analysis enables to realise whether recent structural changes in the European port industry (such as the increased presence of cruise terminal operators), had facilitated a matching with the features of the contemporary operating context. It also allows theorising on which issues remain to be addressed. *Section 2* contextualises the empirical study, presenting the major pre-pandemic trends in cruise shipping and European cruise ports structures and strategies, establishing *inter alia* the value of studying the key challenges for ports in their efforts to host cruise activities.

Identifying the specific challenges that might (not) be shared by cruise ports, the study provides a tool for those aiming at benchmarking on how best to address them. It also facilitates conclusions on themes where common stance(s) might evolve. This is a particularly useful exercise as a pan-European dialogue between policy-makers, ports, cruise lines, cities, and other stakeholders aiming a sustainable cruise growth is in progress since 2015. Thus, the concluding section discusses the implications of the empirical findings (*Section 4*) in the light of (a) the trends in cruise shipping, (b) the reforms of cruise ports governance, and (c) the evolving relationships between the port and hosting cities, exploring at which extend a 'one size fits all' policy approach would provide an effective response to the major of the identified challenges.

## **2. Contextualising the empirical study: European cruise ports in transition**

The period prior to the outbreak of the COVID-19 pandemic, the dynamics of the frameworks within which cruise ports operated had triggered the quest for long-term cruise port strategies (Rodrigue and Notteboom, 2013; Pallis et al., 2014; Peisley, 2014). The rising number of cruisers,<sup>2</sup> the renewal of cruise vessels, cruise lines efforts to benefit from economies of scale (Ros Chaos et al, 2020),<sup>3</sup> the addition of new itineraries, and the interest of third parties to operate cruise terminals, were some of the driving forces. Supported by a few dominating profit-making cruise lines and market segmentation, cruise globalisation was, at least at the time, 'seemingly unstoppable' (Pallis and Vaggelas, 2019).<sup>4</sup> Approximately 35 more cruise lines are in operation, with the industry expecting the new entry (Virgin Cruises) to offer an entirely new product, and witnessing a continuous consolidation (i.e. overtaking of Silversea by RCCL) that furthers the dominance of the major cruise lines.

Attracted by either the actual, or the perceived, economic contribution of cruising to the hosted port cities and/or nearby touristic destinations, an increasing number of ports invest in infrastructure and strategies to attract more calls and passengers. According to CLIA (2018), in

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<sup>2</sup> The 28 million passenger movements in the Mediterranean market were 3,5 times the respective number of 2000 (MedCruise, 2020). Within five years the number of passengers in the Asian market had tripled to 4,5 million (CLIA, 2019b).

<sup>3</sup> At the end of 2019 each of the 50 biggest cruise ships had a capacity surpassing 3,000 passengers and the order-book exceeded 120 vessels (Cruise Industry News, 2019).

<sup>4</sup> Carnival's 10 different brands control 47% of the global market; Royal Caribbean Cruise Line (RCCL) and its three brands control approximately one quarter; Norwegian Cruise Line Holdings brands represent a 9.5% market share and MSC owned vessels 7%.

2017 the total (i.e. direct, indirect, and induced) impact of the cruise industry on communities around the globe is 1,11 million jobs, equalling \$45.6 billion in wages and salaries and \$134 billion total output. In 2017, this impact in the biggest European cruise port (Barcelona) reached € 796 million, that is the equivalent 6,759 full-time jobs (Vaya et al, 2018). True, the mere reproduction of growth numbers in isolation may foster a misconception of cruise sector substance and role within the wider context (Papathanassis, 2019). For example, increasing cruise activities result in infrastructure and environmental costs that lower, or even offset, projected tourism revenues (Lester et al, 2016), while disclosed spending patterns might be overestimated for marketing or leveraging market power purposes. Still, the benefits to local economies are anything but insignificant.

For ports, when the growth and regionalisation (Rodrigue and Notteboom, 2005) of cargo activities tests their licence to operate, cruising provides the mean to advance their societal integration to the civil societies that host them. They thus adjust their infrastructure, operations, and strategies, targeting a sustainable cruise growth. This is even though this perception is occasionally questioned - due to the periodic overcrowding of cultural sites and historic cities (Lamers et al., 2015; Navarro-Ruiz et al, 2019), the limited 'carrying capacity' of certain well established destinations (Stefanidaki and Lekakou, 2014), the endemic problems of local tourism economies (Sheller, 2009), the dominance of foreign firms enjoying the majority of spending benefits (Weaver, 2005; Sorensen, 2006; Sánchez and Wilmsmeier, 2012); or even 'the consumerism which underpin the cruise experience' (Mahoney and Collins, 2019), and the altering of local population perceptions (Brida et al, 2014; Del Chiappa and Melis, 2015; Hesse, 2017).

## **2.1 Strategic reforms**

Infrastructure renewal and construction are major parts of cruise ports adaptation. As are the modernisation of port operations to serve bigger and the efforts to attract more cruise calls via coordination with other stakeholders (Pallis, 2015). Specialized cruise terminals replace multi-purpose facilities. Upsized and upgraded terminals impose additional investments. Third parties (such as cruise lines, terminal operators, port agents, and other companies) finance, construct, and operate cruise terminals. This trend is evident both in North Europe (Pallis et al. 2018a) and the Mediterranean Sea (for the Italian case: di Vaio et al. 2011; for a broader sample: Pallis et al, 2018b). Concessions of cruise terminals increase in numbers, in some cases PAs partner with operators and/or cruise lines in developing ports. International cruise terminal operators, like Global Ports Holdings that operates in four continents, expand their presence.

The presence of private operators changes, inter alia, the bargaining powers of cruise lines, port authorities and destinations (Satta et al., 2017), the structures of cruise itineraries, and the development strategies of ports and destinations – i.e. initiatives to address seasonality (Esteve-Perez and Garcia-Sanchez, 2017; Esteve-Perez et al, 2019) or attract higher spending cruisers (Lee and Lee, 2017).

Meanwhile, cruise ports develop sophisticated management and marketing strategies, representative associations (like MedCruise and Cruise Europe in the Mediterranean and the North European market respectively) linking them directly to itinerary planners and other stakeholders.

Within this context, ports governance reforms are frequent. Examining the Mediterranean and its adjoining seas, Pallis et al (2019) identified four different port governance models, and a more complex picture than a single dichotomy between ports operated by the (public) port authority and ports operated by a cruise terminal operator. Port managing entities are found to operate as active leaders but also as investors, or marketers, or passive managers. Using Verhoeven's (2010) terminology, in some cruise ports the PA acts as an entrepreneur, in other ports acts as a facilitator that, depending on several strategic and structural parameters, is less or a more active, and in a third group of ports acts as a conservator. Contrary to the past (see: McCalla, 1998), the organisation and the terms of services offered are becoming more important success factors than the location of the cruise port.

### **2.3 "Challenges" as a mean to further adjust cruise port governance**

Given the recent trends, some key conceptual, but also practical, questions sustain: Which are the challenges that cruise ports have still to address? Have the applied changes lowered, or even eliminated, the challenges that cruise ports face? If this is the case in some but not all ports, which are the defining variables for the observed variances of significance? Which port sub-group has benefited, and in what respect do certain groups of ports face different challenges than the rest?

Knowing the significance of each challenge, and the variance of this significance, ports and decision-makers could optimise existing cruise port governance models. As the 'matching framework' concept advocates (see: Baltazar and Brooks, 2001), such models are the result of a process that aims to effectively 'match' the evolved context with appropriate port structures and strategies. Policy makers' decisions are the inputs aiming to produce the best output, as expressed within the performance of the port (Brooks and Pallis, 2008). Port performance deficiencies might emerge, either because of flaws in the decisions taken, or because the implementation process is influenced by several variables, considerable transition times, and institutional traditions. The realisation of inconsistencies initiates further adjustments. Once more, it is the understanding of the emerging context and the challenges it produces that stand as the essential background for the continuation of the process.

However, the exploration of the challenges that cruise ports need to address is, surprisingly, missing. This is even though inconsistencies of port performance, the flexibility of vessels deployment, and the opportunities available to cruise lines in shifting calls between numerous ports and destinations, produce substantial dynamics within any given cruise region - in Europe, scholarly research has detailed frequent substantial shifting of operations from East to West or the Adriatic Sea and vice versa (Pallis and Arapi, 2016), and home-porting strategies (Lekakou et al, 2010; Karlis and Polemis, 2018; Papachristou et al. 2020).

The importance of these challenges has recently started generating some scholarly attention. Sampling Baltic Sea ports, Urbanyi-Popiolek (2019) analyses the challenges for sustainable cruise logistics. Santos et al (2019) examine challenges in determining the socio-economic sustainability of the ports of Lisbon and Livorno. These examples follow earlier studies examining the sustainability of cruise tourism (cf. Klein, 2011). Operational challenges in relation to environment, i.e. effective practices for handling the onboard produced waste (Butt, 2007), had been recorded before the development of a related international policy agenda. These useful

contributions focus however on one dimension, namely environmental sustainability, and are empirically grounded on the examination of small number of ports only.

The current study expands the empirical foundations and the dimensions of challenges examined, contributing to a better understanding of whether in the European case current cruise port governance models fit to the specifics of cruise shipping evolution. This is not a search for superior configurations but for requirements existing within the configured relationships and needed to be addressed. As port governance studies conclude (see: Brooks and Cullinane, 2007; Brooks et al. 2017), once addressing these challenges, either at a port or at a collective level, the result would be a greater fit of the environment-structures-strategies triangle, with this fit reflected to improved port performance.

### 3. Research design

The first step of the field research was the development of a list of potential challenges that European cruise ports might face and, thus, their significance is worth to be measured. Then, we asked representatives of the entities managing the European cruise ports to assess the significance of every specific challenge for their port.

The list of challenges included in the questionnaire evolved via a two steps process, which involved the associations representing cruise ports and port authorities throughout Europe. An initial list was detailed via desktop research including the relevant literature, information obtained from websites and reports of ports and terminal operators, and specialized press. Once concluded, the provisional list was confirmed and modified via interactions with those active in the two associations representing cruise ports in the examined regions –MedCruise and Cruise Europe– as well the members of the Network of European Cruise and Ferry ports established within the European Sea Ports Organisation (ESPO).

The final list contained 27 challenges. It also contained a further list of 16 challenges referring to the relationships between ports and cruise lines. A number of challenges are *operational* or *strategic*. Seeking to host more cruise activities, ports aim to improve their operations and actively seek suitable strategies – such as interactions with cruise lines, collaboration with the port-city, stakeholders, and policy-makers - that would help them attracting more cruise calls but to also create value from cruise arrivals (see: Madsen et al, 2018). This is not least because the facilities and the services offered by ports are decisive for the efficiency of cruise calls, the quality of shore excursions, and the overall experience of cruisers (Sanz Blas and Carvajal-Trujillo, 2014). From a cruise line perspective, efficient ports support schedule reliability, increase passenger satisfaction, condition the choice of ports to call (Chen et al, 2020), and allow the diversity of itineraries and cruises offered and permit the addition of markets to be served.

The other two groups of challenges relate to *the societal integration* of cruise ports, and the elimination of the *environmental and other externalities*. In a number of already developed destinations, especially those which are also popular with other forms of tourism, the increase of cruise activities has been accompanied by calls to eliminate the negative effects that existing and potential future growth of cruising might result in. Environmental impacts and other externalities pose pressures on destinations, affecting social perceptions and generate concerns as regards further growth. Societal pressures have emerged as, in certain destinations, local communities

started questioning the unqualified growth of cruising, which had for long been taken as an *a priori* beneficial development.

The constructed list of challenges was circulated for assessment to senior staff members of: (a) all member ports of MedCruise, the association of the cruise ports in West Med, the Adriatic, East Med and the Black Sea; and (b) all members of Cruise Europe, which represents cruise ports in Atlantic Europe, the Baltic, UK and Ireland, and Norway, Iceland and Faroe Islands. The assessment employed a 5-point Likert-type scale. In addition, responders were given the option to answer that they '*don't face this challenge at all*', if this is the case.

In line with the standard approach of the cruise industry, when analysing the data collected, we respected the presence of distinctive port sub-systems in each of these regions, as induced by the current deployment patterns. Contrary to the high concentration observed in the Mediterranean market, as more than the half of the ports are located in the West Med region, ports located in the four regions of Northern Europe are more equally distributed.

#### 4. Research findings

Answers to the questionnaire were received by 73 ports located in 18 countries in the Mediterranean and its adjoining seas and 82 ports located in 17 different countries in Northern Europe (**Table 1**); a response rate standing at 76% of the cruise ports included in the initial sample. This significant rate of response has been achieved following cooperation with the respective cruise ports associations (i.e. MedCruise in the Mediterranean and its adjoining seas, and Cruise Europe in North Europe) and allows reliable conclusions.

**Table 1 – Survey sample per region**

Of these replies, 83 (43 in the Med and 40 in North Europe) were received from Port Authorities (PAs) that operate cruise terminal(s), 40 by non-operating PAs, and 21 from terminal operators in the respective port (**Table 2**). Eleven (11) entities among the 75 replying members of Cruise Europe are either tourism boards, or chambers of commerce, or regional, municipal or province committees that have assumed responsibility for managing cruise ports; they are listed as 'other' type of entities, with the category standing void in the case of Mediterranean ports.

**Table 2 – Survey sample per type of entity**

While 82 of the replying ports are used by cruise lines for transit calls, i.e. calls of few hours length enabling passengers to visit the linked city and/or destination, the other 73 host at least some turnaround activities of cruise ships, i.e. act as home-ports for (some) cruise itineraries. Three of them act exclusively as home-ports, with the rest serving both transit and turnaround calls. The ports hosting home-porting activities are more in the Med and its adjoining seas (42 ports, or 58% of all) than in North Europe (31 ports, or 38% of all).

##### 4.1 Major challenges

Five of the listed challenges emerged as being the most significant ones (i.e. mean value of replies > 2.8 out of 5) (**Table 3**). The '*relationship with cruise lines*' (mean value: 3.32), and the efficient accommodation of one of cruise lines practices, that of deploying *bigger in size cruise ships* (3.24), stand as the most significant ones. The *relationship with people and businesses around the ports*



(3.11), and *the exploitation of the potential of winter cruising* (2.94), are also included in this group.

**Table 3 - Challenges for European cruise ports (all ports; all challenges; scale 0-5)**

The considerable standard deviation from the mean that is observed in all cases invites a further examination of these replies. The negative skewness measurements suggest an asymmetrical distribution with a long tail (i.e. many observations) to the lower significance values, but also that some responders consider the respective challenges as of notably higher significance. The standard deviation from the mean is quite high in the three major challenges of all, namely the *relationships with cruise lines* (St. dev. 2.039; skewness -0.752), the hosting of *bigger in size cruise ships* (1.709; -0.728), and the *relationships with people and business around the port* (1.611; -0.579). At the same time for a quite significant group of ports – i.e. for 66, 40, and, 31 in the first, second and third case respectively - these challenges stand today of the highest significance possible.

Turning attention to issues of the lowest importance, one observes that European cruise ports feel at ease with the cohabitation with other activities that take place in the ports, whether these are *yachting* (only four ports declared this as a most significant challenge) or *transportation of freight* (a significant challenge for 16 ports only). They neither face any major issues as regards *customs and border control* procedures (significant for 16 ports), nor they feel *waste reception* as a challenge (though for 15 ports this is a key one). Among the issues of lower importance are *ship congestion in the port* (15 ports), and the *confusion of responsibilities between port and the city* (7 ports).

#### **4.1 Relationships between cruise ports and cruise lines**

With relationships between ports and cruise lines standing as the most significant challenges of all, it is worth exploring further which are precisely the issues of importance from a cruise ports perspective.

As Table 4 details, the issue of *shore excursions*, i.e. the offering of enough options to cruise passengers in an efficient way, emerged as the most important issue to be addressed (mean value: 2.77). The second most important issue is the *long-term engagement of cruise lines* to the respective port (2.59). With ports having to adapt in many respects - whether this adaptation refers to organisational structures, operational procedures, governance regimes, or strategies - the presence of cruise lines for more than few calls, and their commitment for multi-year presence at the port, appear an issue of major concern. The *availability of landside transportation* is another issue creating controversies between ports and cruise lines (2.51). The less discussed, at least publicly, *cancelation of calls* (2.51) by cruise lines is also high in the agenda of cruise ports, apparently being more important as a challenge than relationships referring to *port tariffs* (2.41). Perhaps contrary to what one might have expected, other arrangements appear to also be more challenging than setting the tariffs right. The two following challenges, in terms of significance, are the *cooperation between ports and cruise lines when scheduling/ planning itineraries and berth allocation*, with both of them standing as of moderate significance from a ports' perspective. The other potential challenges scored on average considerably lower means.

**Table 4 - Challenges in relationships between ports and cruise lines**

### 4.3 Regional perspectives

Analysis of the findings from a regional perspective reveals remarkably different situations in each of the markets under examination (Table 5). In the smaller market of the two, North Europe, few challenges stand as of major significance. In fact, these are three in total, with the most significant of all being the accommodation of *bigger vessels*, which is the only challenge scoring a mean significance over 3.24. *Relationships with cruise lines* as well as *relationships with people and businesses around the port* are the other two challenges of major importance (mean scores 2.88 and 2.86 respectively). The standard deviation of the observations (2.168) denotes that the extend that North European cruise ports see their *relationship with cruise lines* as a significant challenge varies substantially. Two other challenges score a mean significance higher than 2.50. These are *exploiting the potential of winter cruising* (2.54) and the *relationship with the city of arrival and local authorities* (2.53).

The picture is quite different in the biggest market, the Mediterranean and its adjoining seas. Research findings suggest that the dynamic growth produced a number of major challenges for those responsible for managing cruise ports. The number of challenges with a mean score higher than 3.00 rises to 11 comparing to just one in the case of North Europe. *Relationships with cruise lines* seem particularly tense (mean: 3.70) and the *relationships with people and businesses around the port* (3.29) are more complex. Developing a strategy for transforming cruising to an all year activity is a major challenge (3.25) a finding justified by both the better weather conditions in the South and the fact that several Med ports have already developed infrastructure, or terminals, devoted exclusive to cruising, and would very much like to not see it standing idle for a great part of the year. *Security* issues are more important in the Mediterranean Sea (3.13) than in North Europe (2.14), as happens in the case of *infrastructure (other than transport) in the port* (3.11 versus 2.20) and *connectivity of the destination with source markets* (3.03 vs. 2.29).

**Table 5 - Major challenges: Is there a regional dimension?**

The use of a one-way Analysis of Variance (ANOVA) enabled to test for statistically significant differences per challenge between each regional group. ANOVA allows comparing the means between data per group, testing the null hypothesis:

$$H_0: \mu_1 = \mu_2 = \dots = \mu_k$$

Where  $\mu$  = the mean of each group responds; and  $k$  = the number of groups tested.

When ANOVA testing returns a statistically significant result (F-value,  $p < 0.05$ ) we accept the alternative hypothesis  $H_a$ , meaning that there are group means that are statistically significantly different from each other. In our case,  $\mu_1$  = the mean value of Mediterranean ports evaluations,  $\mu_2$  = the mean value of North European cruise ports evaluations, and  $H_a: \mu_1 \neq \mu_2$ . The independent variables are the groups of respondents and the dependent variable each one of the examined challenges.

ANOVA returned 16 challenges for which the mean replies are statistically significantly different per regional group, thus, the null hypothesis ( $H_0$ ) is rejected. **Table 6** details these challenges in decreasing *p-value* (significance) order. As regards the rest of the challenges, the null hypothesis

(H<sub>0</sub>) is accepted, as the testing indicates there are no statistically significant differences between groups of respondents.

**Table 6 - Major challenges: Statistically Significant Regional Variations (ANOVA F-values)**

The regional variances of major challenges faced in *relationship with cruise lines* are fewer (Table 7). Most of all, it is the issue of *shore excursions* that concerns all ports in both regions, though ports in the Med attach more importance to this challenge comparing to their North European counterparts. The *long-term engagement of cruise lines* is also high in the agenda of ports in both regions. Irrespective of the market they operate, ports seek the commitment of cruise lines as a condition, or even as a pre-requisite, for investing further, financially or else, to upgrade and improve conditions for hosting cruise activities.

Other than these issues, when comparing the two regions, the picture as regards the key challenges in the relationship with cruise lines is quite heterogeneous. The second most important issue for ports of the North is the *Taxi and other public transport availability*; ports in the South rank the same issue lower. North European ports also consider among the key challenges the *long-time engagement* and *cancellation of calls*. Conversely, Mediterranean ports prioritize *cancellations of calls* and *port tariffs*. Notably, the comparison of the findings in the two regions suggests that the latter issue is the case recording the most different perspectives. *Port tariffs* seem not to be a challenge for North European ports. The same is true, to a less extend, in the cases of *operational* issues, which seem to be a challenge in the Med market but not in the North European one. Environmental issues (i.e. the *limitation of emissions*) are of higher significance in the North – with the finding might be justified by the different legislation applied in the ECA bound north European market.

**Table 7 - Challenges in the relationships with cruise lines: Regional Perspectives**

In total, the preformed one-way ANOVA testing identified six criteria for which statistically significant different perspectives exist (

Table 8).

**Table 8 - Challenges in the relationships with cruise lines: Statistically Significant Regional Variations (ANOVA F-values)**

Overall these findings are indicative of the different levels of maturity of the markets under examination. On the one hand, the less developed North European market, where cruise ports are still in the search for fine-tuning the responsibilities they have to assume for hosting cruise in an efficient and effective way. On the other hand, the matured Mediterranean market, where the magnitude of cruise activities is such that ports feel they have to reach the right balance between them and the other key stakeholders, the cruise lines.

#### **4.4 Governance perspectives**

Turning to the role of governance in challenges to be addressed (Table 9), it is rather not surprising that operating entities, whether port authorities, terminal operators, or else, face the pressure of having to address more challenges than non-operating entities with a key role in

governing the port, i.e. PAs that do not operate the terminal themselves. The findings also highlight a significant variation as regards the challenges that each of these types of entities has to address.

**Table 9 - Challenges per type of port entity**

Beyond the question of whether the entity operates the terminal or not, the results reveal a different approach expressed by PAs from the one expressed by cruise terminal operators or any other entities involved in such operations. The *infrastructure (other than transport) in the port* challenge and *the development of other regions as new cruise destinations* are for instance more important for PAs, than for the other types of entities. In the case of *relations outside the ports* all entities identify the importance of those challenges and thus consider it as key challenge. Comparing the case of PAs that operate with the PAs that do not operate cruise terminal(s), it is proved that the former ones have to address notably more challenges. This should be attributed to the fact that the former group of PAs performs simultaneously different roles, i.e. it is the conservator of the port but also that of the entrepreneur that develops the cruise port.

For operating entities the most significant challenges are the ones that are closer to the core of their operations: Relationships with (a) *people and business around the port*, (b) *the city of arrival and local authorities*, and (c) *cruise lines* are the most significant challenges, followed by the accommodation of *bigger cruise ships* and the quest for expanding *cruising in winter* times. This list does not differ in the case of ports that other types of entities, i.e. chambers of commerce, municipality, region, etc, have assumed the operation of cruise terminals.

With the presence of differences between the responses of the four groups, the follow-up question to be statistically tested was which specific groups have perspectives that differ. To statistically test and answer this question we run a non-parametric analysis of the independent samples (i.e. the four groups of respondents) through a Kruskal-Wallis one-way ANOVA allowing all pairwise comparisons.<sup>5</sup> With the testing for the entire sample suggesting the absence of any statistically significant difference, we run the test for each of the two markets. For North European ports, the Kruskal Wallis H test returned zero challenges for which pairs of groups expressed statistically significantly different perspectives. For Mediterranean ports, the test uncovered eight challenges for which pairwise comparisons identify statistically significant differences (Table 10). Evidently, in the bigger in size matured Mediterranean market, where governance reforms have resulted in a variance of port governing entities, PAs operating cruise ports experience different challenges from those experienced by PAs that do not operate terminals or cruise terminal operators.

**Table 10 - Challenges per type of port entity: Kruskal – Wallis ANOVA non-parametric test**

Each of these groups face quite different challenges in their relationships with cruise lines (Table 11), with the PAs that maintain responsibility for both governing the port and operating the cruise

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<sup>5</sup> The use of Kruskal-Wallis is a commendable analysis of variance when: (a) the dependent variable is measured at the ordinal or continuous level (i.e. the case of the Likert scale used in our survey); and (b) the independent variable consists of two or more independent groups, whereas in our case there are three groups offering a number of independent observations.

terminal facing the most extensive list of challenges. For PAs that operate cruise ports, *shore excursions* are the most important think to be resolved, followed by the *long-term engagement of cruise lines*, and *cancellation of calls* to cruise passengers arriving at the ports. *Shore excursions*, *long-term engagement of cruise lines*, and *cancellation of calls*, including *taxi and other public transport availability* are the most significant challenges for those PAs that do not operate cruise terminals. What is different though is the significance of these challenges; the latter group of PAs assesses them as of less significance. In these ports the decision to engage a third party in the operation of cruse terminals has evidently resulted in the presence of another body that has assumed part of the responsibilities to develop a meaningful relationship with cruise lines.

It is precisely this transfer of responsibilities from PAs to cruise terminal operators that have implied that those relationships with cruise lines that relate to operations – such as the arrangement of berth allocation, the cooperation in the scheduling and planning of itineraries and port tariffs and – have turned to major challenges for port operators. Whenever other types of entities are involved in the operation of the cruise ports, the challenges that these entities face are similar to those of the PAs that operate cruise terminals. However, in these cases, the ranking of the significance of the challenges faced is higher.

**Table 11 - Challenges in relations with cruise lines per type of port entity**

Pairwise comparisons via the non-parametric Kruskal-Wallis one-way ANOVA testing (**Table 12**) confirmed that in the Mediterranean cruise market the *cancellations of calls*, the *frequently changing demands by cruise lines* and *taxi and other public transport availability* are more significant challenges for PAs operating cruise ports than for PAs that do not operate terminals. In the North European case, this is the case for a different challenge, namely the *pressures for berth allocation*.

**Table 12 - Challenges in relations with cruise lines per type of port entity: Kruskal – Wallis ANOVA non-parametric test**

## 5. Conclusions

The study examined the challenges that European cruise ports were facing in the pre-COVID-19 pandemic era. It detailed the current hierarchy of the most significant challenges for cruise ports, searching for regional perspectives in the two European cruise markets (i.e. North Europe, and the Mediterranean Sea), and variations per type of cruise ports governance challenges.

The findings reveal that the recent advocacy that the cruise shipping industry is reaching the ‘end of the beginning’ (Peisley, 2014) stands true for cruise ports as well. Challenges of strategic nature emerge among the most significant ones reflecting this conclusion. Four out of seven challenges of major significance are strategic ones. In the more advanced (in terms of both size and maturity) Mediterranean cruise port region all three top challenges are strategic ones, with the mean score for these variables standing remarkably high (>3,20). This is less the case in the smaller North European cruise market. Cruise ports are at different stage of development, of difference size, and are governed in different ways – thus the challenges they face differ. This differentiation is evident in the study: the standard deviations of the responses from the mean replies are notable.

Evidently, in times of continuous and dynamic growth of cruising the need, and perhaps the pressure, for a redefinition of the relationships between ports and other actors has been present. Three challenges surfaced as the most significant ones. The relationships of ports with cruise lines and their relationships with people and businesses around the ports were two of them. The adjustment of these relationships had already started before the COVID-19 crisis. The intensification of the exchanges between actors (either directly or via cruise and ports associations) that is taken place in recent years reflects the commencing of this process at a practical level.

Redefining the relationships with cruise lines continuous to puzzle cruise ports. The offering of better and/or additional services to cruise passengers is the most important challenge. This offering refers to shore excursions, but also to transportation ashore to passengers reaching the port. Securing a longer engagement of cruise lines and addressing issues related to the cancellations of planned calls, are the other issues that European ports feel standing as major challenges to be addressed. This is additional evidence that the cruise ports industry is heading towards a post-beginning phase where addressing the need for providing basic infrastructure is not enough. In conditions of growth, structural issues and long-term strategies are already prioritised in many respects. Ports capable to interact in the planning phase with cruise lines, and then balance the quality and quantity of the services offered with the requests of cruise lines, are the ones best positioned to reach the desired longer engagement of cruise lines.

All these imply the need for ports to develop knowledge of the differences between cruise lines that might call, including their source markets and the basics of how they operate, but also to research other ports, and itineraries in order to define the goals for the port and destinations. The advent of the pandemic upgrades the importance of such knowledge. Due to COVID-19 the fundamentals of the competition will also have to be revised; today there are more ships than passengers for the first time in decades and there are also more ships than ports for the first time ever.

In retrospect, at a scholarly level, advancing empirical research and conceptualisations on potential port strategies at governance, operational, and, not least, marketing practices is essential. While the discussion on such issues is already advanced for container ports, in the case of cruise ports this worthy examination is found absent. Cruise research is worth expanding towards the examination of the evolving relationships between cruise ports and cruise lines as well.

Operational challenges follow the strategic ones in terms of significance, a sign of cruise ports confidence in the pre-pandemic era. The major pre-COVID-19 trend, that is the renewal and the continuous upscaling of cruise vessels has been a major challenge for cruise ports, especially. The dimension of geography is not irrelevant, with the smaller in size North European ones feeling more pressure by this trend. With the ordering book of cruise lines suggesting that this trend sustains, this challenge was at the end of 2019 assessed as a key one for years to come. In mid-2020 however, the evolving post-COVID-19 'new normal' along with the financial implications of crisis might halt further growth of cruise ships size. Noteworthy that cost issues, such as port tariffs, appear only occasionally as a key challenge. Even in these cases, ports rank them as of lower significance compared with other issues.

The COVID-19 crisis might shift the balance between strategic and operational challenges once more. Further adjustments due to COVID-19 or similar crises (i.e. preventative measures, preparedness for responding to virus events onboard cruise ships, prevent infectious passengers and crews from boarding and cruising, responding retrospectively to cases onboard cruise ships and at terminal stations, considerations for cruise terminals, etc.) inevitably bring operational challenges at the forefront. Monitoring the situation and studying the re-emerging balance is essential.

The analysis confirmed evidence that regional perspectives exist: challenges for cruise ports in the more matured Mediterranean market are not the same ones with those that are assessed as significant by ports located in the comparatively less matured North European market. Ports in the Mediterranean and its adjoining seas feel more pressure of different (and more) challenges. While the most significant challenges of all remain the same, there are several issues that are assessed today as important ones by Mediterranean ports but of comparatively minor importance by ports in North Europe (i.e. security, presence of infrastructure (other than transport) in the port and connectivity of the destination with source markets).

In a very similar way, the findings revealed that governance is also a dimension that affects the challenges that cruise ports face. Once more, this is particularly true in the bigger in size Mediterranean market where the PAs that sustain the operating function face a very extensive list of challenges to resolve. PAs that have concessioned operational rights to third parties face fewer challenges, i.e. they do not have to address operational issues. Cruise terminal operators feel purely operational challenges. The other types of entities - such as chambers of commerce, public authorities, or tourism organisations – that have assumed responsibility for governing and operating the port faced identical challenges with operating PAs, yet the density of these challenges stands as higher. The fact that the latter type of entries has assumed responsibilities in recent times has an impact on the progress that has been made in addressing the key challenges.

With regional markets and port governance structures being two dimensions that affect the significance level of each challenge, further research based on the size of cruise ports (i.e. number of passengers and calls hosted per year) and the type of calls that are hosted (transit and/ or turnaround) would provide further insights as regards the precise challenges that each group of ports faces.

Meanwhile, the collective efforts of PAs from all over Europe to develop a code of practice for cruise ports (ESPO, 2016) and recently a common stance as regards addressing of externalities (ESPO, 2019) can advance a common understanding and a port dialogue that will facilitate addressing the examined challenges. Due to the COVID-19 that dialogue is more important than ever: as the recent European Maritime Safety Agent (EMSA 2020) guidance on the gradual and safe resumption of operations of cruise ships in the European Union in relation to the COVID-19 pandemic, which has been produced by the highlights, public policy initiatives remain decisive tools in framing a socially economically, environmentally and sanitary sustainable framework for cruise operations.

What the existing empirical findings have already manifested though, is that in the light of (a) the changing structures of cruise shipping, (b) the reforms of cruise ports governance, that has resulted in the presence of a variety cruise ports managing entities, and (c) the evolving relationships between port and hosting cities, any public policy initiative based on a 'one size fits

all' approach would provide an ineffective helping hand in resolving the major of the identified challenges. At European level, this means that policy dialogues in progress should incorporate both port governance and regional market dimensions (and perhaps dimensions related to size and type of cruise activities hosted) in the detailing of any initiatives that might be agreed with the aim being a sustainable growth of cruise activities in Europe and beyond.

## References

- Baltazar, R. and Brooks, M. R. (2001). The devolution of port management: a tale of two countries, presented at the *World Conference on Transport Research*, Seoul, July.
- Brida, J. G., Del Chiappa, G., Meleddu, M., and Pulina, M. (2014). A comparison of residents' perceptions in two cruise ports in the Mediterranean Sea. *International Journal of Tourism Research* 16(2), 180–190.
- Brooks, M. R. and Pallis, A. A. (2008). Assessing port governance models: Process and performance components. *Maritime Policy and Management*, 35(4), 411-432.
- Brooks, M. R. and Cullinane, K. P. B. (2007). *Devolution, port performance and port governance*, Oxford: Elsevier.
- Brooks, M. R., Cullinane, K. P. B. and Pallis A. A. (2017). Revisiting port governance and port reform: a multi-country examination. *Research in Transportation Business and Management*, 22, 1-10.
- Butt, N., 2007. The impact of cruise ship generated waste on home ports and ports of call: A study of Southampton. *Marine Policy*, 31, 591-598.
- Chen, J. M., Petrick, J. F., MacKay, K., and Nijkamp, P. (2020). Decision-making in cruise operations management: A double-hurdle approach, *Research in Transportation Business & Management*, <https://doi.org/10.1016/j.rtbm.2020.100524>, in press.
- Cruise Industry News, (2019). *Cruise Industry News Quarterly*, December 2019.
- Cruise Lines Industry Association (CLIA), (2018). *2017 Europe Economic Impact Report*, CLIA Europe.
- Cruise Lines Industry Association (CLIA), 2019a, 2020 State of the Industry. Washington DC: CLIA.
- Cruise Lines Industry Association (CLIA), 2019b, Asia Cruise Trends. Washington DC: CLIA.
- Cusano, M. I., Ferrari, C. and Tei, A. (2017). Port hierarchy and concentration: Insights from the Mediterranean cruise market. *International Journal of Tourism Research*, 19(2), 235-245.
- Del Chiappa, G., and Melis, G. (2015). Residents perceptions of the impact of ship tourism and their preferences for different types of tourism Advances in Culture, *Tourism and Hospitality Research*, 10, 45-60.
- Di Vaio, A., Medda, F. R. and Trujillo, L. (2011). An analysis of the efficiency of Italian cruise terminals. *International Journal of Transport Economics*, 38(1), 29-46.
- Esteve-Perez, J. and Garcia-Sanchez, A. (2017). Characteristics and consequences of the cruise traffic seasonality on ports: the Spanish Mediterranean case. *Maritime Policy and Management*, 44(3), 358-372.
- Esteve-Perez, J., Garcia-Sanchez, A. and Muñoz-Paupie, A. (2019). Cruise Traffic Seasonality Patterns in the Western Mediterranean and the Adriatic Sea: A Challenge to Port Operators. *Coastal Management*, 47(4), 362-386.
- European Maritime Safety Agent (EMSA) (2020). COVID-19: EU Guidance for Cruise Ship Operations: Guidance on the gradual and safe resumption of operations of cruise ships in the European Union in relation to the COVID-19 pandemic. 27 July 2020. Lisbon: EMSA.
- European Sea Ports Organisation (ESPO) (2016). *Code of Practice for Cruise and Ferry Ports*, Brussels: ESPO.



- European Sea Ports Organisation (ESPO) (2019). ESPO Statement on safeguarding the development of sustainable cruise activity in European ports, November 2019, Brussels: ESPO.
- Hesse M. (2017). Cruise to the Edge: How 1970s prog-rock dinos found a safe haven on the cruise ship. In: Monios J. and Wilmsmeier G. (eds.) *Maritime Mobilities*, 103-116, London: Routledge.
- Karlis, T. and Polemis, D. (2018). Cruise homeport competition in the Mediterranean. *Tourism Management*, 68, 168-176.
- Klein, R. A., (2011). Responsible Cruise Tourism: Issues of Cruise Tourism and Sustainability. *Journal of Hospitality and Tourism Management*, 18, 107-116.
- Lamers, M., Eijgelaar, E., and Amelung, B., (2015). The Environmental Challenges of Cruise Tourism: Impacts and Governance. In: C. M. Hall, S. Goessling and D. Scott (eds.), *The Routledge Handbook of Tourism and Sustainability*, pp. 430-439, London: Routledge.
- Lee, G. and Lee, M. K. (2017). Estimation of the shore excursion expenditure function during cruise tourism in Korea. *Maritime Policy and Management*, 44(4), 524-535.
- Lekakou M. B., Pallis A. A. and Vaggelas, G. K. (2009). Which Homeport in Europe: The Cruise industry's selection criteria, *Tourismos*, 4(4), 215-240.
- Lester, S. E., White, C., Mayall, K., and Walker, R. K. (2016). Environmental and economic implications of alternative cruise ship pathways in Bermuda. *Ocean Coastal Management*, 132, 70-79.
- Macneill, T. and Wozniak, D. (2018). The economic, social, and environmental impacts of cruise tourism. *Tourism Management*, 66, 387-404.
- Madsen, E. L., Wigger, K. A., and Vinogradov, E. (2018). Collaboration, Intentions, and Local value creation from cruise arrivals. *Tourism in Marine Environments*, 13(4), 205-216.
- Mahoney, I., and Collins, V. E. (2019). The capitalist voyeur: commodification, consumption and the spectacle of the cruise. *Leisure Studies*, 44(3), 1-14.
- Mccalla, R. (1998). An investigation into site and situation: cruise ship ports. *Tijdschrift Voor Economische en Sociale Geografie*, 89(1), 44-55.
- MedCruise, 2020, *MedCruise Statistics 2019*. Tenerife: MedCruise.
- Navarro-Ruiz, S., Casado-Díaz, A. and Ivars-Baidal, J. (2019). Cruise tourism: the role of shore excursions in the overcrowding of cities. *International Journal of Tourism Cities*. in press.
- Notteboom T. E. and Pallis, A. A. (2020). IAPH-WPSP Port Economic Impact Barometer Half Year Report: A survey-based analysis of the impact of COVID-19 on world ports in the period April to September 2020. IAPH: Antwerp.
- Pallis, A. A. and Arapi, K. P. (2016). A Multi-Port Cruise Region: Dynamics and Hierarchies in the Med. *Tourismos*, 16(1), 1-27.
- Pallis, A. A. and Vaggelas G. K. (2019). The changing geography of cruise shipping. In: Wilmsmeier G., Monios J., Browne M. & Woxenius J. (eds.) *Geographies of waterborne transport: Transitions from transport to mobilities*, Cheltenham: Edward Elgar.
- Pallis, A. A., Arapi, K. P., and Papachristou, A. A. (2019). Models of cruise ports governance. *Maritime Policy and Management*, 46(5), 630-651.
- Pallis, A. A., Parola, F., Satta, G. and Notteboom T. E. (2018a). Cruise port terminals: A comparative analysis of private entry strategies and internationalization patterns in the European cruise markets. *International Association of Maritime Economists (IAME) Conference 2018*, Mombasa, Kenya.
- Pallis, A. A., Parola, F., Satta, G. and Notteboom T. E. (2018b). Private entry and emerging partnerships in cruise terminal operations in the Mediterranean Sea. *Maritime Economics and Logistics*, 20(1), 1-28.
- Pallis, A. A., Rodrigue, J. P. and Notteboom, T. E. (2014). Cruises and cruise ports: Structures and strategies. *Research in Transportation Business and Management*, 13, 1-5.

- Papachristou A. A. Pallis A. A. & Vaggelas G. K. (2020). Cruise home-port selection criteria. *Research in Transportation Business and Management*, doi.org/10.1016/j.rtbm.2020.100584.
- Papathanassis, A. (2019). The growth and development of the cruise sector: a perspective article. *Tourism Review*, 75(1), 130-135.
- Peisley, T. (2012). Cruising through the Perfect Storm: Will Draconian New Fuel Regulations in 2015 Change the Cruise Industry's Business Model Forever?, Colchester: Seatrade Communications Ltd.
- Peisley, T. (2014). *End of the Beginning for Cruising*, Colchester: Seatrade Communications Ltd.
- Rodrigue, J.-P., and Notteboom, T. E. (2005). Port regionalization: towards a new phase in port development. *Maritime Policy and Management*, 32, 297–313.
- Rodrigue, J.-P., and Notteboom, T. E. (2013). The Geography of cruises: Itineraries, not destinations. *Applied Geography*, 38, 31-42.
- Ros Chaos, S. Pallis A. A., Saurí Marchán S., Pino Roca D. & Sánchez-Arcilla Conejo A. (2020). Economies of Scale in Cruise Shipping. *Maritime Economics and Logistics*, DOI 10.1057/s41278-020-00158-3, in press.
- Sanchez R. J., and Wilmsmeier G. (2012). *The Costa Concordia disaster and the cruise industry: An analysis of risks and challenges in Latin America and the Caribbean*. FAL Bulletin, 306(2), Santiago, Chile: Economic Commission for Latin America and the Caribbean.
- Santos, M., Radicchi, E. and Zagnoli, P. (2019). Ports Role as a Determinant of Cruise Destination Socio-Economic Sustainability. *Sustainability*, 11(17), 4542.
- Sanz Blas, S., and Carvajal-Trujillo, E. (2014). Cruise passengers' experiences in a Mediterranean port of call. The case study of Valencia. *Ocean and Coastal Management*, 102, 307-316.
- Satta, G., Parola, F. and Penco, L. (2017). Cruise lines searching for legitimacy: Stakeholder relationship management and CSR reporting. *EURAM Conference 2017*, Glasgow, UK.
- Sheller, M. (2009). The new Caribbean complexity: Mobility systems, tourism and spatial rescaling. *Singapore Journal of Tropical Geography*, 30(2), 189-203.
- Sorensen, H. (2006). Cozumel: The Challenges of Cruise Tourism. In: R. Dowling (ed.), *Cruise Ship Tourism*, 350–359. Oxfordshire: CABI.
- Stefanidaki, E., and Lekakou, M. (2014). Cruise carrying capacity: A conceptual approach. *Research in Transportation Business and Management*, 13, 43-52.
- UN World Tourism Organisation (UNWTO) (2020a). 100% of global destinations now have COVID-19 travel restrictions, UNWTO REPORTS. 28 April 2020.
- UNWTO (2020b). International tourist numbers could fall 60-80% in 2020, UNWTO Reports, 7 May 2020.
- Urbanyi-Popiolek, I. (2019). Cruise industry in the Baltic Sea Region, the challenges for ports in the context of sustainable logistics and ecological aspects. *Transportation Research Procedia*, 39, 544–553.
- Vayá, E., Garcia, J. R., Murillo, J., Romani, J. and Suriñach, J. (2018). Economic impact of cruise activity: the case of Barcelona. *Journal of Travel and Tourism Marketing*, 35(4), 479-492.
- Verhoeven, P. (2010). A review of port authority functions: towards a renaissance? *Maritime Policy and Management*, 37(3), 247-270.
- Weaver, A. (2005). Spaces of Containment and Revenue Capture: 'Super-sized' Cruise Ships as Mobile Tourism Enclaves. *Tourism Geographies*, 7(2), 165-184.

**Table 13 – Survey sample per region**

| Mediterranean and adjoining seas (Med) |               |             | North European seas (NE) |               |             |
|--|---------------|-------------|--------------------------|---------------|-------------|
| Sub-region                             | No of Replies | % of region | Sub-region               | No of replies | % of region |
| West Med                               | 39            | 53,4%       | UK and Ireland           | 17            | 20,7        |
| Adriatic                               | 12            | 16,4%       | Atlantic Europe          | 24            | 29,3        |
| East Med                               | 16            | 21,9%       | Iceland, Norway & Faroes | 22            | 26,8        |
| Black Sea                              | 6             | 8,2%        | Baltic                   | 19            | 23,2        |
| <b>Total</b>                           | <b>73</b>     |             | <b>Total</b>             | <b>82</b>     |             |

**Table 14 – Survey sample per type of entity**

|  | Med       |      | North Europe |      | Total      |      |
|--|-----------|------|--------------|------|------------|------|
|  | No        | %    | No           | %    | No         | %    |
| Port Authority that operates cruise terminal(s)                | 43        | 58,9 | 40           | 49,4 | 83         | 53,9 |
| Port Authority that does not operate cruise terminal(s)        | 15        | 20,5 | 25           | 30,9 | 40         | 26,0 |
| Private terminal operator that operates the cruise terminal(s) | 15        | 20,5 | 6            | 7,4  | 21         | 13,6 |
| Other  |           |      | 11           | 13,6 | 11         | 7,1  |
| <b>Total</b>   | <b>73</b> |      | <b>82</b>    |      | <b>155</b> |      |

**Table 15 - Challenges for European cruise ports (all ports; all challenges; scale 0-5)**

| Challenge   | Type | Mean | Std. Deviation | Skew  | Kurtosis |
|---|------|------|----------------|-------|----------|
| Relationship with the cruise lines                                | ST   | 3,32 | 2,039          | -,752 | -1,262   |
| Bigger cruise ships (in size)                                     | O    | 3,24 | 1,709          | -,728 | -1,254   |
| Relationship with people and businesses around the ports          | ST   | 3,11 | 1,611          | -,579 | -,111    |
| Exploiting the potential of winter cruising                       | ST   | 2,93 | 1,672          | -,403 | -1,133   |
| Relationship with the city of arrival and local authorities       | S    | 2,87 | 1,842          | -,413 | -,702    |
| Transport infrastructure to and from the port                     | O    | 2,78 | 1,845          | -,267 | -1,571   |
| Competition with other (neighbouring) cruise ports                | ST   | 2,74 | 1,602          | -,249 | -1,247   |
| Infrastructure (other than transport) in the port                 | O    | 2,70 | 1,916          | -,080 | -,993    |
| Connectivity of the destination with source markets               | O    | 2,68 | 1,677          | -,249 | -,764    |
| Security  | O    | 2,65 | 2,023          | -,147 | -1,357   |
| Mobility to and from the port                                     | O    | 2,62 | 1,898          | -,162 | -,974    |
| Development of other regions as new cruise destinations           | ST   | 2,54 | 1,721          | -,125 | -1,111   |
| People with reduced mobility                                      | O    | 2,53 | 1,888          | -,113 | -1,509   |
| Relationship with the travel agents                               | ST   | 2,48 | 1,772          | -,064 | ,531     |
| Becoming a homeport   | ST   | 2,47 | 1,958          | ,045  | -1,178   |
| Other environmental externalities (noise, air quality, dust...)   | E    | 2,20 | 1,789          | ,148  | -1,479   |
| Lack of coordination with other neighbouring ports                | O    | 2,15 | 1,684          | ,303  | -1,352   |
| Passenger rights  | O    | 2,14 | 1,921          | ,252  | -1,488   |
| Transport congestion (public and private) around the port         | O    | 2,14 | 1,752          | ,169  | -1,287   |
| The port of arrival is not the main factor of tourist activity    | ST   | 2,12 | 1,756          | ,237  | -1,301   |
| Meeting local legislation (International/National/Regional/Local) | ST   | 2,10 | 1,802          | ,229  | -1,428   |
| Waste reception   | E    | 2,01 | 1,827          | ,308  | -1,411   |
| Ship congestion in the port                                       | O    | 2,00 | 1,769          | ,315  | -1,364   |
| Freight vs. cruise relationship in port                           | ST   | 2,00 | 1,892          | ,257  | -1,385   |
| Customs/ border control   | O    | 1,98 | 1,820          | ,333  | -1,455   |
| Confusion in responsibilities of the port & the city              | S    | 1,25 | 1,537          | 1,044 | -1,476   |
| Yachting vs. cruise relationship in port                          | ST   | 1,04 | 1,448          | 1,301 | -1,600   |

\* Type of challenge: ST= Strategic; O=Operational; S=Societal; E=Environmental

**Table 16 - Challenges in relationships between ports and cruise lines**

| Challenge   | Mean | Std. Deviation | Skew  | Kurtosis |
|---|------|----------------|-------|----------|
| Shore excursions  | 2,77 | 1,824          | -,245 | -1,343   |
| Long-time engagement  | 2,59 | 1,859          | -,110 | -1,397   |
| Taxi and other public transport availability                          | 2,51 | 1,740          | ,024  | -1,290   |
| Cancellation of calls   | 2,51 | 1,821          | -,012 | -1,385   |
| Port tariffs  | 2,41 | 1,838          | -,006 | -1,425   |
| Lack of cooperation when scheduling/ planning itineraries             | 2,36 | 1,752          | -,072 | -1,361   |
| Pressures for berth allocation  | 2,20 | 1,763          | ,088  | -1,347   |
| Emissions limitations   | 2,12 | 1,823          | ,259  | -1,380   |
| Other port services (mooring, MARPOL reception...)                    | 2,12 | 1,801          | ,284  | -1,277   |
| Shore electricity supply  | 1,90 | 1,789          | ,404  | -1,306   |
| Frequently changing demands by cruise lines                           | 1,89 | 1,510          | ,366  | -,879    |
| Operational coordination (visa procedures, electronic services, etc.) | 1,85 | 1,766          | ,464  | -1,153   |
| Suppliers   | 1,80 | 1,681          | ,546  | -1,003   |
| Pilotage  | 1,64 | 1,751          | ,678  | -,913    |
| Confusion in responsibilities   | 1,45 | 1,505          | ,687  | -,629    |

**Table 17 - Major challenges: Is there a regional dimension?**

|   | Mediterranean Sea (MS) |                | North Europe (NE) |                | $\Delta_{\text{means}}$<br>(MS-NE) |
|---|------------------------|----------------|-------------------|----------------|------------------------------------|
|   | Mean                   | Std. Deviation | Mean              | Std. Deviation |                                    |
| Relationship with the cruise lines                          | 3,70                   | 1,844          | 2,88              | 2,168          | 0,82                               |
| Relationship with people and businesses around the ports    | 3,29                   | 1,476          | 2,86              | 1,753          | 3,29                               |
| Exploiting the potential of winter cruising                 | 3,25                   | 1,619          | 2,54              | 1,654          | 3,25                               |
| Bigger cruise ships (in size)                               | 3,19                   | 1,755          | 3,24              | 1,692          | -0,06                              |
| Relationship with the city of arrival and local authorities | 3,15                   | 1,729          | 2,53              | 1,920          | 3,15                               |
| Security  | 3,13                   | 1,962          | 2,14              | 1,976          | 3,13                               |
| Infrastructure (other than transport) in the port           | 3,11                   | 1,892          | 2,20              | 1,850          | 3,11                               |
| Transport infrastructure to and from the port               | 3,07                   | 1,756          | 2,41              | 1,905          | 3,07                               |
| Connectivity of the destination with source markets         | 3,03                   | 1,513          | 2,29              | 1,765          | 3,03                               |
| Becoming a homeport   | 3,00                   | 1,867          | 1,89              | 1,906          | 3,00                               |
| People with reduced mobility                                | 3,00                   | 1,865          | 2,03              | 1,800          | 3,00                               |
| Competition with other (neighbouring) cruise ports          | 2,99                   | 1,526          | 2,46              | 1,627          | 2,99                               |
| Relationship with the travel agents                         | 2,96                   | 1,744          | 1,91              | 1,658          | 2,96                               |
| Development of other regions as new cruise destinations     | 2,94                   | 1,632          | 2,14              | 1,710          | 2,94                               |

Note: Challenges for which the mean reply is higher than 2.8 for at least one regional group

**Table 18 - Major challenges: Statistically Significant Regional Variations (ANOVA F-values)**

| Challenge   | F-values | p    |
|---|----------|------|
| Passenger rights  | 12.729   | .001 |
| Relationship with the travel agents                               | 11.758   | .001 |
| Becoming a homeport   | 11.667   | .001 |
| People with reduced mobility                                      | 9.443    | .003 |
| Customs/ border control   | 8.533    | .004 |
| Security  | 8.396    | .004 |
| Development of other regions as new cruise destinations           | 7.328    | .008 |
| Infrastructure (other than transport) in the port                 | 7.119    | .009 |
| Yachting vs. cruise relationship in port                          | 6.893    | .010 |
| Connectivity of the destination with source markets               | 6.794    | .010 |
| Meeting local legislation (International/National/Regional/Local) | 6.596    | .011 |
| Exploiting the potential of winter cruising                       | 5.892    | .017 |
| Waste reception   | 5.781    | .018 |
| Transport congestion (public and private) around the port         | 5.764    | .018 |
| Relationship with the cruise lines                                | 5.272    | .023 |
| The port of arrival is not the main factor of tourist activity    | 4.746    | .031 |

**Table 19 - Challenges in the relationships with cruise lines: Regional Perspectives**

|  | Mediterranean<br>Sea (MS) | North<br>Europe (NE) | $\Delta_{\text{means}}$<br>(MS-NE) |
|--|---------------------------|----------------------|------------------------------------|
| Shore excursions   | 2.87                      | 2.64                 | 0.24                               |
| Cancelation of calls   | 2.86                      | 2.19                 | 0.67                               |
| Port tariffs   | 2.83                      | 2.04                 | 0.79                               |
| Long-time engagement   | 2.79                      | 2.33                 | 0.47                               |
| Shore electricity supply   | 1.78                      | 2.00                 | -0.22                              |
| Pilotage   | 1.77                      | 1.48                 | 0.29                               |
| Lack of cooperation when scheduling/ planning itineraries            | 2.66                      | 2.09                 | 0.57                               |
| Taxi and other public transport availability                         | 2.61                      | 2.39                 | 0.21                               |
| Confusion in responsibilities  | 1.60                      | 1.34                 | 0.26                               |
| Other port services (mooring, MARPOL reception...)                   | 2.52                      | 1.69                 | 0.83                               |
| Operational coordination (visa procedures, electronic services, etc) | 2.34                      | 1.33                 | 1.01                               |
| Pressures for berth allocation                                       | 2.28                      | 2.07                 | 0.21                               |
| Emissions limitations  | 2.19                      | 2.03                 | 0.16                               |
| Frequently changing demands by cruise lines                          | 2.14                      | 1.62                 | 0.53                               |
| Suppliers  | 2.07                      | 1.52                 | 0.55                               |

**Table 20 - Challenges in the relationships with cruise lines: Statistically Significant Regional Variations (ANOVA F-values)**

| Challenge  | F-values | p    |
|--|----------|------|
| Operational coordination (visa procedures, electronic services, etc) | 12.132   | .001 |
| Other port services (mooring, MARPOL reception...)                   | 7.829    | .006 |
| Port tariffs   | 7.446    | .007 |
| Cancelation of calls   | 5.644    | .019 |
| Frequently changing demands by cruise lines                          | 4.337    | .039 |
| Lack of cooperation when scheduling/ planning itineraries            | 4.198    | .042 |

**Table 21 - Challenges per type of port entity**

|   | PA   | PAnot | CTO  | O    | $\Delta_{\text{means}}$<br>(PA-PAnot) | $\Delta_{\text{means}}$<br>(PA-CTO) | $\Delta_{\text{means}}$<br>(PA-O) | $\Delta_{\text{means}}$<br>(PAnot-CTO) | $\Delta_{\text{means}}$<br>(PAnot-O) | $\Delta_{\text{means}}$<br>(CTO-O) |
|---|------|-------|------|------|---------------------------------------|-------------------------------------|-----------------------------------|--|--------------------------------------|------------------------------------|
| Bigger cruise ships (in size)                                     | 3,52 | 3,03  | 2,79 | 2,50 | 0,49                                  | 0,73                                | 1,02                              | 0,24                                   | 0,53                                 | 0,29                               |
| Relationship with the cruise lines                                | 3,45 | 3,50  | 2,56 | 3,00 | -0,05                                 | 0,89                                | 0,45                              | 0,94                                   | 0,50                                 | -0,44                              |
| Exploiting the potential of winter cruising                       | 3,18 | 2,16  | 3,37 | 2,50 | 1,03                                  | -0,19                               | 0,68                              | -1,21                                  | -0,34                                | 0,87                               |
| Relationship with people and businesses around the ports          | 3,08 | 3,09  | 3,00 | 3,75 | -0,01                                 | 0,08                                | -0,67                             | 0,09                                   | -0,66                                | -0,75                              |
| Infrastructure (other than transport) in the port                 | 3,04 | 2,50  | 2,17 | 1,50 | 0,54                                  | 0,87                                | 1,54                              | 0,33                                   | 1,00                                 | 0,67                               |
| Transport infrastructure to and from the port                     | 3,01 | 2,28  | 2,79 | 2,63 | 0,73                                  | 0,22                                | 0,39                              | -0,51                                  | -0,34                                | 0,16                               |
| Relationship with the city of arrival and local authorities       | 2,92 | 2,72  | 2,68 | 3,38 | 0,20                                  | 0,24                                | -0,45                             | 0,03                                   | -0,66                                | -0,69                              |
| Mobility to and from the port                                     | 2,92 | 2,19  | 2,26 | 2,25 | 0,73                                  | 0,66                                | 0,67                              | -0,08                                  | -0,06                                | 0,01                               |
| Security  | 2,87 | 2,16  | 2,68 | 2,50 | 0,71                                  | 0,18                                | 0,37                              | -0,52                                  | -0,34                                | 0,18                               |
| Development of other regions as new cruise destinations           | 2,80 | 2,15  | 2,67 | 1,70 | 0,65                                  | 0,13                                | 1,10                              | -0,52                                  | 0,45                                 | 0,97                               |
| People with reduced mobility                                      | 2,79 | 2,23  | 2,32 | 1,75 | 0,57                                  | 0,48                                | 1,04                              | -0,09                                  | 0,48                                 | 0,57                               |
| Becoming a homeport   | 2,79 | 2,09  | 2,00 | 2,13 | 0,70                                  | 0,79                                | 0,66                              | 0,09                                   | -0,03                                | -0,13                              |
| Competition with other (neighbouring) cruise ports                | 2,74 | 2,75  | 2,84 | 2,38 | -0,01                                 | -0,10                               | 0,37                              | -0,09                                  | 0,38                                 | 0,47                               |
| Connectivity of the destination with source markets               | 2,69 | 2,69  | 2,78 | 2,25 | 0,01                                  | -0,08                               | 0,44                              | -0,09                                  | 0,44                                 | 0,53                               |
| The relationship with the travel agents                           | 2,60 | 2,13  | 2,89 | 1,75 | 0,47                                  | -0,30                               | 0,85                              | -0,77                                  | 0,38                                 | 1,14                               |
| Passenger rights  | 2,39 | 1,68  | 2,32 | 1,13 | 0,71                                  | 0,07                                | 1,26                              | -0,64                                  | 0,55                                 | 1,19                               |
| Other environmental externalities (noise, air quality, dust...)   | 2,37 | 1,97  | 2,05 | 1,90 | 0,40                                  | 0,32                                | 0,47                              | -0,08                                  | 0,07                                 | 0,15                               |
| Waste reception   | 2,30 | 1,39  | 2,05 | 1,63 | 0,92                                  | 0,25                                | 0,68                              | -0,67                                  | -0,24                                | 0,43                               |
| The port of arrival is not the main factor of tourist activity    | 2,29 | 2,18  | 1,90 | 1,00 | 0,11                                  | 0,39                                | 1,29                              | 0,28                                   | 1,18                                 | 0,90                               |
| Lack of coordination with other neighbouring ports                | 2,25 | 1,75  | 2,32 | 2,38 | 0,50                                  | -0,07                               | -0,13                             | -0,57                                  | -0,63                                | -0,06                              |
| Freight vs. cruise relationship in port                           | 2,20 | 2,16  | 1,05 | 1,75 | 0,04                                  | 1,15                                | 0,45                              | 1,10                                   | 0,41                                 | -0,70                              |
| Transport congestion (public and private) around the port         | 2,17 | 1,75  | 2,95 | 1,50 | 0,42                                  | -0,78                               | 0,67                              | -1,20                                  | 0,25                                 | 1,45                               |
| Meeting local legislation (International/National/Regional/Local) | 2,17 | 1,73  | 2,47 | 1,88 | 0,44                                  | -0,30                               | 0,29                              | -0,74                                  | -0,14                                | 0,60                               |
| Customs/ border control   | 2,13 | 1,84  | 2,21 | 0,80 | 0,28                                  | -0,08                               | 1,33                              | -0,37                                  | 1,04                                 | 1,41                               |
| Ship congestion in the port                                       | 1,92 | 1,78  | 2,95 | 1,29 | 0,14                                  | -1,03                               | 0,64                              | -1,17                                  | 0,50                                 | 1,66                               |
| Yachting vs. cruise relationship in port                          | 1,16 | 0,81  | 0,89 | 1,13 | 0,35                                  | 0,27                                | 0,03                              | -0,09                                  | -0,32                                | -0,23                              |
| Confusion in responsibilities of the port and the city            | 1,12 | 1,29  | 1,71 | 1,11 | -0,17                                 | -0,59                               | 0,01                              | -0,42                                  | 0,18                                 | 0,60                               |

Notes: PA: Port Authority that operates cruise terminal(s); PAnot: Port Authority that does not operate cruise terminal(s); CTO: Cruise Terminal Operator

**Table 22 - Challenges per type of port entity: Kruskal-Wallis ANOVA non-parametric test**

| Challenge   | P value | Pairs of groups with significantly different perspectives | Adjusted Significance |
|---|---------|---|-----------------------|
| <b>Mediterranean Sea</b>  |         |   |                       |
| Becoming a homeport   | .039    | CTO – PA  | .021                  |
| Lack of coordination with other neighboring ports   | .037    | PAnot - PA  | .031                  |
| Mobility to and from the port   | .017    | PAnot – PA  | .037                  |
| Security  | .014    | PAnot – PA  | .031                  |
| Waste reception   | .013    | PAnot – PA  | .024                  |
| Infrastructure (other than transport) in the port   | .008    | CTO – PA<br>PAnot - PA                                    | .039<br>.047          |
| Relationship with the cruise lines  | .005    | CTO – PA  | .004                  |
| People with reduced mobility  | .003    | PAnot – PA<br>CTO – PA                                    | .018<br>.021          |
| Development of other regions as new cruise destinations   | .002    | PAnot - PA  | .004                  |
| <b>North Europe</b>   |         |   |                       |
| Zero challenges for which pairs of groups expressed statistically significantly different perspectives. |         |   |                       |

Notes: PA: Port Authority that operates cruise terminal(s); PAnot: Port Authority that does not operate cruise terminal(s); CTO: Cruise Terminal Operator

**Table 23 - Challenges in relations with cruise lines per type of port entity**

|  | PA   | PAnot | CTO  | O    | $\Delta_{\text{means}}$<br>(PA-<br>PAnot) | $\Delta_{\text{means}}$<br>(PA-<br>CTO) | $\Delta_{\text{means}}$<br>(PA-O) | $\Delta_{\text{means}}$<br>(PAnot-<br>CTO) | $\Delta_{\text{means}}$<br>(PAnot-<br>O) | $\Delta_{\text{means}}$<br>(CTO-O) |
|--|------|-------|------|------|---|---|-----------------------------------|--|--|------------------------------------|
| Shore excursions   | 2,99 | 2,55  | 2,22 | 2,88 | 0,44                                      | 0,76                                    | 0,11                              | 0,32                                       | -0,33                                    | -0,65                              |
| Long-time engagement   | 2,74 | 2,26  | 2,33 | 3,00 | 0,48                                      | 0,40                                    | -0,26                             | -0,08                                      | -0,74                                    | -0,67                              |
| Cancelation of calls   | 2,72 | 2,12  | 2,00 | 3,11 | 0,60                                      | 0,72                                    | -0,39                             | 0,12                                       | -0,99                                    | -1,11                              |
| Taxi and other public transport availability                         | 2,70 | 2,30  | 2,11 | 2,50 | 0,39                                      | 0,59                                    | 0,20                              | 0,19                                       | -0,20                                    | -0,39                              |
| Port tariffs   | 2,44 | 2,05  | 2,55 | 3,33 | 0,39                                      | -0,11                                   | -0,89                             | -0,50                                      | -1,28                                    | -0,78                              |
| Lack of cooperation when scheduling/ planning itineraries            | 2,39 | 2,03  | 2,67 | 2,75 | 0,36                                      | -0,27                                   | -0,36                             | -0,64                                      | -0,72                                    | -0,08                              |
| Emissions limitations  | 2,28 | 1,73  | 2,06 | 2,38 | 0,55                                      | 0,22                                    | -0,10                             | -0,33                                      | -0,65                                    | -0,32                              |
| Shore electricity supply   | 2,25 | 1,64  | 1,19 | 1,22 | 0,61                                      | 1,06                                    | 1,03                              | 0,45                                       | 0,41                                     | -0,03                              |
| Pressures for berth allocation                                       | 2,25 | 1,70  | 2,83 | 2,38 | 0,55                                      | -0,59                                   | -0,13                             | -1,14                                      | -0,68                                    | 0,46                               |
| Other port services (mooring, MARPOL reception...)                   | 2,23 | 1,94  | 2,11 | 1,75 | 0,29                                      | 0,12                                    | 0,48                              | -0,17                                      | 0,19                                     | 0,36                               |
| Frequently changing demands by cruise lines                          | 2,03 | 1,48  | 2,00 | 2,00 | 0,54                                      | 0,03                                    | 0,03                              | -0,52                                      | -0,52                                    | 0,00                               |
| Operational coordination (visa procedures, electronic services, etc) | 1,95 | 1,55  | 2,06 | 1,75 | 0,40                                      | -0,11                                   | 0,20                              | -0,51                                      | -0,20                                    | 0,31                               |
| Suppliers  | 1,90 | 1,61  | 1,78 | 1,75 | 0,29                                      | 0,12                                    | 0,15                              | -0,17                                      | -0,14                                    | 0,03                               |
| Pilotage   | 1,79 | 1,55  | 1,17 | 1,75 | 0,24                                      | 0,62                                    | 0,04                              | 0,38                                       | -0,20                                    | -0,58                              |

|                               |      |      |      |      |       |       |       |       |       |       |
|-------------------------------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| Confusion in responsibilities | 1,24 | 1,61 | 1,83 | 2,00 | -0,37 | -0,60 | -0,76 | -0,23 | -0,39 | -0,17 |
| Other                         | 0,17 | 0,75 | 1,00 | 0,00 | -0,58 | -0,83 | 0,17  | -0,25 | 0,75  | 1,00  |

Notes: PA: Port Authority that operates cruise terminal(s); PAnot: Port Authority that does not operate cruise terminal(s); CTO: Cruise Terminal Operator

**Table 24 - Challenges in relations with cruise lines per type of port entity: Kruskal-Wallis ANOVA non-parametric test**

| Port challenges                              | P value | Pairs of groups with significantly different perspectives | Adjusted Significance |
|--|---------|---|-----------------------|
| <b>Mediterranean Sea</b>                     |         |   |                       |
| Cancellation of calls                        | .005    | PAnot - PA  | .016                  |
| Frequently changing demands by cruise lines  | .019    | PAnot - PA  | .015                  |
| Taxi and other public transport availability | .010    | PAnot – PA  | .012                  |
| <b>North Europe</b>                          |         |   |                       |
| Pressures for berth allocation               | .042    | PAnot - PA  | .027                  |

Notes: PA: Port Authority that operates cruise terminal(s); PAnot: Port Authority that does not operate cruise terminal(s); CTO: Cruise Terminal Operator