



Port-Service Quality Dimensions and Passenger Profiles: An Exploratory Examination and Analysis

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Recent developments in the European Union political agenda, particularly with respect to the role ports that will play in the next decade, emphasise the need for a total re-assessment of the policies pursued by the relevant authorities. A variety of fairly rapid changes, coupled with important technological improvements, have increased the level of competition impacting on port activities. This, combined with a general policy shift from road to sea transport, has highlighted various factors, including the role of the ‘passenger’, in the maritime industry. This role has been somewhat neglected, or at least undervalued, for many years. The main aim of this paper is to explore the quality dimensions of ports in terms of the provision of services to passengers, as well as to identify and analyse the different groups (passenger profiles), which use the port and its services for coastal shipping. This is important in order to identify future competitive advantages for passenger ports. Evidence from the Greek coastal shipping industry reveals a multidimensionality in passenger perceptions of port-service quality and identifies two groups of users of port services.

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INTRODUCTION

The conceptualisation and measurement of customer-service quality perceptions is one of the most heavily debated and researched topics in the marketing



literature. Many researchers provide evidence on the quality perceptions of individual customers in a number of different industry sectors (Akviran, 1994; Crosby and Stephens, 1987; Cronin and Taylor, 1992). On the other hand, several studies examine both the relationships between – and ‘quality’ offered by – the ports to their commercial clients in an effort to compete in the market for cargo shipping (Bennett and Gabriel, 2001; Kent and Parker, 1999; Abshire and Premeaux, 1991; Evers *et al*, 1996; Kent and Ashar, 2001; Farrell, 2001; Lopez and Poole, 1998; Haralambides *et al*, 2001; Murphy *et al*, 1997; Haralambides and Veenstra, 2002). Academic research also considers passenger satisfaction and quality issues in air transport (Zins, 2001; Driver, 2001; Frost and Kumar, 2000; Rhoades *et al*, 2004) and rail (Miler, 1995; Tripp and Drea, 2002).

Compared to other non-maritime industries, ferry passengers and their assessment of the quality provided by the maritime industry (ports and ships) seem to be totally unexamined and little, if any, research work has been conducted or published in the area. A fundamental issue is why ports, as service organisations, have been relatively reluctant to adopt a more commercial approach towards passenger customers. The phenomenon seems best explained by three reasons. First, it can be argued that port authorities conceive themselves as a traditional product or freight, and *not* as passenger transit points, having, in historical terms been organised mainly for that process (Larroque, 1995). Ports appear to regard the passenger as a fast mover through the process from the harbour’s gate to the ship’s entrance. Therefore, within the existing political and organisational framework, they find it difficult to implement a quality plan for services offered to passengers. Secondly, another probable cause for this behaviour is the ‘engineering approach’ that is employed by the majority of ports to accommodate customer needs. The implementation of relevant ISO quality series to many ports cannot fully cover individual customers’ requirements and a more ‘marketing oriented or service quality’ approach may be required. Finally, it seems that over the last few decades, ports have abandoned or been forced to abandon their traditional role as passenger gateways, especially in coastal shipping, due to developments in air transport, which resulted in very low and competitive prices being offered to passengers. The increased competition between modes of transport, combined with the liberalisation and deregulation undertaken in many countries, may explain why the passenger is ignored in the classic maritime literature.

The recent rejection by the European Union (EU) parliament of the so-called ‘Port Package’ (European Union, 2001) has introduced the need for a total re-assessment of the policies pursued in this field. There needs to be a switch from a ‘reactive’ ‘top-down’ over-regulation, to a more proactive approach (Psaraftis, 2005). It is this situation that provides the stimulus for the present paper.



Accordingly, the purpose of this study is to extend and integrate the treatment of services, marketing and port management issues from the passenger viewpoint. This applies especially to coastal shipping, which has not received enough attention in both – services marketing and port management – areas. The study takes a fairly ‘narrow and specific’ perspective, concentrating on the quality of port services provided to passengers of coastal shipping. The first part of the paper examines the relevant literature on services marketing and maritime management in order to support the hypotheses presented on both the dimensions of service quality, and on the profiles of passengers, which are based on these dimensions. The second part includes the analysis and provides evidence from a survey conducted in three Greek ports in order to test the hypotheses.

CONCEPTUAL BACKGROUND

The ports

In the literature, ports are defined as transportation nodes that form transfer points for passengers and freight from one vehicle to another (Wood *et al*, 2002). Until the 1980’s, the port industry was characterised as heavily unionised, fragmented and inefficient. The privatisation of ports and/or the associated operations, or the transfer of responsibility to self-governing bodies managed by local authorities, has been a recent trend and has increased both the efficiency of operations and the level of competition (Walter and Poist, 2004). As a result, the quantity of supplied services has increased, modernised and improved, and new aspects of service quality have emerged. The globalisation of transport, development of logistics and specialisation in production, are further indications of an already intense competition. The European Commission’s White Paper ‘European Transport Policy for 2010: Time to decide’ (European Communities, 2003) recognises the critical role that ports will play in EU over the next decade, and regards the transfer of traffic from road to sea as a major objective.

Land transport networks and the freedom of movement for goods and services allow the development of neighbouring ports as direct competitors to the old ‘kings’ – long established ports (a good example of this is the port of Valencia overtaking Barcelona in 1996 as Spain’s largest container port; Pando *et al*, 2005). ‘Captive’ port traffic is no longer an issue either with respect to goods or passengers, and it has recently been replaced by the term ‘volatile’ traffic, which can be ‘captured’ by several different ports (Cuadrado *et al*, 2004).

The reasons for someone to choose a particular port can be attributed to four main preference factors (Cuadrado *et al*, 2004), namely the *geographical*



location, the *connection* to the hinterland, the *port services* themselves and finally the *complementary logistics services*.

The progressive development of the Trans European Transport Network, which can be expected to continue until 2010, and the integration of land, sea and air transport networks have already led to intense competition between transport modes and among European ports that share and compete for the same hinterland (Barcelo' *et al*, 1992; Compez Lopez, 1996). A 'location' advantage no longer seems the main criterion, such that the services (and their quality) offered to customers appear to constitute a highly significant condition for port competition and excellence.

PORT-SERVICE QUALITY

As an important success factor, service quality has been a frequently studied topic in the service marketing literature. Over the last 10 years, a great deal of research attention has been paid to this field (Johnston, 1997; Lassar *et al*, 1997; Rust and Zahorik, 1993; Brady and Robertson, 2001; Robledo, 2001; Silvestro *et al*, 1990; Yavas *et al*, 1997). Service quality is generally defined as a consumer's judgement about an entity's overall excellence (Zeithaml, 1988), and comprises two main dimensions: the core aspects of the service and the peripheral elements (Parasuraman *et al*, 1988, 1991).

According to this reasoning, the quality of port services has often been compromised by an excessively complex internal port organisation and the large number of bodies that participate in the provision of such services under a regulated environment. In contrast to typical services marketing, in which employees and customers belong to the same provision chain (eg banking), viewing this way, the customer as a part-time employee and the employee as the internal customer, the provision of port services is fragmented. Although ports are fragmented in their operations, customers still perceive them as a unique entity and value them on a global performance basis (Pando *et al*, 2005).

A port's prosperity depends on the efficient flow of ships and goods and passengers through its docks and, obviously, the quality-of-service issue is closely associated with the efficient overall operations. Gifford and Stalebrick (2002) agree that a key issue for transportation organisations is to pay attention to customers and focus on results and performance. The development of a clear marketing and quality strategy is generally viewed as a critical component of future business success and a prerequisite for a distinct competitive advantage (Doney and Cannon, 1997; Mohr and Spekman, 1994).

According to the ISO series, the quality of ports is defined as the provision of services that meet customer expectations, regardless of whether the latter are



specified beforehand or not. Since the scope of our research focuses not on the core, but rather on the peripheral elements of service quality (such as the 'convenience' or the 'interactive quality factor'), our work may be described in terms of the previously mentioned definitions of service quality.

Dimensions of this type of quality of port commercial services include efficiency (costs and benefits), timeliness (punctuality) and security (trust) (Lopez and Poole, 1998). Compez Lopez (1996) introduces the need for frequency, reliability of scheduling, speed, safety and prices as factors affecting the evaluation of the overall service. The Port of Valencia uses a quality control mark (marca) that examines factors, such as port operations, servicing of ships, handling and security of merchandise, control of land transport, information and scheduling, so as to assure that a minimum level of quality can be achieved (Compez Lopez, 1996). Ugboma *et al* (2004) applied SERVQUAL measures and acknowledge that 'responsiveness' and 'tangibles' are evaluated more positively than 'empathy' in ports.

FORMULATION OF THE RESEARCH HYPOTHESES

All the above considerations suggest a number of research hypotheses on quality elements of port services to individual clients (passengers). Parasuraman *et al* (1991) argue that the provision of quality services can achieve a competitive advantage arising from inimitability. Services are intangible, and the selection and evaluation of service providers is based on the client's perception of the quality the service provider offers (Panayides and So, 2005). Dimensions of quality should be extracted after an initial examination of the functions that a passenger port performs. For a port that serves coastal shipping, these functions can be divided into nine stages:

- vessel arrival;
- disembarking of passengers and cars;
- moving of passengers from quay to nearest parking lot or inland transportation system and vice versa;
- moving of cars and trucks from quay to road network;
- queuing and waiting time for passengers, cars and trucks for embarkation;
- parking and waiting facilities;
- checking-in procedures;
- loading of the vessel with cars, trucks and passengers;
- vessel departure.

We start by adopting the position of other researchers (ie Dabholkar *et al*, 1996) that service quality is a multidimensional construct. Adapting the work of the Nordic School (Lehtinen and Lehtinen, 1982, 1991), it seems that the quality



of port services, in a similar manner to the classical marketing literature, may be divided into its physical element (infrastructure including parking facilities, information provided and communications/telephones); its interactive quality element (the service itself and the perceptions on, say, cleanliness) and the corporate quality element (location of the port and scheduling). Another dimension that appears relevant for port services and has been observed in cargo shipping is the sense or perception of security that such an establishment should convey to any individual passenger. This four-dimensional construct (physical, interactive and corporate quality together with security) seems flexible enough to accommodate different perceptions. Furthermore, due to the nature of the various elements, we believe it is reasonable to argue that all elements are orthogonal and do not relate to each other.

Our second conception in terms of formulating a quality measurement instrument is that quality, as perceived by passengers, is the result of a simultaneous evaluation of what was expected and what was actually experienced, taking into account the influence of the organisation's image. The key ingredient in this line of reasoning is to use performance-only items in order to confirm the shared factors of service quality and then to use those factors as drivers for modelling customer satisfaction.

More specifically, our research hypotheses to be tested in the analysis are the following:

H1: The service quality of a port, as perceived by coastal shipping passengers, can be defined as a multidimensional construct incorporating dimensions for the 'service', 'corporate' and 'physical' qualities, together with the 'security' elements.

or equivalently,

$$\text{Service quality} = f(CQ, IQ, PQ, O)$$

where *CQ* is the corporate quality, *IQ* the interactive quality, *PQ* the physical (or technical) quality and *O* is the security.

In addition to the above identification of the dimensions involved in developing and measuring passenger quality, we aim to examine other characteristics of port service users with respect to those factors.

Recall that port services, from a passenger's perspective, have some important peculiarities in terms of understanding quality, since, in certain cases, the 'customer'/passenger does not usually select the port (rather she/he selects the coastline or destination, such that the port decision follows automatically). Hence, the customer/passenger can only indirectly influence the procedure in this sense. In addition, the characteristics of the land infrastructure can also



influence quality, in the sense that other factors can interfere, that are beyond the port manager's control (eg port location, links to other land transportation means, proximity to home, etc).

Since service quality is measured as a multidimensional quantity, it is also useful to examine the quality characteristics and/or their dimensions in terms of groups of passengers. Initially, passengers can be divided into two distinct groups: those who wish to use port services as a quick means of reaching a final destination and another group that is willing to spend more time 'wandering around' and may thus spend more time inside the port. It may make sense to offer the latter group lounge facilities, such as those at airports.

Accordingly, the second hypothesis is:

H2: Coastal shipping passengers using port services may be categorised into more than one group, according to their evaluation of the overall perceived quality attributes.

METHODOLOGY

Market overview

The coastal shipping sector in the EU is served by roughly 60 harbours, and it constitutes the most important means of trade with Africa. In all, 75% of imports to and 64% of exports from EU are realised *via* sea transportation.

Greece has one of the world's denser networks of sea transportation. The internal coastal shipping lines are generally served by car-ferry passenger vessels, as well as by vessels incorporating new technology (catamaran, sea-jet). The most prevalent characteristic of the market to the end of 2004 has been the predominance of cabotage (government regulated coastal-shipping transportation) and a market concentration in five major coastal shipping firms. These companies are served by three main ports: Piraeus, Patras and Heracleion. Piraeus is the largest passenger port in Europe and one of the largest in the world, serving annually more than 20 million passengers and more than 24,000 passenger ships. Piraeus is the main passenger hub between the mainland and the Aegean islands and Crete, as well as the main maritime gateway to the south-east of the EU. The port of Patras lies on Peloponnesus and is the main port connecting Greece to Europe through the Italian cities of Bari, Brindisi, Ancona and Venice. More than 1.5 million passengers, 300,000 trucks and an approximately equal number of passenger cars use the port's facilities each year. Finally, Heraclion, the major port of Crete, connects this major island to mainland Greece and, from there, to the rest of the world.



THE SURVEY

Method

The study focuses on identifying a port's quality criteria in terms of the provision of peripheral services to ferry passengers as well as their possible groupings according to the above hypotheses. The target group of passengers is investigated regardless of class (business or economy). That is, class distinctions are not taken into account.

The survey took place, *in situ*, in each port's designated security area for passengers. Special permission to enter the port was requested from the relevant port authorities, and this was duly granted.

The sample

Data were collected from passengers travelling from the three Greek ports of Piraeus, Patras and Heraclion. Passengers, port-facility users, were selected randomly by trained interviewers. A number of respondents were excluded as biased and extreme outliers were later rejected from subsequent analysis. The final usable sample consisted of 403 ferry passengers, a profile of which is presented in Table 1.

The questionnaire

In order to measure the hypothesised dimensions of 'service', 'corporate' and 'physical' quality, as well as 'security', data were obtained through a specially developed questionnaire. This consisted of two sets of questions. The first set includes 23 questions based on existing research on services marketing and satisfaction issues, as described in the Conceptual Background section of this paper. Questions take the form 'How satisfied are you with i/ the politeness of the staff, ii/ waiting time, iii/ feeling of safety and security, iv/ cleanliness of the port area, v/ prices charged etc'. A complete list of the questions is included in the Appendix. The second set of questions related to socio-demographic characteristics of the respondents. All items were measured on 5-point LIKERT scale, ranging from 1 (not at all) to 5 (absolutely). The mean responses to the interview questions are presented in Table 2.

DATA ANALYSIS

Reliability

In order to test the reliability of the introduced instrument, we first calculate Cronbach's alpha. The reliability estimate (Cronbach alpha measures) for the expected set of questions (20 items) was high (0.868), verifying the very good scaling of the instrument.



Table 1: Socio-demographic characteristics

Demographic	%
<i>Age</i>	
15–25	33.5
26–35	14.1
36–45	19.8
46–55	16.2
56–65	9.8
66+	6.2
<i>Gender</i>	
Male	59.8
Female	40.2
<i>Education</i>	
Primary	12.9
Secondary	37.9
University	43.3
Post graduate	5.7
<i>Occupation</i>	
Wage earners	28.1
Freelancer	16.8
Businessman	3.6
Farmer	7.7
Workers	12.4
Pensioners	18.6
Unemployed/student	10.8

The high value in alpha coefficients demonstrates the good internal consistency of the model and that it has acceptable reliability values in its original form. Note also that we checked to determine whether any of the items, if removed, led to a significant improvement of the alphas. Three items were indeed found: *Question 14: the adequacy and availability of fire-fighting equipment; Question 20: port connections with other transportation means; Question 21: transportation facilities inside the port area.* In order to improve the reliability of the introduced model, we excluded these three items from the analysis.

Validity

The face and content validity of the construct was ensured through the literature survey and analysis, and the resulting items that were chosen for the instrument. Furthermore, when the factor analysis was conducted, almost all items load to the factors as expected, thereby demonstrating a strong convergent validity. In addition, the variance of all items' extracted scores exceeded the cutoff point of 0.5, providing further support for convergent validity of the construct (Fornell and Larcker, 1981).

**Table 2:** Means and s.d. of the variables

Variables	Mean	s.d.
The politeness of the port's contact personnel (coast guard, port employees, etc)	3.59	0.975
The availability and willingness to assist of the port personnel	3.50	0.894
The time taken to answer your requests	3.25	0.840
The waiting time spent in queues (ticket purchase, etc)	3.71	0.997
The assistance provided with luggage	2.54	1.252
The ability to keep to time schedules premises	3.74	0.983
The number of coast guard officers patrolling the place	3.12	1.073
The feeling of security and surveillance inside the port	3.16	1.120
The lighting system in the port	3.53	0.873
Prices of supplementary activities (cost of bottled drinks, coffee, etc)	2.73	0.992
The general 'feeling' of the port area	3.16	0.880
The overall cleanliness of the port area	2.95	0.980
The cleanliness and the adequacy of toilets, and other hygiene places	2.61	0.994
The adequacy and efficiency of information signs	3.23	0.895
The quantity and quality of communication facilities (eg telephones, faxes)	2.89	0.924
The quantity and quality of waiting facilities (lounges, sitting areas, newsagents, coffee shops etc)	2.43	1.024
The long-term parking areas	2.48	0.944
The short-term parking	3.08	0.957
The prices charged directly by the port	3.40	0.939
The arrival and departure information provided	2.62	1.202

PORT-SERVICE QUALITY AS A MULTIDIMENSIONAL CONSTRUCT

In order to determine the inter-relationships between variables and to verify the hypothesis for the different aspects (dimensions) of quality, a factor analysis was performed. Principal component analysis was used to extract the factors and a Varimax rotation was applied to improve the interpretation. Table 3 presents the extracted factor loadings. Loadings lower than 0.40 in absolute value were suppressed in order to improve the clarity of Table 3. The Kaiser-Meyer-Olkin statistic was very high at 0.840, indicating the existence of strong relationships among the 20 (remaining) variables in the analysis. Six factors, explaining 63% (Table 4) of the total variance, were obtained and thus the first hypothesis, which introduced a four-dimensional construct for port-service quality, was *not* confirmed. Consequently, we could argue that the construct does not present the dimensions suggested by the 'Nordic' School, and appears closer to the SERVQUAL/SERVPERF five-dimensional perspective, at least as regards to dimensionality. On the other hand, because this study is by nature exploratory, it appears that these six factors with 20 questions loading onto them, may well represent the *correct* structure and could be labelled as follows.

**Table 3:** Factors extracted – rotated solution

Items	Component					
	1	2	3	4	5	6
1 The politeness of the port's contact personnel (coast guard, port employees etc)	0.780					
2 The availability, and willingness to assist of the port personnel	0.744					
3 The time taken to answer your requests	0.603					
4 The waiting time spend in queues (ticket purchase, etc)	0.592					
5 The assistance with luggage	0.538					
6 The ability to keep to time schedules and promises	0.521					
7 The number of coast guard officers patrolling the place		0.825				
8 The feeling of security and surveillance inside the port		0.774				
9 The lighting systems of the port		0.571				
10 Prices of supplementary services (cost of bottled water, drinks, coffee, etc)		nl				
11 The general 'feeling' of the port's area		nl				
12 The overall cleanliness of the port's area			0.785			
13 The cleanliness and the adequacy of toilets, and other hygiene places			0.693			
14 The adequacy and efficiency of information signs			0.541			
15 The quantity and quality of communication facilities (eg telephones, faxes)				0.763		
16 The quantity and quality of waiting facilities (lounges, sitting areas, newsagents, coffee shops, etc)				0.668		
17 The long-term parking areas					0.724	
18 The short-term parking					0.692	
19 The prices charged directly by the port					0.532	
20 The arrival and departure information provided						0.688

Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization. Rotation converged in eight iterations.



Table 4: Total variance explained

Component	Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %
1	2.905	14.524	14.524
2	2.626	13.132	27.656
3	2.149	10.746	38.403
4	1.683	8.417	46.819
5	1.668	8.342	55.162
6	1.416	7.078	62.239

Extraction method: Principal component analysis.

The factor analysis identified six factors that are labelled below as (Table 3 shows the complete results obtained from the analysis).

1. Factor (1): Services: This deals with the main competence and quality elements of the service provided and entail product-core elements of customer satisfaction. The factor presents the respondents’ opinions about the behaviour of staff. It also provides information on the way the port handles and manages passenger requests for assistance. The ‘keep-their-promises’ element, especially for the time schedule, is included in this first ‘service’ factor. The first factor, which describes the quality of the service, explains 14.5% of the total variance.
2. Factor (2): Security and safety: This deals with the perception of security that passengers experience when in the port. This factor accounts for 13.13% of the variance.
3. Factor (3): Cleanliness: Many ports are perceived by passengers as ‘rather dirty’. By including items dealing with passenger perceptions of cleanliness in the port area, this factor is an attempt to portray the customer evaluation of a sensitive issue. This factor accounts for 10.74% of the total variance.
4. Factor (4): Guidance-communication: This factor accounts for 8.41% of the total variance and includes two items related to accommodation facilities and communication in the port area.
5. Factor (5): Parking facilities: This factor accounts for 8.34% of the total variance and contains items related to the parking facilities for passenger vehicles.
6. Factor (6): Information: This factor deals with the information-system facilities in the port area and explains 7.07% of the total variance.

PASSENGER PROFILES

The six factors identified as best describing service quality dimensions may be used to group passengers according to their perceptions. A cluster analysis was



therefore undertaken. This commonly used technique aims to group objects with the same characteristics into clusters, in such a way that objects belonging to the same cluster present maximum homogeneity within- and maximum heterogeneity between-groups. Since the nature of our study is exploratory, *hierarchical* procedures were selected using Euclidean distance to passenger groups according to the scores they gave to the factors (dimensions) of quality. The hierarchical clustering method and the dendrogram produced by SPSS, resulted in two distinct clusters that can better describe the respondents.

It should be stressed here that this classification has been conducted with the use of factor scores and not by means of the individual variables. This second-order taxonomy is used to reduce both variables and observations. The inclusion of the orthogonal factors, instead of the potentially highly correlated variables, was expected to provide maximum applicability of the cluster methodology and avoid multicollinearity problems (Hair *et al*, 1998). Outliers and extreme cases were deleted and the model was run with a variable structure as well, in order to check for model stability. The results were identical, providing strong evidence for the clusters suggested (the data could not be presented here, due to the extensive size of graphical representation that would be necessary). Once the two clusters were identified, a non-hierarchical method in SPSS 13 (k-means cluster) with two clusters was performed, and the results are presented in Tables 5 and 6.

The findings indicate that the first two dimensions of port-service quality, *service and security*, identify the first cluster of passengers, based on their attitudinal statements on the service provided by the port. This type of passenger, requiring mainly elements of service and security, related to 220 cases from our sample and may be described as the *frequent traveller*, who knows what to expect and where to find it when using the port and its services. This type of customer generally passes through port facilities quickly as a 'regular customer'.

Table 5: Final cluster centres

	Cluster	
	1	2
REGR factor score 1 for analysis 5	0.16903	-0.22955
REGR factor score 2 for analysis 5	0.30210	-0.41026
REGR factor score 3 for analysis 5	-0.26583	0.36100
REGR factor score 4 for analysis 5	-0.38065	0.51693
REGR factor score 5 for analysis 5	-0.15074	0.20470
REGR factor score 6 for analysis 5	-0.33344	0.45282

**Table 6:** Number of cases in each cluster

Cluster	1	220,000
	2	162,000
Valid		382,000
Missing		6,000

The second type of customer, the *tourist*, usually has time to spend within the port. Such passengers yield a rather different ‘function’. The remaining four dimensions of quality (cleanliness, guidance, parking and information) play the dominant role when explaining this cluster. The dimensions identified depict an ‘image’ of someone who maybe on vacation and who wishes to spend time enjoying port environment or relevant facilities. ANOVA tests between the clusters confirmed that the two groups yield significant differences for the selected dimensions.

CONCLUDING REMARKS

This study was developed in order to introduce and extend the ‘marketing view’ in the shipping sector by giving the passenger a key role in the process of service provision by the port. This ‘key role’ neither includes the extensive and strict regulations regarding the safety of passengers, nor the core quality of the shipping industry attributes associated with the ship itself, rather than with the port. Instead, it follows a different approach that enables introduction of peripheral service quality attributes to the provision of port services to the passenger.

As has already been argued above, port services are fragmented and complex operations. Various services offered by different providers (subcontractors, shipping companies, public authorities), some of which are controlled by port authorities and others not, altogether form the overall perceptions of service to passengers. Besides being a major link in the freight transport chain, ports under a new function are now facing increased competition that challenges their traditional role.

Competing with traditional transport systems and due to technological innovations (very-high speed vessels), the coastal shipping industry may soon have to compete in a different environment. This creates both opportunities and threats, and necessitates the need for a different approach to the way ports serve passengers. Apart from the need to develop or improve infrastructures specially designed for passengers, such as lounges, parking lots, terminal buildings etc, the kind of services offered by the port to passengers should be examined in



more detail in future research. Ferry passenger needs have changed from a single traditional low-price request to a complex set of quality of service demands, all of which call for a thorough re-examination.

Evidence from our survey recognises six factors (service, safety and security and cleanliness, communication, guidance and information) that effectively describe the multidimensional construct of port-service quality. These factors provide the typology of the two clusters. The main differences between each cluster derive from the evaluation of the service that passengers accredit to port services. The first cluster, labelled 'frequent travellers', clearly indicates that passengers belonging to this group require a higher-quality service level, more assistance and politeness from the contact staff. On the other hand, the results indicate that the second cluster, the 'tourists' experience the condition of the port in a different way. They seek cleanliness, guidance and information, the latter because they cannot easily find their way to the ship or around the port. They appear willing to spend time, and perhaps money, on port facilities like lounges and coffee shops under certain circumstances.

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