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OPERATIONALISING A POSITIONING MODEL OF EASTERN MEDITERRANEAN FERRY SERVICES

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Abstract

This paper concentrates upon the comparative positioning of Turkish ferry operators in contrast to their European Union competitors in the Eastern Mediterranean market. The positioning model is operationalised by using a multivariate multidimensional scaling technique where the model is based on service marketing issues because of the service characteristics of the ferry business. Data applications into the technique are analysed to identify the positioning of the ferry operators for the ferry service lines in the Italy-Greece-Turkey corridor, for the year 1994.

INTRODUCTION

The passenger ferry industry is part of the service sector and thus, is commonly considered as a service marketing issue. First in this paper, service marketing theory and the measurement of positioning in service marketing are reviewed with respect to the passenger ferry industry. A model is then developed in the following section to identify the positioning of the ferry operators in the Eastern Mediterranean market. The model is operationalised with the application of data of the ferry operators into a multivariate multidimensional scaling technique and the results are discussed both for their market implications and at an academic level in the following section.

MEASUREMENT OF POSITIONING AND SERVICE MARKETING ISSUES FOR THE FERRY INDUSTRY

Positioning is important for service marketers because it addresses the issue of differentiation and the goal of removing a certain service from the ordinary market area, and additionally, it directs some decisions of the service company regarding competition in the market (Congram and Friedman, 1991). Therefore, consumer behaviour is an example of a major research area for strategic positioning of products and companies (The Economist, 1992). Positioning has been used in various areas in the past including child development, civil engineering, computer industry, education, human sciences, medicine, politics and tourism. There are now a substantial number of examples of positioning studies in marketing and in the service sector such as positioning strategies for newspapers (Rosario, 1994), brand positioning (Wind, 1982; Schori and Meadow, 1985) and positioning of hotels (Lovelock, 1996), department stores (Davies and Brooks, 1989), hospitals (Eckardt, 1992), credit cards (Congram and Freidman, 1991) and leisure facilities (Hooley and Saunders, 1993).

Little research into, or application of, positional models has previously taken place in the transport sector. Various positioning cases are available in a study of aircraft system variables (Polzella and Reid, 1989), marketing research for automobile brands (Wind, 1982) and leisure services in tourism (Zins, 1994; Sinclair and Stalling, 1990), which are considered adjacent fields to maritime transport. In addition, there has been a study of airline services (Shostack, 1977) which is a similar area to maritime services. However, very few studies have been undertaken in shipping with the main exception of Ledger and Roe (1995) and Yercan (1997). A model will be developed in the following section in order to identify and measure the positioning of ferry operators as service providers in the market place.

Supply and demand side applications in positioning

Data based upon customer expectations, perception and preferences - representing the demand side of the market - is used in marketing research more than data based on the supply side of the market as product or service producers or providers (Zeithaml and Bitner, 1996). There are a number of positioning cases related to the supply side of the market. For example, market research was conducted for the positioning of coffee-makers by applying the questionnaires to those who represent the supply side of the service market (Vriens, 1994). Another survey was applied to a number of shopping centre owners to discover their management strategies (Baron and Phillips, 1994). A range of marketing problems related to a number of issues in strategies, segmentations,

products, pricing, distribution and promotion (Vriens, 1994). Positioning cases, which are based upon the supply side of the market, were analysed by Ledger (1995), Ledger and Roe (1996) and Yercan (1997), particularly in shipping cases. In these studies, Eastern Europe and Eastern Mediterranean shipping were examined using the data of various shipping companies.

A service organisation designs its product and support services to meet the needs of target customers and to do this it formulates a marketing mix. A marketing mix is the set of controllable elements that an organisation can use to satisfy the needs and wants of a customer response (Palmer, 1994). These elements are product, price, place and promotion (Cowell, 1984; Palmer, 1994; Zeithaml and Bitner, 1996). In addition, they are expanded in the marketing mix for services by including the elements of people, physical evidence and process (Cowell, 1984; Palmer, 1994; Zeithaml and Bitner, 1996). This total of marketing mix elements for services are simply defined as "the 7Ps of service marketing".

In this paper, the Turkish and the EU ferry operators are considered as the companies that are providing services for the passengers, who are the customers. The following examples can be given for the elements in the marketing mix for ferry services in general:

Product: This element includes the ferry, its allocated terminals and the journey. The range of services provided and the quality of the services provided on board are also grouped under this element.
Price: The levels of ferry ticket prices, commissions, terms of payment and discounts for families, children and students.
Place: The location of the ferry ticket sales, the agencies and branch offices of the ferry companies together with the types of physical distribution channels used for the services.
Promotion: This element includes various methods of communicating that may be through advertising, personal selling activities and sales of promotion activities, such as distributing various gifts to the customers for early booking or family discounts or group discounts on the ferry ticket prices.
People: People perform a production or operational role in service organisations. Furthermore, the relationship between customers and personnel plays an important role in the perceptions of the customers towards a product of that company. The educational and training level of personnel plays an important role in the reputation of the ferry company in the market.
Physical evidence: Physical evidence includes elements of the physical environment and the location of agencies, branches, offices and head offices.
Process: Process, which is the method of service delivery, is as critical and important as the behaviour of people in a ferry service organisation. The methods of selling ferry tickets and the ways of selling tickets through agencies, branches, offices or representatives are included here.

As a consequence, the positioning of ferry operators in the Eastern Mediterranean ferry service market that takes place, particularly, in the Italy-Greece-Turkey corridor, has been measured by developing and operationalising a positioning model using a quantitative multivariate approach.

MEASURING POSITIONING BY THE MDS TECHNIQUE

This section concentrates upon the method of measuring positioning. Various alternative techniques are specified briefly and the optimum technique for this analysis is selected and discussed. Alternative types of analysis for measuring positioning depend upon the number of variables. These types of analysis are univariate analysis, bivariate analysis and multivariate analysis (Kent, 1993). Since more than two variables are required at the same time in identifying the positioning of ferry

operators in the market area, multivariate analysis is the appropriate type of analysis for this study because it has various advantages over univariate and bivariate analysis (Kent, 1993) such as forming a group of variables that are interrelated and similarly, enabling the prediction of dependent variables from independent variables and deriving conclusions from the relationships between variables (Kent, 1993). Furthermore, this analysis deals with correlations among three or more variables reflecting the relationships amongst them. For instance, the effects of ticket prices, age of ferries and ferry service providers - independent variables - upon the sales of journeys of ferry lines as the product or the preferences of the passengers as customers - dependent variables - can be examined by multivariate analysis techniques.

The multidimensional scaling (MDS) technique of multivariate analysis is used in this study to analyse the positioning of ferry operators in the market area. This technique allows a researcher to explore and infer the underlying criteria or dimensions of people's perceptions about similarities or dissimilarities between objects and preferences among various objects. It is a widely used technique, particularly in marketing, to identify the relative positioning of competing products, brands and companies as perceived by customers (Tull and Hawkins, 1993; Wind, 1982). This technique appears to be the appropriate technique for this analysis because the positioning of competing companies in the market area can be identified, measured and illustrated most satisfactorily by using this technique. The application of data from the ferry market using an MDS technique will be the first application in shipping, as noted by Coxon (Interview, 1995).

DEVELOPMENT OF THE POSITIONING MODEL

A conceptual model is developed in this section to explain the key elements and their relationship affecting the positioning model. These key elements are converted into measurable variables for testing hypotheses both in this section and in the operationalisation of the positioning model in the next section.

A conceptual model of the positioning model for Turkish ferry operators in comparison with their EU competitors in the Eastern Mediterranean market is developed here. This model is derived from a similar study in passenger ferry services using another multivariate approach (Matear, 1991).

Elements of the model

Input elements:
The market: The current situation of the passenger ferry market in the Eastern Mediterranean is one of the input elements for the model. In other words, this represents a general background to the ferry market before developing the model.
The company: The 7Ps of the marketing mix elements for services were explained earlier in this study. The behaviour of the ferry operator companies are based upon these 7Ps in analysing their services in the market place.
The external environment: This element comprises all of the factors that may directly or indirectly have effects upon the ferry services in this market other than the ferry operator companies and the market in general.

Process elements:
The current situation: The market situation in the passenger ferry market with particular reference to the Italy-Greece-Turkey corridor constitutes the ferry services and operations in this corridor, which are directly affected by the other services in the Eastern Mediterranean, the ferry operator companies and the external environment.

Quantitative approach - The positioning model: The input elements are brought together in this process - the modelling of positioning - to identify the positioning of the ferry operator companies in the market place - as an output of the system.

Output elements:
Positioning of the ferry operators: The positioning of the ferry operators in the market place is identified as an output of the system after the operationalisation of the model.
Marketing strategy: The marketing strategy of a ferry company is basically determined by the market conditions and is shaped by the output - the positioning of the ferry operators. In addition, the ferry companies evaluate the output through feed-back to the service marketing mix elements of the company to receive better results in the output.
Other implications: This model can be used for identifying and measuring the positioning for other markets.

Hypothesis development

The positioning model is developed for the Turkish passenger ferry services and operations providing a framework for comparison with the European Union ferry services and operations in the Eastern Mediterranean market place. A main hypothesis is developed below for the positioning model. This model is operationalised in the following section, through multivariate analysis by using a multidimensional scaling technique. The data of the ferry operators in the market will be applied through the MDPREF software programme of the MDS(X) Series of MDS Computer Programmes in the following section, which will lead into the graphical illustration of the positioning of the ferry operators in the Italy-Greece-Turkey corridor, in the Eastern Mediterranean.

The passenger ferry services in the Italy-Greece-Turkey corridor were analysed through the positioning model, using a questionnaire survey, which was based upon the 7Ps of the service marketing mix elements. The following main hypothesis is developed and is derived from the earlier conceptual model:

> *H_0: The Turkish and the EU ferry operators are positioned differently in the Eastern Mediterranean market illustrated using various characteristics of the 7Ps of the service marketing mix elements.*

The positioning of the ferry operators can individually be identified and their comparative market position can be measured accordingly. It is assumed that a differentiation between these ferry operators exists in the market place based upon the 7Ps of the service marketing mix elements - product, price, place, promotion, people, physical evidence and process. The hypothesis will be examined in detail during the operationalisation of the positioning model in the following section.

OPERATIONALISATION OF THE POSITIONING MODEL FOR THE FERRY OPERATORS

This section of the paper concentrates upon operationalisation of the model to identify the positions of the Turkish ferry operators in comparison with European Union competitors in the Eastern Mediterranean market for the year 1994. This model was developed in the previous section to provide an analytical examination of the data following the picture painted by the conceptual model. Multidimensional Scaling was used during the development of the positioning model. The

quantitative data from the ferry operators was applied into the MDPREF programme of the MDS(X) series of computer programmes. Data from the ferry operators - representing the supply side - was used for analysis in this study to bring an originality to most of the applications of positioning cases in service marketing because consumer data - representing the demand side - is used for most other analyses. There are a small number of examples of positioning cases for the supply side particularly in shipping (Ledger, 1995; Ledger and Roe, 1996). The next section examines the methodology used for the operationalisation of the model (Aeker *et al*, 1995) for services marketing.

Methodology

The stages of the MDS approach consist of the selection of criteria, required data, method of data collection, selection of questions, data collection from the operators including raw data, response rate, score ratings, application of data and finally, analysis of data application (Zins, 1994; Tongzon, 1995). The results of data application into the MDS will be analysed in the next section.

Selection of criteria: As explained earlier, ferry operations are widely considered a service. The marketing mix for service marketing is used as a basic structure for the selection of criteria for the MDS positioning model and consequently, the selection of criteria is based upon the 7Ps of the service marketing mix elements.

Required data: A multidimensional scaling technique is used for the application of data of ferry operators into the MDPREF programme. Data required for this application includes both metric and nonmetric characteristics of the ferry operator companies, which are grouped under the 7Ps, in general. Requirements of data for this application are based upon the hypothesis developed earlier in the previous section.

Method of data collection: In order to collect data from the market place, primary and secondary sources for data were determined. Questionnaires were used to collect primary data from the ferry operators as a common method of gathering information besides field observations, interviews, laboratory measurements etc. (Howard and Sharp, 1983). In addition, various secondary data sources were used such as official publications, trade associations, private data services *etc* as a common method of gathering additional information.

Selection of questions: Questions that were forwarded to the ferry operators were derived from the 7Ps of the service marketing mix. The questionnaire was divided into 7 sections, each representing a different "P". These questions were based upon studies of various academics (Zeithaml and Bitner, 1996) and similar research and analyses of recent positioning cases in shipping (Heijveld and Gray, 1993; Ledger, 1995; Ledger and Roe, 1995; Ledger and Roe, 1996). The questions matched the specifications of the required data for the software programme of the MDS technique.

Data collection: The names of ferry operators that operate between the ports of Turkey and the EU were taken from the ABC Cruise and Ferry Guide of the Reed Travel Group (1994), various ferry agencies in Turkey or the Turkish Maritime Organisation (1994) - the major state owned ferry operator. These data sources were selected because they provide basic reliable and sufficient data for the ferry services concerned and operators. It was noted by the ABC Cruise and Ferry Guide of the Reed Travel Group (1994) that Turkey has ferry services to and from the ports of Italy and Greece, both representing the EU. The addresses of the ferry operators were taken from the Maritime Directory (1994), World Shipping Directory (1994) and catalogues received from various ferry agencies. The questionnaires were sent to ferry operators whose addresses were extracted from the ABC Cruise and Ferry Guide of the Reed Travel Group (1994), the Turkish Maritime

Organisation (1994) and various ferry agencies in Italy, Greece and Turkey. Some of the operators answered the questionnaires almost completely, while some answered some of the questions. In addition, a number of letters was received from various ferry agencies without answering the questionnaire and with most of them noting that they are only agents and have no direct relationship with the ferry operations. Furthermore, various gaps in the questionnaires were filled in by the researchers using a reliable source for data - data files of a state owned company, the Turkish Maritime Organisation - as a common method of completing the collected data generally in statistics and more specifically in MDS (Interview, 1995).

Raw data and score ratings: The ferry operators in the Eastern Mediterranean were analysed for the year 1994. Data of the nine ferry operators were collected under the seven sections of the questionnaire based upon the 7Ps of the service marketing mix elements. These sections consisted of the actual raw data of the ferry operators received from the questionnaires. However, before analysing this data and applying it to ferry operators in MDS, there are a number of requirements to meet: Removing questions due to insufficient data, removing the questions from the questionnaire due to undifferentiation of the data and recoding as a further coding and internal transformation of data have to take place (Coxon and MDS(X) Project Team, 1980; Interview, 1995). After meeting these requirements, the data of the ferry operators were converted from raw data into score ratings to be applied into the MDPREF programme of the MDS(X) Series of Multidimensional Scaling programmes.

It should also be noted that one of the objectives of this paper is to identify the positioning of the Turkish operators in comparison with their EU competitors. Therefore, the ranking within the positional analysis is based upon the Turkish operators' preferences. In addition, the score ratings given to answer the questions reflected the experience, profession, establishment, services, traditional circumstances and knowledge of the operator in the market place. Therefore, the operators were ranked accordingly from the greatest to the least by reflecting these qualifications.

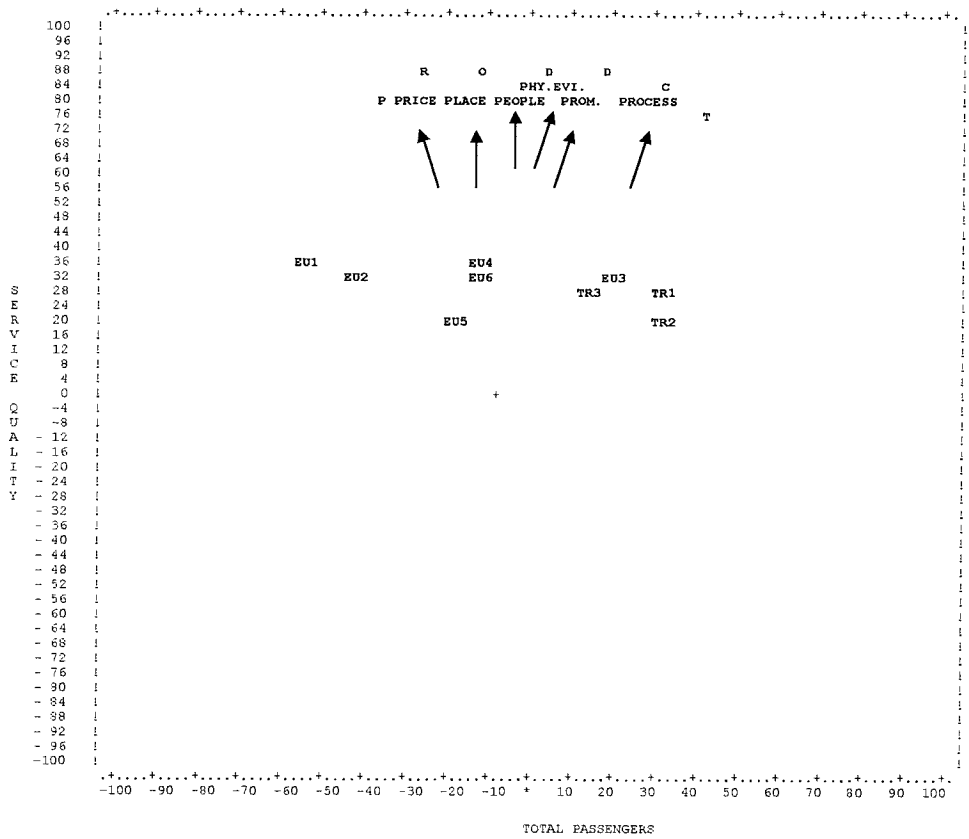
Response rate: A total of nine ferry companies - three Turkish and six Greek (EU) companies - operate in the Italy-Greece-Turkey corridor. The questionnaire was responded to by all of the ferry operator companies. However, a number of questions in the questionnaire were not responded to by some operators during the survey and some of these gaps on the questionnaire were filled in by the researcher through secondary data, which is a common method applied in MDS, as also noted earlier in the data collection.

Application of data into MDS: The MDPREF programme of the MDS(X) series of multidimensional scaling programmes was used for the application of data of the ferry operators in the Eastern Mediterranean market.

Analysis of data application: The data application consists of the input data, in which rows are considered as subjects representing 43 variables - in other words, characteristics of the ferry companies, and columns are considered as stimuli representing nine different ferry operators. There are 43 subjects and nine stimuli in total, forming a 43x9 data matrix. The input programme of the application is followed by the calculations of the output programme of this application.

RESULTS OF THE ANALYSIS

Positioning of the Turkish ferry operators in comparison with their EU competitors in the market is illustrated in this section as the results of the analysis. This figure - Figure 1 - was also produced by the output programme of the MDPREF programme.



EU1: MARLINES (EU OPERATOR)
EU2: MINOAN LINES (EU OPERATOR)
EU3: EUROPEAN SEAWAYS (EU OPERATOR)
EU4: HORIZON SEA LINES (EU OPERATOR)
EU5: MED LINK LINES (EU OPERATOR)
EU6: NETA LINES (EU OPERATOR)

TR1: STERN MARITIME LINES (TURKISH OPERATOR)
TR2: TURKISH MARITIME LINES (TURKISH OPERATOR)
TR3: TOPAS MARITIME LINES (TURKISH OPERATOR)

Figure 1 - Configuration of correlations between the ferry operators and their characteristics in the Eastern Mediterranean market

The figure is a two-dimensional graph representing the correlation between the ferry operator companies in terms of their characteristics.

Axes of dimensions: Variables on the axes of the dimensions were derived from the subject matrix calculated within the output programme of the MDPREF programme as noted in the previous section. The absolute values of closer numbers within these matrices, group together by representing various characteristics of the ferry operators. Therefore, similar variables group as a common characteristic in general. "Dimension 1" - y axis - represents a general characteristic that appears the most significant characteristic for the ferry operators based on the results of the calculations. This axis illustrates the correlation coefficients between the characteristics of the ferry operator companies on the vertical side of the graph as a result of the calculations. Similarly, "dimension 2" - x axis - represents a group of characteristics that appears as the second significant characteristic of the ferry operator companies for that illustration. The range of the correlation coefficients for this horizontal axis is illustrated underneath the graph as a part of the calculations.

Configuration of the ferry operators: The stimuli are represented as points - where points are representing ferry operator companies in this analysis - in a multidimensional space as noted by de Soete and Carroll (1983) in a similar way as the representation of brands in marketing. The configuration of the nine ferry operators are illustrated in the figure by points represented by symbols from EU1 to EU6 and from TR1 and TR3 - representing the European Union and Turkish ferry operators, respectively. It should be noted that the numbers do not represent any dominance of the operators; the sequence of the ferry operators is based upon the sequence of the companies on the raw data list. The configuration of the ferry operators in the figure is based upon the correlations calculated by the MDPREF programme as illustrated by the output programme. Ferry operators having similarity with each other and illustrating similar characteristics with each other, group together in the figure representing their close positioning in the market place.

Configuration of the characteristics: Variables are represented by vectors - where vectors are representing characteristics of the ferry operator companies in this analysis - in the same space originating from the origin similar to each segment represented by a vector (de Soete and Carroll, 1983; de Sarbo *et al*, 1994). The configuration of the characteristics of the ferry operators derived from the 7Ps - totalling 43 characteristics - are illustrated in the figure by vectors. These company characteristics are illustrated according to their correlation coefficients derived from the subject matrix of the output programme of the MDPREF programme as a part of the calculations. Various points overlay each other by having very close relationship among themselves. In addition, they group together according to their similarity and close relationship (Moinpour *et al*, 1976; Chatfield and Collins, 1980).

Results

The following points are the results derived from Figure 1:

-- Companies grouping together in the graph represent a close positioning in the market place because they have similar characteristics, in other words, greater similarity between the companies in the market place exists.

-- Turkish companies - Stern Maritime Lines, Turkish Maritime Lines and Topas Maritime Lines, are represented by the points with the symbols - TR1, TR2 and TR3, respectively, in Figure 1. These companies are positioned close together and illustrate similarity in various fields, e.g. ferry and journey specifications, ticket prices, service lines, promotion types, company personnel, locations of branches and agencies, etc.. Particularly, Stern Maritime Lines and Turkish Maritime

Lines illustrate very similar characteristics by positioning very close to each other.

-- Greek companies are also represented by points representing the symbols in Figure 1 with Marlines - EU1, Minoan Lines - EU2, European Seaways - EU3, Horizon Sea Lines - EU4, Med Link Lines - EU5 and Neta Lines - EU6. Most of them are grouped together, except European Seaways which is the company represented by EU3. This operator illustrates similarity with the Turkish companies - Stern Maritime Lines and Turkish Maritime Lines, because it is positioned close by having similar characteristics with these operators in various fields, e.g. season of journey, ticket prices, characteristics of ferries etc..

-- The operators which are closer to any "P" of the 7Ps, reflect that they have a similarity for the characteristics grouped under that "P", in particular. For example, Horizon Sea Lines - EU4 and Neta Lines - EU6 are positioned closely in the market by illustrating similar characteristics of place and people. In other words, these operators are similar to each other in the location of head offices, branches and agencies. In addition, they are also similar to each other in the total number of personnel, training programmes, budget for training and participation of personnel in decision-making.

-- Horizon Sea Lines, Med Link Lines and Neta Lines illustrate greater similarity amongst each other in ferry ticket prices, places of branches and agencies, company personnel and various product specifications, e.g. ferry characteristics, seasons of journey etc.. In addition, Marlines and Minoan Lines also illustrate similarity with other EU operators in various product specifications, in particular.

-- The variables that overlay each other illustrate very similar characteristics, e.g. company specifications, price variations, personnel specifications, places of branches, types of promotion, ferry specifications, total number of journeys, etc..

-- All of the ferry operator companies have at least some similarity in some characteristics of product i.e. ferry and journey. Therefore, "Product" is widely distributed over the operators. For example, Stern Maritime Lines - represented by TR1 and Turkish Maritime Lines - represented by TR2 in Figure 1 have some similarity in the total number of passenger and car capacities of their ferries.

Consequently, the ferry operators illustrating close positioning in Figure 1 have similar characteristics with each other in ferry services in their Eastern Mediterranean operations. In addition, the similarity in characteristics is also illustrated in the same figure by these company characteristics positioning close together as vector ends produced by the programme. Furthermore, ferry operators positioning in very different places over various characteristics suggests that they do not reflect any similarity with each other for those characteristics.

CONCLUSIONS AND DISCUSSION

Having analysed various applications of data of the Turkish ferry operators in comparison with their EU competitors in the Italy-Greece-Turkey corridor in the Eastern Mediterranean market, conclusions of the study together with discussion are given in this section.

Operational conclusions: A positioning model using a quantitative approach was developed to identify the comparative positioning of the Turkish and the EU ferry operators in the market, specifically in the Italy-Greece-Turkey corridor. Identification of the positioning of the Turkish

ferry operators and their European Union competitors in the Eastern Mediterranean market was analysed through the development of this model, which was suitable to analyse the market through the service providers' side - that of the ferry operators.

A main hypothesis was developed before developing a positioning model for this study. This hypothesis was derived from the ferry services in the Eastern Mediterranean market and was based upon the theory of service marketing. It was examined during the operationalisation of the positioning model and concluded that the Turkish and the EU ferry operators position differently in the market place by illustrating different characteristics with each other, particularly in various characteristics of product, place, physical evidence and price.

A multidimensional scaling technique derived from multivariate analysis was used to operationalise the positioning model. The positioning of the operators was identified using a graph illustrated in a two dimensional space. The MDPREF computer programme of the MDS(X) Series of Multidimensional Scaling Programmes was used for the application of data of the ferry operators through which various graphs were produced to illustrate the comparative positioning of these operators in the market.

As a result of different alternatives of the illustrations of these graphs, the Turkish ferry operators, - Stern Maritime Lines, Turkish Maritime Lines and Topas Maritime Lines, appeared to position close to each other by illustrating various similar characteristics with each other e.g. facilities on board of ferries, ticket prices, service lines, places of branches and agencies, etc.. Similarly, the Greek operators, - Marlines, Minoan Lines, Horizon Sea Lines, Med Link Lines and Neta Lines, representing the EU, also position close to each other at a different place in the market place by illustrating similar characteristics in various fields e.g. service lines, places of branches and agencies, etc.. An exception was identified in one Greek ferry operator, - European Seaways, in positioning close to the Turkish ferry operators and thus illustrating various similar characteristics with them e.g. seasons of journey, ticket prices, etc..

The ferry operators with a large size can provide a wide range of services for the passengers in this market. Therefore, they become the major operators in the market place, e.g. Turkish Maritime Lines. This operator has a distinct position in the market place reflecting its organisation structure and marketing strategy by having many outlets serving a wide range of consumers, operating the youngest ferries in direct lines from Italy to Turkey, operating in all seasons of the year and therefore, having the greatest total number of journeys. This leads to the greatest share - 39% - in the total number of passengers in the market place in 1994.

Consequently, the ferry market in the Eastern Mediterranean has become a rapidly growing and dynamic market through the contribution of a number of operators. As a further consequence, it was concluded in the results that the Turkish and the EU ferry operators position differently in the market place by illustrating different characteristics, particularly for product, price, place and physical evidence of the service marketing mix elements. It should be noted that this result matches the hypothesis developed earlier.

Academic conclusions: A positioning model was developed through a quantitative approach to this analysis. Success was achieved in identifying the comparative positioning of the Turkish ferry operators in comparison with their EU competitors by developing and operationalising a positioning model. The multidimensional scaling technique was sufficient and suitable for the application of data of the ferry operators. Furthermore, this technique could be applied into other areas in ferry services additional to this analysis, including further research for the market positioning of operators based upon perceptions of consumers - passengers in this case. Furthermore, similar

shipping markets could be analysed, both on the operator and passenger sides, to identify their comparative positions in the market place.

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