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Analysis of marketing strategies in Polish ports

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University of Plymouth

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ANALYSIS OF MARKETING STRATEGIES IN POLISH PORTS

by

ALEKSANDRA URSZULA PIECZEK

A thesis submitted to the University of Plymouth
in partial fulfilment of the degree of

DOCTOR OF PHILOSOPHY

Institute of Marine Studies
Faculty of Science

November 2000

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Abstract

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The service sector of economy is a field of growing interest to marketing research and in particular such services as provided by seaports. However, these activities have rarely been considered to date.

This project consists of three parts. Firstly a review of service marketing approaches, their status and development, the nature of marketing strategies and the marketing mix had to be provided. Also the development of marketing in seaports had to be examined. The focal elements discussed were the elements of the services provided by seaports, and competition between them in the context of Poland

Secondly the situation in Eastern Europe and Poland under the communist rule and during the transition had to be provided. This part examined East European economic development, focusing down upon Poland and the consequences of the changes in recent years particularly for the maritime sector and its structure and ownership.

Thirdly, an analysis of marketing strategies in the main international ports of Poland were developed, with particular reference to their potential users' point of view, in the context of recent economic and market changes. A conceptual model had been developed to analyse these changing strategies that resulted in a derivation of a multivariate approach (cluster, factor or conjoint analysis) to accommodate the large number and diversity of variables that are required. A structured interview approach, plus mail survey techniques were used to collect the data in direct interviews with the Polish port authorities and the operating companies. More questionnaires were distributed amongst the most important maritime companies. Problems of language, customs and accessibility to individuals and data were overcome, as the researcher is a native Pole with good English and Russian skills and close contacts with port experts at the University of Gdansk.

Finally analysis from the data obtained from both personal interviews and mail surveys resulted in the identification of the main underlying constructs of the marketing strategies in the ports of Gdansk and Gdynia, as perceived by their users. Application of factor analysis indicated the existence of six main factors in each of the ports. The results were valid and reliable and also supported on a theoretical basis from the service marketing and port marketing literature.

A discussion of the results provides implications for practitioners. The research shows that some of the elements of the marketing mix are less developed than others as seen by customers. It can help marketing managers to alter their strategies and better satisfy customers' desires. Furthermore, implications for theory development, research methodology and scope for future research in transition countries and port industries are discussed.

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AUTHOR'S DECLARATION

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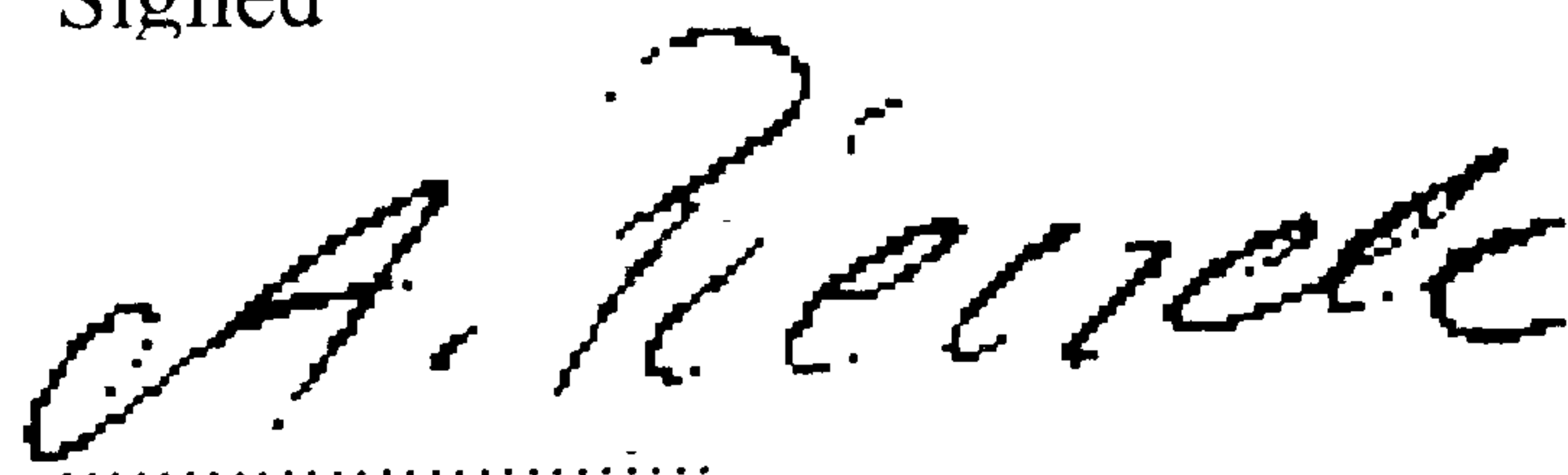
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Enhancing Global Relationship: Passport to the Future, Council of Logistics Management, October 1999, Toronto, Canada.

Society for Marketing Advances Conference, November 2000, Orlando, USA.

Signed

A handwritten signature in black ink, appearing to read 'A. Pieczek', written over a dotted line.

Aleksandra Urszula Pieczek

CHAPTER 1

INTRODUCTION

The introductory subject part to this thesis provides a background to the research. The subject area that is studied is that of the adoption of a service marketing approach in the international ports of Poland. In the first section the problem of port marketing is introduced. Secondly the aims of this research are specified and finally there is an explanation of the structure of this thesis.

Subject of study

The subject of this research is an analysis of marketing strategies in seaports, and in particular the Polish ports of Gdansk and Gdynia. This section provides justification for researching into the area of port marketing in this region.

Port marketing is a considerably new topic in maritime industry. Due to rapid developments in information technology, engineering and growth in international trade, Western European ports have experienced considerable enlargement and modernisation. Their constantly increasing cargo handling capacity and proximity caused competition between them and the need for marketing emerged in order to attract customers and utilise the increasing capacity. Changing preferences amongst shippers who began to value higher quality service, reliability and frequency, rather than safety or specialisation also helped this.

After the collapse of the Soviet Union together with the communist, centrally planned system, much of Eastern Europe started operating in free market economy. Eastern European ports had to face this situation and centrally planned flows of cargo no longer existed.

The aim was not only to attract international trades but also to retain cargoes of national foreign trade. In the case of Poland it also included traditional transit cargoes from Czechoslovakia and Hungary.

At the beginning of the 1990's there had been quite significant loss of cargo although the exact figures are very difficult to obtain. Polish ports needed considerable investment and a new fresh non-communist image in order to keep turnover up to appropriate levels. The need for marketing had two aspects, first to attract foreign investment and second to attract potential customers and retain the existing ones.

Despite its great importance neither western port marketing nor marketing in the countries of transition have received extensive attention from an academic point of view. Attempts to research aspects of port marketing have been few and far between. The most important contributions have been made by Suykens (1988), Slack, (1985) and Schulten (1993). However the rapid growth of this field and its remarkable importance for the port industry makes port marketing a topic requiring academic attitude and consideration.

Research of this type has never been conducted in Polish ports and as a result it would be very interesting to find out how Polish ports approach these issues including the most important elements of their marketing strategies and how they can influence the ports' overall performance. Marketing in Polish ports and their facilities is nowadays more important than ever. This is really a question of survival on the Baltic market in terms of transit from Russia, Belarus and Ukraine as this large market draws also considerable attention from Finnish, Estonian, Latvian and Lithuanian and the East German port of Rostock. Hence the focus of the study is marketing within the ports of Poland and more specifically the ports of Gdansk and Gdynia, which can have important implications in these ports in terms of achievement,

competitiveness, profitability and growth.

Aims of the studies

Firstly this study aims to provide a review of the political and economic situation in Eastern Europe under the communist rule. Then the impact of the collapse of the Soviet Bloc and its implications in the region are discussed and different approaches to transition and privatisation are compared. A closer examination of Poland follows. Also an introduction of market economy and its implications for the Polish ports are discussed. We also attempt to review the process of organisational and legal changes in each of main international Polish ports. Also emergence of extensive competition and its impact on ports was discussed. It became clear that marketing strategy plays a central role in the newly emerged environment and therefore this research aims to investigate marketing strategies in the ports of Gdansk and Gdynia, which are regarded as main ports on the Baltic. In particular the research concentrates on exploration of the most important elements of marketing strategies through investigation of the variables traditionally included in the 7Ps of service marketing.

A large number of variables, which reflect marketing strategy is reduced to a smaller number to reveal the underlying structure in both of the ports in order to show how the port industry in Eastern Europe is being marketed and from their experience to develop strategies in the coming years.

The more general aim is to apply an approach which will enable the identification of marketing strategies in the ports located in the region, which has undergone transition and find out how advanced is marketing in this new developing environment.

Structure of thesis

This thesis is made up of eleven chapters including introduction and conclusions. Chapter 2 aims to identify the background to service marketing, its development and concepts that emerged over the years of studies in the marketing area. It also gives a brief introduction to service marketing aspects, such as mission, marketing strategy for marketing of services, marketing mix, and market segmentation. The characteristics of port services are discussed followed by factors determining port choice and the importance of application of marketing in seaports is discussed in chapter 3.

Chapter 4 provides a literature review of the situation in Eastern Europe during the transition period, and in Poland in particular. It also provides an introduction to today's Poland, its political and economical systems. This chapter ends with an analysis of the situation in the Polish maritime sector.

Chapter 5 concentrates on the three international Polish ports, Gdynia, Gdansk and Szczecin-Swinoujscie, an introduction to port industry in Poland and then provides a detailed description of each of the ports including their size, facilities, location and specialist terminals. Analysis of each port concludes with detailed description of recent developments in each of the ports and future plans concerning investments and engagements.

A conceptual model is developed in chapter 6 in order to facilitate the exploration of the port environment in the pre transition period, the evolution of this environment during the transition period and finally an analysis of the ports' environment in the newly emerged market economy conditions. It also discusses the process of privatisation in all of the three ports and the adoption of European Union policies preparing for EU accession and integration with its maritime sector. It shows that marketing is a new element that plays a central role in the post

transitional conceptual model and therefore it needs to be further explored. The complexity of the marketing approach indicates that a multivariate technique to be most appropriate and hence chapter 7 provides a review of multivariate approaches that are commonly used by marketing researchers. These include correlation, regression, and cluster analysis, multidimensional scaling and factor analysis.

Chapter 8 provides insights into factor analysis and its variations since it was chosen as the most suitable approach for the purpose of this research. It discusses its development, provides definitions of terminology used in factor analysis and presents two types. It concludes with a review of application of factor analysis in modern science.

Chapter 9 provides a classification of types of variables and measurement scales that can be used in this research. This includes choice of appropriate method, specification of required data and respondents sampling, design of research instruments (i.e. mail questionnaires, telephone and personal interviews). It concludes with a description of each variable included in this research.

Chapter 10 includes results of the analyses conducted for ports of Gdynia and Gdansk. It gives fundamental insights into marketing strategies in both of these ports. It also details the application of factor analysis. The results indicate the presence of six underlying constructs in the case of each port's marketing strategy. Further investigation via the application of Pearson correlation shows the relationships between these constructs and ports' overall effectiveness.

Chapter 11 of the thesis provides a discussion of the value of this study for practitioners (the port marketing managers) and theory implications for development and research into marketing in maritime sector. A discussion of limitations of the research is given and recommendations

for further research are made.

CHAPTER 2

MARKETING OF SERVICES

Introduction

This chapter provides a detailed description of services marketing. At the beginning it outlines how and why service marketing developed and who were the first scientists to write about it. Then it explains how services are different from goods and why they need a different marketing approach. Then marketing strategy and the 7Ps of service marketing are introduced and then most important elements of marketing are described in some detail including relationship marketing, mission, market segmentation, positioning and marketing plans for service.

Definitions of marketing

There have been a number of definitions for the best description of marketing suggested over the years by various marketing researchers. Here are three recent marketing definitions by one of the most famous people in the field of marketing, Kotler.

Marketing – A social and managerial process by which individuals and groups obtain what they need and want through creating and exchanging products and value with others (Kotler, 2000).

Marketing Management – The analysis, planning, implementation and control of programs designed to create, build and maintain beneficial exchanges with target buyers for the purpose of achieving organisational objectives (Kotler, 1993).

Marketing Concept – The marketing management philosophy that holds that achieving organisational goals depends on determining the needs and wants of target markets and delivering the desired satisfactions more effectively and efficiently than competitors do (Kotler, 1993).

The development and emergence of services marketing

The evolution of services marketing.

Over the past few decades we have seen the focus of the formal studies of marketing directed at an increasing number of specific sectors. In the 1950s, consumer goods companies were recognised as the most sophisticated marketers. They were often the first companies to develop formal marketing plans and much academic effort was directed at analysing and researching consumer markets. In the 1960s considerable attention was paid to industrial markets and marketing texts and journals dealing specially with industrial markets started to appear. In the 1970s marketing in non profit organisations and the associated areas of public sector and social marketing received attention. However, it was in the 1980s when services marketing started to attract greater attention considering the rapidly growing population of services (Payne, 1993).

Early researchers in services marketing often encountered criticism of their work on the grounds that services were not really different from goods, so most of the initial research (Stanton, Gronroos, 1978, Kotler, 1982) into services sought to differentiate them from goods, focusing on four generic differences:

- Intangibility
- Heterogeneity
- Perishability of output
- Inseparability of production and consumption

The evolution of services marketing as reflected in the literature can be described in three stages according to opinions of its forerunners:

- Crawling Out (pre 1980)
- Scurrying About (1980-85)
- Walking Erect (1986- present) (Brown, Fisk, Bitner, 1996)

The *Crawling Out* stage began with debate over whether “services marketing is different “. That was the time of discovery and taking risk. Most analysts’ studying services marketing in the 1950s and 1960s was undertaken through their dissertation research (McDowell 1953, Parker 1958) and this began a pattern of innovation that was continued by others. Johnson’s dissertation in 1969 was the first to ask the question whether goods and services are different. At least a dozen dissertations were completed on services marketing topics during the 1960s (Regan, 1963, Judd, 1964 and Rathmel, 1966). Ten more significant theses were written during the 1970s, including Blois (1974) who emphasised the scarcity of service literature sources, Donnelly (1976)- marketing channels for services, George and Barksdale (1979), and Gronroos (1979) who focused on the marketing functions of service firms.

The first text on services marketing was actually a research monograph written by Johnson (1964) who based his work upon his personal interviews, case studies, trade association contacts and literature review. The first full-length book authored by Rathmel (1974) sought to introduce the service sector to marketing and marketing to the service sector.

In 1977, the Marketing Service Institute published the first output of MSI’s new consumer services marketing research programme. The collection included: “Do We Need Service Marketing “by Bateson (1979), “A New Approach to Service Marketing”, “Services as Systems” by Eiglier and Langeard (1977), “A Note of Commonality of Problems in Service

Management; A Field Study “ by Eiglier, and “Marketing’s Potentials for Improving Productivity in Service Industries “ by Lovelock and Young (1977). The major outcome of the *Crawling Out* period was the literature’s delineation of service characteristics.

The *Scurrying About* period represents a time of high interest and enthusiasm in services marketing. Two major developments during 1980-85 helped trigger an exponential growth in the literature that continues to this day. One of them was the deregulation of service industries, especially in North America. Firms in transportation, financial services, health care and telecommunication woke up to an environment of new rivals, intensified price competition and rising customers’ expectations. The role of marketing within these firms was transformed to being the core function vital to the survival of the organisation, and because of that fact they were hungry to acquire and understand marketing knowledge. This need encouraged services managers and marketing academics to come together. Many of these academics (Berry, 1980) while trying to respond to the needs of specific services, found that services marketing differs from goods marketing and recognised the need for research in this field.

The second development was interaction among practitioners (Berry, 1980) among the series of American Marketing Association conferences which was connected with the rising interest in services marketing of the association.

Collectively deregulation, the academic dialogue and the European - United States connection had a pronounced impact on the literature of the time. The appearance of four service articles in the Journal of Marketing within 1983-85 encouraged many scholars and further legitimised the field among the marketers. Lovelock’s (1983) “Classifying Services to Gain Strategic Marketing Insights “, prepared five classification schemes for services. For each scheme Lovelock offers insights how the nature of services may affect marketing strategies and tactics.

Other authors wrote for the Journal of Marketing: Parasuman, Zeithmal and Berry (1991) compared the problems and strategies cited in the literature with those reported by the managers and offered suggestions for reflection. The same authors' team published "A Conceptual Model of Service Quality and Implications for Future Research" in 1985. In this article the authors developed their Gaps Model of service quality and reported an exploratory investigation of quality. It led to service quality being a core topic for services marketing.

In addition to the Journal of Marketing, Harvard Business Review has also been an outlet for literature on services. During this period HBR published articles by Levitt (1981) on marketing intangibles in 1981, Takeuchi and Quelch (1983) on service quality in 1983, Conlon on the service economy in 1984 and Shostack on service design in 1984.

A great number of noteworthy publications appeared in early to mid-1980 especially the work of "the Nordic School" which became particularly influential during this period as illustrated in Norman's (1984) "Service Management" and Gronroos and Gummesson's (1985) "Services Marketing-Nordic School Perspectives". In 1985 "The Marketing of Services" by Cowell was published.

Some of the books and articles during the *Scurrying About* stage continued to defend services as fundamentally different from goods, whilst others targeted new areas of enquiry, such as service design, economy, etc. In doing so they laid the groundwork for the *Walking Erect* period.

The *Walking Erect* stage literature can be characterised as a period of explosive growth in a number of publications. There had been almost no discussion whether services were different from goods since 1986, but literature had focused on specific marketing problems of service

businesses. These topics included managing quality given the heterogeneity of the service experience, designing and controlling the intangible process, managing demand and supply in capacity constrained services and organisational issues resulting from the overlap in marketing and operations functions.

The boom in research was also encouraged by the continuation of the AMA conferences and first Quality in Service (QUIS 1) meeting in Karlstad, Sweden in 1988, QUIS 2 held in 1990 in Norwalk, Connecticut and QUIS 3 held again in Karlstad in 1992 with 15 countries represented, encouraged the continuation of research in the field. All of them were sponsored by the Service Research Centre at the University of Karlstad and the First Interstate Centre for Services Marketing (FICSM) at Arizona University. The international and cross-functional dimensions of the field are also evident in the service management and marketing research seminars sponsored every summer since 1988 by the Universite d'Aix Marseille in France.

A number of significant publications were also written during the *Walking Erect* period. Worthwhile mentioning are "Managing Services Marketing" by Bateson (1989) or Lovelock's "Services Marketing" published in 1991. In addition to these publications, numerous books on topics closely related to service marketing, such as customer service, relationship management and service quality have been published.

The same team of authors who produced the Gaps Model also invented a measurement instrument SERVQUAL, for assessing service quality. Other researchers have contributed empirical studies on service satisfaction, a closely related topic that is sometimes difficult to distinguish from service quality. The assumption is that customer perceptions of service encounters are important elements of customer satisfaction, perceptions of quality and long-term loyalty. Service encounter research focuses on the interaction between customer and

employees in service companies. Research published recently can be traced to Czepiel's "The Service Encounter" from 1985.

Currently the research on service encounters can be divided into three primary types. Firstly attention is being paid to the management of customer and employee interactions in service encounters. Secondly research focuses on customers' involvement in service encounters and the customers' role in service production and delivery. Thirdly it focuses on service encounters, examines the role of tangibles and physical environment in the customer evaluation of encounters. Because services are processes, the actual steps involved in delivering and receiving the service assume tremendous marketing importance.

The other issue, which attracted services' researchers, was customer retention and relationship marketing. The last one recognises the value of current customers and the need to provide continuing services to existing customers so that they will stay loyal, which was quite different from traditional marketing approaches.

The evolution of services marketing can be tracked through three evolutionary stages from its early beginning in the *Crawling Out* stage to the most recent publications in the *Walking Erect* stage. Particularly in the *Crawling Out* stage a key element was shaping the literature. In the *Scurrying About* phase specific problems faced by business practitioners influenced the great number of topics that were researched. The literature published during the most recent revolutionary phase is an important contribution to management practice and academic theories of marketing in a variety of topic areas (Lovelock, 1991).

The Marketing of Services

Western Europe is becoming a predominantly service based economy. The rapid growth in this area coupled with decline in traditional manufacturing, means that over 60% (Payne, 1993) of most Western economies are now in the service sector. Intense competition, connected with

deregulation in both the financial and professional markets and application of modern technology has encouraged this growth. Within all sectors of the economy there has been a growing trend towards specialising upon relying on external specialist service providers. When the European Community opened its internal barriers at the end of 1992 opening the entire continent of more than 320 million people as a home market, this trend intensified.

Services' marketing has increased in importance with the advent of growth in competition in the service sector, which was less important in the 1980s. There are various reasons for the growth of the service sector, these can be divided into demographic, social, economic and political (Payne, 1993).

Demographic changes:

- Life expectancy has risen creating new demands for leisure and travel as well as health care and nursing;
- The development of new regions has increased the need for infrastructure and support services.

Social changes:

- The increased number of women in the work force has promoted the rapid rise of childcare facilities, fast food and other personal services;
- The quality of life has improved because of two income households; more money has been spent on travel and entertainment;
- The greater complexity of life has created demand for such services as legal and financial advice.

Economic changes:

- Globalisation has increased the demand for communication and travel, and information services (rapid changes brought about by new information technology);
- Increased specialisation within the economy has led to greater reliance on specialist service providers; advertising and market research have become specialist functions supporting all sectors of the economy.

Political and legal changes:

- government has grown in size, creating a huge infrastructure of service departments; this trend has been augmented by the growth of the European Union;
- internationalism has made increased and new demands on legal and other professional services.

The increased demand for services is partly driven by the greater complexity of all business transactions. A further factor in the current economy is an increasing trend for companies to subcontract out specialist service providing a wide range of activities they used to carry out themselves. Contract catering, recruitment, advertising, transportation, computer services, market research or product design are examples of activities being delegated to external organisations. Companies are becoming more focused realising that increased sophistication in the marketplace and greater competition means that such activities are better performed by external specialists (Payne, 1993).

Coupled with the emergence of the service economy has been a growing interest of marketers in this sector. Academics are actively exploring and extending marketing ideas and practices in a wider range of service contexts. There has been broadening in the range of applications to

which marketers have tried to apply the marketing concept in the service economy, which caused many problems, not least in the practical difficulty of defining what is meant by a service.

The nature of services

In an analysis of the nature of services Payne's (1993) definition is as follows:

A service is an activity which has some element of intangibility associated with it, which involves some interaction with customer or with property of their possession, and does not result in a transfer of ownership. A change in condition may occur and production of the service may or not may be closely associated with a physical product.

However there are examples of services which don't fit any definition that can be found (Payne, 1993). There is often confusion over terminology in this area specially when goods and services are subcategorised, so it is more useful to explore the offer that is made to customers.

Kotler (1991) has distinguished four categories of offer varying from a pure good to a pure service:

- a pure tangible good – no services accompany the product.
- a tangible good with accompanying service to enhance its consumer appeal, i.e. computers.
- a major service with accompanying minor goods and services such as first class airline travel.
- a pure service with no accompanying goods such as baby-sitting or psychotherapy.

It is frequently argued that services have unique characteristics that differentiate them from goods. As we noted earlier the five characteristics ascribed to services, according to Misztal (1999) are:

- Intangibility -services are to a large extent abstract and intangible.

- Heterogeneity- services are non-standard and highly variable.
- Inseparability- services are typically produced and consumed at the same time, with customer participation in the process.
- Perishability- services are perishable and cannot be stored.
- Ownership- lack of ownership is a basic difference between service and product industries because customers can only have access to use of a particular facility.

However, it is appropriate to consider each of the above characteristics on a continuum because there are examples of services that contradict each of them and any specific service may combine different degrees of each.

The dynamics of most services markets have changed in a competitive marketplace so that marketing has become a key differentiation between success and failure. Marketing is described as “the way in which an organisation matches its own human, financial and physical resources with the wants of the customer”(Cowell, 1987) and it is defined by the Institute of Marketing as the management process responsible for identifying, anticipating and satisfying customer requirements profitably.

As a result marketing is an attitude of mind; it is a range of activities, which will employ tools and techniques in the process of identifying, anticipating and satisfying customer requirements (Christopher, Kennedy, McDonald and Willis, 1989).

The evidence of status of marketing in services is conflicting. On the one hand it has been suggested that service organisations are less market orientated than manufacturing firms. The reasons for that are:

- the dominantly intangible nature of service products may cause more difficult marketing

problems compared with physical items,

- some service businesses are opposed to the idea of marketing. They consider that it is unprofessional to use certain marketing practices associated with goods marketing,
- many of the small organisations in their contact with customers don't require the same kind of marketing approaches as bigger organisations; some techniques of management may be considered as irrelevant,
- some service organisations have enjoyed more demand for their services than they could cope with; others have enjoyed monopoly powers in their service field.

Indeed there appears to be three areas in which management has failed:

- they didn't have a complete marketing approach,
- they failed either to recognise marketing problems, or to act when they realised a problem existed,
- there was little co-ordination of the marketing efforts of various groups within service firms
(Cowell, 1987)

On the other hand many service organisations have been highly market orientated. Competition has intensified in many parts of the service sector as people with marketing experience from the non- service sector, switch jobs to service organisations, like car hire companies, industrial cleaning service companies and hotel groups all of which have used marketing practices.

Investigators (McNamara, 1972) in the United States concluded that marketing must no longer be a forgotten function as it has been for many service firms in the past. The same survey (George, Barksdale, 1974) also suggested that there were many kinds of similar marketing activities undertaking both services and manufacturing organisations. According to Cowell (1987) with respect to the product or service offer, both kinds of organisations undertook the

activities of:

- determining which next product or service to offer,
- estimating the size of the market for new product/service possibility,
- establishing short-term goals and policies,
- establishing long-term goals and policies,
- defining specific target groups within the total market,
- determining the uniqueness of product/service offered by the firm for potential customer,
- periodic re-examination of goals policies and procedures,
- developing an overall marketing plan for the firm.

Similar patterns of activity were reported in pricing, advertising and promotion areas. There were differences between the types (manufacturing and services) of companies sampled and in terms of where the activities examined were undertaken (e. g. in the marketing department or in some other external or internal department).

The authors of the survey suggested the following major findings. Service firms were:

- less likely to have marketing mix activities carried out in the marketing department
- less likely to perform analysis of the offering area,
- more likely to handle advertising internally rather than go to outside agencies,
- less likely to have an overall sales plan,
- less likely to develop sales training programmes,
- less likely to use marketing research firms and marketing consultants,
- less likely to spend as much on marketing when expressed as a percentage of gross sales.

On the other hand there are not many differences between service and manufacturing firms in their approaches to goals, policies and overall plans for their offerings. What emerged in fact

was a pattern of similarities in terms of activities undertaken although:

- the marketing function was less structured in service companies,
- marketing activities were less likely to be assigned to the marketing department alone,
- marketing activities in service firms were more fragmented than in manufacturing firms; this could make control of the marketing function more difficult and could reduce the effectiveness of the total marketing effort (Cowell, 1987).

The marketing function consists of three components (Payne, 1993):

- The marketing mix - the important internal elements or ingredients that make up an organisation's marketing programme.
- Market forces - external opportunities or threats with which the marketing operations of an organisation interact.
- A matching process - the strategic and managerial process of ensuring that the marketing mix and internal policies are appropriate to the market forces.

The marketers in service organisations who adopt the marketing concept have to make the idea operational. They have to put marketing into practice. The organisations, which attempt to service customers' needs have to use the marketing planning process defined by the planned application of marketing resources to achieve marketing objectives.

The marketing planning process consists of the following steps:

- gathering information on the external environment and the organisation internally;
- identifying the major strengths and weaknesses of the organisation and opportunities and threats externally (SWOT);
- formulating basic assumption about key determinants of marketing success;
- laying down market objectives for the organisation based on the information gathered, the

SWOT analysis, the assumption made and formulating strategies;

- Devising detailed plans and programmes to accomplish objectives;
- Measuring progress towards achievement of objectives; reviewing and amending the plan as necessary (Cowell, 1987).

However the key element in any planning will be the development of an effective marketing strategy.

Marketing strategy in services

Developing a marketing strategy involves two related tasks (McCarthy, 1978). These are:

Selecting a target market in which the enterprise is to operate; and developing a marketing mix for each target market selected.

Whilst formulating marketing strategies, the marketers have to find the right answer to the following questions:

- Whether they fully understand the type of service business they are in?
- Who their customers are, how they can identify them and what benefits they are seeking?
- How they can defend their business from competitors?
- How they can obtain more cost efficient operations and how decisions about marketing strategy influence decisions in other parts of the service operation and vice-versa (Cowell, 1987).

Competitive strategy is often narrowly focused at direct competitors-firms which market products that offer customers a similar way of achieving the same benefits. However there may also be a serious threat from generic competitors which offer customers a different way of achieving similar benefits.

The research and analysis that underlines development of effective positioning strategy is designed to highlight both opportunities and threats to the firm in the competitive marketplace, including the presence of generic competitors. Market analysis is needed to determine such factors as the level and trend of demand and the geographic location of this demand. The firm has to define if demand is increasing or decreasing for the benefits offered by this type of service, and if there are regional or international variations in the level of demand. Alternative ways of segmenting the market should be considered and an appraisal made of the size and potential of different market segments.

Internal corporate analysis requires the organisation to identify its resources (financial, human, know-how and physical assets), any limitation, and the values and goals (profitability, growth, professional preferences, etc.) of its management. Using insights from this analysis, the organisation should be able to select a limited number of target market segments. A target market consists of a group of customers sharing some similar characteristics towards which an enterprise may direct its products and services. Once a target market has been identified, the marketing process involves close examination of the target population. It may be divided into groups called market segments along with some further relevant characteristics that enable more detailed analysis of the target market being served (e. g. income, spending habits, location). These analyses should consider both direct and indirect competition.

The outcome of integrating these three forms of analysis is a position statement that articulates the planned position of the organisation in the marketplace. Armed with this understanding, the marketer should be able to develop a specific plan of action. The cost of implementing this plan must be related to the expected payoff (Lovelock, 1996).

Approaches to marketing strategy

Most writers on the subject of marketing strategy start with the statement of what they consider it to be. Chang and Compo-Flores (1978) Refer to marketing strategy as being a crucial and central issue to the use of marketing function. Similarly Baker (1978) sees it as being a broad means of achieving given aims. The companies participating in the research reported also gave similar broad statements by Greenley (1983). Several companies claimed that their marketing strategy was long-term activity, other that it provided for overall achievement of objectives, and others that it provided a broad plan of action.

There are four major bases used in literature to explain the detail of marketing strategy. These are the product-life cycle, market share and competition, positioning and marketing mix. In addition some of the marketing writers also advocate special marketing strategies for both international and industrial markets. Each of the bases will be examined in the following section.

The Product-Life Cycle Base

Baker (1978) and Doyle (1976) state that marketing strategy for a particular product needs to be modified as product moves through the various stages of its product-life cycle. This is based upon the change of the mix at different stages, so that the change is made in a relative degree of reliance of each element, giving a different mix and hence a different marketing strategy at each stage. However there are two major problems with this approach. The first is that it is difficult for the company to be able, at a particular point in time, to identify the stage at which the product is within the cycle. The other problem is that the specific strategies for each stage do not always allow for application to all products.

The Market Share Base

This approach aims to explain the issues involved in marketing strategy and to link the latter to market share and competition. Bloom and Kotler's (1975) approach is to explain how the

company can identify its optimal market share, given a particular set of conditions. Having identified this level the company needs a marketing strategy to achieve the optimum. The second stage is to select a strategy from a range of strategies that are designed to build, maintain or even reduce market share. However, within these share-linked marketing strategies they also advocate a range of further strategies, again based upon the elements of the marketing mix.

The Positioning Base

Another approach in the explanation of marketing strategy is to utilise the concept of positioning. The major overall problem here is the variation given in the literature as to the meaning of positioning. For example Wind and Claycamp (1976) explain a product's position as its overall situation in the market relative to its sales. The concept of positioning can also be explained in term of both market and product positioning, as illustrated by Kotler (1976) In this case the company investigates the segmentation of a particular market and then decides which segment or segments to participate in. This selection is referred to as market positioning. For each segment the company requires a product/service or products/services, and the number of products/services developed, plus their overall nature, is referred to as product/service positioning.

International Markets

Although several references in literature to international marketing strategies, these tend to relate to the elements of the marketing mix. The fundamental tenet here is that these need to be varied for different countries, on the basis of variations in the market conditions in these countries.

Industrial Markets

In this case of industrial marketing strategies described in the literature, a similar situation to international markets exists. Copulsky (1976) describes industrial marketing strategies as also being based upon the marketing mix, but with an emphasis on the product and price.

It can be noted that almost all of the marketing strategy types are to a large extent based on marketing mix. The marketing strategy based on marketing mix is explained below.

The Marketing Mix Base

Foxall (1981) defines marketing strategy, as being an indication of how each element of the marketing mix will be used to achieve the marketing objectives. This definition gives a complete reliance on the mix and therefore the utilisation of the elements is the strategy. This is however quite restricted approach to marketing strategy. Chang and Campo-Flores (1980) suggested a range of marketing component strategies that constitute the total marketing strategy. These give us strategies relating to products, distribution, and sales promotion and pricing. Generally it is a simple approach of relating marketing strategy merely to the mix elements. It can be noted that marketing mix-based strategy provides the basis for nearly all the approaches. Therefore marketing mix strategy has been chosen for this research. Closer examination of the mix and its elements follows.

The process of mix formulation and balancing is unique to each organisation and product. The marketing mix focuses on four key components, called the 4Ps. These include product or service being offered, price charged and terms associated with its sale, promotion and place (Cannon, 1998).

Product or service being offered.

Buying the service product is really buying specific benefits and value from the total offering. A service product is a complex set of value satisfaction. The buyers assign value in relationship to the benefits they receive. The service product can be recognised at several levels: the *core* product – basic service, the *expected* product – consists of the core product together with the minimal purchase conditions which need to be met, the *augmented* product – this area enables

one product to be differentiated from another, and the *potential* product – this consists of all potential added features that may be of utility to the potential buyers (Oliver, 1995). Customers' expectations for different configurations of benefits and features vary by market segment. The brand name itself also becomes an important element of the augmented product. Brands can be major determining elements in the purchase of services and an important means of adding differentiation at the augmented product level.

Price charged and terms associated with its sale.

Pricing decisions are of great importance in determining the value for the customer and play a role in creating an image for the service. Price also gives a perception of quality. Pricing decisions for service are particularly important bearing in mind the intangible nature of services as well as the overall marketing strategy. The service marketers also need to understand the relationship between price and demand and how demand varies at different pricing levels. They also need to consider the cost of providing services and how these vary over time and with level of demand. Two major types of costs, fixed cost and variable costs, need to be identified. Fixed costs are those which do not vary with the level of output. They remain fixed over a given period and include buildings, furniture, staff cost, maintenance, etc. Variable cost varies according to the quantity of the service provided or sold. They include part-time employees' wages, expendable supplies, electricity, postage, etc. Many service businesses, such as airlines, have high levels of fixed costs because of the expense of the equipment and staff needed to operate them. Service managers need to understand how cost behaviour will vary at different levels of service output. This has important implications for decisions to expand capacity, as well as for pricing (Button, 1993).

The costs and pricing behaviour of competitors is a further important element that needs to be reviewed (Cannon, 1998). Once all the issues above have been considered the method by which

prices will be set needs to be chosen. Typical pricing methods in the service sector are as follows (Payne, 1993):

- Cost-plus pricing, where a given percentage margin is added.
- Rate of return pricing, where prices are set to achieve a given rate of return on investments of assets. This is sometimes called target return pricing.
- Competitive parity pricing, where prices are set on the basis of following these set by the market leader.
- Loss leading pricing applied on short-term basis, to establish a position in the market or to provide opportunity to cross-sell other services.
- Value-based pricing, where prices are based on the service's perceived value to a given customer's segment. This is a market driven approach that reinforces the positioning of the service and benefits the customer receives from the service.
- Relationship prices, where prices are based on considerations of future potential profit streams over the lifetime of customers. Relationship pricing is a form of pricing where there is an on-going contact between the service provider and the customer. This method of pricing follows closely the market-orientated approach of value-based pricing but takes the lifetime value of the customer into account.

Promotion - the communication programme associated with marketing the product or service.

The promotion of services is involved in a number of major areas, which are known as the communications mix. The following elements are included: advertising, personal selling, sales promotion, public relations, word of mouth and direct mail. The choice of the communication mix for services involves decisions on such issues as whether to advertise, use personal selling or generate publicity. The choice of the medium is determined by decisions on how to create the most favourable awareness amongst the target audience.

Advertising is one of the most important forms of impersonal communications. Its role is to build awareness of the service and to persuade the customers to buy and differentiate the service from other service offerings.

Personal selling has a vital role in services because a majority of services involve personal interaction between service provider and a customer, which mean that “people” become part of the service product. Personal selling has a number of advantages over other elements of the communication mix. These include personal contact, relationship enhancement, and opportunity for cross selling.

Sales promotion is a number of activities undertaken to encourage the sale. Sales promotion tools can be aimed at three audiences: customers- free samples, cash refunds, prizes, contests; intermediaries- free goods, discounts, co-operative advertising, awards; sales force- bonuses, contests and prizes for best performance.

A public relations programme should follow the process, which consists of the specification of objectives, determining the mix of the activities to be undertaken, implementing an integrated programme and evaluating the results.

Word of mouth is one of the most distinctive features of promotion in service business. Customers are often involved in the delivery of services and then share their experiences with other potential customers. Therefore word of mouth becomes one of the most important information sources (Cannon, 1998).

In service marketing corporate identity (or image) plays a very important role. The development of corporate image is one of the underlying concepts of positioning (Ledger &

Roe, 1996). Image enables the company to be recognised and be associated with certain quality of services provided. The more elements of image are maintained the stronger its identity.

Place is the distribution and logistic function involved in making a firm's products and service available.

The location and the channels used to supply services to target customers are two key decision areas. This is because services usually cannot be stored and will be produced and consumed at the same time. The environment of the place and the way service is delivered are also vital and will be the part of the perceived value and benefits of the service. The choice of both distributions and channels for services largely depends on the particular requirements of the market and the nature of the service. Technology has changed the advantage to be gained by proximity of the service to the customer market. Electronic services have removed some of the need for the providers to be located on high streets and also the requirement for long opening hours to deliver their services (Cowell, 1984)

These four essential elements of the marketing mix are sufficient for non-service businesses but services' marketing requires additional elements different from manufacturing. An expanded marketing mix presents a more appropriate model and reflects the traditional elements plus three new ones. These are people, processes and physical evidence (Payne, 1993).

People are an essential element in both production and delivery of most services and they are becoming part of the differentiation by which service companies seek to create added value and gain competitive advantage.

The success of marketing a service very much depends on the selection, training, motivation and management of people. The importance of people has led to a great interest in internal marketing, which aims to encourage effective behaviour by staff that will attract customers to

the organisation. The idea behind internal marketing is to ensure that all members of the staff provide the best possible contribution to the marketing activities of the company and successfully complete all interactions with customers in a way that adds value to service encounters (Cowell, 1984).

Processes are all the procedures and routines by which a service is created and delivered to the customer including policy about some of the customer involvement and employee discretion issues.

The processes by which services are created and delivered to customers are major factors within the services marketing mix, as services customers will perceive the service delivery system as apart of the service itself. Identification of process management as a separate activity is a prerequisite of service quality improvement. While the people element is vital in the services marketing mix, no effort will overcome continued unsatisfactory process performance. The choice of process can therefore be a source of competitive advantage for a services company. Services processes can be analysed according to complexity and divergence. Complexity is concerned with the nature of steps and sequences that constitute the process, while divergence refers to the variability of them. Processes can be changed in terms of complexity or divergence to reinforce positioning or establish a new position (Cannon, 1998).

Physical evidence, also known as provision of customer service, is more demanding, requiring higher levels of service provided and the need to build closer relationships with customers.

Physical evidence can be divided into two types: essential and peripheral. Essential evidence represents the key decisions made by the service providers about the design of the service product, which can be used to add significantly to the product surround. Peripheral evidence has little value on its own, but nevertheless can add tangibility to the value of the service provided. Where services are performed at the location of the service organisation, physical

evidence has an essential role to play. Familiarity is often a factor used by service franchise operators to provide reassurance, through physical evidence, of what the customer can expect (Payne, 1993).

Each of these marketing mix elements interacts with each other and they should be developed so that they are mutually supportive in obtaining the best possible match between the internal and external environments of the organisation. In developing a marketing mix strategy, service marketers need to consider the relationship between the elements of the mix. There are three degrees of interaction between them:

- consistency, where there is logical and useful fit between two or more elements of the marketing mix;
- integration, which involves an active, harmonious integration between the elements of the mix;
- leverage, which involves a more sophisticated approach and is concerned with using each element to best advantage in support of the total marketing mix (Payne, 1993).

Each of the elements of the marketing mix needs to focus on supporting each other in terms of consistency, integration and leverage, reinforcing positioning and delivery of the service quality required by the market segment that is the target.

Relationship Marketing

Relationship marketing is a new approach to maintaining a long-term co-operation with all business partners with which an organisation deals. This approach needs to be considered since it has become increasingly popular amongst modern, active companies.

Berry provides an early definition.

Relationship marketing is the attraction new customers, maintaining and enhancing good relationship with customer in multiservice organisation. The marketing mind set is that the attraction of new customers is merely the first step in the marketing process (Berry, 1983).

The characteristics of the way that companies maintain their relationship with customers is moving from a transaction focus to relationship focus with the aim of long-term customer retention. The organisation also becomes more concerned with the development of more enduring relationships with other external markets, including suppliers and recruitment. A relationship marketing orientation focuses on bringing together quality, customer service and marketing activities to ensure that their combined synergetic potential is released.

It is suggested (Payne, 1993) that companies have six key market areas where they should consider directing marketing activity and where the development of detailed marketing plans may be appropriate. These are potential, customers, referral markets, supplier markets, recruitment markets, influence markets and internal markets. All these elements of relationship marketing will be discussed further in this section.

The relationship marketing approach to customers is based on the building of long-term client relationships and is different from transaction marketing in many aspects. It is more focused on customer retention rather than a single sale, oriented towards product benefits, not its features, and emphasises high customer service, commitment and contact. Levitt (1983), states that the nature of services requiring repeated negotiations and technological complexity necessitate long-term and involved relationships between buyers and sellers. A long-term relationship will enable the parties to develop an acquaintance with complex products and hence master their efficient use.

Apart from customer retention Panayides (1998) points out a series of relationship- associate advantages. Existing customers are easier to serve and constitute a continuous revenue stream. When customers are lost and they are not replaced immediately there will be a revenue gap for the firm. Customers will ultimately become advocates and hence, marketers of the organisation and help the organisation to identify new series of products and services as improvements over the current ones.

A wide concern is to increase customers' loyalty level. The only way to increase customers' satisfaction is by offering service quality that exceeds expectations. But existing customers are not the only sources of referral. Referral markets go under many names like intermediaries, connectors, multipliers or agencies. Most organisations have to develop better relations with referral sources and establish a marketing plan to deal with them.

The relationship between organisation and its suppliers is undergoing significant changes (Turnbull and Gibbs, 1987). Companies are not only concentrating upon their own advantages; the new relationship is based much more on partnership and collaboration. The aim is close co-operation from a very early stage, including a concentration on quality, commitment to flexibility, lowest cost and long-term relationship.

The key resource for any organisation is no longer capital or technology but skilled people, the most important element in customer service delivery. The marketing department is then responsible, for example, for preparing attractive recruitment literature, sending the brightest partners on universities' visits and sponsoring awards and prizes at target universities.

Organisations also have to consider how to influence markets and focus on them as well as its original core mission. Such abilities should be recognised as an essential element in overall

marketing activity. Most companies will place government departments and regulatory bodies as well as the financial community in its various forms high on the list of markets they must address.

There are two concepts which are essential in internal marketing. The first is when every individual and department both provides and receives excellent service. The second is when all the staff works together in a way that is aligned with the organisation's mission, strategy and goals. The importance of this is particularly clear in service firms where there is a close interface with the customer. Internal marketing is recognised as an important activity in developing a customer-focused organisation.

The Service Mission

A mission is an enduring statement of purpose that provides a clear vision of the organisation's current and future business activities in product, service and market terms, its values and benefits and its point of differentiation from competitors (Payne, 1993). A mission helps determine the relationship in each of the key markets with which the organisation interacts and provides a sense of direction and purpose which leads to better independent decision-making at all levels of the organisation.

David (1989) who identifies nine components of mission statements, has undertaken limited research of the nature of mission statements and their context. These include the following:

- customers- who are they?
- products and services- what are the firm's major products and services?
- location- where does the firm compete?
- technology- what is the firm's basic technology?
- concern for survival- what are the firm's economic objectives?

- philosophy- what are the basic benefits, values, aspirations and philosophical priorities of the firm?
- self-concept- what are the firm's major strengths and competitive advantages?
- concern for public image- what are the firm's public responsibilities and what image is desired?
- concern for employees- what is the firm's attitude towards its employees?

In developing a mission statement the key is to achieve a balance between not being so narrow as to restrict growth opportunities and not being so broad as to lose the focus. Also one should consider before formulating a mission statement, the target audiences for the mission and their relative importance. The decision on target audiences for the mission should be based on the context of the particular service firm and its current position within the industry sector. Developing a mission involves consideration of what services and markets the company wants to be, not just those in which it is involved at present.

A mission statement needs to be unique for each organisation. It should articulate the point of differentiation and at the same time act as the framework for helping evaluate current and future activities. A mission statement should differentiate an organisation from other organisations operating in the same sector and to establish its individuality and uniqueness.

An effective mission is a fundamental element of a service firm's marketing strategy. A mission statement can be the result of intensive and critical self- review for the company. It is necessary to develop strong overlap between intellectual agreement and emotional commitment, the shared values of employees. People must be motivated to follow the firm's mission because the true value of a mission is evident when the statements of it are transformed into actions.

The most comprehensive and useful research on the value of mission has been undertaken by Campbell (1990) who identifies the following four elements as important in a mission:

- purpose- why the company exists;
- strategy- the competitive position and distinctive competence;
- values- what the company believes in;
- standards and behaviour- the policies and behaviour patterns;
- competence and the value system.

He argues that a strong mission exists when above five elements link together and describes some guiding principles how to create a long-term sense of mission. In particular, in service organisations it is often the collective behaviour of employees, which brings success or failure.

Market Segmentation

Market segmentation has been considered as one of the most essential marketing concepts available. Not many service companies can rely on an undifferentiated marketing approach. Service organisations with monopolies have attempted to do this in the past. Nowadays with privatisation and deregulation, former monopolies are increasingly aware of the need for segmentation rather than adopting a market aggregation approach.

Different customers have different needs and a single service or product cannot meet the needs of all customers but it can meet the need of a specific group and as a result a service firm should be positioned to serve particular segments of the market. Moreover the service company needs to identify the most active parts of the market so they could produce the greatest profit by serving them effectively.

The segmentation process is concerned with dividing a heterogeneous market into specific

homogenous segments. This allows identified segments to be targeted with specific services and a distinctive marketing mix. It aims at satisfying customers' needs more effectively, ensuring customers' retention and loyalty. Market segmentation is especially important in the current competitive marketplace. It offers the opportunity of gaining a competitive advantage in highly contested markets, through differentiation.

The segmentation process follows four steps:

- the definition of the market to be addressed;
- the definition of the alternative basis for segmentation;
- an examination of the basis and the choice of the best base or bases for segmentation;
- an identification of individual market segments, definition of their attractiveness and selection of specific target segments (Payne, 1993).

The definition of the relevant market to be addressed involves specifying the customers' group to which the company is aiming to market its services. The next step would be to consider alternative means of segmenting the market.

There are many different segmentation bases, which can be used to segment a market. These include (Altkorn, 1995, Kotler & Armstrong, 1996):

- Psychographic segmentation which takes into consideration not only age, education, income, occupation and marital status but also analysis of life style characteristics, attitudes and personality.
- Geographic segmentation divides customers according to where they live or work and correlates this with other variables. Customer needs are different in different areas depending on regional trends and patterns. Geographic market measures include

examination of population density; climate related factors and standardised market areas.

- Benefit segmentation focuses on the personal attributes of the customer and assumes that the benefits that people are seeking from a given service are the basic reason why they buy the service.
- Usage segmentation divides customers into heavy users, medium users, occasional users or non-users of particular service. Many service marketers focus on the heavy users segment, which may consume much more of the service than the occasional user.
- Promotional response segmentation considers how customers respond to a particular form of promotional activity, for example: advertising, sales promotion, in-store displays and exhibitions.
- Loyalty segmentation characterises customers according to their degree of loyalty to the particular service. They can be divided into four categories: Hard core loyals, customers who buy their brand all the time; soft core loyals, who are loyal to two or three brands; shifting loyals, who shift from favouring one brand to another; and switchers, who show little sustainable loyalty to one brand (Payne, 1993).
- Segmentation by service takes into consideration how the customers respond to varying service offerings. The various elements of customer service that can be offered and possible differentiation in service levels within these elements provides an opportunity to design service packages appropriate to different market segments. Segmenting markets by service involves addressing the following issues:
 - Can groups of customers be identified with similar service requirements?

- Can we differentiate our service offering?
- Do all our products require the same level of service?

Differentiation of service requirements of different customer segments, offers potential for reducing customer service costs and/or improving levels of service. Once the market segment has been selected, the process of target marketing involves developing and positioning the target segments selected and then developing a marketing mix for each target market. Segmentation is at the heart of marketing strategy and is concerned with the development of market position that minimises competitors' strengths and maximises those of the company.

Positioning and Differentiation of Services

The idea of positioning can be traced to the idea of identifying needs and then fulfilling them. The concept of positioning also has origins in the increased recognition of the importance of corporate image. Positioning is concerned with the identification, development and communication of a differentiated advantage which makes the organisation's products and services perceived as superior and distinctive to those of its competitors in the mind of its target customers. These attributes should be factors that are critical in the customer's purchase decision. (Payne, 1993). According to Trout (1996) positioning is simply concentrating on the idea that defines a company in the minds of customers.

Every service offered has the potential to be perceived as different by a customer. Buyers have different needs and are attracted to different offers. It is therefore important to reflect distinguishing characteristics, which satisfy the following criteria (Kotler, 1991):

- importance - the difference is highly valued to a sufficiently large market;
- distinctiveness - the difference is distinctly superior to other offerings, which are available;
- communicability - it is possible to communicate in a simple and strong way;

- superiority - the difference is not easily copied by competitors;
- affordability - the target customers will be able and willing to pay for the difference; any additional cost of the distinguishing characteristics will be perceived as sufficiently valuable to compensate for any additional cost;
- profitability - the company will achieve additional profits as a result of differentiation (Kotler, 1996).

Services have a number of distinguishing characteristics, which have special implications for positioning. Three of the key characteristics of services make positioning strategies of particular importance in marketing a service. These are the intangibility, the degree of variability or heterogeneity in quality of a given service, and inseparability-the fact the performance of a service will usually occur in the presence of a customer. Often a service may require the customer to be present both when the service is initially being delivered and on an on-going bases.

Positioning can permit an intangible service benefit to be represented tangibly. It can help the customer to see an intangible benefit, by offering tangible evidence. Service companies often promote their reputation in an attempt to add tangibility. Developing a positioning strategy may also assist identification of other tangible features that can be added to the service. The augmented service offer will be more easily distinguished from other service offerings. The distinctive features of the service outlined above provide the basics for competitive positioning strategy (Payne, 1993).

Positioning is considered at several levels. These include:

- industry positioning - of the service industry as a whole;
- organisational positioning - of the organisation as a whole;

- product sector positioning - of a range or family of related products or services being offered by the organisation;
- individual product or service positioning - of specific products.

In addressing their position, service organisations may wish to consider where their industry is positioned. Frequent means of positioning used within public relations agencies are to identify the relative favourability and familiarity of different organisations. These can also be applied to industries. Regular monitoring can identify shifts in both the company and its competitors' positions. Companies need to be concerned with all the levels listed above (Payne, 1993).

The first step of positioning will be determining level with the aim of defining which levels are to receive major positioning attention. Once the level of positioning has been determined the next step is to identify the specific attributes that are important to the chosen market segments. The way in which purchasing decisions are made should be considered. A number of approaches can be used to identify attributes that then can be used to develop a positioning map. Location of the attributes on a positioning map is the next part of the positioning process. Usually two dimensions are used on positioning maps and these often account for a large proportion of the explanation of the customers' preference. Customers in each market segment may perceive the service and its benefits differently, and different maps will show the different positions.

The next step of the positioning process is evaluating positioning options. Ries and Trout (1981) have suggested three broad-positioning options:

- strengthening current position against competitors;
- repositioning the competition;
- identifying an unoccupied market position.

The final step of the positioning process is implementing positioning. How a company and service is positioned needs to be communicated through all of its implicit and explicit interactions with customers. Positioning involves both launching new brands into the marketplace and repositioning old brands. A successful positioning strategy should make the service clearly distinguishable by features that are desirable and important to a target customer segment. To maximise its potential the company should position itself in its core market segments where it is differentiated in a positive way over competitive offerings. Successful positioning is to promote the feature at which the company is best and which exactly matches the needs of the customers (Kosnik, 1989).

A rare but good example of positioning in services is presented by Yercan (1997) as she looked at the shipping industry and attempted to analyse market segmentation in the maritime sector. The study provided a comparative analysis of the Turkish and European Union passenger ferry market in the Eastern Mediterranean. Derived from the Handbook of Marketing in the Service Industries (1991) the positioning undertaken by Yercan started with a perceptual map. Within the perceptual map the psychological distances were measured and reflected on graphs with the help of human perceptions. The psychological distances between services are reflected on whatever dimensions that customers judged relevant while evaluating the service that was being researched, i.e. quality, safety, friendliness, reliability, attractiveness, etc. (Yercan, 1997).

Marketing Plans for Service

There has been growing acceptance of marketing planning over the past decade. Normally, a marketing plan does not stand alone. The marketing issues and strategies that shape the marketing plan are an essential element of the long-range or strategic plan for the organisation. The strategic plans deal with all aspects of the environment - including political, financial, and

personnel (the referral markets)- and specifies the general direction for all functional departments in terms of objectives, goals, and investment priorities (Lovelock, Lewin, Day and Bateson, 1987).

The first phase of marketing planning has two steps: defining the mission and identifying corporate objectives. Both of them are part of strategic context.

The mission has been already discussed. The purpose of corporate objectives is for the stockholder to measure the success of the mission. Drucker (1957) has identified key areas in which objectives need to be set. These are the following:

- market standing - sales and market shares by product and market segment; customer service levels and ability of services;
- innovation - new products and services require the achievement of market objectives;
- productivity - of employees and capital;
- physical and financial resources - building, equipment, process and technology, capital, and raw materials and components;
- profitability - to replace assets; for innovation and expansion; and to reward risk taking and attract new capital;
- manager performance and development;
- worker performance and attitude;
- public responsibility; (Drucker, 1957)

Objectives may be qualitative and quantitative or a combination of both. The setting of corporate objectives should enable evaluation whether the corporate mission is being achieved.

The situation review phase consists of three steps: a marketing audit; situation analysis and the identification of key assumptions in the marketing plan.

The purpose of the marketing audit is to gather all the data necessary to determine how the business can succeed in each market segment in which it chooses to compete. Approaches to the strategic marketing audit usually adopt a form of categories of internal issues to be examined, or checklists of questions to be answered in terms of strengths and weaknesses. The data includes environmental, competitive, market and economic analysis. A marketing audit should be selective and comprehensive. An internal assessment should look at the company from a general view but each individual market segment or each service should be assessed on its own merits. Marketing planning is the key to successfully reaching the target market. This gives directions and focus to the marketing activity and permits marketing objectives and strategies to be developed and measured with respect to each target segment (Morgan, 1991). In discussing all types of analysis and strategic marketing audit, professionals (Stevenson, 1976) are keen to discuss, learn and use tools and techniques of planning. The most popular ones are:

- the product/service life cycle;
- SWOT;
- the Boston Consulting Group matrix;
- the multiple factor portfolio matrix

Once all the data from the marketing audit have been analysed it is necessary to evaluate the company's position in relationship to its particular strengths and weaknesses, compared with opportunities and threats presented by the external environment. This analysis is well known as SWOT. SWOT analysis is a simple approach providing a framework in which managers can order their thinking about internal capabilities and shortcomings and their view on the marketplace and competitive environment and, by the positioning of the internal and external analysis of the current situation facing the organisation, focus the mind on how the organisation can best interact with its environment. When all four areas of the SWOT have been identified

there must be a decision about what they mean and what actions are needed to deal with the particular aspects (Stevenson, 1976).

An approach familiar to many managers in the situation analysis stage of the planning process is the product portfolio matrix developed by Boston Consulting Group (Altkorn, 1995).

A product or service is usually envisaged as moving through several distinct phases over time. It moves from introduction to growth, then maturity and finally decline. At all of these different stages a product or service will be generating different levels of returns and requiring different levels of expenses. The Boston Consulting Group Matrix is an original attempt to get companies to take a balanced portfolio approach to the range of products or services they offer in order to ensure long-term growth and development and sound internal investment decisions concerning individual services and groups of services. The underlying logic of the Boston model depends upon two important strategic marketing concepts: the product life cycle and experience curves (Morgan, 1991).

The analysis and identification of key assumptions is then possible. The purpose of key assumptions is to identify, from the situation review, the factors that will be critical to the success or failure of the marketing strategy. They are an estimate of the future operating conditions for the marketing plan and may include the following:

- interest rates,
- inflation rates,
- status of economy,
- anticipated demand levels,
- regulatory changes, etc.

Having completed the strategic marketing audit stage of the planning process, the present

position of the firm in relation to its clients, market places, competitors and its own strategic marketing goals and objectives has been analysed. The next and the most important part of the whole marketing plan are the generation and evaluation of strategy options (Morgan, 1991). Strategic planning can be defined as the process of developing and maintaining a strategic fit between the organisation's goals and capabilities and its changing marketing opportunities. It relies on developing a clear company mission, supporting objectives, a sound business portfolio, and co-ordinated functional strategies (Kotler & Armstrong, 1996). The purpose of strategic planning is to target the profit, revenue and market share necessary to satisfy the mission and how an integrated marketing mix is to be devised to achieve the target for each segment. Marketing objectives with respect to target markets will be covered within two areas:

- Current users, here the marketing strategy has two key tasks, the retention of existing customers, and obtaining additional business for existing customers.
- New users; for the new user the marketing strategy is concerned with both increasing trials of the service offered, and obtaining repeated usage of the services, after the initial trial, on an on-going basis.

It should be recognised that it is generally more profitable to sell to existing customers than to sell to new customers. Existing customers are a group that provides a company with the most revenues. To attract new customer is always expensive in terms of an active promotion campaign and brings in little revenues.

Marketing objectives are usually set in terms of expected achievement from the specific market segments to be addressed, as well as the total set, typically covering such areas as:

- sales volume,
- market share,
- profit,
- customer objectives,
- marketing costs.

The organisation's strategic plan establishes the kinds of business the organisation will enter and its objectives for each. Then within each business unit more detailed planning must take place. The major functional departments in each unit – marketing, finance, accounting, manufacturing, purchasing, human resources, etc – must work together to accomplish strategic objectives.

The marketing strategies will be made up of three elements: the means, the timetable, and the resources necessary to ensure successful achievement of the objectives. Marketing strategies outline the broad plan of action to achieve marketing objectives through the marketing mix elements. An integrated combination of these elements is used to satisfy customers' needs (Kotler & Armstrong, 1996).

The next step of this phase is estimation of the expected results. Once the strategies have been

determined and decisions made about the marketing mix to be developed in each market segment, the financial implications of the strategies need to be evaluated. This part involves the detailed review of sales revenues; cost of sales, marketing costs, operating expenses and overhead expenses.

Forecasting in the service business is critical because of the perishable nature of services. Quantitative and qualitative market research and forecasting methods are helpful in making decisions regarding estimation of expected results.

The last step in the marketing strategy formulation phase is identification of the alternative mixes to discover if a more effective marketing strategy is available before the plan is implemented. Although the marketing mix is targeted on a group of end users, its impact on other parts of the environment is vital to its success. Just as mixes for the subgroups for end users are designed to meet their needs, the mixes for those involved in reaching these groups must similarly be considered. The interaction between these is also important in determining the overall success of the policies (Cannon, 1998).

In spite of the best intentions, changed situations can force marketing strategies to be altered. Changes in economic conditions, the emergence of new competitors, events such as the Gulf War, the changes in the Eastern Bloc and natural disasters can create the need to modify plans. The optimum combination of elements changes as a product or services passes through its life cycle, as the environmental forces change, as the consuming and intermediary groups adapt, and as the competition responds. The design of the initial mix will therefore need to be able to respond to these circumstances (Cannon, 1998).

The final phase of the marketing plan is resource allocation and monitoring. This one also involves two steps: marketing programmes and monitoring; control and review. The purpose of the marketing programmes is to ensure that the entire firm's staff knows what actions they are responsible for, and to determine how to allocate the physical and financial resources available to ensure success in each market segment. Marketing programmes should describe the resources needed to accomplish marketing strategies and the time horizon in which to achieve them. Programmes provide an opportunity to all members of the marketing team to work together in an integrated manner. Marketing managers responsible for development of marketing plans need to develop skill in building programmes and identifying and justifying necessary marketing budgets to carry them out.

According to Payne (1993) programmes should be based on the following:

- good communication to the various groups, inside and outside the company; this includes: sales people, marketing staff, operations management, R&D as well as agents and intermediaries;
- accurate market research to determine customers needs and service quality compared with competitors;
- internal marketing to support external marketing activity.

The purpose of the last step of this last phase of monitoring, controlling and reviewing the programmes and strategies is to ensure that the short-term strategies are working to bring the business consistently towards achieving its long-term objectives and mission. Monitoring and control of marketing plans should be an integrated and natural part of the marketing planning process. The level of detail and frequency of reporting is determined by the type of service company and the sector in which it operates. As a marketing plan is implemented, performance

criteria for measuring the performance of marketing efforts will need to be determined. Typical performance measures to be mentioned and controlled are revenues, market share, marketing costs, overhead costs, profits, return on investments, consumer attitudes, sales force productivity, advertising effectiveness, complaints, customer retention, etc. Another essential element of monitoring and control is to ensure the development of information systems, which will deliver the right information to the right person at the right time, and in a useful format.

Market Analysis and Market Research

Market analysis is undertaken to determine the opportunities existing in a particular market. Marketers of services need to understand why customers want or do not want their services; the motives underlying purchase; the determinants affecting customer behaviour including: income, population growth, buying patterns and who influences buying decisions. So the first step is to identify needs and wants. Secondly marketers need to assess the scale of demand and cost price relationship. This is a multivariate problem, in which the factors of demand, cost and prices must be considered and the relationship between them understood. In practice these three elements are influenced by a number of other factors. Thirdly marketers have to assess the extent to which needs and wants are unfulfilled.

Marketing research may be defined as the systematic process of gathering, analysing and interpreting relevant information for decision making (Cowell, 1987). Marketing research is a part of complex marketing process carried out by those who provide goods and services.

The purposes of marketing research are:

- to reduce uncertainty involved in the decision making process about marketing activities in general and about specific aspects of marketing;
- To monitor and to help control the performance of marketing activities.

There is a general agreement that the marketing research process is almost the same for both service and product organisations and it consists of the following phases (Payne, 1993):

- exploratory phase;
- research plan;
- problem of formulation;
- sources of information;
- collect data;
- analyse data;
- prepare report.

There are many and various techniques of market research and they are very much the same in product and service markets. Some differences in the service sector occur due to marketing activities and marketing research in terms of the quality of data availability for services; problems due to the characteristics of services and problems in researching new services. The techniques appropriate for service marketing research will be discussed later in this thesis.

Conclusions

The service sector economy from retailing to freight forwarding, information services and advertising has become a field of great interest to marketing researchers and practitioners. Nowadays there is no doubt that services are different from goods and that they require a different marketing attitude. Most of the service sector companies have developed marketing strategies over the past few years. However, since the early 1980s it has become obvious to customers, academics and practitioners that the transport and shipping industry lacks a marketing culture.

Meanwhile it is clear that, in an increasingly competitive market, few transport or seaborne trade companies including ports can afford to manage their business from a purely operational and financial perspective. Running a successful modern transport organisation means attracting potential customers and retaining existing ones therefore requires a marketing approach to planning and managing the business.

Figure number 1 illustrates the entire service marketing cycle, which summarises this chapter.

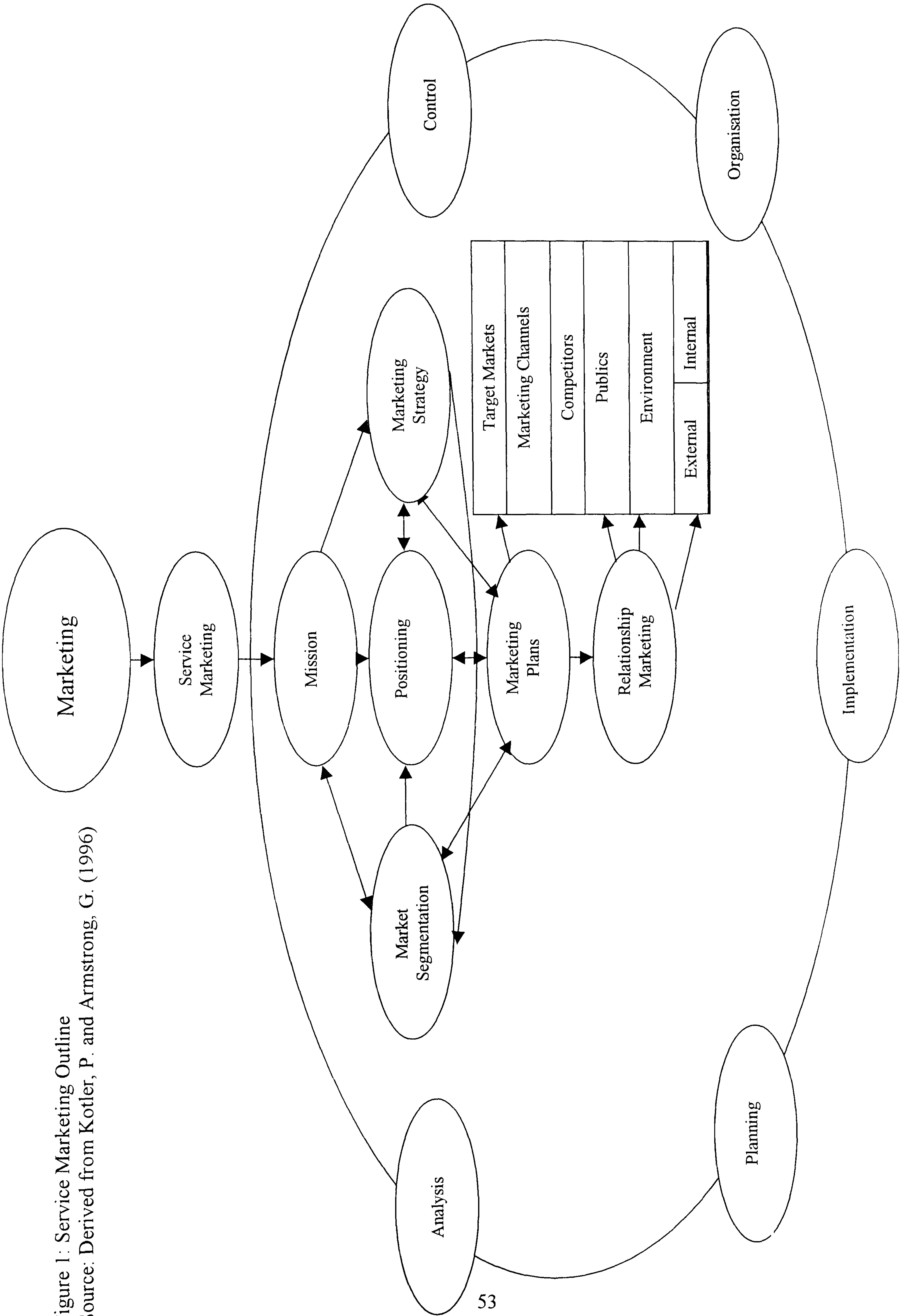


Figure 1: Service Marketing Outline
 Source: Derived from Kotler, P. and Armstrong, G. (1996)

CHAPTER 3

PORT MARKETING

Introduction

Even though service marketing has been developing dramatically in the past few decades the port industry have been largely neglected as far as marketing is concerned.

In order to understand a port as a commercial enterprise which is offering services to international markets, it is necessary to define its role in the chain of transport as well as the macroeconomic function of a seaport for the national economy and the geographical region where the port is located. As far as influence upon the region and national economy is concerned, a port has a double function, employment and transport.

A seaport has an important direct and indirect employment function in the region. The high value added which is produced in the port creates on the one hand a substantial income and on the other revenues in form of taxes for the government. The macroeconomic function of the seaport has to be taken into account mainly in terms of transport and port policy (Stuchey, 1993).

As far as the transport function is concerned, this plays an important role as link in the international chain of transport. In this respect port services are part of the logistics costs for international trade. As a general rule it can be stated, that in the chain of transport 5 to 10 percent of the overall costs are port related (Stuchey, 1993).

Notwithstanding the direct cost benefit ratios in the port, external economies and diseconomies can affect the national foreign trade depending on the efficiency of the seaport.

Characteristics of Port Services

Compared with other industries port services are characterised by some typically unique aspects (Stuchey, 1993):

1. The most important aspect of port investment as compared for example with other transport investments is that capital allocated in seaports is very largely immobile. That means if there is a misallocation of capital for investments, a correction is only possible after the depreciation period of the investment.
2. Another typical characteristic of port investment is that most of the capital is used for infrastructure and that the depreciation period and the lifecycle is usually very long. Therefore long-term planning is needed for these long-term investments. In this planning normally all main departments of the seaport have to be involved. The marketing section is therefore of utmost importance.
3. The product of ports, i.e. port service, cannot be stored if there is overproduction nor can it be sold from stock if there is an underproduction. This is the most important reason why planning and market research activities in this service industry are integrated compared with other industries.
4. The demand for port services is always a derived demand. It is mainly derived from foreign trade. Therefore a seaport offers its services on various markets which differ very much in terms of elasticities of demand and supply. The elasticity of demand is the main reason for the intensity of competition between seaports.
5. The port's service is only a minor part in the transportation chain from the shipper's premises to the receiver's premises. This argument became very obvious after the implementation of container services. Containers enabled long distance journeys of cargo both by sea and land and the cost is much higher than the cost of port services. In the new logistic dominated reality, this fact has become more important for just-in time concepts of the industry.

This latest argument, in particular, shows that the market position of a port is to a high degree dependent on the prices and services of the shipping lines calling at the port and the services and prices of the hinterland transport system serving the port.

Factors Determining Port Choice

In 1977 the Directorate General Transport of the Commission of the European Communities published a study (Suykens, 1988) on the existing situation in transport between ports and their hinterland in which port choice factors are analysed. According to that study the factors that mainly influence port choice are:

- frequency of the number of departures of regular lines;
- available transshipment facilities;
- special facilities for the handling of specific cargoes.

Another analysis, which was made on request of the port of Dunkirk by Lesourne and Loué (1978), was published in 1979. Four hundred and fifty industrial concerns were consulted on the elements that they thought to be important in the choice of ports. Most important to them were the following factors:

- total cost;
- port equipment;
- number of regular lines, volume of traffic;
- accessory costs;
- quality of port services.

The conclusion of this research was that in many cases the industrial concerns did not have substantial knowledge about port facilities but they were mostly interested in the number of regular lines and in the total cost involved using the port.

Another study was conducted by the department of Geography, Concordia University, Montreal under the title “Containerisation, interport competition and port selection” (Slack, 1985). This study suggests that decision-makers are influenced more by the price and service considerations of the land and ocean carriers than by perceived differences in the ports of entry and exit. Port infrastructure did not appear to play an important role in the routing decisions made by important groups of independent businesses involved in the North American container trade.

Port competition in Slack’s opinion has been viewed traditionally as a struggle to achieve control over the hinterland, the region over which port has exclusive or partial dominance. Today even primary hinterlands are subject to penetration by other ports. Another important issue mentioned in Slack’s study was the fact that the choice of port appears to be based more on the price and quality of service offered by land and ocean carriers. Port facilities seem to be taken for granted in that its users assume that appropriate equipment is in place. The conclusion is that the decision-makers’ choice of routes is determined by the transportation costs and service differentials rather than by characteristics of the seaport terminals. Therefore ports should endeavour to improve their land and ocean links. Marketing efforts of ports are likely to have a greater impact on forwarders and exporters with co-operation of the shipping lines. Benefits of facilities’ improvements are most likely to be realised by shipping companies and only indirectly stimulate trade growth (Slack, 1985). These issues have become more significant since 1989 where a competitive situation has developed in the shared hinterland of Polish ports and the German port of Hamburg. The shippers now have free choice, which ports, to use and they also consider the cost of getting their cargo to the port of choice.

Interport Competition

Interport competition can no longer be considered in terms of hegemony. Port traffic is determined more by cost and service advantages. However, there is some evidence that non-cost factors play an important role in the general cargo trades. Reliability, speed and quality of service are more important than price. The most important factors appear to be elements concerned with the transport and handling of containers in the port. The elements regarding the security and the size of the port nowadays do not seem to be of a great importance.

Port competition is of a very complex nature and has also changed considerably since the introduction of multimodal transport. There is no longer a direct cost relation between a customer and a port as all port expenses are matters that are under control of the shipowner. Shippers need not be interested in a specific port or its handling capabilities as the multimodal transport operator relieves them of this concern. The port has simply become a point passed on the way to final destination. The total distribution cost affects the shipowners' decisions and they must thus acquire a door-to-door rather than port-to-port perspective. Possible savings in inland transportation costs induce container carriers to seek economies of scale in the inland movements of containers by concentrating the traffic to a limited number of ports, which have superior access to major inland transportation corridors. The conclusion is that containerisation, port concentration and intermodality having reached a high operational and technical stage, have brought a significant change in marketing structure and hinterland relations (Hayuth, 1982).

Today's ports compete on four main levels. Apart from competition with foreign ports, competition between ports of the same country and multimodal transportation chains, there is

also competition inside ports between cargo handling companies. Geographical location as well as the network of connections with hinterland, and the type of transported cargo influence increased competition. As mentioned earlier even primary hinterlands are shared with other ports therefore those that have a well-developed network of transportation and logistics stand much better chance in these hinterlands. Maintaining competitive position requires constant marketing activities, which influence the marketplace in order to adjust its needs and requirements to services offered by ports (Misztal, 1996).

The Functions of Port Marketing

An active marketing attitude of a port means that it does not wait for potential buyers of its services but conducts careful market research and makes production, trade and investment decisions based on it. It also means that the port maintains relationships directed to potential customers in order to encourage them to buy services offered by the port.

In order to support this attitude the main aims of port marketing strategy should include the following (Stuchey, 1993):

1. Creating port services in such a way that they meet requirements and expectations of the customers or marketplace. To be able to fulfil this aim the marketing department should conduct an analysis of the situation of the port in the marketplace. This analysis should indicate what services potential customers require, what services are offered by competitors and what can be done to increase attractiveness and competitiveness of services offered.
2. Influencing the market by advertising, public relations, and acquisition, in other words creating demand for port services. For this reason the port customers' preferences and tastes, trade customs and legal regulation typical for a particular market must be identified.

Sensitive issues such as investigating possible promotion conditions, defining potential competitors and their marketing methods, market segmentation according to possibilities and the opportunities to function in it should be of a great importance in every marketing department.

3. Maintaining an active sales policy. Achievement of this aim depends on conducting effective market activities. They should lead to creating and enlarging a group of loyal customers and enhancing their relationships with the port, initiating their needs by creating new port services and differentiation and finally introduction of new methods of distribution (Miształ, 1996).
4. The last thing, which needs to be considered in this section, is the control and analysis of the effects of marketing activity. It mainly means evaluation of the changes that appeared in the market as a result of marketing activities and the change of customers' opinions concerning port services and image. Very important is also information about the changes in the volume and structure of sales and generated profits and losses. The analysis results not only provide evaluation of the position in the market in comparison to major competitors but also enable the making of conclusions regarding up to date marketing activity and plans for future activities.

Marketing Research in Seaports

Methods and techniques of marketing research in ports do not vary very much from methods used in other types of industry. One of them is the well-known SWOT analysis, which is normally the starting point of decision-making process. Strengths and weaknesses of the port in comparison to the main competing ports should be analysed (Oliver, 1995).

The strength of the port may be its convenient geographical location, heavy industrialised neighbourhood, or port's connections with other key businesses in the area. As a weakness we can regard under qualified labour force or distant location from important industrial centres.

Opportunity may be considered when the port has the area available for further development or is flexible in order to adopt new modern technologies. As far as the threats are concerned the most dangerous are the competitive ports and growing role of environmental protection.

Another very popular type of analysis of port marketing research is analysis portfolio, designed by Boston Consulting Group. The portfolio model, presents in the form of a matrix, the internal and external environment of the port. The BCG matrix is based on the assumption that two factors, market growth rate and relative market share, are the critical factors in determining business success. The BCG portfolio model uses market share as a proxy for competitive position, and growth rate of a business as a proxy for market attractiveness. This analysis allows appropriate financial assets allocation between various groups of services in such a way that guarantees long-term profitability (Altkorn, 1995).

The results of both analyses are the foundations for evaluation of predictable changes in the market in a defined period of time. This evaluation is closely connected with forecasting conditions defining the marketing strategy of the port and should include the changing tendency in supply and demand of port services. It should also consider the tendency of changes in the levels of prices and market accessibility, and directions of changes in behaviour of competitive ports in this market and finally economic policy of the competitive countries.

Other methods known and employed by marketing researchers are the marketing audit, for example implemented by British Airways, product/ service lifecycle and the multiple factor portfolio matrix (Payne, 1993).

All the information collected during marketing research is necessary to define an appropriate marketing strategy, which will help achieve the port's aims, such as widening the range of port services, increasing the quality of services, attracting new customers and undertaking organisational, technological and investment attempts in order to improve a port's performance.

Marketing Management in Seaports

The process of marketing management in a seaport is of a complex nature. It consists of a number of stages appearing in strictly defined order and dependent on each other. In a correctly applied process of marketing management we can distinguish the following phases.

1. Identification of the port services' market.
2. Analysis of external and internal conditions of port's performance in the marketplace.
3. Defining aims and strategies of the port.
4. Establishment of tactics and techniques of the port performance.
5. Undertaking active market activities.
6. Controlling and evaluation of the marketing effects and conclusions for the future (Misztal, 1996).

Marketing activity plays a key role in the process of port development and for that reason should be considered equally important with other functions of management. In this context marketing is one of the factors of economic development of a port and therefore all port activities should fulfil its requirements.

The success of marketing management depends very much on precise implementation of the mission, which should be understood as the present and future role of the port in national and international goods' exchange via sea transport, and also in the national and international transportation system. The management of the port's mission should have a clear vision of the port's future development (Misztal, 1996).

In this respect marketing is a concept of philosophy, which embraces all management functions of a port and hence is a multi-disciplinary approach to commercial management. Marketing practises or marketing activities are more commonly associated with the private sector of the economy; however in practice the techniques are also applicable to public or semi-public corporations. This includes also public or semi- public ports. However in any case marketing implies a competitive market situation.

The following points have to be accepted:

1. Port marketing is heavily influenced by frequently changing international trade practices.
2. The same applies to the changing technologies in the chain of transport. This includes hardware and software technologies in particular, and the growing role of e-commerce.
3. Interport competition is a further dynamic factor that needs to be observed carefully at all times.
4. Institutional issues such as taxes, customs duties, subsidies, documentation requirements and the banking system have a severe influence on marketing strategy especially for seaports offering their services on international markets (Stuchey, 1993).

Under these conditions we should understand port marketing as a key management function in a customer-orientated organisation, which is not only concentrated in the marketing department. Marketing has a wide vertical dimension because marketing and its objectives

affect all levels of the organisation, from the bottom up to the top management level. It also has a horizontal dimension because its function is delegated only as far as day to day work is concerned to one main department. It is a duty of this marketing department to provide all levels with the appropriate information, so that they have a direct approach and clear understanding of the needs and requirements of the port customers.

In a buyers' market, a customer-orientated management approach at all levels of the organisation is essential for a service industry such as a seaport. Marketing has an interdisciplinary function in the whole organisation, in particular the operational sector, which maintains everyday contact with the customers or their representatives and can play an essential role in the ports marketing management system (Stuchtey, 1993).

As a conclusion it can be stated that a seaport is an enterprise, which is offering its services in a transportation chain and therefore its competitiveness depends on the hinterland transport system as well as on the shipping lines. The demand for port services is a derived demand, which means that all research and planning activities have to include the original markets of foreign trade. Another important issue to consider is the lack of the mobility of investments in the port and the institutional factors influencing it. It also must be mentioned that the demand for port services is to a high degree dependent on international factors, which are beyond the control and influence of the ports themselves. These factors include international trade customs, currency problems, world market conditions, freight prices etc.

The port management has to consider these limiting factors in order to develop a realistic and successful marketing management system. The port management should concentrate its marketing activity upon both corporate and highly specialised marketing. The balance between them depends on the role that a port wants to play in the transportation and logistics chain.

The Importance of Logistics

The borders between the industrial nations continue to open for more sophisticated goods; the result has been divisions of labour with competition among all those participating in production and trade.

Today's ports seek to gain the position of logistics and distribution centres. Their position on the market is no longer solely determined by the quality of the products. A decisive co-determinant is the quality of logistics with which the position of the product is supported in the market. The supply of goods will only be accepted if just-in-time delivery that can be assured without a large capital commitment in local inventory stock and expedited by smooth-running logistics over the entire chain of operation and information. It is hardly ever possible for one organisation to undertake the construction of these interconnected logistics chains with both worldwide dimensions and the required logistics services. Often many partners providing the quality service must merge into unified logistics systems. Every port must organise an optimum combination of the individual segments of the transportation chain with regard to specific conditions, location, political influences, etc. (Schulten, 1993). The goal of every port must be to attain a large enough number of traffic possibilities, on the basis of connection capabilities. This enables the necessary transportation chain to be maximised by the transit of cargo through all of its operations.

An effective logistics process is essential to satisfy customers and to gain competitive advantage. Improving the service quality that the logistics process provides increases customer satisfaction and builds customer loyalty. These in turn lead to market share and margin increases. At the same time, focusing on true customer needs eliminates cost for services not valued. Improving the productivity of the logistics process also reduces cost. Together these actions help make services more attractive in the marketplace.

Quality in logistics means meeting customer requirements and expectations including the following dimensions (Mentzer, Flint & Kent, 1999):

- Ease of inquiry, order placement, order transmission
- Timely, reliable order delivery and communications
- Accurate, complete, undamaged orders and error free paperwork
- Timely and responsive post sales support
- Accurate, timely generation of transmission of information amongst the functions of the business and with external parties to support planning, management and execution of above activities.

Productivity in logistics means using the combined resources of all participants in the supply chain in the most efficient way to provide high quality cost effective customer services (Byrne and Markham, 1991).

Significant changes in the transportation and logistics market environment have had a great impact on the way that carriers and shippers sell, buy and manage transportation services. The emphasis shifted from a straight sell to a customer driven marketing environment, which means that transportation and logistics must be increasingly market focused. Some significant changes that have contributed to this shift include deregulation, the globalisation of the industry, merges and acquisitions, and the expanded use of information technology.

There is a need to understand both the important differences and the interrelationships between sales and marketing. Each is vital and must be designed and executed to supplement and support one another. The development of marketing strategy should include input from sales, and sales personnel should play a key role in helping to implement marketing strategy.

Furthermore every business function must be directed toward the market and the customer, in particular the transportation and logistics function, which is so vital to on time product and service delivery and ultimately customer satisfaction (Neuschel and Russel, 1998).

Nowadays a great number of companies and even whole industries have discovered that astute marketing supported by efficient logistics is the core requirement for operating in the world of free and competitive markets. The trend toward forming marketing partnerships and alliances will continue and intensify both domestically and globally, thus enhancing the territorial reach of carriers and shippers, and in effect enhancing logistics. Managing and leading these new partnerships and alliances will demand special knowledge, skills and commitment.

Conclusions

Marketing in services has been developing very rapidly, first in services such as travel, leisure and food industry, progressively dominating every domain of life. The pioneering country was the United States and then the concept developed in European countries. In the countries of the Soviet bloc there was no need for marketing since there was no market economy and the exchange of goods and services was centrally planned, within each country and between the members of the bloc. The collapse of communism changed this situation completely. The countries were able to operate independently and implement principles of the free market. The emergence of the market economy brought the need and desire for marketing. In Poland marketing efforts were first noticed in consumer goods and services but as the state owned enterprises were exposed to reconstruction and privatisation, marketing became an important part of their economic activities. This also affected heavy industry, transportation and of course the maritime economy including ports.

CHAPTER 4

EASTERN EUROPEAN COUNTRIES IN TRANSITION

Introduction to Eastern Europe

It is important to introduce the situation in the countries of Eastern Europe, as it was before the collapse of the Soviet Union, during the transition period and finally in the newly emerged system. This helps to give a good understanding of the economic conditions in Poland and explain why marketing is a reasonably new approach in the maritime sector. First the CMEA system will be described and then different approaches to transition in the member countries will be introduced and compared. A closer examination of Poland follows. The second section of this chapter describes Polish geography and resources, Poland under the communist rule and its post-communist politics and finally its government system, economy and maritime sector.

The economic and political structures in Eastern Europe were dominated by the influence of the CMEA before the changes in the late 1980's. The Council for Mutual Economic Assistance (CMEA) also known as COMECON, was Eastern Europe's closest equivalent to the European Community. It consisted in its final days of the Soviet Union, Poland, Czechoslovakia, Hungary, East Germany, Romania, Bulgaria, Cuba, Mongolia, Vietnam, and certain states in the past, associate members such as Albania and Yugoslavia (Financial Times 10/05/91). It was associated in January 1949 as a response to the Marshall Plan, which provided finance to repair physical and economic war damage in Western Europe (Ledger and Roe, 1996).

The official and often only theoretical functions of CMEA were the following:

- to provide a forum to exchange information on trade;
- to co-ordinate economic exchange between the member countries and with the outside world;

- to provide a mechanism of exchange of goods within the CMEA without involving monetary movements of hard currency, usually based on the use of the transferable rouble.

In practice the CMEA provided for the Soviet Union a very convenient way to control the satellite states of Eastern Europe. This system was imposed by the Soviet military and also economically by insisting that payment for goods from satellite states was either in barter or in transferable roubles, which had no use outside exchange with the Soviet Union (Ledger and Roe, 1996).

Another characteristic of CMEA member countries was state ownership. In this system all enterprises were owned by the state. In Poland only some parts of agriculture remained in private hands.

Once the decision to dissolve the CMEA had been taken in 1990, all functions within the organisation were dismantled. Bilateral and multilateral agreements and programmes became void (Lavigne, 1999).

The economic and social collapse of the states in Central and Eastern Europe marked the beginning of the transition process towards market economies. Fundamental changes not only affected the specific production structures in each country of the region but also existing monetary exchange conditions. The currency used for foreign trade between Socialist countries was changed almost immediately from the rouble to the dollar. Market prices for raw material were introduced. The resulting decline in trade volumes caused a drastic decrease in demand for shipping transport and consequently for the ports (von Seck, 1998).

Wide differences existed in the beginning of the transition among Eastern and Central European countries in terms of socio-political conditions, economic imbalances and human and physical

resource endowments. This explains to a certain extent why policy outcomes differed widely across countries even though their strategies were broadly similar, as they included essentially the same components. They were price and trade liberalisation, macroeconomic stabilisation, and creation of market institutions and privatisation. Russia, Poland and Bulgaria were more severely affected than others were by inflationary pressures, external current account deficits and budget deficits. By contrast Czechoslovakia and Romania were in better shape, as their only major imbalance was concentrated in public accounts. However, Romania's macroeconomic situation was more precarious than that of Czechoslovakia, because it was already associated with a reduction of national product and a tendency towards economic stagnation. Most of the new independent states of the former Soviet Union had to drastically reduce domestic demand, as they lost subsidies that they had been receiving from the USSR. Furthermore all reforming countries, which were net energy importers, were hit by the increase of energy prices to world market levels (Kirkpatrick, 1994).

In spite of significant differences between Eastern and Central European countries in transition, their policies shared a number of common features, which are worth highlighting. Once liberal, democratic systems were installed, there was no alternative but to abandon central planning and it was necessary to complement free pricing by opening up the economy to external competition. This was carried out by all transition economies along three lines:

- government-managed trade was eliminated and a new custom tariff system was applied;
- a high degree of external convertibility was introduced into currencies;
- the new integration of domestic markets with the world economy had to be supported by devaluation of the exchange rate (Zecchini, 1997)

The results of the reforming countries' policies have generally fallen short of authorities' expectations on three fronts; putting in place a functioning market system, redressing

macroeconomic imbalances and engineering a strong output recovery. The only exceptions are possibly represented by Hungary, Poland and Czech Republic, which have come closer than other reforming countries by 2000 to achieving the three objectives.

Prior to privatisation, in most cases, the state-owned enterprises were transformed into joint-stock companies, a process called “marketisation” (commercialisation), and with the state remaining the sole shareholder, under various schemes depending on the agencies, which exercised ownership rights. The same agencies also managed the state-owned enterprises, which had been singled out as strategic and were due to remain in public ownership or to be privatised at a later stage. Such enterprises usually included infrastructure enterprises such as ports and railways and utilities such as electricity, gas distribution and telecommunication (Lavigne, 1999).

Large-scale privatisation in transition countries is very recent or still under way. There were different examples of how reforming countries approached it but broadly speaking these experiences can be characterised as follows. The Czech Republic had two waves of massive privatisation based on vouchers. The first was launched in mid-1992 (when the Czech and Slovak republics were together) and was completed in mid-1993 (the republics separated on 1 January 1993). The second wave was launched in the spring of 1994 and completed in the spring of 1995. Approximately 70 percent of the vouchers were placed with investment funds, which used them to purchase shares.

In the face of strong pressure from enterprise insiders, successive Polish governments opted for multi-track and more drawn out approaches to privatisation. The first approach involved privatisation of enterprises by sale or transfer. By the end of 1995 some 25 per cent of state-owned enterprises had been privatised this way. In 1995 a long delayed voucher-based

privatisation system got under way. An important vehicle was the establishment of 15 National Investment Funds (NIFs), to which more than 500 enterprises were allocated in the second half of 1995 (Balcerowicz, 1996).

The Russian mass privatisation was very different from the Czech and Polish cases. About 15000 medium and large-scale enterprises, employing some 70 per cent of the industrial workforce, had been privatised under a voucher programme by summer 1994. This mass privatisation strongly favoured workers and management and resulted in a high degree of insider ownership. On average, workers retained 50 per cent of the shares, managers 10 per cent, and only 20 per cent of equity were held by outside investors while another 20 per cent were still in state hands. The second, cash –based wave of privatisation was initiated in mid-1994 but has been proceeding very slowly. Attempts to take it forward in late 1995 proved problematic.

The Hungarian approach to privatisation was rather different and was based largely on direct sales to domestic and foreign investors. This approach was associated with major inflows of foreign direct investment into the country (Stern 1997).

Together with privatisation, restructuring had to be undertaken, as enterprises to be privatised had to submit plans which defined their future internal structure and outlined industrial strategy. Financial reconstructing could not be ignored as soon as the bankruptcy legislation was introduced and implemented. All these forms of reconstructing apply not only to privatised companies but also to the state-owned enterprises, either to remain in state ownership or to be privatised later. Reconstruction includes anti-monopoly policy and bankruptcy legislation. On the one hand competition on the domestic market means “demonopolisation”, and on the other, in the sector controlled by foreign investment, investors have often been motivated exactly by

the prospect of gaining monopoly position in the country. The countries that prepare their accession to the European Union are introducing laws on restrictive practices on the model of EU legislation (Financial Times, 22/01/99).

Bankruptcy laws have not played a large role in reconstruction. Instead of bankruptcies, the governments have favoured special actions to get rid of loss-making enterprises, often under the pressure of international financial organisation. With the support of the European Bank for Reconstruction and Development a number of loss making companies in Hungary, Poland and Bulgaria have been closed down (Thye Woo, 1994)

Systematic changes have taken place in all transition economies but they are not pervasive enough. Most of these economies must still complete market infrastructure, develop the distribution system, raise the level of market competition, and liberalise some prices i.e. energy prices. Legislation needs to support market activities, such as contract and company laws. The public sector still accounts for a large portion of national output, and in spite of some progress in reconstructing there is no clear evidence that public-owned enterprises can sustain market competition and be viable without further government support.

Poland

Poland was chosen for this research for three main reasons. Firstly it is a major maritime country in Eastern Europe, with long traditions in shipping and port operations. Secondly it was the first country to abolish communist rules and start crucial reforms towards market economy. Thirdly, since the researcher is a native Pole, it was regarded as an important advantage while obtaining data.

Geography and Resources

Poland covers an area of 312,677 sq. km. The country is bordered by the Baltic Sea to the north–west along a 524-km coastline; by Germany to the west (along 460 km border), the Czech and Slovak Republics to the south (1310 km); and Ukraine, Belarus, Lithuania and Russia to the east and north-east (1244 km).

The Baltic Sea is shallow, virtually tideless and shared by Poland, Germany, Denmark, Sweden, Finland, Estonia, Latvia, Lithuania and Russia. Poland is a vast, flat low-lying plain with mountains only along its southern boarder. The really flat part is the wide central belt that stretches from its west to east across the middle of the country. This zone mostly is agricultural. The northern part of Poland comprising Pomorze (Pomerania), Kaszuby (Kashubia), Warmia and Mazury (Masuria), is varied and relatively well forested and covered by several thousands of postglacial lakes, most of which are in Mazury. Towards the south of the central lowland the terrain rises forming the uplands of Malopolska (Little Poland) and Górny Śląsk (Upper Silesia). To the south, along the southern frontier it concludes in Sudety (Sudeten Mountains) and Karpaty (Carpathian Mountains) (<http://www.encarta.msm.com>, 1998)

All Poland's rivers run towards the north and drain into the Baltic Sea. The longest (1047km) is Wisła (the Vistula) which runs through the middle of the country. The second longest river is Odra (Oder) river, which forms part of Poland's western border. As a waterway it is more important than the Vistula River.

Poland's population in 1995 stood at 38.5 million. About 98 percent of the inhabitants are ethnic Poles and the reminder are mainly Ukrainians, Belarusians and Germans. Population density varies considerably through the country, with Upper Silesia being the most densely

inhabited area while the north-eastern border regions remain the least populated. Over 60% of the country's inhabitants live in towns and cities. The capital, Warsaw is the largest city of all with a population of around 2 millions (Dydynski, 1996).

Coal has traditionally been Poland's main natural resource, with the largest deposits concentrated in Upper Silesia. Coal supplies a large amount of domestic demand for electricity. The country's oil resources are insignificant and most oil imports still come from the former USSR. Poland possesses considerable amount of sulphur, believed to be among the largest in the world. Among other mineral resources there are significant deposits of zinc and lead, and smaller ones of copper and nickel.

Approximately half of Polish territory is arable. Among the main agricultural crops there are rye, potatoes, wheat, sugar beet, barley and oats. Over 80 percent of the farmland in Poland unlike the rest of the former communist bloc, remained in hands of individual farmers, even in Soviet times. Collective farms, so common at that time, occupied only 2 percent of the land. Even though Poland is considered as one of Europe's leading agricultural nations, it is continually unable to meet its needs for food. The climate limits the range of productive crops and farms are generally small and poorly equipped. The country exports significant quantities of wood products, hard coal, and fish but it continues to depend on manufacturing industries for the bulk of exports.

Poland under the Communist Rule

At the Yalta Conference in February 1945, Roosevelt, Churchill and Stalin decided to leave Poland under Soviet control. As soon as this happened Stalin launched an intensive Sovietisation campaign. A provisional Polish government was set up in Moscow in June 1945 and then transferred to Warsaw. In 1948 the Polish United Workers' Party (PZPR) was formed

to monopolise power, and a Soviet–style constitution was adopted. The office of president was abolished and effective power passed to the First Secretary of the Party Central Committee. Poland became an affiliate of the Warsaw Pact, the Soviet bloc’s version of NATO and of the CMEA, the communist equivalent of the European Economic Community (Smith & Pickles, 1998).

All commercial and industrial enterprises employing more than 50 workers, including banking, industry and retail services were nationalised. In a forced march toward industrialisation, priority was given to heavy industry, in particular coal mining and steel manufacturing. There were no property rights and all foreign goods exchange was centrally planned. Early attempts at agricultural collectivisation were later abandoned and about 80% of cultivated land remained in the hands of individual farmers (Poznański, 1992).

Despite all its propaganda, Stalinist fanaticism never gained as much influence in Poland as in neighbouring countries and it subsided soon after Stalin’s death in 1953. In 1956 a massive strike demanding “bread and freedom” broke out in Poznań. It was crushed with tanks leaving over 70 dead. Soon afterward Wladyslaw Gomulka was appointed first secretary of the party and remained in power for 14 years. His downfall was brought by economic crisis, when he announced official price increases in 1970’s. A wave of strikes erupted in Gdansk, Gdynia and Szczecin and the Party replaced Gomulka with Edward Gierek. Gierek launched an extensive programme of modernisation of heavy industry. Despite some initial growth, the poorly conceived factories, inefficiency due to lack of individual worker incentives, the inferior quality of Polish products, and finally world market recession in the mid 1970’s combined to spell failure for the scheme.

An attempt to raise prices in 1976 brought more labour protests and again workers walked off jobs, this time in Radom and Warsaw. Gierek took out foreign loans in order to repair the situation, but to earn hard currency to pay the interest, he was forced to divert consumer goods away from the domestic market and sell them abroad. By 1980 the external debt stood at USD 21 billion and the economy had slumped disastrously. By then the opposition had grown in power. When in July 1980 the government again announced food-price increases, well-organised strikes broke out and spread through the country. In August they paralysed major ports, the coalmines and the Lenin Shipyard in Gdansk. Although the strikes began by demanding wage rises, they very soon took a more general economic and political overtone and concentrated protest by workers and intelligence had proved a successful combination. In contrast the Party was weak and disorganised, and after a decade of mismanagement the economy was in a state of virtual collapse.

Workers' delegations from all over the country convened and founded "Solidarity", a nationwide independent and self-governing workers' union. In November 1980 the Solidarity movement that by then had nearly 10 million members, was formally recognised by the government. Solidarity had an enormous effect on the entire Polish society. The government, however, under a growing pressure from both the Soviets and local events, became increasingly reluctant to introduce any significant reforms and systematically rejected Solidarity's proposals. In December 1981 a "State of War" was declared and power was placed in hands of the Military Council of National Salvation, a group of military officers under the command of Jaruzelski. Solidarity was suspended and all public gatherings and demonstrations were banned. Several thousands of people including most Solidarity leaders and Walesa himself were interned. In October 1982 the government formally dissolved Solidarity and released Walesa from detention. Martial law was officially lifted in July 1983. Prices were increased again in 1983 and the cost of living rose over 100%. Jaruzelski started to implement economic reforms but the

results were far below expectations. Firstly the Western countries, in particular the USA, imposed economic sanctions in protest against martial law and secondly Poland was unable to raise more loans (Roszkowski, 1992).

The election of Gorbachev in the Soviet Union in 1985 and his *perestroika* programme, had a great influence over the entire Eastern Europe (Brenner, 1993). By 1989 Jaruzelski became willing to compromise over the democratisation of the system. In April 1989, in the so-called round-table agreements between the government, the opposition and the Church, Solidarity was re-established and was allowed to stand for parliament. In the consequent semi-free elections in June, Solidarity succeeded in getting an overwhelming majority of its supporters elected to the Senate, the upper house of parliament. The first non-communist Prime Minister since World War II was installed.

The change in power improved Poland's political and economic relations with the West. The Party started losing its members and confidence very rapidly, and dissolved itself in January 1990. Despite political renewal the economy remained in desperate shape. At the same time the new government introduced a package of reforms to change the centrally planned communist system into a free-market economy. In a shock-therapy transition, all prices were permitted to move freely, subsidies were abolished, the money supply was tightened and the currency was sharply devalued and made partly convertible with Western currencies. Within the next few months the economy seemed to stabilise, however prices and unemployment were constantly increasing very rapidly. During the 1990's prices rose by 250% and real incomes dropped by 40% and by mid-1990 strikes began to occur, though not on the previous scale. Walesa won first free presidential elections in November 1990. The Third Republic came into being (Roszkowski, 1992).

Postcommunist Politics

During Walesa's statutory five years of presidential post Poland witnessed no fewer than five governments. The Prime Ministers during this period were Jan Krzysztof Bielecki, Jan Olszewski, Hanna Suchocka, Waldemar Pawlak and Jozef Oleksy. The first three represented right wing politicians and the latter two left wing, The Democratic Left Alliance (SLD) and the Polish Peasant Party (PSL). In November 1995 after Walesa's statutory five years, presidential elections were held. Essentially a duel between Walesa and SLD representative Aleksander Kwasniewski was won by Kwasniewski by a narrow margin.

Today Poland's politics have one characteristic feature in a large number of political parties that have emerged since the collapse of communist, numbering about 280 by mid-1995.

Solidarity no longer exists as a political power. It was, in the first place, a confederation of various groups united in the fight against communism, rather than a cohesive movement for the construction of a new order.

During Walesa's five-year presidency, the Sejm (Lower House of the parliament) could not solve the problems of fundamental significance for the country centering around the constitution. It was not until late 1994 that the parliament began to examine seven drafts of a new constitution, to replace the Soviet-style document, which had been in force since 1952. The drafts differed mainly over the division of power between the president and parliament. Since no agreement was possible on the final form of the act an interim constitution was passed, which established some urgent legal norms on issues such as the nomination and dismissal of government. It was not until 1996 that a full new constitution was established.

Government

Today's Poland is a parliamentary republic. The president is elected in a direct vote for a five-year term as the head of the state and is empowered to nominate the Prime Minister. The parliament consists of two houses; the 460-seat lower house the Sejm and the 100-seat upper house, the Senat, or senate. The senate was only created in 1989, as before there was just one house of parliament based on the Sejm.

Until mid-1999 the country was divided into 49 administrative divisions. These have been reduced to only 17, which is closer to the historically, defined regions of Poland. These are divided again into smaller divisions called powiats (Dydyński, 1996).

Economy

Before World War II Poland depended largely on agriculture, but post war communist leaders adopted a planned economy emphasising heavy industry and engineering. Nearly all branches of large industry, trade, transportation, and finance came under control of the communist government, and private ownership was limited to agriculture and certain services.

The communist regime's attitude towards the private sector changed only during the economic recovery following the severe crisis of 1979-82, which brought industrial output down by more than 20 percent (Poznański, 1986). The diagnosis of this point was that a plurality of ownership forms was needed, including a viable private sector. This did not mean a complete transfer of state assets to private hands, but rather giving citizens the right to set up their own enterprises. Furthermore, according to this programme, private activities would play only a subordinate role, primarily by helping to improve the efficiency of the state sector. The relaxation of price setting was another change; the most dramatic example being the 1989 liberalisation of prices paid to farmers. Consequently major efforts were begun to promote market competition,

including the decision to eliminate the centralised distribution of materials and equipment for production. (Staniszki, 1990).

The end of 1989 had established numerous joint stock companies, mostly small branches of large enterprises, under the last Polish communist government. Many of these joint stock companies were basically owned by the state as their shares were owned by state enterprises, although they were subject to less state control and supervision. Other ones were put in the hands of the managers, commonly members of the nomenclature.

The roundtable discussions in 1989 led to emergence of a non-communist government under Mazowiecki. Because the economic situation had so degenerated in early 1989, with the national product substantially diminished and rapid inflation caused by an extremely high budget deficit, the priority task for the government was to restore economic equilibrium. Accordingly Mazowiecki following guidelines from international banks and supported by his advisor Balcerowicz, adopted a package known as “shock therapy”, that consisted of a number of deflationary measures, which turned out to be even more radical than those initially agreed upon with the banks. For instance real wages were reduced as much as 31 percent in 1990, while domestic bank credit was cut to 51 percent of the 1989 level (Poznański, 1991). In its 1990 preliminary programme, the Mazowiecki government declared a reintroduction of a capitalist market based on private ownership within two or three years. At the same time the International Monetary Found agreed to lend Poland 700 mln USD, whilst the World Bank offered to lend 1,5 mld USD. In order to limit inflation the government introduced a progressive taxation system of salaries in state owned enterprises, limited the subsidies from the National Polish Bank, and increased credit rates up to the level of expected inflation (Lisiecki, 1994).

The preferred method of privatisation through public offerings or treasury-owned assets was initiated in early 1990, with a few public sales including some of the most profitable enterprises. Because public interest in sales had been considerable, many offerings were oversubscribed. The progress was very slow; the end of 1991 had divested only about fifteen enterprises through this method. Moreover the preparation of enterprises for share offering had turned out very expensive and time-consuming (Sachs, 1991).

To speed up privatisation, the Bielecki government that succeeded Mazowiecki decided to give priority to the free distribution of shares. This concept had been fully developed by the government in mid-1991. The privatisation programme initially included 400 large enterprises and was later expanded by a further 300. All adults were to receive vouchers convertible into shares. The opponents of Bielecki decided to derail the programme and they proved successful. Because the two most favourable methods of privatisation – public offering and vouchers had failed to provide the results expected by governments of Mazowiecki and Bielecki, the bulk of privatisation could only be achieved through the least preferable technique, liquidation, which was initiated in mid-1991. Through this procedure, enterprises, whether financially solvent or not, were dissolved and then their assets offered for sale to the managers and workers. These enterprises were not typically involved in industrial production but rather in transport, construction or the services sector (Garlińska & Pawłowski, 1993).

Many of Poland's large state-owned factories dating from the period of the post-war rush towards industrialisation are still in operation. Their major products include steel, chemical, industrial machinery and transport equipment. Yet in nine years since the fall of communism, the political, commercial and economic situation has changed dramatically. While the old state-owned industries have been falling apart, a great number of new, mostly small, private enterprises have been established.

The Maritime Sector

The maritime economy since the Second World War was a field of great national interest, not only because of shippers' demand but also for other economic and political reasons. The maritime sector in Socialist economies was particularly unique because of its strong public goods and services approach. The starting conditions for transition in each of the reforming countries, including Poland, show strong similarities.

State-ownership, heavy centralisation and concentration commonly defined socialist shipping and ports. State property and activity in the maritime economy was regarded as necessary as was state protection. This was a model imposed by the USSR and the CMEA membership.

Shipping and cargo throughput were generally subject to central planning procedures. With government setting political and macroeconomic goals, only limited possibility for strategic decision-making and action existed at enterprise level. Factors of production were centrally allocated. Accordingly manpower, investment and decisions concerning the fields of activity were set administratively and thus severely restricted autonomy. The political bureaucracy even decided specifically operational matters so that shipping companies and ports were essentially operational units, translating strategic targets into specific structures and then fulfilling them practically afterwards. (von Seck, 1998). In ports this situation was reflected in centrally planned directions of trade, amounts of cargo shipped and agreed transit from land locked countries e.g. Czechoslovakia.

As far as Polish shipping companies are concerned, they experienced a rapid growth beginning in the 1950s, having started from nothing after the World War II. In particular liner shipping gained a competitive position applying international standards and worldwide networks were

installed e.g. transatlantic routes, and services to Far East and Australia. A process of international co-operative orientation was characteristic at that time. All shipping corporations maintained ownership of large fleets, and their enormous sizes often made them the biggest in Europe e.g. PZM (State Bulk Shipping Company). Following central government policy, their main task was to transport goods for national foreign trade to earn foreign currency. Furthermore, military-strategic aims were added to shipping policy functions. All CMEA fleets, for instance, made particularly strong defence efforts, orientating their liner fleets towards ro-ro instead of container technology applied worldwide. At the beginning of the transition period currency rather than shipping functions dominated Polish as well as Romanian, Bulgarian, Soviet Union and East German shipping. Shipping lines for the CMEA countries were one of the best sources of bringing in much needed hard currency and the reason for maintaining the sizes of their fleet at such high levels.

However, all socialist fleets showed signs of insufficient investment and vessels tended to be old and obsolete especially following a period of low investment during the 1980's as the Polish economy declined. Transport technologies used were rather backward and competitive transport qualities were deficient as regard frequency, speed, transit time and reliability. In addition the shipping companies were characterised by their deep organisational and production structures. They were part of vertically integrated maritime conglomerates, which combined a huge variety of services and support activities. Polish ports, however always stayed outside such conglomerates but remained over bureaucratic and relied upon state investment and decisions. (von Seck, 1998).

Similar to other sectors of the economy, comprehensive liberalisation was introduced in the maritime sector. In addition to reforming the currency as regards convertibility, the abolition of the state's monopoly on foreign trade went in hand with an end to the transport monopoly.

Liberal changes encompassed far more than foreign trade. Deregulation also enlarged the scope for economic decision making at company level. Central management and controlling functions were replaced by allocation through markets and prices. Altogether liberalisation and the deregulation process supported a third core aspect of transition, the commercialisation of business. Aiming at international competitiveness state subsidies were cancelled and profit aims replaced former product maximisation behaviour. Firms gained economic autonomy as well as strategic and operative responsibility. These elements of transition lessened the state's interventionist power; privatisation, meanwhile, was another factor, which had a great influence on change.

Foreign trade related aspects of liberalisation have been supported by deregulation and commercialisation objectives i. e.: increased efficiency, better service and lower transport costs for national foreign trade. However, liberalisation, deregulation and commercialisation can proceed without implying privatisation. On the other hand privatisation cannot develop to its full advantage without liberalising, deregulating and commercialising economic structures (Sawiczewska, Misztal, Żurek, 1998).

The combination of ownership change, state withdrawal and the loss of their existing, guaranteed markets markedly affected Polish ports at a time of severe economic stress.

The Polish maritime economy and ports in particular are included in the government programme for re-structuring and modernisation of the whole economy. How in this context the transformation of Polish ports is being pursued is discussed in the next section.

CHAPTER 5

THE CURRENT SITUATION IN POLISH PORTS

Background to Polish Maritime Sector

This chapter is an introduction to international Polish ports. Their parameters and facilities are described here as well as the changes they have gone through since the beginning of the transition period to date.

The extensive changes that have taken place in Poland since 1989 are having great transformation effects. Today's Poland is changing rapidly, but there are still numerous problems that need to be solved on the way to a free market economy. The transformation process has been going on for about ten years now with varied intensity and effects. Privatisation is still seemingly pursued and so far has been most effective in retail trade and the service sector. Unfortunately, it seems clear that the market economy has grown spontaneously and some elements have been slow or have not been implemented at all. On the other hand, the introduction of free market principles means companies have become free to operate commercially and possibly improve their economic condition.

The important goals being achieved by privatisation and transition in the market economy have been: eliminating monopolies and state bureaucratic power of the central administration and dividing some of the large companies into small and more flexible units (Sawiczewska, Misztal, Zurek, 1998).

The Polish maritime economy is included in the government programme for re-structuring and modernisation. The most important part of this programme is the adaptation of separate maritime sectors to the requirements obligatory in the European Union. From the operating side of maritime transport, Poland leads a policy based on free access to seaports and the cargo

market for foreign shipowners.

Cargo handling in seaports maintains a level of about 50 million tones per year, but their structure varies from bulk cargoes to general cargoes and containers. Polish seaports have considerable possibilities to increase their turnovers. Continuation of the re-structuring process and property transformation of ports that began in 1991 has given them positive financial results (Gadula, 1998).

In 1992 Poland was still in an intermediate state between its Communist, bureaucratic past and its liberalised, capitalist future, with a great potential but uncertain about who owns what in terms of land and companies. The ports' cargo figures decreased by as much as 50% as Polish exports and imports slumped, a downturn made worse by a similar fate befalling those landlocked east European countries dependent on Polish ports. Even with lower inflation, interest rates and privatisation in progress, much more work still needs to be done on the country's infrastructure and communications if it is to compete on world markets and to take advantage of its geographical position between east and west (Berenyi, 1995). Development of the ports in the Baltic as potential gateways to central Europe and former Soviet Union republics will need to be matched by investment in Poland's rail and road network.

Meanwhile Polish ports are especially strongly affected by poor hinterland links, and are united in blaming PKP state railways for failing to provide better rail access and for intermittent strikes (Berenyi, 1995).

Fundamental reform commenced in the three international Polish ports in 1991. The ports of Gdansk, Gdynia and Szczecin-Swinoujscie were transformed into State Treasury sole shareholder companies, thus beginning the process of capital privatisation and leading to commercialisation of their services. The next stage in Polish port privatisation was

transformation into joint-stock companies belonging to the State Treasury. Most of the services provided by the ports began to be operated by limited liabilities companies owned 55% by the workers and 45% by port authorities. These limited liability companies operated on the basis of legal agreements with the Port Authority. This system of holdings was introduced in the ports of Gdansk and Szczecin-Swinoujscie (Dobrowolski, Szwankowski, 1997).

In 1993 the port of Gdansk started selling its shares in worker companies and finally completely withdrew from operations, concentrating on management instead. The participating companies were Port Gdansk Exploitation, Chemiki (chemicals), Basen Gorniczny (coal), Free Trade Zone, Siark Port (fertilisers), Westerplatte (general cargo), Northern Port (bulk cargo), and Vistula Port (containers, general cargo and grain). This was also the case in the port of Szczecin-Swinoujscie. Further transformation took place in 1994 with the merger of some of the limited liability companies. The next step undertaken by the Port Authority was to sell its shares in these companies and sell them assets belonging to the port superstructure.

The port of Gdynia has adopted a quite different variant for its re-structuring. The Port Authority was transformed into a holding organisation by creating operating companies belonging 100% to the Port Authority. This first stage of structural transformation started a period of complete separation of operational and management activities.

In 1994 Poland's economy finally emerged from the turmoil of economic transformation and was probably the first of the former socialist Baltic countries to experience an economic revival. Ports were certainly showing it with strong growth rates, and trades to Polish ports were doing better than at any time during the last ten years. The progress of re-structuring was bringing benefits and foreign trade increased. At the same time the specialisation of each port became clearer, Gdansk focused on liquid bulk more than ever before, Gdynia became the leader in

terms of containers, rolling cargo and grain, and Szczecin-Swinoujscie offered diversified services that aimed at a hinterland serving eastern Germany (Lloyd's List, 20/05/95). But as the economic boom has been attracting more foreign interest in joint projects, competition between the ports was increasing.

The three main seaports in Poland compete vigorously for business because the quantity of cargo available for all three ports is less than their capacity. Prices for services, like loading cargo, are similar in all ports but we can observe competition in the quality of services. All ports are suffering from reduced coal volumes, which has always been a main cargo for them. They also have to fight for other cargoes and all are in need of cash to make urgently needed investments. (Lloyd's List, 02/09/94). Meanwhile the ports were frustrated by the government's lack of action in passing legislation related to property rights which in turn held the final privatisation process up. (Berenyi, 1996).

The delay in privatisation manifested itself in the five year wait for the long-gesting Act on Seaports to gain validity to clarify the future property rights and take them further along the privatisation trail for five years. The draft bill was with Sejm (parliament) from November 1995 and became law in August 1997, separating operational activities from the infrastructure and maintenance tasks. Some sizeable projects were already under way without it, started by foreign investors too impatient to wait any longer (Berenyi, 1996).

The last stage of structural transformation in every major Polish port resulted from this Act on Ports (1997). According to this regulation only one organisation should be established to manage the entire port area. This organisation will be responsible for managing and financing the maintenance and further development of port infrastructure. The Port Authority, which will hold the position of the organisation defined in the Act, should create conditions for performing

operational and supporting services by private sector enterprises. These enterprises will have their own assets and will operate within a space rented from the landowner and use the port infrastructure.

The State Treasury sole shareholder companies will be transformed into organisations, which control the entire area of the port. In the port of Gdansk and Gdynia, Port Authorities were converted into public utility joint stock companies, where the respective communities owned 34% and the State Treasury 51%. The Szczecin -Swinoujscie port complex established the Port Authority in a form of Public Utility State enterprise with an autonomous management system and the cities of Szczecin and Swinoujscie each received 24.5 per cent ownership (Dobrowolski, Szwankowski, 1998). This encouraged the natural involvement of the municipalities in the port business. The companies are to be self-supporting, and have been given the right to set tariffs and port dues at profitable levels, and to rent out land to create further finance. This finally closed the process of transformation in international Polish ports. The property rights were defined and more investors should find Polish ports less risky and more attractive.

The shareholders of the port operating companies will be encouraged to invest in joint stock ventures, but the Ministry of Transport and Maritime Economy and the Ministry of Finance will take full control of a port where the regional authority declines the invitation to invest (Lloyd's List, 02/09/94).

Meanwhile, privatisation of all the Polish maritime industry has been slow because of lack of capital. Although the country was at the forefront of the transition from communist to market economy, Poland's private capital base still remains weak and the budget is under pressure. (Fairplay, 26/03/98). Fortunately Poland has got help from international organisations. In the

first four months of 1996, \$1.05 billion foreign investment was lodged in Poland; \$ 2.5 billion was accrued in the whole of 1996, double the figure for 1994. Finance minister and deputy PM Grzegorz Kołodko expected the total to reach \$22 billion by 2000 as privatisation gathers pace and the rate of growth continues to outstrip inflation. Both the IMF and World Bank are satisfied with the performance of the Polish economy as the country became a full member of the OECD in autumn 1996, of NATO in summer 1997 and hopefully the EU by 2003.

Advanced moves have been made to improve transport infrastructure to and from the ports and to launch free trade zones adjacent to them. Gdynia city council issued domestic bonds worth \$ 7million in February 1996 to continue the \$1million site work done by the port itself in 1995, and Gdansk city council was to float a \$36 Eurobond issue, the country's second, for building and refurbishing roads leading to the port (Berenyi, 1996).

The World Bank having already granted one round of funding to Polish ports to improve their infrastructure and access roads is considering the second stage, this time to support reconstructing mandated by the Act on Ports and their expansion.

From Loan 1, Gdynia and Gdansk ports were originally envisaged to benefit most as a result of access through the Edward Kwiatkowski interpass route and flyover linking up with the Gdansk-Sopot-Gdynia ring road and safety of navigation on the Szczecin-Swinoujscie inter-link canal through the installation of monitoring radars and a traffic management system. The World Bank's Loan 2 funding proposals are awaited, relating to expansion, new projects or reconstruction following the Act on Ports (Ivanova, Berenyi, 1998).

It is not only the World Bank that has been lending money to Poland and Eastern Europe. The European Investment Bank started lending to central and Eastern Europe in 1990. In 1994-6

it was authorised to lend 3 billions ECU to ten countries in the region (Albania, Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovakia). One of the areas, to which EIB has been giving priority, are projects in the transport sector. It supports investments to improve national networks and extend communication links with other countries, the EU in particular. In addition the European Bank for Reconstruction and Development and the US based Multilateral Investment Guarantee Agency have also begun lending to infrastructure based projects. Commercial banks are still reluctant to invest in port related projects in Eastern Europe although they are most comfortable with investing in Poland, The Czech Republic and Hungary (King, 1996).

The coast of Poland is 500 kilometres long, and across the Baltic are Scandinavian countries keen to get their goods to Eastern Europe. But the Polish government seems to be concentrating on trade with Germany or the former Soviet Union. Germany would naturally prefer that all goods use German ports first before beginning the long road or rail trip to the east. Their support for upgrading the east-west motorway, from Berlin, across Poland, to Minsk is a natural consequence of this. The Warsaw perspective, which gives priority to the transportation corridor lying on the route from Berlin through Warsaw to Moscow, has strong points reflected in the growing trade with Germany and Eastern markets. But the case for the north south motorway, the A1 route, connecting the east and the south-east, is obvious to the ports on the Baltic (de Spon, 1995). Plans for an improved road network seem destined to turn the country into part of the motorway system from Germany to Russia and Ukraine, rather than the gateway to southern Europe for Scandinavia. So two east-west routes will be constructed before they are connected to the Polish ports in the north. This will be a great benefit for the ports of Hamburg and Bremenhaven but are little help to Polish ports (Fairplay, 09/05/96).

Meanwhile despite this shortage of ports integration with the roads network Gdynia and Gdansk are proving a useful transit point to the Baltic States, Kaliningrad (Russia), Bielorussia and Ukraine. C. Hartwig, one of the largest Polish freight forwarding companies, is trying to organise a freight market in the FSU in terms of agents and representative offices. In 1996 they already had representative in Riga and they were looking at establishing others in other countries such as Bielorussia and the Kaliningrad part of Russia (King, 1996). Polish Economy Minister Janusz Steinhoff said that despite recent budget cuts, the government would have enough money to acquire the land for the construction of the “ North-South” highway which would boost the development of Gdynia and Gdansk ports (Fairplay, 26/03/98). However, by 2000 only some minor groundwork has been started.

Szczecin-Swinoujscie competition is primarily with Rostock in eastern Germany to be the main port for Berlin. German forwarders are beginning to use Szczecin more frequently. It has good road, rail and waterway connections with the German capital and a stable złoty is cheaper than the deustchmark. The traditional trade of Szczecin-Swinoujscie- coal exports and general cargo imports- has gone. Like Gdansk and Gdynia volumes are falling. Szczecin is looking to develop German, Czech, Slovak, Hungarian and Austrian cargoes from the South and Scandinavian businesses from the North. An alteration of trading patterns has coincided with the change in ownership of port companies and new vision in management (Clayton, 1994).

Figure 2. Map of Poland



Source: www.wirtualnapolska.pl, 2000.

Polish seaports can look back on the last decade with some sense of advantage. They have gone through the difficult experience of politico-economic condition change, managed to win back most of the cargo volume lost with the passing of Comecon preference, reorganised quickly and produced private operating companies by the score. They have also made a good start integrating into the EU in terms of commercial links and displayed a competitive spirit in attracting private investment from the West.

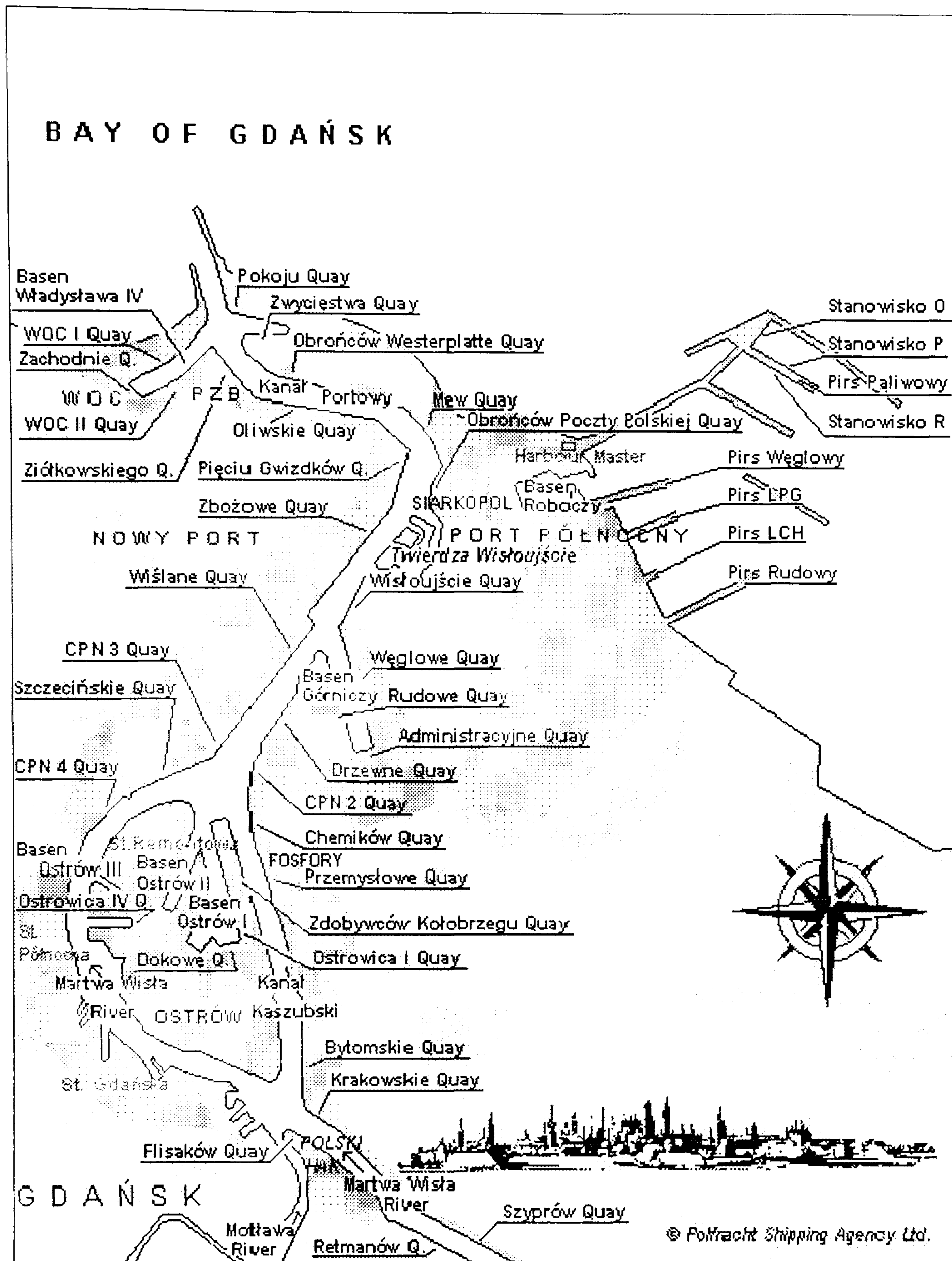
Each of the Polish international ports is different, but all despite increased specialisation remain rather evenly universal. The biggest differences are in their location and environment, age and history. The next section of this chapter looks closely at details of each port individually.

Port of Gdansk

Gdansk is the biggest town in Northern Poland located on the Bay of Gdansk north-west from the outlet of the Vistula River into the Baltic. It covers an area of 262 km² and has a population of 462,709 inhabitants. Gdansk is the most significant industrial, cultural, and scientific centre in Northern Poland. Shipbuilding production and commercial port services have been three of the main economic activities. Gdansk is also the third largest tourist centre in Poland visited by thousands of visitors every year.

Port of Gdansk is one of the three principal seaports in Poland located: Lat.54°25'N, Long: 18°39'E. The old port area is called Inner Port (Nowy Port). The outer part of the harbour is Northern Port (Port Północny) and is situated 2 miles E SE of the entrance of the Port of Gdansk. The port is most of the time free of ice, and even in the hardest winters navigation is unimpeded, making it one of the best winter ports in the Baltic Sea. The Inner Port is able to accommodate vessels with a length not exceeding 225m and a maximum draught of 10.2m. The Northern Port has five jetties of up to 600m. The length of the largest vessel able to enter the Northern Port is 300m and its maximum draught 15m (Baltmax). Both parts of the port have their own roads and approaching fairways. The port covers a total water area of 370 ha and a land area of 662 ha. It provides quays of 18 km in total length of which 9.9 is of commercial use.

Figure 3. Map of the Port of Gdansk



Source: www.polfracht.pl, 2000.

The port of Gdansk has modern cargo handling terminals for:

- containers (ro-ro vessels receiving),
- coal, oil and oil products,
- phosphates,

- sulphur (liquid and dry bulk),
- salt and soda (dry bulk),
- timber;

The port of Gdansk also provides all normal cargo services such as: quantity and quality control, sorting, sample taking, marking, labelling, repackaging and all services rendered to vessels, such as: delivery of fuel, drinking water, electricity, and stowage materials (Polish Ports Handbook, 1999).

The Port Free Trade Zone in the port of Gdansk is one of the biggest in Poland, established by Minister Council Order on 28 November 1995 (Current Legislation No. 141, Art. 693). The localisation of the Port Free Zone in Gdansk creates especially favourable conditions for commodity exchange with Russia and other east European countries. Within the Gdansk free trade zone it is possible to hold business, production, trade and service activity such as:

- import, export, re-export and ship handling,
- cargo handling and storage,
- forwarding,
- legal, economic insurance and other consulting services,
- services for people staying within the free trade zone,

The trade turnover between the free trade zone and foreign countries is free of quantitative contingents, duty licences, and custom duties. Cargo sorting does not require any duty or tax guarantee. There is no limit on the time cargo can be stored in the zone (Polish Maritime Review, 10/97).

The port of Gdansk marketing literature summarises the infrastructure quandary of most of

eastern and central Europe. In the section under the title “strengths” it points out that it has a lot of land available for development. But in the “weaknesses” section, it pinpoints the lack of national financial support for port development. Still in the “threats” section is a warning of lack of funds for all necessary infrastructure repairs. In the same situation as Gdansk there are many other eastern European ports which had to start looking to sources beyond the borders to finance the projects they either need or require for their further development including those in Lithuania, Latvia, Estonia and Russia. (Challinor, 1996).

However, the large area assigned for economic activities is one of the biggest ventures of the Port of Gdansk. Although many activities are already in the process of setting up their undertaking, 200 ha are still waiting for new entrepreneurs. The outer area of the port with the largest free area also constitutes the greatest potential for development. On the other hand, the old part of the port with existing infrastructure creates the best condition for building modern cargo terminals and the port is now looking at better use of the existing facilities.

Another advantage of the Port of Gdansk is location of its enterprises due to the low costs of changing means of transport from land transport to sea transport and vice-versa. The additional benefits can be drawn from the Port Free Zone.

Both Polish and foreign companies have already noticed these advantages of economic activity within the Port of Gdansk. Polish Steel (Huta Katowice) together with Czech and Slovak steel makers took the initiative to build an Ore Terminal, and foreign investors like Europort Inc, founded a modern Grain Terminal in the Northern Port, but it has been the only noticeable activity of this US-Canadian consortium since the contract was signed in 1995. The plan is that the terminal would target the CIS market. This investment has not been popular in Gdynia where the existing four-year old facility is not being fully utilised, but from the point of view

of the whole economy Europort has been seen as a very beneficial investment. The Baltic Malt Company has chosen the Port of Gdansk as a location of their malt house which started working in summer 1997. Several German firms together own a majority state. The IFC, an investment arm of the World Bank, has a minority holding. Also in its final stage, the Gaspol Company transporting liquidated gas, made the construction of the Gas Terminal possible. The LPG terminal is mainly built for Norwegian LPG and is 50 per cent owned by Pamgas, a part of SHV Holding of the Netherlands. The remaining shares are held by seven Polish gas distributors (Fromme, 1997).

Cargo handling of the port of Gdansk is represented in table 1.

Table 1. Cargo handling in the port of Gdansk in 1975-2000.

GDANSK - CARGO 1975-2000 (000 tons)

	Coal and coke	Ore	Other bulk	Grain	Timber	General	Liquid	Total
1975	9417	1641	2911	929	388	1879	1394	18559
1976	10439	1255	7261	1392	478	2114	0	22939
1977	10775	1344	9586	1004	451	2028	0	25188
1978	11709	1189	4517	1476	482	2171	6762	28306
1979	10942	1272	4002	1481	501	2002	6858	27078
1980	8818	1028	3801	1839	547	1801	5254	23008
1981	3536	535	3538	1922	613	1291	1019	12454
1982	5969	128	3766	958	524	1114	790	13249
1983	8623	182	3855	731	778	1143	3048	18360
1984	10577	230	4212	555	1041	1266	3774	21655
1985	9080	82	4160	747	925	1153	2022	18119
1986	8058	10	3850	733	506	1118	2625	16900
1987	8516	31	3877	1171	429	1391	3952	19367
1988	7598	28	4417	1013	428	1274	5442	20200
1989	7267	5	4326	1247	241	1409	3978	18473
1996	6128	200	2906	301	*	1919	5036	16490
1997	6636	456	3117	247	*	1711	5199	17375
1998	7441	298	2986	392	*	1209	8263	20594
1999	7095	183	2507	183	*	1376	7039	18691
2000 fc.	6950	190	2650	234	*	1480	7351	18864

Key:

fc – forecast

* - data unavailable

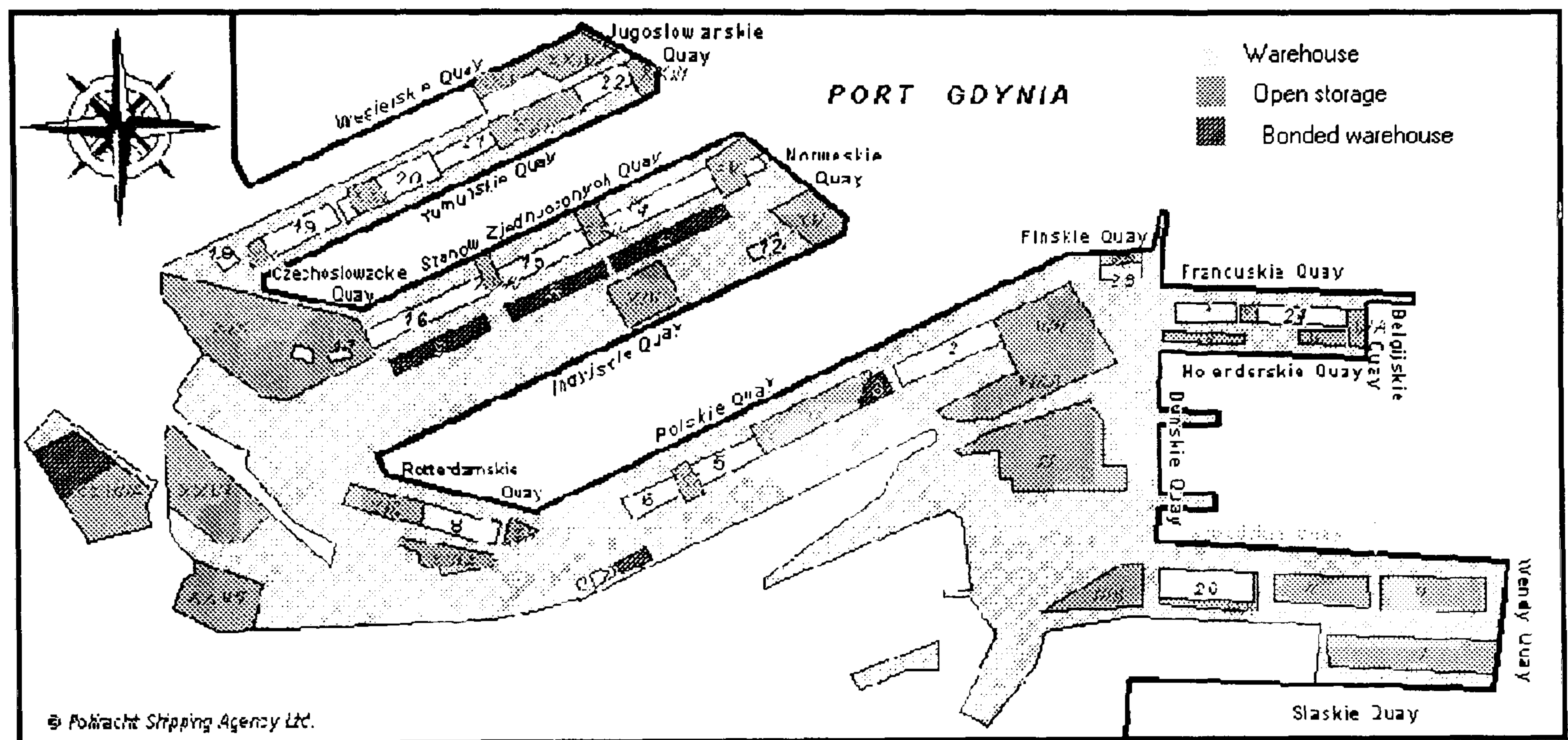
Source: www.portgdansk.pl/en/CargoHandling, 2000.

Port of Gdynia

Gdynia is one of the most dynamic cities in Poland. Originally a small fishing village situated 20 km NW of Gdansk it was designated in 1921 as a site for a new port on the Polish corridor. This was in response to Poland's wish for a direct outlet of its own to the Baltic Sea. After the First World War, the Treaty of Versailles allowed Poland only a narrow coastline in Pomerania but there was no port there. The only Polish port city was declared the free city of Gdansk (Danzig). German influence in the city was stronger than Polish and rich German merchants monopolised the port. In reality it meant that Poland did not have its own port on the Baltic Sea any more. The prime reason for the quick development of the port of Gdynia was Germany's refusal to import many Polish products and the British miners' strike which gave Poland an opportunity to seize new markets, above all in Scandinavia (Polish Maritime Review, 10/97). In the inter-war period Gdynia was the base of the Polish maritime economy with all the associated activities: international trade institutions, a network of banks and insurance companies and chambers of commerce. In 1934 shipping conferences agreed to designate Gdynia a first-class port. That decision gave the Port of Gdynia the chance to become much more attractive and competitive. The city developed because of the port and its activities. Nowadays the city's economic development revolves around the maritime industry, port related business and trade. During the 1980s Gdynia rose to become one of the Baltic's leading container - handling centres.

Nowadays the Port of Gdynia is one of the largest and most modern ports in the basin of the Baltic Sea. The town and the port are situated on the NW coast of the Bay of Gdansk (Lat.54°32'N and Long. 18°34'E). There are no tides or strong currents and during most winters both the port and its roads stay free of ice.

Figure 4. Map of the Port Gdynia



Source: www.polfracht.pl, 2000.

The Port of Gdynia can accommodate vessels with length not exceeding 245m and draught of up to 11.42m. The port territory covers 240 ha. It provides for commercial use quays of 10.7 in length and with 40 deep-water berths. Warehousing capacity remains up to 230,000m² and open storage spaces total around 400,000m². The port of Gdynia is universal and handles all kinds of cargo, but in particular general cargoes, cars and containers and dry bulk cargoes - grain and coal. Its maximum cargo turnover capacity is estimated at 15 million tonnes. In 1999 a total of 7.15 million were shipped through the Port of Gdynia. The well-equipped Baltic Container Terminal is the biggest box handling facility in Poland (space for 1,500 cars and 240 000 TEUs), and certainly is one of the most important investments in the post-war development of the port. It became fully operational in 1979. Due to its location Gdynia is an excellent point

to develop ferry services to Scandinavia and the Baltic States (Polish Maritime Review, 10/97). In 1991 The Port of Gdynia became a joint-stock company and began to transfer its ownership and organisational structure. A number of new private sector firms appeared, and today their activity covers almost every domain of port services. The significant step of privatisation took place in 1994, when two independent subsidiary companies, Baltic Container Terminal and Baltic Grain Terminal were created. Another move to aid containerisation undertaken in 1994 was the introduction by the port together with the Polish railways of its own block trains to central and southern Poland. Meanwhile Gdynia owns 50 per cent of the successful venture Spedcont - the leading Polish rail inland container traffic operator. The port authority also plans a major expansion, for which it would need land from the Polish navy. The expansion should be completed in the next five or seven years. BGT is a part of the programme aimed at the establishment of the modern centre of grain and fodder reloading in Gdynia, corresponding to the needs of Polish foreign trade and transit to neighbouring countries. In 1995 separate companies were established: Baltic General Cargo Terminal Gdynia and Maritime Bulk Terminal Gdynia. The first stage of the privatisation programme was finalised in mid-1996. Port of Gdynia started to operate in its new structure and under a new name, Port Gdynia Holding S.A., from 25th of September 1996 (Polish Ports Handbook, 1999).

Port of Gdynia Holding S.A. is the shareholder in nine operating companies, four of them the main cargo handlers: the Baltic Container terminal, the Baltic Grain Terminal, The Maritime Bulk Terminal and the Baltic General Cargo Terminal. The other companies deal with auxiliary services. The stevedoring companies have set up a joint venture organising the labour pool. The precise organisation of the companies after the new port law's introduction has not yet been decided. The Port Authority will in the second stage take over part of the present Port Gdynia Holding, with the aim of hiving off the individual terminals through privatisation (Fromme, 1998).

Port Gdynia Holding is investing to develop its sea and inland transport operations. It already owns several forwarding companies. In 1995 the port also participated in Baltic Container Lines (BCL), the Gdynia based shipping operator to the ports of Hamburg and Bremerhaven. Last year the ports of Kaliningrad, Klaipeda and Riga were included in the BCL service, and more recently the ports of Szczecin and Rotterdam were included by BCL in its service.

A new ro-ro/ferry terminal seems to be the most important investment for the Port of Gdynia's future, because this is needed by the growing cargo and passenger traffic across Central-Eastern Europe. A motorway and railway from Scandinavia to Southern Europe and Middle East (TEM/TER) is already under construction. Scandinavian consultants have chosen Port of Gdynia as the best location for a heavy-duty ro-ro/ferry terminal whilst the existing ferry connection between Karlskrona and Gdynia ports has been organised as a part of the TEM.

The other important plans of the Port of Gdynia investment programme are as follows:

- expansion at the Baltic Container Terminal from 250.000 TEU up to 340.000 TEU yearly capacity,
- Enlargement of the warehousing capacity at the Baltic Grain Terminal by an additional 14.400 tonnes capacity,
- establishment of a Banana and Citrus Fruit Terminal and distri-park, assembly factories, warehouses and auction features (Polish Maritime Industry Journal, , 08/94).

Cargo handling since mid 1970s is presented in table 2 (2000). Unfortunately data from the beginning of 1990 to 1994 is missing due to crisis in Polish economy and ports' failure to publish the data, it looked so poor.

Table 2. Cargo handling in the port of Gdynia 1975-1999.

GDYNIA - CARGO 1975-1999 (000 tons)

	Coal and coke	Ore	Other bulk	Grain	Timber	General	Liquid	Total
1975	3722	1024	698	2036	1	3413	1856	12750
1976	3258	863	2510	2772	0	3803	0	13206
1977	3322	1404	2189	2699	0	3840	0	13454
1978	3141	1302	820	3847	0	3814	1446	14370
1979	3732	1117	834	3855	0	3564	1407	14509
1980	2779	1276	866	3990	0	3172	1071	13154
1981	9011	1079	477	3564	16	2468	364	2469
1982	8680	2652	375	2158	0	2408	314	8680
1983	2533	1237	685	1444	0	2850	119	8868
1984	4297	1572	581	1448	2	3140	231	11271
1985	3579	1841	499	1323	10	3184	249	10685
1986	2472	1060	906	1373	4	3193	284	9292
1987	2189	1001	1243	1949	0	3207	307	9896
1988	2110	929	1228	2304	0	3337	370	10278
1989	1991	728	906	2102	0	3352	424	9503
1995	2154	77	859	529	0	3659	357	7634
1996	1717	110	838	1619	2	3632	648	8565
1997	1867	93	801	826	1	4521	736	8845
1998	1911	57	576	433	7	4185	403	7573
1999	2076	5	412	613	6	3842	197	7149

Source: www.port.gdynia/statystyka.htm, 2000.

Port of Szczecin – Swinoujscie

Szczecin is the capital of Western Pomerania situated in north-west Poland at the mouth of the Odra River about 65 km from the Baltic coast. Today Szczecin is a large industrial port complex as well as cultural and scientific centre. Szczecin is significant to the Polish economy and is also the homeport of the Polish Steamship Company (Polska Zegluga Morska).

Swinoujscie covers an area of 195 km² spread over 44 islands in Poland's north-western corner, with the main islands Uznam, Wolin and Karsibor. The natural boundaries of the town are

outlined by Szczecin Firth, the Baltic Sea and the national border with Germany.

Szczecin is one of the three principal seaports of Poland. It is situated at the mouth of the Odra River into the Szczecin Firth, 65 km from the open sea (Lat. 53° 25' N and Long. 14° 32'E). The fairway Szczecin - Swinoujscie consists of several dredged channel sections with depth not less than 9.15 m along the centreline and a maximum width of 100 m. The sections are: Kanał Mielenski, Kanał Piastowski, Wielki Zalew, Roztoka Odrzanska and the Odra River. There are no tides here and, but water level variations may occur quite suddenly in Wielki Zalew. During most of the winter the Port of Szczecin and the approaching channels are ice-free. The port has at its disposal quays totalling in length 19.5 km, 8 km of them provide berths equipped with cranes facilities, with a maximum depth of 9.15 m and being able to accommodate vessels up to 210 m in length.

The port of Swinoujscie, operating as part of the port complex Szczecin -Swinoujscie is situated on the eastern bank of the Swina River on the Wolin Island (Lat. 53°55' N and Long. 14°15'E). This port specialises in handling dry bulk cargo, especially coal and ore. There are no tides and the port of Swinoujscie is ice-free most of the winter. The port is able to accommodate vessels with a depth up to 12.8m and length up to 240m. Ships with deep draught can be lightened for inward passage to Szczecin and outward bound ships can be completed to full load.

The port of Swinoujscie is the busiest and biggest dry bulk terminal in Poland. A new ferry terminal operated by Polish Baltic Shipping Company provides ferry berth and facilities for passenger services. The Swinoujscie location has allowed ferry connections with Sweden and Denmark. There are lines to Ystad and Malmoe in Sweden and Copenhagen in Denmark (Polish Ports Handbook, 1999).

The Szczecin-Swinoujscie port complex may be described as two separate ports operated under one management. Over recent years, significant restructuring changes were introduced resulting in the situation in which privately owned companies run business in the ports. Currently the Port Authority (Management) performs only administration and managerial tasks concerning the port's territory and infrastructure development and investments. Thus port management has been completely separated from operations (Polish Maritime Review, 10/97).

The ports of Szczecin and Swinoujscie together form a dynamic maritime port complex at the cross-roads of transit routes linking Western Europe with the Baltic countries and Scandinavia with Southern Europe. Szczecin lies 20 km from the German border and the Berlin highway provides convenient access to the European road network. Independent experts consider Szczecin to be among the five fastest developing cities in Poland.

([www.masterpage.com.pl/commentary/ 22/04/99](http://www.masterpage.com.pl/commentary/22/04/99)).

The great advantage of Szczecin - Swinoujscie port complex is its location. Convenient railway, motorway and inland waterway links and regular liner services to Scandinavia, Western Europe and West Africa, are bases for both Polish foreign trade and transit cargo transhipments. This port complex is the closest one to the borders of several Central European countries: Czech Republic, Slovakia, Hungary and Austria having no access to the sea (Polish Maritime Review, 10/97).

Development plans of the Szczecin-Swinoujscie port complex anticipate further growth in cargo throughput and modernisation of cargo handling infrastructure. The port of Swinoujscie is to become a major conventional bulk cargo-handling centre. Swinoujscie is the Polish biggest passenger port, and hosts one of the most modern ferry terminals in Europe.

The port of Szczecin offers a full range of cargo handling services for all kinds of general cargoes, palletised, packaged and in containers. Modern infrastructure for handling and storage of conventional and containerised cargo has been constantly upgraded and expanded. Several further projects are under development now leading to significant widening of the port service range on offer. Multimillion-dollar investments contribute to enhancing bulk cargoes handling berths towards flexibility and making them more universal. In 1999 a modern grain and fodder storage depot will be completed adding approximately 30 per cent to the current storage capacity of grain silo.

Railways connecting the port with national and international railway networks are being modernised and motorway connections to major European land transport routes are being expanded. The World Bank awarded Szczecin and Świnoujście a loan of \$37 million to cover the costs of investments leading to improvement of access to the port. One of the newest and most important items in the Szczecin-Swinoujscie port complex offers is Duty Free Zone - Port Szczecin operating since mid 1995.

Cargo handling of the port of Szczecin –Swinoujscie is shown in table 3. Majority of data is missing from the 1990s, which is due to the lack of co-operation from the Szczecin-Swinoujscie Port Authority.

Table 3. Cargo handling of the port of Szczecin – Swinoujscie.

SZCZECIN-SWINOUJSCIE - CARGO 1975-1999
(000tons)

	Coal coke	and Ore	Other bulk	Grain	Timber	General	Liquid	Total
1975	10957	2846	3559	1076	482	2417	1144	22481
1976	11487	3008	4499	1904	447	2914	0	24259
1977	11647	3546	4177	1742	400	3149	0	24661
1978	11301	4027	2979	2346	484	3538	894	25569
1979	11755	4785	3140	2330	450	3298	939	26697
1980	9536	4762	3271	2611	488	3125	950	24743
1981	3182	3663	2694	2251	531	2618	746	15685
1982	6278	3131	3004	1157	401	2381	702	17054
1983	8512	3119	2700	872	637	2439	606	18885
1984	11438	4227	2483	811	776	2960	624	23319
1985	9176	3961	2828	807	750	2877	624	21033
1986	7631	3921	3214	736	615	2968	438	19523
1987	7138	4655	3701	831	585	3216	507	20633
1988	6869	4969	3642	816	550	3193	606	20645
1989	6543	3248	3883	1099	482	3135	958	19348
1994	9001	1832	2289	303	103	4829	*	18357
1995	8513	3437	5154	778	57	3940	*	18357
1996	8205	3093	1520	988	40	4267	*	18113
1997	8553	2948	4747	1525	42	4435	1400	22892
1999	9635	2208	6677	2096	53	4235	1131	22876

Key:

* - data unavailable

Source: Polish Ports Handbook 1997, 1998, 2000,

Conclusions

Nowadays the Polish maritime economy is contributing to the development of the whole national economy, and has significant influence on the country's balance of payments whilst it remains as essential element of the Polish transport system. Polish maritime transport makes an important contribution to the economic independence of the country and secures a cheap and efficient system of Polish foreign trade and transit cargo services. The Polish maritime economy, which operates on foreign markets, is now subject to all international turnover rules.

Growing competition in international transport promotes the adjustment of Polish maritime companies to variable economic conditions, and the new technological and organisational standards obligatory in the world maritime transport system.

Because of Poland's geographic location, the main European transport lines east-west and north-south run through its territory. These lines offer a great opportunity for Poland but the necessary transport investments must be completed. For the ports' development the most important would be investing in the north-south motorway.

Serious delays are observed due to the inadequacies of the Polish road network, especially in terms of ready access to the ports and highways. It is essential for the development of motor transport, including joint carriage, to upgrade the existing road network and to build motorways and highways.

The process of constructing motorways is controversial. The neighbouring countries prefer to build parallel connections in an east-west direction. From the Polish point of view, with its maritime economy and interests in tourism, the priority is seen to be for the A-1 motorway, which is a part of north-south line of the Trans European Motorway (TEM). The planned route of TEM is from Stockholm via Gdansk – Gdynia ports and then Warsaw, Katowice, Bratislava, Budapest, Belgrade and further on it will split in two. One section will go from Belgrade via Sofia and Istanbul to Ankara and the other will lead to the Greek city of Athens. Building of this highway does not only have a financial dimension. It is also question of development or decay of the coastal economy. If the highway from Germany to Russia is completed and, for any reason, the A –1 is not, this will badly affect the ports of Gdynia and Gdansk. Responsibility for the international financing of the project lies in the hands of Barclays Capital and a loan of 770 million Euro from the European Bank of Reconstruction and Development and the European Investment Bank but progress remains extremely slow due to a succession

of political and financial uncertainties. (www.itnet.com.pl/coastaltimes/12/12/99).

The position of Polish ports is determined by their peripheral location with respect to main shipping routes on the Baltic and the North Sea. The development of parallel transport connections linking European transport lines in the north-south direction such as the Trans European Motorway and Pollink system (a new ferry link on the Baltic between Stockholm and Gdansk agglomerations) is of great importance. Disadvantageous for Polish ports are transport connections in the east-west direction, which leave out the ports and may cause a loss of cargo handled.

The privatisation and reconstruction process places all Polish ports in a new situation. They now operate within a European economy. Shipping lines and other port users are free to choose ports as well as whole transportation chains according to profit maximisation, quality of service and cost reduction. For these reasons for the first time Polish ports need to market their services and need to do it well in order to retain their customers and attract new ones. As a consequence it was valuable to conduct research into marketing strategies in Polish ports, which it was anticipated would have begun to adapt to the new context. This research considers only two of the three main Polish ports: Gdansk and Gdynia. The port of Szczecin-Swinoujscie was excluded since it is not in direct competition with port of Gdansk and Gdynia and is still heavily involved in trade on the Odra River, in particular transit to Germany. It thus presents a distinctively different profile from the others. Gdansk and Gdynia thus provide a particularly appropriate choice of Eastern European ports directly involved in the changing context of the region.

CHAPTER 6

CONCEPTUAL MODEL

Foundation for Conceptual Model

The main research concepts have been reviewed in the previous sections of this thesis. We have looked at marketing of services, marketing in ports and the changing situation in the main ports of Poland. In order to understand the marketing approach taken in the ports of Gdansk and Gdynia two models were created. The first represents the situation in Polish ports before the transition period and the second, more complex, represents the transition period and the newly emerged competitive environment. To understand marketing strategies in the ports it was necessary to choose an appropriate tool for its measurement. To make a decision on the most appropriate tool to use both the models noted above needed to be examined and interpreted.

Models are useful as tools to measure and better understand real systems. They have been widely accepted as a means of studying complex phenomena. They can be classified according to a variety of criteria (such as: purpose, degree of abstraction, behaviour characteristics, degree of certainty, form or structure, and procedure or method of solution) and category (such as descriptive, explanatory, predictive, physical, graphic, schematic, mathematical, static, linear, analytical and simulation) (Heijveld, 1998, in Lomba 1979).

Models have been developed and applied in a variety of complex and diverse real- world situations. This has lead to the development of a number of different typologies that classify models according to certain specific characteristics.

Lilien (1975) classifies models according to their specific use. He distinguishes between conceptual, descriptive, experimental and prescriptive, without excluding others that might not

fall in to these categories. A conceptual model helps consideration of reality, rather than its description, something that is covered by descriptive models. Descriptive models may also be used for forecasting and planning. Experimental models are those used to investigate the response and characteristics of the system (Lilien, 1975).

The conceptual model of marketing strategy role for this research can be represented by two independent sub-models reflecting the changing economic and political situation in Eastern Europe and Poland in particular.

Because we are examining here marketing planning for Polish ports, the model designed for this research is a descriptive one and it presents two pictures of the concept of port marketing in the changing economy of Poland. It enables us to visualise clearly and compare how different was the environment for Polish ports back in 1989 and by 2000.

Figure: 5. Shows a simplified model in a centrally planned economy where there was no need for marketing activities. It was due to the fact that state held responsibility for all decisions and guaranteed all traffic. Thus there was a strategy for the port but no marketing strategy. The CMEA acts as the managing and regulatory body for international trade in satellite countries in the Eastern Bloc. Its directives for the governments and ministries of transportation in particular formed the basis for decision making. These ministries were therefore the main bodies that had influence on ports' economic activities.

In Poland additional links were established between the ports and The Agencies of Foreign Trade, which were in fact parts of the centrally planned system and were responsible for import and export of goods. Research and advisory bodies included the University of Gdansk and other partners of the ports such as MAG and MAS (the ship agents), C. Hartwig and Polfracht

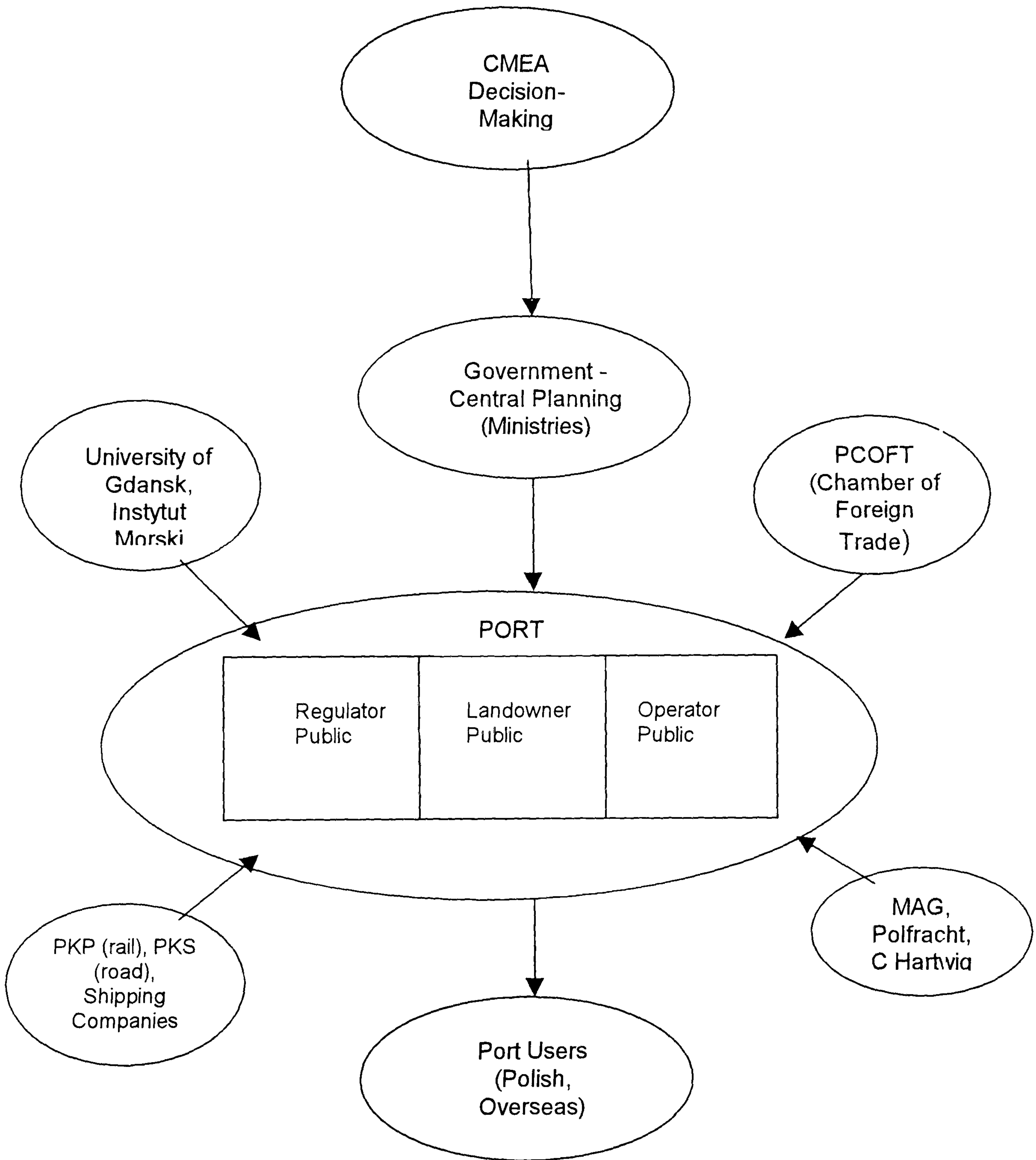
(brokers and freight forwarders) and Baltona responsible for catering and chandlery.

Within the ports themselves all vital elements of their structure such as landowner, regulator and operator were all owned by the state. They were operating in a highly monopolistic environment without having to face competition and had their turnover guaranteed.

The economic and social collapse of the states in Central and Eastern Europe marked the beginning of the transition process towards market economies and the impact of this upon the context for Polish ports is shown using the second stage of the conceptual model in Figure: 6. Fundamental changes not only affected the specific production structures in each country of the region but also the existing monetary exchange conditions with other countries.

The first stage of structural transformation of Polish ports ended the period of separation of operational and management activities. The last stage of transformation in every Polish port resulted from the Act on Ports, which was implemented in August 1997. According to this regulation only one organisation should be established for managing all of the port's area. This organisation should be responsible for managing and financing the maintenance and development of the port's infrastructure. This organisation being the "Port Authority", will pursue the development of the economic structure of the port, so that the operational and supporting services would be performed by private sector enterprises, which have their own assets and rent space from the port landowner and use the port's infrastructure. The Port Authority will also be responsible for development of the commercial, industrial and distribution services in the port.

Figure 5: Conceptual Model pre 1989.



The State Treasury sole shareholder companies will be transformed into organisations that control the entire area of the port. In the ports of Gdansk and Gdynia, Port Authorities were converted into public utility joint stock companies, where the respective communities owned 34% and Treasury of State 51%. The Szczecin -Swinoujscie port complex established a Port Authority in a form of Public Utility State enterprise with an autonomous management system (Dobrowolski, Szwankowski, 1998).

According to the Act the Port Authority acts as a landlord who maintains the existing infrastructure and ensures its development and modernisation for port companies, which operate independently in the market and generate profits.

This transformation closed the period of transition in international Polish ports. Now their future depends on the ability of the port companies to exploit to the full potential benefits drawn from privatisation and structural development of the ports' industry and their environment.

Meanwhile the country's economy was progressing toward a market economy. The main achievements of that period were as follows: eliminating monopolies, abolishing the bureaucratic power of the state and converting large inefficient enterprises into smaller more flexible units. Polish ports had to learn how to operate in free market economy conditions and face wide competition. They not only had to compete with international ports from other countries but also with multimodal transport (i.e. trucks), which fully developed together with standardisation and containerisation. Moreover there emerged competition between the Polish ports themselves, in particular Gdansk and Gdynia, located next door to each other, as well as competition between operating companies within them.

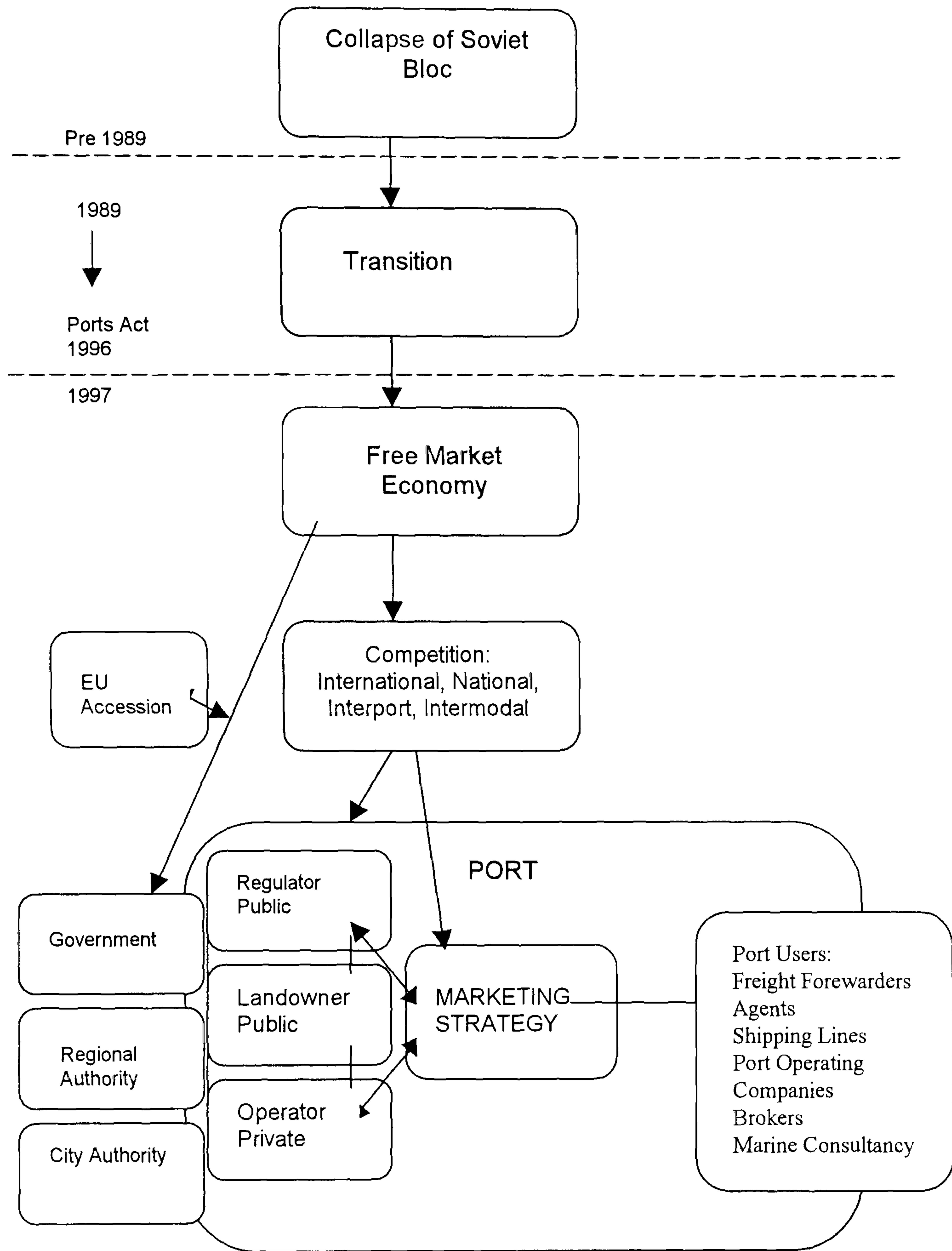
In this new competitive environment the need for marketing emerged. Companies understand that it may be one of the main determinants of their success or failure. They had to

communicate with the customers and make them familiar with what they had to offer. Port Authorities market the ports as a whole offering its land for hire as well as promote its attractiveness for investment. Operating companies promote their services and terminal facilities in order to increase the retention of exiting customers and attract the new ones. All the elements of port are under the influence of government being regarded as strategic parts of the Polish maritime economy but as far as operations are concerned ports operate freely and according to the ground rules of demand and supply. They are also a major interest for local authorities and play an important role in development of the cities and regions in which they are located.

As shown in figure 6 marketing strategy is the central part in this conceptual model. It emerged as a necessity from the new economic conditions. It is the main tool of communication between the port and its customers and this stimulated the need to find out perceptions of marketing activities in the main Polish ports by analysis of a wide section of marketing strategies. Companies that were included in this research included terminals and port operating companies, freight forwarders, shipping lines, shipbrokers, ship agents, consultants, cargo inspectors, crewing and catering, maritime insurance and law offices, road freight, ship suppliers and Polish Registry of Ships.

In order to gather the necessary data to perform factor analysis a questionnaire derived from 7 Ps of service marketing applied to the port marketing context was designed and then sent to a variety of marketing directors of above companies involved in the port business. If there was no marketing department and marketing director the questionnaire would be normally dealt with by general director of a company. Therefore all the representatives that were included in the conceptual model.

Figure 6. Conceptual Model: 1989-2001.



In this study were considered as experts both in the fields of marketing and maritime industry. It was very difficult to foresee how many of them would actually be willing to co-operate but it was expected that the response rate would not be high. On one hand if they respond then data obtain can be regarded as valuable and valid but on the other hand the longer they have been involved in their businesses the less likely they are willing to co-operate. Strong behaviour patterns of not being open or co-operative are still very common amongst the executives in maritime industry.

CHAPTER 7

MULTIVARIATE ANALYSES

Review of multivariate techniques

Measuring complex marketing phenomena in a changing environment is a complicated task and requires a sophisticated tool. The Polish ports that are involved in this research have undergone a number of structural and ownership transformations. The application of marketing approaches came together with the changes of the Polish and other Eastern European economies from a centrally planned into a market economy. The ports being a part of the new system had to create marketing strategies. In this research we attempt to find out what are the main elements of the new marketing strategies, if they have been necessary and how they differ between the two ports of Gdansk and Gdynia.

The aim of this research required a suitable technique that would have the facility of measuring a large number of variables at the same time and uncover their structure; a multivariate approach was thus necessary. This chapter provides an introduction to multivariate analyses and then reviews the multivariate techniques available starting with the less complicated ones: correlation and regression analysis, then discriminant and canonical analysis, factor and cluster analysis and finishes off with multidimensional scaling and conjoint analysis.

According to statisticians Hardyck and Petrinovich (1976):

Multivariate analysis methods will predominate in the future and will result in drastic changes in the manner in which the research workers think about problems and how they design their research. These methods make it possible to ask specific and precise questions of considerable complexity in natural settings. This makes it possible to conduct theoretically significant research and to evaluate the effects of naturally occurring parametric variations in the context in which they normally occur. In this way, the natural correlations among the manifold influences on behaviour can be preserved and separate effects on these influences can be studied

statistically without causing a typical isolation of either individuals or variables.

Multivariate analytical techniques are widely applied in industry, government and university – related research centers. Moreover, few fields of study or research have failed to integrate multivariate techniques into their analytical toolbox. Business people in most markets today are not able to follow a simplistic approach whereby the customers were considered homogenous and characterised by a small number of variables. Instead, they must develop strategies to appeal to numerous segments of customers with varied characteristics in a marketplace with multiple constraints (legal, economic, competitive, technological). It is only through multivariate techniques that multiple relationships of this type can be adequately examined to obtain a more complete, realistic understanding for decision making (Hair, Anderson, Tatham, Black, 1998).

The application of multivariate techniques would not have been possible without rapid development of information technology. Wide application of computers to process large, complex databases have dramatically spurred the use of multivariate techniques. This has provided researchers ready access to all the resources needed to address almost any size of multivariate problem.

Multivariate analysis refers to all statistical methods that simultaneously analyse multiple measurements on each individual or object under investigation. As such multivariate analyses are an extension of univariate and bivariate analyses (Hair, Anderson, Tatham, Black, 1998).

Multivariate analysis is an ever-expanding set of techniques for data analysis. Among the most established techniques discussed are correlation and regression analysis, discriminant and canonical analysis, factor and cluster analysis, multidimensional scaling and conjoint analysis.

Correlation and Regression Analysis

These techniques are some of the most known, common and used multivariate methods of analysing data. Usually in business research, the researchers are interested whether there is a relationship between two or more variables and if it does exist they would like to know the strength of the association and the nature of the relationship. One of the simplest measures is the correlation coefficient.

Correlation analysis involves measuring the strength of the association between two variables. A positive correlation will reflect a tendency for a high value in one variable to be associated with a high value of the second. A negative correlation will reflect an association between a high value in one variable and low value in the second. If the database included an entire population, the measure would be termed the population correlation (ρ). If, however, it is based on a sample, it is termed a sample correlation (r). The sample correlation always lies between -1 and $+1$ on a two-dimensional graph, termed a scatter diagram. An r of $+1$ shows a perfect positive linear association between the two variables, whereas if r is -1 there is a perfect negative association. A zero correlation coefficient reflects the absence of any linear association.

The methodology of calculating simple or bivariate correlation is as follows:

A reasonable measure of relationship between the two variables would be the covariance between them. The second step is to divide the covariance by the sample size. But the size of the covariance measure could be simply changed by changing the units of the variable. Such a dependence on the units of measure makes the measure difficult to interpret. The solution is to divide the measure by the sample standard deviation. The result is the sample correlation

coefficient, which will not be affected by a change in the measurement units of one or both of the variables (Aaker, Kumar, Day, 1995).

The expression for the sample correlation is termed the Pearson Product-Moment Correlation Coefficient, which has several important properties. First of all it is independent of sample size and units of measurement. Secondly it lies between -1 and $+1$ so the interpretation is intuitively reasonable. It should be stressed though, that even if the correlation coefficient (r) provides the measure of association between two variables, it does not imply any causal relationship between the variables. A correlation analysis can measure only the nature and degree of association between variables; it cannot imply causation.

A simple test of hypothesis can be used to check the significance between two variables, measured by r . This involves testing the null hypothesis and the alternative hypothesis, using a “ t ” statistic. The critical value can be obtained from the tables and if $t_1 < t$ we fail to reject the null hypothesis, which means that the value of the sample correlation r is not significantly different from zero.

This technique is inappropriate at this stage of the analysis but could be useful at the final stage. Having possibly extracted a range of multivariate factors that represent marketing strategies and identified variables that highly load on them, we can use correlation coefficient to measure the relationship between them and therefore gain an impression of the overall marketing effectiveness of the port of Gdansk and Gdynia.

Partial Correlation Coefficient

When there are more than two variables involved in the relationship a partial correlation is used. The partial correlation coefficient provides a measure of association between two variables after controlling for the effect of one or more additional variables.

The partial correlation attempts to estimate the correlation between two variables given all cases had exactly the same scores on the control variables, that is holding constant the values of control variables.

A partial correlation is calculated to understand why two variables are correlated. The possible explanations are the common cause and the mediator variable hypotheses. The common cause hypothesis says that two variables are correlated because they share the same casual variable or variables. If the hypothesis is correct then the correlation between the two variables should be non-zero in value but the correlation between them partialling out the effects of the common casual variable or variables should be equal to zero (Green, Salkind, Akey, 2000). It perhaps could be interpreted that the marketing budget variable is a causation variable for both image and advertising because these two variables very much depend upon the money available to spend. At the same time it is possible to interpret that the spending plan for advertising or image indirectly generates a budget for marketing. In the case of our research it would be extremely difficult to decide or even identify, which variable or variables are the controlling ones. They all would appear to be interdependent on each other; therefore this technique cannot be used in this research.

Although correlation analysis provides a measure of the strength of the association between the variables, it does not tell us about the nature of the relationship. Hence, regression analysis can

be used to understand the nature of the relationship between two or more variables (Aaker, Kumer, Day, 1995). Regression analysis is described in the latter section of this chapter.

Canonical Correlation Analysis

Canonical correlation analysis can be viewed as a logical extension of multiple regression analysis. Multiple regression analysis involves a single metric dependent variable and several metric independent variables. With canonical analysis the objective is to correlate simultaneously several metric dependent variables and several metric independent variables. Whereas multiple regression involves a single dependent variable, canonical correlation involves multiple dependent variables. The underlying principle is to develop a linear combination of each set of variables to maximise correlation between the two sets.

The idea is first to determine the pair of linear combinations having the largest correlation. Next, one needs to determine the pair of linear combinations having the largest correlation among all pairs uncorrected with the initially selected pair. The pairs of linear combinations are called canonical variables and their correlations are called canonical correlations.

Canonical correlation analysis measures the strength of association between the two sets of variables. The maximisation aspect of this technique represents an attempt to concentrate a high- dimensional relationship between two sets of variables into a few pairs of canonical correlations (Jonhson, Witchern, 1992).

This technique is not suitable for our research since there are not two defined sets of variables. We can either say that they are all service marketing variables forming one group or that they belong to seven separate groups derived from the seven Ps of service marketing.

Regression Analysis

Regression analysis is a statistical technique that is used to relate two or more variables. A variable of interest, the dependent or response variable (Y) is related to one or more independent or predictor variables (X's). The objective in regression analysis is to build a regression model or a prediction equation relating the dependent variable to one or more independent variables. The model can be used to describe, predict and control the variable of interest from the independent variables.

Regression analysis provides the tool that can quantify such relationships. Regression analysis can integrate the relationship of intentions with two, three or more variables simultaneously. Regression analysis not only quantifies individual relationships but also provides statistical control. We examine its application further in the next section.

Simple Linear Regression Model

The construction of a simple linear regression model starts with specification of the dependent variable. The regression model might then be hypothesised:

$$Y = \beta_0 + \beta_1 X_i + \xi$$

Y- dependent variable

X- independent variable

β_0 - a model parameter (it represents the mean value of the dependent variable Y when the value of independent variable X is zero)

β_1 - a model parameter (it represents the slope that measures the change in the value of the independent variable associated with one-unit increase in the value of the independent variable)

ξ -is an error term that describes the effects on Y of all factors other than the value of X_i

The hypothesised relationship is linear; whilst the error term is central to the model. Several assumptions surrounding the error term are made when estimating the parameters of the model and during significance testing. These are called the assumptions of the regression model and there are five of them:

1. The error term is normally distributed
2. The mean or average value of the error term is zero
3. The variance of the error term is a constant and is independent of the values of X
4. The error terms are independent of each other
5. The values of the independent variable X are fixed.

The parameters that characterise the relationship between Y and X are of prime interest. To determine what they are is one of the goals of regression analysis. We do not know the true values of β_0 and β_1 but we can calculate point estimate b_0 and b_1 of β_0 and β_1 . The next step is to obtain the line that has the best fit to these points. The computer program generates the line that has the property that the square vertical deviations from the line are minimised. Such a line is termed a least squares line.

As the number of independent variables increases, the model becomes large and hand computation is no longer feasible. In such situations, statistical packages such as SAS and SPSS are normally used (Aaker, Kumar Day, 1995).

The values of estimates of the parameters β_0 and β_1 , b_0 and b_1 are termed regression coefficients and are based on the random sample. The difference between the actual and predicted values is called the residual and is an estimate of the error in the population.

The regression coefficients can be estimated using a number of statistical techniques. Each of the techniques is based on some criterion to get the best measure of the population coefficients

from the sample. The regression model can also be used as a predictive tool. The measure of the regression model's ability to predict is termed the coefficient of determination (r^2) and is the ratio of the explained variation to the total variation. The r^2 term is the square of correlation between X and Y. Thus, it lies between zero and one. It is zero when there is no linear correlation between X and Y. It will be one if the plot between X and Y points generates a perfect straight line.

It is possible to use regression models only when the data is distributed in time, so the changes over the years can be observed. The research problem as defined here means that this technique is not suitable. Moreover it can only be used for calculation with a very few variables whilst we need to deal with the interrelationships between a considerable number.

Multiple Regression

Multiple regression is mainly concerned with the effects of the dependence of a variable, upon a set of other independent variables, which are the predictor variables that influence the dependent variable (Dillon and Goldstein, 1984).

The error term includes the effects of the dependent variable of variables other than the independent variable. The general form of multiple regression can be expressed as:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + \xi$$

Where $\beta_1, \beta_2, \dots, \beta_k$ are regression coefficients associated with the independent variables X_1, X_2, \dots, X_k .

Multiple regression analysis is frequently used in marketing for the measurement of the determinations of demand, market share and positioning of products, for forecasting the sales and determining the relationship between the dependent variable and one independent variable

and estimating the reliance of a product price when the product brand is held constant (Tull and Hawkins, 1987).

A limitation of the multiple regression model is that the model is based on collected data that represent certain environmental conditions. If those conditions change, the model may no longer reflect the current situation. Secondly the ability of a model to predict can become significantly reduced if the prediction is based on values of independent variables that are extreme in comparison to the independent variable values used to estimate the model parameters. Thirdly the model is limited by the methodology associated with the data collection, including the sample size and measures used (Aaker, Kumar, Day, 1995).

This technique, even though it can cope with a large number of variables is not suitable for our research since it defines the influence of various variables on each other whilst we need to assess the concept of marketing in the ports of Gdansk and Gdynia as a whole.

Discriminant Analysis

Discriminant analysis is a technique used to classify individuals into one or more alternative groups or populations on the basis of a set of measurements. The populations are known to be distinct, and each individual belongs to one of them (Aaker, Kumar, Day, 1995). These techniques also can be used to identify which variables contribute to making the classification. Thus, prediction and description, as in regression are two major uses of discriminat analysis. The mathematical logic of discriminat analysis is similar to regression analysis. The result of a discriminat equation is that the most important variables are demonstrated presenting the factors that distinguish the classes (Tull and Hawkins, 1987).

Discriminant analysis has four major objectives:

1. Determining linear combination of the predictor variables to separate the groups by maximising between-group variation relative to within-group variation (objects in different

groups are maximally separated).

2. Developing procedures for assessing new objects, firms or individuals, whose profiles but not group identity are known to one of the two groups.
3. Testing whether significant differences exist between the two groups based on the groups' centroids.
4. Determining which variables count most in explaining inter-group differences.

Discriminant analysis and ANOVA are the appropriate statistical techniques for testing the hypothesis that the group means of two or more groups are equal.

The assumption of discriminant analysis has to be tested and it is often possible that the assumption of equal variance-covariance matrix of the independent variable in each group is not met. In such cases alternative techniques have to be used.

Examples of use of this technique in marketing are given as the classification of buyers versus non-buyers of a brand; selection of store sites and finding out the perceived price level of a company as a major discriminating factor between shoppers and non-shoppers. Thus, customers through this technique, identify the position of the company in the market area.

This technique could not be used for this research because it is not the aim to classify the buyers or users of port services and there are not enough participating companies to define their position in the market area. Besides in port services it would be extremely difficult to compare ports or users located in different parts of the world and far from uniform in the products they offer.

Factor and Cluster Analysis

Both factor and cluster analyses are often termed analysis of interdependence techniques, because they analyse the interdependence of questions, variables or objects. These are techniques that serve to combine questions or objects to create new factors and combine objects to create new groups. The goal is to understand the structure of questions, variables or objects and to combine them into new variable groups to facilitate their understanding (Aaker, Kumar, Day, 1995).

Factor Analysis

The multivariate statistical technique of factor analysis has found increased use during the past decade in all fields of business related research. As the number of variables to be considered increases, there is a need for increased knowledge of the structure and interrelationship of the variables.

Factor analysis is a generic name given to a class of multivariate statistical methods whose primary purpose is to define underlying structure in a data matrix. Broadly speaking it addresses the problem of analysing the structure of the interrelationships (correlations) among a large number of variables by defining a set of common underlying dimensions, known as factors.

Factor analysis is a data reduction technique through which a large number of variables are summarised to a smaller number called factors (Tull and Hawkins, 1993).

Researchers use factor analysis for two primary functions in data analysis. One is to identify underlying contrasts in the data. Secondly, factor analysis is used simply to reduce the number of variables to a more manageable set. In reducing the number of variables, factor analysis attempts to retain as much of the information as possible and to make the remaining variables

meaningful and easy to work with. The two most commonly employed factor analysis procedures in marketing applications are principal component and common factor analysis. In general factor analysis can be summarised as a method of transforming the original variables into new non-correlated variables, called factors. Each of the factors is a linear combination of the original variables (Aaker, Kumar, Day, 1995).

The list of variables should be complete, that is each factor among them is measured at least once, hopefully, several times from several different perspectives. The greatest limitation of factor analysis is that it is a highly subjective process. The determination of the number of the factors, their interpretation, and manipulation, all involve selective judgement. A related limitation is that no statistical tests are regularly employed in factor analysis. As a result, it is often difficult to know if the results are merely accidental or reflect something meaningful.

Despite these shortcomings this technique is appropriate for our research because it can summarise a large number of disparate variables and facilitates definition of the main constructs hidden in the structure of marketing. If the study is well designed so that different sets of measures reflect different dimensions of a broader conceptual system, factor analysis can yield factors that represent these dimensions.

Cluster Analysis

Cluster analysis is another type of data reduction technique. The cluster analysis technique identifies a smaller number of groups such that elements in a particular group are, in some sense, more similar to each other than to elements belonging to other groups. The homogeneous subgroups are constructed and based on the similarities or dissimilarities of respondents' attribute ratings (Dillon and Goldstein, 1984). It differs from discriminate analysis because the number and characteristics of groups derived from the data in cluster analysis usually are not known prior to the analysis. One goal of marketing managers is to identify

similar customer segments so that marketing programmes can be developed and tailored to each segment. Thus, it is useful to cluster customers (Steward, 1981).

Most cluster analysis methods are relatively simple procedures that usually are supported by an extensive body of statistical reasoning. They have emerged from many disciplines and the inbred biases of these disciplines can differ dramatically. Different clustering methods can generate different solutions for the same data set. The strategy of cluster analysis is structure seeking, although its operation is structure imposing.

Usually it is difficult to evaluate the quality of clustering. There are no standard statistical tests to ensure that the output is not purely random. Meanwhile, it is difficult to know exactly which clusters are very similar and which objects are difficult to assign. It is also difficult to select a clustering criterion and programme on any basis other than availability.

Multidimensional Scaling and Conjoint Analysis

Multidimensional Scaling

Multidimensional Scaling (MDS) addresses the general problem of positioning objects in a perceptual space. Much of marketing management is concerned with the question of positioning. Multidimensional Scaling basically involves two problems. First, the dimension upon which customers perceive or evaluate objects (organisations, products or brands) must be identified. However, this is not always possible because additional dimensions are sometimes needed to represent customers' perceptions and evaluations. Second, objects need to be positioned with respect to dimensions. The output of MDS is the location of the objects on the dimensions and is termed a perceptual map. These maps are vehicles through which the position of brands can be summarised. It can also be used to place people in attribute space and more generally to portray the relationship among variables or constructs.

MDS allows researchers to explore and affect the underlying criteria of dimensions of people's perceptions about similarities and dissimilarities between objects and their preferences among various objects.

There are two types of Multidimensional Scaling: the metric technique and non-metric technique. The similarity and dissimilarity are assumed to have metric properties with metric multidimensional scaling while similarity or dissimilarity between two objects decreases or increases linearly with distance (Dillon and Goldstein, 1984). Unlike other techniques that may require respondents to evaluate objects, products or brands on numerous attributes through a set of attributes that were prepared by the researchers in advance. MDS is usually used for both attribute and non-attribute based techniques. The MDS technique has been successfully used by Yercan (1997) to create perceptual maps of the users of Turkish and Mediterranean ferry services.

MDS is a widely used technique, especially in marketing to identify the relative positioning of competitive products, brands or companies as perceived by customers (Tull and Hawkins, 1993, Wind, 1982). In addition MDS is used to identify, measure and illustrate the positioning based on perceptions or similarity judgements of respondents-customers or service providers.

A limitation of the attribute-based methods is that attributes have to be generated. The analyst has the burden of making sure that the attributes represent the respondents' perceptions and evaluations. With similarity and preference data, this task is eliminated. However, the analyst then must interpret dimensions without the aid of such attributes, although attribute data could be generated independently and attribute-dimension correlation still obtained.

This technique in a way resembles factor analysis but it groups respondents into similar clusters.

It has application to this research but the sample would need to have been a lot larger, probably exceeding that available within the Polish ports market and it could provide the researcher with market segments but would not define the constructs of marketing strategies in Polish ports.

Conjoint Analysis

Conjoint analysis is concerned with the measurement of psychological judgement. Input data for conjoint analysis are the preferences for each combination of characteristics depending on the respondents. The rank order of the respondents' preferences constitutes a set to be concluded for one case at a time (Green, 1988).

Conjoint analysis is a powerful and useful analysis tool. Its acceptance and level of use have been remarkably high since its appearance around the 1970s. A major purpose of conjoint analysis is to help select features to offer a new or revised product or service; to help set prices; to predict the resulting level of sales or usage; or to try out a new product concept. Conjoint analysis provides a quantitative measure of the relative importance of one attribute as opposed to another.

Conjoint analysis can be used:

- where the alternative products or services have a number of attributes, each with two or more levels;
- where most of the feasible combinations of attribute levels do not presently exist;
- where the range of possible attribute levels can be expanded beyond these presently available;
- where the general direction of attribute preference probably is known;

Generally speaking conjoint analysis is used to predict the buying or usage of a new product that still may be in concept form. It is also used to determine the relative importance of various

attributes to respondents, based on their making trade –off judgements.

The basic limitation in this technique is that it is only related to the measurement of preferences that depend on psychological judgements and not related to the measurement of metric data.

This method as indicated is not appropriate for this research since the objectives are different from those that this technique serves.

Conclusions

To conclude it needs to be stressed that a multivariate approach had to be chosen in order to deal with the large and disparate set of qualitative and quantitative independent variables that characterise marketing strategies. The choice was therefore made of factor analysis since it meets the large number of objectives of this research better than any other technique. Factor analysis facilitates summarising the entire structure of variables which made up marketing strategies and enables the researcher to discover the most important constructs within them in both the ports of Gdansk and Gdynia.

CHAPTER 8

FACTOR ANALYSIS

The Emergence of Factor Analysis

Most marketing research studies, including positioning of companies in the market place and the resulting data analysis are concerned with association among a large number of variables. Since the problem cannot be solved by a single variable, multivariate data analysis has been widely applied and techniques like factor analysis have been used in many studies. An analysis of marketing strategies in the main international ports of Poland in the context of recent changes is a complex phenomena and therefore factor analysis is the best suited choice from the range of multivariate analysis.

Galton (1869) a scientist of the nineteenth and early twentieth century laid the foundations of factorial study. Although he did not concern himself with the kind of mathematical analysis so familiar to the subject nowadays, he inspired two lines of thought which have been essential to the development of factor analysis (Child, 1990). The first was the idea of general intellectual power. This idea lives on in the form of g , the general ability formulated using factor solutions. Galton (1869) proposed the existence of special powers and he still believed that general intellectual power was the overriding influence in determining the quality of a human's responses in general. In his book "Hereditary Genius" he declares: "that men who have no natural taste in science, and yet succeed in it, may be accredited with sufficient general ability to leave their mark on whatever subject it becomes their business to undertake." (Galton, 1869).

The second idea contributed by Galton (1869) was the concept of correlation and development of quantitative methods of the independence between two variables (Child, 1990).

Pearson at the beginning of this century was the first to make explicit a procedure for factor analysis. He derived his formulae by considering the geometry of multidimensional space (Pearson, 1901). The earliest suggestion of an application of this technique came in 1902 when Macdonnell (1902) wrote a paper on the study of “criminal anthropometry and identification of criminals”. He suggested the difference arose from socio-economic rather than criminological anthropometric sources.

In 1904 Spearman (1904) wrote a report on “general intelligence” - the study of human ability using a mathematical model. In this paper he posited the well-known Two Factor Theory. Elaborated and refined psychological and mathematical arguments arose from the early efforts of Galton (1869) and Pearson.

In addition there are a number of other scientists who contributed to the development of factor analysis. Thurstone (1947) in 1930 introduced centroid analysis and the multi-factor approach. Burt (1940) who invented the simple summation model, was the forerunner of Thurstone’s technique known as centroid analysis and contributor to most aspects of factor analysis, and Thomson who was a strong critic of Spearman’s (1904) Two Factor Theory and was one of a number of others who have been associated with the development of the subject.

Factor analysis was first used in psychology, but the development of the method has facilitated many other applications. Harman (1976) mentioned a number of research applications in the United States including politics, economics, human-machine systems, accident research, taxonomy, biology, medicine and geology.

We are interested in the area of port marketing, which has never been researched using factor analysis. In a service business, marketing is measured through objective or subjective methods that consist of numeric and non-numeric variables. Measuring the current situation of a service organisation, such as marketing strategy of a port in Eastern Europe, can be undertaken by calculating the position of that organisation in the marketplace. This can be carried out through various types of multivariate analysis and factor analysis is one of the methods that can deal with the many factors that characterise this situation simultaneously. This feature is of special importance in marketing research since interpretation of most marketing data requires multivariate approaches. Factor analysis also has marketing study advantages in that it can be applied regardless of the initial lack of insights into data. Although ideally factor analysis is used in conjunction with theoretical constructs, the approach can yield valuable predictions based on empirical applications. Factors can be interpreted in useful ways and data can be classified into specific categories. Complete physically significant models can be developed systematically and these models can be employed to predict new data. Another advantage of factor analysis is that it can be efficiently carried out using standard computer programs (Malinowski, 1991).

Factor analysis consists of a number of statistical techniques the aim of which is to simplify complex sets of data. In economic sciences factor analysis is usually applied to correlations between variables which are numerical measures of the degree of agreement or disagreement between two sets of scores. It runs from “+1” to “-1”: “+1” indicates full agreement, “0” no relationship and “-1” complete disagreement.

A correlation matrix is a set of correlation coefficients between a number of variables. Factor analysis is designed to simplify a matrix of correlation but it is not meaningful without further explanation (Kilne, 1994).

Factor

Whilst there have been many different definitions of a factor there is a common underlying trend to all of them. Essentially factors are a dimension or construct that is a condensed statement of the relationships between a set of variables. Royce (1963), states that a factor is a construct operationally defined, which can be more precisely refined by its factor loadings.

The content of factor loading thus needs to be defined:

Factor Loadings

Factor loadings are the correlations of a variable with a factor. It is usual to regard factor loadings as high if they are greater than 0.6 (the positive or negative sign is irrelevant) and moderately high if they are above 0.3. Other loadings can be ignored (Kilne, 1994).

Factor Scores

Factor scores are the values for each factor for all respondents. Thus, each respondent has a factor score on each factor, in addition to the respondent's rating on the original variables. It may be convenient and appropriate to work with the factor scores instead of the original variables and this is commonly the case (Aaker, 1995).

Communality

Communality is the percentage of the variable's variance that contributes to the correlation with other variables or is "common" to other variables (Aaker, 1995).

Variance Explained

The percentage of the variance explained is a summary measure indicating how much of the total original variance of all the variables the factor represents. The percentage of the variance explained can be useful in evaluating and interpreting the factor.

Factor Structure

The factor structure consists of the correlation of the original variables with the rotated factors. The factor structure loadings of a rotated factor analysis are the equivalent of the factor loadings in the unrotated factor matrix.

Factor pattern

The factor pattern consists of weights that are mainly useful for determining factor scores, the scores of the subjects on the factors. The factor pattern matrix usually resembles the structure matrix and is often used in research reports as if the elements were correlations with the variables.

The results of factor analysis are controlled through our choice of measures and subjects. Ideally at least four measures should be chosen to represent each construct or interest that might emerge as factors from the analysis. Because the dimensionality of the measures may vary as the function of the participants sampled in the study it is important to consider not only the measures but also the respondents. Factor analysis requires two stages, factor extraction and factor rotation. The objective of the first stage is to make an initial decision about the number of factors underlying a set of measured variables. This stage involves extracting factors from a correlation matrix. Principal components are used to make these decisions. The first extracted factor of principal components accounts for the largest amount of the variability among the measured variables, the second factor for the next most variability and so on. The variability of factors is called the eigenvalue. Two statistical criteria are used to determine the number of factors to extract: the absolute magnitude of the eigenvalues of factors and the relative magnitudes of the eigenvalues. In addition to these statistical criteria one should make initial decisions about the number of factors based on a priori conceptual beliefs about the number of

underlying dimensions (Green, Salkind & Akey, 1997).

The goal of the second stage is to statistically manipulate the results to make the factors more interpretable and to make final decisions about the number of underlying factors. Factors are rotated to make them more meaningful. The rotated factors may be uncorrelated (orthogonal) or correlated (oblique). The most popular rotational method VARIMAX yields orthogonal factors. Factor solutions are rotated with different numbers of factors if the decision in the first stage was to consider a range of values for the number of factors. The final decision about the number of factors to choose is the number of factors for the rotated solution that is most interpretable (Green, Salkind & Akey, 1997).

The two most commonly employed factor analysis procedures in marketing applications are principal component and common factor analysis. The terms components and factors are often used as if they were interchangeable. In fact there is a real distinction which should be understood, although with the large data sets in practice it becomes trivial as Harman (1976) has shown. Components are real factors because they are derived directly from the correlation matrix. Common factors of factor analysis are hypothetical because they are estimated from the data.

Principal component analysis

Principal component analysis transforms the original set of variables into a smaller set of linear combinations that account for most of variance of the original set. The purpose of principal components analysis is to determine the factors in order to explain as much of the total variation in the data with as few of these factors as possible (Dillon & Goldstein, 1984). It is possible to extract as many principal components as there are original variables, however, the goal in most principal components applications is to account for most of the total variation with

as few principal components as possible. Though in many cases different types of factor analysis produce very similar results this should not obscure the basic difference in the models that distinguishes the different types of factor analysis which is the assumption made about the data having common and unique parts. Principal component analysis simply defines the basic dimensions of the data and makes no assumption about common factors. It essentially takes the data as given and attempts to determine the dimensions defining their total variance (Dillon & Goldstein, 1984). This type of factor analysis is suitable for exploratory investigation when a large number of scales are utilised. With a large number of attributes there is an enormous number of correlations to investigate, which makes the data incomprehensible in their present form. The matrix of interattribute correlations is therefore subjected to a principal component analysis to reduce the dimensionality of the data, while at the same time uncovering their qualitative and quantitative distinctions. This situation is most likely to occur while researching the marketing of ports but selecting the factors should not be a problem since we are going to justify the choice using the 7 Ps of service marketing as our conceptual basis.

Input Data

Our data is going to be collected via structured interviews and before this is done the data will have to be carefully chosen to be factor analysable. The objective of the data preparation step is to obtain a data matrix best suited for factor analysis. This step involves formulating the problem, selecting the data, and mathematically pretreating the data so that it conforms to the appropriate theoretical and statistical criteria. Many kinds of data can be expressed as a matrix. Problems suited to factor analysis can be classified according to the types of rows and columns of the data matrix. Two types of designees' objects and variables can be used to describe marketing phenomena. Reliable and complete data should be chosen because when points in the matrix are missing, an analysis can be only conducted on the smaller but complete submatrix. The size of data matrix depends on the availability of the data, the objectives of the

research, and computer facilities. To ensure general solutions the largest possible matrix should be used (Malinowski, 1991).

It is customary to transform the raw data matrix to either a covariance matrix or a correlation matrix prior to principal component analysis. The primary reasons for the use of correlation coefficients is that very often the variables under study have different units and scales. In computing the correlation coefficient between two variables, differences due to both the mean and dispersion of the variables are removed. This is done using so called standard or "Z" scores that are important means of transformation, which we used in many aspects of factor analysis. Whereas data from different tests are not comparable "Z" scores are always comparable (Kline, 1994). This transformation makes the variables directly comparable. The computation of a covariance eliminates differences associated with the means of variables and what remains is only the variation about the mean. The use of covariances has not been prevalent in principal component applications although principal components generated from a covariance matrix have several desirable properties. The solution obtained using the correlation matrix as input will differ from the solution obtained from a covariance matrix, and there is no simple way of translating one solution to the other (Dillon & Goldstein, 1984). However both ways enable standardisation of the data which is very important to our research as we going to analyse both quantitative and qualitative data.

Extracting Principal Components

We want to capture as much of the total variation in the original data with as few principal components as possible. This results in a considerable reduction in the dimensionality of the data, while maintaining a substantial amount of the original variation, and in addition, the principal component analysis will have teased out the qualitative and quantitative distinctions in the data. Thus we hope that the first new components will account for a significant

proportion of the total variance. In such cases we can then focus most of our attention on those compounds for which the data exhibit the greatest variability. If the sole purpose for the analysis is to account for most of the variability with a greatly reduced set of variables then only a few components will be retained. If on the other hand, components analysis is used as a first step in a more detailed study of the data then the linear components of low variance can also provide important insights into the underlying structure. They can point out near perfect dependencies in the data, which can adversely affect parameter estimation in the multiple regression models (Dillon & Goldstein, 1984).

Rarely in practice do we have knowledge of the population variance-covariance matrix. Hence a sample-based estimate must be obtained. We can generate principal components from two types of data input:

1. a variance-covariance matrix and
2. a correlation matrix (Dillon & Goldstein, 1984).

A tacit assumption when using covariance input is that the variables should not have extremely different variances. If they do then the first few principal components will be pulled toward those variables with the larger variances (Dillon & Goldstein, 1984).

In correlation data input the variance of the variable is not independent of scale, thus, while we can measure weight in various scales the variance associated with the former unit of measurement will be numerically larger than that associated with the latter. When the variables under consideration are measured in extremely different units, scale effects can influence the composition of the derived components. In such cases the data are standardised before using a principal component analysis. While the procedure for extracting principal components from either a variance-covariance matrix or a correlation matrix is the same, there are several differences in interpretation

Interpretation of the components is generally easier when component correlations are used (Dillon & Goldstein, 1984).

Common Factor Analysis

Common factor analysis is concerned with the identification of structure within a set of observed variables. It establishes dimensions within the data and serves as a data reduction technique. We can identify three general functions of factor analysis that we noted earlier:

1. The number of variables for further research can be reduced while maintaining as much of the original information as is possible. The original set of variables can be reduced to a smaller set that accounts for most of the variance in the data.
2. In the situation where the amount of data available is so large that it is very difficult to make comparisons, factor analysis can search the data for qualitative and quantitative distinctions.
3. Factor analysis can be used to test hypotheses about the qualitative and quantitative distinctions in the data. If we have a priori hypotheses about the number of dimensions, or the character of dimensions, these hypotheses can be subjected to statistical testing (Dillon & Goldstein, 1984). Factor analysis differs from principal component analysis in a fundamental way. By factor analysis we mean the study of interrelationships among the variables in an effort to find a new set of variables, fewer in number than the original set of variables, which express that which is “common” among the original variables. Thus, whenever the term “factor analysis” is used we are restricting our attention to only these techniques that distinguish different types of variance. Factor analysis attempts to simplify complex and diverse relationships that exist among a set of observed variables by uncovering common dimensions or factors that link together the seemingly unrelated variables and consequently provides insight to the underlying structure of the data (Dillon & Goldstein, 1984). This would be particularly useful in our analysis of the complexities of port marketing.

Principal component analysis and factor-analytic model often yield solutions that are very similar. For this reason many authors (Aaker, Cattell, Harman, 1976) treat principal components analysis as just another type of factor analysis. While principal component analysis is best suited for deriving a small set of linear combination of the original variables that accounts for most of the total variance, common factor analytic techniques can better serve the functions of searching the data for qualitative and quantitative distinctions and especially testing a priori *hypotheses* about the number of common factors underlying the set of data or the character of common factors (Dillon & Goldstein, 1984).

In factor analysis a formal model is specified describing each original variable in terms of a linear function of a small amount of unobservable common factors and a single latent unique factor (Dillon & Goldstein, 1984). The most important outputs are the factor loadings, the factor scores and the variance explained percentages. The factor loadings are used to interpret the factors. Sometimes one or two variables that load heavily on the factor may be picked up to represent the factor in subsequent data collection or analysis. It also often is appropriate and useful to calculate the factor score and use that as a variable in subsequent data analysis. The percentage of variance explained and other criteria help to determine the number of factors to include and how well they represent the original variables (Aaker, 1995)

Factor analysis can be used in two different data contexts. In one instance, the researcher may have no theoretical hypothesis in mind when using factor analysis and is simply searching for a common structure underlying data. This use of factor analysis is often called exploratory. On the other hand the researcher may have some prior theoretical information on the common structure underlying the data and wishes to confirm or negate the hypothesised structure. The use of factor analysis in this way is called confirmatory (Dillon & Goldstein, 1984).

Confirmatory factor analysis is quite recent and in simple terms it starts with a hypothesis about the possible structure of a particular area and only then the variables which might fit that structure are carefully selected. The difference between exploratory and confirmatory analysis is that the former is trying to discover structure in the variables used, whereas the latter chooses variables to confirm a predetermined structure (Child, 1990). In our situation we don't have any information about the structure underlying data so we are going to search for it in the data used. For this reason exploratory factor analysis is suitable for the needs of this research.

Factor analysis provides a dimensional structure for the data in the sense of indicating the important common qualities present. A factor is a qualitative dimension which defines the way in which the entities differ. However, it does not indicate how different various entities are (Dillon & Goldstein, 1984). The common factor analytic model is different from principal component analysis in that it makes distinction between common and specific parts of variables. We can say that principal components analysis is variance orientated, whereas in common factor analysis we are concerned with the amount of each variable's variance that is shared with the other variables and that is why we can say that the factor-analytic model is covariance orientated (Dillon & Goldstein, 1984).

The methods of principal components and factor analysis are both data reduction techniques. Consequently we may want to calculate the projection of each observation on each of the factors. Factor scores give the location of each observation in the space of the common factors. The principal component scores could be calculated directly as a linear combination of the original or standardised variables. Unfortunately in the common factor model this is not the case since there is no exact solution. The reason for this lie in the indeterminacy problem found in the common factor model. So, factor scores cannot be calculated directly, but instead must be estimated. Multiple regression analysis has been used successfully to estimate the factor

scores in the common factor-analytic model (Dillon & Goldstein, 1984). The estimated factor scores then can be expressed in terms of standardised data matrix, correlation matrix, and factor loadings. The factor scores give the projection of an observation on the common factors, and their location in the common factor space. They can also provide additional insights into the structure of the data by highlighting patterns of common variation (Dillon & Goldstein, 1984).

Application of Factor Analysis

A variety of types of factor analysis have mainly been used in human sciences since their very beginning. They were developed for use in psychology, health and further expanded to geography, politics and business. Very few application of factor analysis to marketing could be found and even less as far as the shipping sector is concerned. However, it has been successfully applied in service quality measurement for container transport services in a Turkish port of Izmir (Tuna, 1999). Matear (1991) has also used factor analysis in examining the marketing of ferry services in the region of Irish Sea.

Psychology

Human ability.

We can trace a great deal of the development of factorial studies simply by referring to studies of the nature of intelligence. Spearman's Two-Factor Theory (Spearman, 1904) is regarded as the first formulation about the structure of human ability relying for its justification on factor analysis. His selection of tests was such as to exclude a group factor that is small groups sharing common characteristics. Burt (1971) was among the first to criticise Spearman's approach. Larger samples of subjects and test materials alongside his simple summation method for simplifying calculations involved in component analysis enabled group factors to be explored. Psychologists started discovering and isolating groups such as verbal, numerical and practical factors (Child, 1990). Bynner and Romney (1986) used the method of confirmatory

factor analysis to re-examine the conventional view of intelligence, which subsumes the measures of cognitive ability into one general or several almost independent factors.

Personality was another field where factor analysis was used. Veron (1952) in his book on personality assessment outlines three broad approaches to the interpretation of personality. These are “naive”, intuitive (psychoanalytic approaches such as Freud and his followers) and inferential studies. Two prominent researchers in this field are Eysenck (1952) and Cattell (1957) whose work forms the substance of this section of personality. Eysenck unfolded a theory of personality structure containing a limited number of fundamental dimensions. In fact, he reduced personality organisation to three basic dimensions, namely extroversion-introversion, neuroticism and psychoticism. He also makes a case for a fourth dimension of intelligence. This approach to the study of personality does not exclude the presence of any one dimension. He used an extensive collection of tests involving personality inventories and questionnaires (e.g. The Maudsley Medical Questionnaire, Minnesota Multiphasic Personality Inventory, social attitudes) and objective tests to derive a sample from the population, assumed normal and a neurotic group. Product-moment correlation between the test scores for the normal group, followed by centroid analysis, gave the first common factor. The next task was to devise a criterion against which the validity of the first factor could be tested. This procedure, created by Eysenck is known as criterion analysis, though Cattell prefers criterion rotation as a more appropriate (*The Scientific Use of factor Analysis*) (Child, 1990). Cattell has also made a major contribution to the study of personality structure in the United States. The formula Cattell derived was known as a specification equation and 16 PF (16 personality factors) is used to illustrate it. The left-hand side of the equation was the criterion that has been selected for examination, for instance suitability for a particular job. The right-hand side of equation is built up from the variables of which one was related to the personality factor and the other is the individual's score on the factor (Child, 1990).

Medicine and Public Health

Factor analysis has also been used in medical fields. Cady (1961) and his team were interested in finding the personal, familial, physical and biological characteristics of coronary artery patients. They used Cattell's 16 PF adult personality test and Sheldon's somatotype criteria for body shape, and made various medical tests of cholesterol and blood pressure. The prominent factor they unrecovered, which related some personality factors with cholesterol content in blood, diastolic blood pressure and coronary symptoms. The findings were also suggestive of several additional investigations particularly in relating personality traits to various diseases (Child, 1990). Petrovich and Hardyck (1961) used factor analysis to investigate effectiveness of the therapy for 40 patients with Parkinson disease before and after an operation. Performance was judged before, three months after and at intervals of one year after the operation. The successive factor analyses of these judgements showed a shift in emphasis from gross to fine motor behaviour in pre- and post-operational trails. The factor analysis technique allowed for precise and efficient solution to the complex problem of evaluating the multivariate changes in behaviour that frequently occurred as a result of neurosurgical procedures (Child, 1990).

Another illustration of factor application was the research undertaken by Jenkins and Zyzanski (1968) in public health on the public's reaction to various diseases as judged by their benefits and feelings. The large urban community was questioned about public and personal susceptibility to the disease, risk of death or disability including the moral judgement about a kind of people attacked by the disease. The conclusion reached by these investigators was to endeavour an identification of behaviour patterns, in the case of the diseases for which people would not come forward for treatment. Factor analysis has made contribution in a variety of important practical ways. With all its limitation and imperfections, it has proved to be one of

the most serviceable and productive tools at the disposal of behavioural scientists (Child, 1990).

Factor Analysis in Chemistry

Factor analysis has become prominent in chemistry primarily due to advances in microcomputer technology and a variety of mathematical and statistical methodologies. The development of new methods for interpreting large data sets ranks as one of the major advances in chemistry during the past two decades. Factor analysis has been used in the behavioural science for more than 60 years and has been successfully applied in chemical problems during the last 20 years. The method is one of the most powerful applied in chemometrics (Malinowski, 1991).

Factor analysis was applied by Malinowski to predict the activity of coefficients of non-electrolytes, which was presented in *Separation Science* in 1966 representing his joint effort with Funke, Martire and Pollara. Factor analysis was used to measure the number of absorbing components of different chemical mixtures, also used for finding the concentration of the components in multicomponent mixtures. (Malinowski, 1991).

Hundreds of publications bear witness to the power and utility of factor analysis in chemistry. Howery (1976), Weiner (1977) and Llinas and Ruiz (1986) reviewed the role of factor analysis in chemistry. Gemperline (1989) and Hamilton and Gemperline (1989) have reviewed its importance in mixture analysis. Hopke (1989) has written a tutorial on target transformation factor analysis (Malinowski, 1991).

Although factor analysis has rarely been applied to the transport or maritime sector the variety of fields in which it has been used shows that it can be employed in many kinds of research, which requires varied data and from it produce analysable results. It offers two features of special importance: it facilitates the reduction of a large number of data to a more manageable and easier to work on set, and makes qualitative and quantitative data directly comparable.

CHAPTER 9

VARIABLES IDENTIFICATION

Introduction

In this research we attempted to measure marketing strategies in the main international ports of Poland in the context of recent economic and market changes. The data that is used in this research is both qualitative and quantitative and therefore a multivariate approach had to be chosen. It was decided that one of the multivariate analysis techniques, factor analysis was most appropriate and in particular common factor analysis. Principal component analysis serves as a data reduction technique, which enables the conversion of very large sets of data into small and easy to deal with ones. Factor analysis enables the identification of a structure within a set of observed variables to discover relationships that exists among them by uncovering common dimensions or factors that link together the seemingly unrelated variables. In this research we will select factors based upon the 7 Ps structure of service marketing. According to Green (1997), ideally at least four measures should be chosen to represent each construct and therefore we had to identify sufficient number of variables which describe each of the 7 Ps. Fortunately the wide range of marketing elements enabled full identification of all factors and provided more than enough measures to be factor analysable.

Twenty one variables, which together describe the 7 Ps, were identified. In most cases there were four or more measures selected to describe each variable and a number of them were even broken down to a series of more specific questions with the averages of the responses calculated. At the end of the questionnaire a question regarding effectiveness was added. However, this was not included in factor analysis but used in correlation analysis. The classification of all variables included in this research is provided in a further section of this chapter.

Another limitation of factor analysis is the fact that it requires at least as many respondents as variables in the research. Today's Polish maritime sector provides a large number of possible respondents from relevant industries. They are all listed in the Polish Maritime Directory, which is the equivalent of "Yellow Pages" in this field. All the companies that have direct contact with the Polish ports and their services were included in the sample of this research. They were first of all - the port authorities marketing departments and marketing director of the terminals and companies operating within the ports. These were then followed by other port service users, such as shipping lines, agents, shipbrokers, freight forwarders, cargo inspectors and ship chandlers and consultants altogether numbering 183 companies. In this research we are also trying to find out how implementing marketing strategies influences the companies' effectiveness which can be performed using Pearson product moment correlation. However, factor analysis enables the identification of the underlying constructs in the marketing strategies in the port of Gdansk and Gdynia and shows which elements are the most important for both the ports themselves and their users.

First of all definition and classification of the variables is provided followed by classification of the scales used. Then justification of the final choice and form of variables to be used in the questionnaire is provided. Finally a detail description and appropriate measurement scale for each of the variables is included.

Variable Identification

To be able to proceed with factor analysis we need to identify a perception or concept that is capable of measurement, hence capable of taking on different values, which is called a variable (Kerlinger, 1979). Black and Champion (1976) define a variable as rational units of analysis that can assume any one of a number of designated sets of values. Concepts are mental perceptions

and therefore their meanings vary markedly from individual to individual, whereas variables are measurable, of course with varying degrees of accuracy. Measurability is the main difference between a concept and a variable. It is therefore important for the concepts to be converted into variables as they can be subjected to measurement even though the degree of precision with which they can be measured varies from scale to scale (Kumar, 1996).

A variable can be classified in the number of ways. The classification that was developed, results from looking at variables in three different ways:

- the causal relationship;
- the design of a study; and
- the unit of measurement

From the point of view of causation four sets of variables may operate:

- change variables, which are responsible for bringing about change in a phenomenon;
- outcome variables, which are the effects of a change variable;
- variables which affect the link between cause and effect variables; and
- connecting or linking variables, which in certain situations are necessary to complete the relationship between cause and effect variables.

In research terminology, change variables are called independent variables, outcome/ effect variables are called dependent variables, the unmeasured variables affecting the cause and effect relationship are called extraneous and the variables that link a cause and effect relationship are called intervening variables (Kumar, 1996).

The variables in our research are independent but they are strongly related to each other, especially in their specific groups.

From the viewpoint of the study design, association or causation may be a controlled/contrived

experiment, a quasi experiment, or an ex post facto study. In controlled experiments the independent variable may be introduced or manipulated either by the researcher or the service provider. In these situations there are two sets of variables:

- active variables - these variables that can be manipulated, changed or controlled; and
- attribute variables - those that cannot be manipulated, changed or controlled, and reflect the characteristics of the study.

In our research they are both types of variables but with a great majority of active variables.

From the point of view of the unit of measurement, there are two ways of categorising variables:

- whether the unit of measurement is categorical (as in nominal and ordinal scales) or continuous in nature (as in interval and ratio scales); and
- whether it is qualitative (as in nominal and ordinal scales) or quantitative in nature (as in interval and ratio scales).

The variable categories thus classified are called categorical, continuous, and qualitative and quantitative. Categorical variables can be of three types:

- constant
- dichotomous; and
- polytomous

If the variable can have only one category or value it is a constant. When it can have only two categories as in good/bad, yes/no it is known as a dichotomous variable. When it can be divided into more than two categories as in high/middle/low it is called a polytomous variable.

Continuous variables have continuity in their measurement e.g. age or attitude. They can take any value in the scale on which they are measured (Kumar, 1996).

In this research there are only polytomous variables distinguished by the last criteria, but for

the purpose of factor analysis to some extent they all will have to be introduced in uniform scales.

Measurement Scales

Since marketing mix of the service organisation consists of a great number of numeric and nonnumeric variables, to some extent uniform scales had to be introduced to make the data directly comparable.

According to Duncan (1984) there are five types of measurement: nominal classification, ordinal scaling, cardinal scaling, ratio scaling, and probability scaling. Stevens (1951) has classified the different types of measurement scale into four categories: nominal or classificatory, ordinal or ranking, interval and ratio.

The Nominal or Classificatory Scale

This scale enables the classification of individuals, responses or objects based on a common property. A variable measured on this scale may have one, two or more categories. Classification by means of a nominal scale ensures that individuals or responses within the same sub group have a common characteristic or property as the basis of classification. The sequence in which sub groups are listed makes no difference, as there is no relationship among sub groups.

The Ordinal or Ranking Scale

This scale besides categorising individuals, responses or a property into sub groups on the basis of common characteristics, ranks the sub groups in a certain order. They are arranged either in ascending or descending order according to the extent the sub category reflects magnitude of variation in the variable. Also the distance between the sub categories is not equal, as there is no quantitative unit of measurement.

The Interval Scale

An interval scale has all of the characteristics of an ordinal scale. In addition it uses a unit of measurement that enables the individuals or responses to be placed at equally spaced intervals in relation to the spread of the variable. This scale has a starting and a terminating point that is divided into equally spaced units. The starting and terminating points and the number of intervals between them are arbitrary and vary from scale to scale. The interval scale is relative; it plots the position of individuals or responses in relation to one another with respect to the magnitude of the measurement variable. This scale is the most appropriate to be implemented in our research.

The Ratio Scale

A ratio scale has all the properties of nominal, ordinal and interval scales plus its own property: the zero point of the ratio scale is fixed, which means it has a fixed starting point. Therefore it is an absolute scale, as the difference between the intervals is always measured from a zero point. This means the ratio scale can be used for all mathematical operations (Kumar, 1996).

If the question was asked directly regarding, for instance, figures for the marketing budget or what was the total number of roads leading to the port it would be extremely difficult to compare these figures with nonnumeric variables such as image or reliability. There are many ways to present a respondent with a continuum of numbered categories that represent the range of possible judgements. They are generally classified as single-item scales and multiple item scales.

Single-item Scales

As the name suggests itself, single-item scales are those that have only one item to measure a

construct. Under single-item scales, the itemised category is the most widely used by marketing researchers. The design of itemised-category scale requires decisions along several dimensions.

These are:

- extent of category description (all categories labelled or polar categories labelled);
- treatment of respondent's uncertainty or ignorance (forced choice, neutral point, provision of "don't know" category);
- balance of favourable and unfavourable categories (equal or unbalanced);
- comparison judgement required (yes or no) (Aaker, 1995).

In this research all categories are going to be labelled, the neutral point is going to be provided, the scale is going to be equal with no comparison judgement required. The scale is going to consist of five categories that has been commonly used by marketing researchers (excellent, good, average, below average, poor). Moreover according to Cox (1980) a recent review on the question of the appropriate number of response categories concluded that scales with two or three response alternatives generally are inadequate in that they are incapable of transmitting very much information and they tend to frustrate respondents. There is little to be gained from more than nine categories. An odd rather than even number of categories is preferable as the respondent can adopt a neutral position.

Attitudes towards complex objects such as transportation models or other services have many facets; thus, it is often unrealistic to attempt to capture the whole picture with one overall scale question. To cope with this problem many methods have been developed to measure a sample of responses. The most frequently employed of these methods are Likert, Thurstone and semantic-differential scales. They belong to multi-item scales. The adoption of these methods with particular relevance to marketing problems, is associative scaling.

A Likert scale requires a respondent to indicate a degree of agreement and disagreement with a variety of statements related to the opinion or object. It is also called a summated scale, for the scores on the individual items are summated to produce a total score for the respondent. The Likert scale usually consists of two parts the item part and the evaluative part. The evaluative part is a list of response categories ranging from “strongly agree” to “strongly disagree”. An important assumption of this scaling method is that each of the items (statements) measures some aspect of a single common factor (Kumar, 1996).

The Thurstone Scale is also known as the method of equal appearing intervals. The first step is to generate a large number of statements reflecting all degrees of favourableness towards the attitude objects. Then the set of judges is given this set of items and asked to classify them. This is usually done with an 11- category bipolar scale with very favourable on one end and very unfavourable on the other. The scale is then administered as a part of a survey by asking each respondent to select those statements which best reflect his or her feelings towards the attitude object. Because of the two-stage procedure, the Thurstone scale is both time consuming and expensive to construct. It also produces very different outcomes to the Likert and itemised-category scales, which for reasons of design and probability of response are used in this research.

Semantic-Differential Scale is widely used to describe the set of beliefs that comprise a person’s image of an organisation or brand. It is also a procedure for comparing the images of competing, brands, stores or services. Respondents are asked to rate each attitude object in turn on a number of five or seven–point rating scales, bounded at each end by polar adjectives or phrases. There may be as many as 25 semantic-differential scales for each attitude object. This method is also quite time consuming and though it may be very good for comparing different brands it is not applicable for port marketing research, since it doesn’t provide the necessary

data (Aaker, 1995).

Two types of scales were used in the questionnaire, a Likert scale and a single item scale. The two scales were used together in order to make the questionnaire clearer and easy to understand by respondents. However these two scales were given the same numeric values from one to five according to what was the best from the customers' point of view, and so that mixing them does not adversely affect the results.

The choice of the variables apart from 7 Ps justification is also based on the study conducted by Ledger and Roe (1996) who analysed 7 Ps of the Polish main shipping lines. This study aimed at analysis in the shipping market so it could be adopted to suit analysis in ports. The selection was adjusted for use in port marketing and therefore some of the measures included in Ledger and Roe's study were not included and some new ones added. Variables such as "price for transporting one TEU" or "ports served" were omitted because they are only relevant to shipping companies. New variables such as "port tariff", "terminal choice" or "accessibility of the port" were introduced. Once appropriate variables were chosen it had to be checked how suitable they would be for the questionnaire. It was also important to establish what would be the best form of presenting the questions to the respondents. The best way of finding answers to these problems was to test the questionnaire by presenting it to port companies. Therefore a pilot study was undertaken in March 1999. It was possible during the researcher's visit to German city of Rostock, which is also one of very important and fast developing ports on the Baltic Sea. Interviews with marketing directors of the two companies within the port of Rostock were arranged. The information obtained was extremely valuable and helped to make necessary amendments to the questionnaire. The experts from Institute of Transport and Logistics at Rostock University, who are familiar with situation in post-communist port industry, also gave some useful advice. As a result of this pilot study the number of variables

was reduced since it occurred that the same aspects fall under more than one category. The structure of the questionnaire was made clearer and only simple and direct questions were included. As an outcome of an examination of all three sources: the theory of the 7 Ps, the structure of the 7 Ps in study conducted in Polish shipping lines and the pilot study in the port of Rostock twenty one variables, which together describe the 7 Ps, were identified. In most cases there were four or more measures selected to describe each variable and a number of them are even broken down to a series of more specific questions with the averages of the responses calculated.

The 7 Ps of service marketing had to be broken down into their respective elements in order to identify the variables. Questions regarding: rebates system, subsidies, marketing budget, market segmentation, currencies, competition, quality, complexity, quantity, reliability, frequency, advertising, image, public relations, marketing research, accessibility, terminal choice, transportation network, qualifications and level of training of the employees, procedures plus schedules, IT facilities and additional effectiveness. All of the above variables were included in the questionnaire, which was sent in the summer of 1999. In addition a limited number were also presented personally to some of enterprises. Even though some of the data were collected via personal interviews and the rest via mail survey this does not affect the results. The interviews were structured and only the exact questions from the mailed questionnaire were asked. Some other interesting issues, such as plans for the future or current problems in the ports were mentioned, however this information was only used in the earlier chapter analysing “ Current situation in Polish ports”. For the purpose of the analysis only the information that fitted the framework of the questionnaire was included.

In the next section the 7 Ps widely recognised in service marketing (Cowell, 1987) have been broken down into their respective elements in order to identify the relevant variables that will

be used for the analysis.

Price charged and terms associated with its sale

Port Tariff

The most important element of the price in ports is the price of the services provided by the port. The ports are not only engaged in loading, discharging and transporting goods to and from warehouses to the places of shipment they also provide a number of services for cargoes and ships such as storage, sorting, labelling, marking, repackaging, quality and quantity control, delivery of fuel and drinking water, cleaning, pilotage and towing. The prices of all these services are listed in the port tariff, which is published by the port, and provide the foundation for port charges.

There is the possibility of negotiation especially for regular customers or those who declare large quantities of cargo or ship their cargoes on a regular basis. One way of gaining customer loyalty is offering rebates. They are usually calculated as percentage of the total price, are offered to customers some time in the future if they remain loyal to the port. This percentage or amount will be considered as the first variable in this research.

To make the rebates variable fit into a uniform scale it is necessary to make an assumption that the development of the rebates system can be defined in five categories such as: excellent =5, very good =4; average =3; below average =2; poor =1.

Discounts play a very similar role to rebates; they are frequently offered to customers who regularly use the port service or need to ship large quantities of cargo. Similarly to rebates discounts are usually set as percentages but are offered immediately on condition that the customer ships a minimum level of cargo through the port. Here, they will appear as another

variable in this research. The rebates and discounts variable, is measured together using the same five category itemised scale.

Subsidy

Subsidy used to be a major issue for all Eastern European bloc ports. Subsidies were direct and indirect including for example, new buildings and other capital equipment. In the past ports were heavily subsidised but the exact amounts of subsidy is not known and are unlikely to be ever estimated accurately. Since 1993 there has been a gradual move towards zero subsidy to create a free market. The ports not only had to operate on a new economic basis but also increase profits in order to fund previously subsidised items and activities (Legder & Roe, 1996).

However possible subsidies in indirect form still exist such as lower than commercial rate of:

- land hire
- telephone charges
- power
- water
- other public services

In our research we are going to find out which still exist regarding them as separate items calculated as one variable. They will be divided into direct and indirect subsidies and the average of all indirect ones will be taken under consideration. Also for these variables an itemised-category scale will be used but instead of excellent to poor categories the respondents will be given a scale of five to one and asked to place the size or extent of subsidies on it. The scale's categories are 1 for the most developed system of subsidies and 5 for no subsidies at all. The respondents need to choose the figure closest to their knowledge and opinion.

Marketing budget

The marketing budget can be based on the percentage of the total volume of sales or profits annually. If so what is the proportion delegated to marketing activities? We are going to find out whether it is established on the bases of comparison with competitors and the figure for the marketing budget. This information may turn out to be difficult to obtain since it is a highly commercially sensitive matter.

To fit this variable into a five category scale it is necessary to introduce a new scale which will have categories of very sufficient, sufficient, neither sufficient nor insufficient, insufficient, very insufficient.

Market Segmentation

The basis for market segmentation includes mainly: service required, customer, cargo, season and quality of the service (Kotler, 1982). The setting up of a free market economy in Poland has led to more extensive market segmentation. Effective segmentation should group buyers into segments in ways that result in as much similarity as possible for the relevant characteristics within each segment but dissimilarity for those same characteristics between each segment. An important marketing issue for any business is to recognise that some market segments offer better opportunities than others do. Target segments should be selected not only on the basis of their sales and profit potential but also with reference to the firm's ability to match or exceed competing offerings directed at the same segment (Lovelock, 1996). The criteria for the segmentation including number of variables used in segmentation, geographic distribution, commodity, product, customer's reputation, and season.

Market segmentation can be measured using a scale similar to the previous variable but the categories will be termed very effective, effective, neither effective nor ineffective, ineffective,

very ineffective.

Currencies

The matter of what currencies are accepted used to be an important issue. Nowadays in the era of bank transfers it is no longer a significant problem and only invoice currencies are used. In the past the Polish zloty was not convertible in any way, and customers from the West had to pay in conventional convertible currencies, whilst for CMEA countries the payment was charged in transferable rubles or a barter system was operating so that no currency was involved. By 1993 the zloty was partially convertible and was accepted as well as convertible currencies.

Despite the decline in its significance, this issue remains of some relevance as flexibility in financial transactions can be an important marketing issue. It is very difficult to adapt this variable into any of the scales suggested. Instead categories such as all currencies =5, all convertible currencies plus Polish zloty =4, convertible currencies = 3, only euro and Polish zloty =2 and only Polish zloty =1 will be used. The criteria of this scale are based on the level of convenience for customers, from the most to the least convenient.

Competition

Competition plays a very important part in pricing. Setting prices with regards to competitors' prices for any particular service reflects an organisation's position in the market place. In the past there was no competition for Polish ports; all cargo traffic was centrally planned, so there was no need to compete. Nowadays the situation has completely changed and there is competition not only between Polish and foreign ports, Polish ports and operating companies within ports but also with other means of transportation.

This variable can be measured with regard to the importance of competition in price setting. In this case a Likert scale is suggested. The statement that competition plays a very important role in pricing will be presented to the respondents and they will have a five-category scale of agreement to choose from: agree strongly, agree somewhat, neither agree nor disagree, disagree somewhat, strongly disagree.

Product or Service Being Offered

Quality of the service

Nowadays quality is more important for the present and potential customers than any other factors of service. They want to know that they are getting involved in a business with a professional service provider. They want the service to meet world standards and their expectations. They want to be assured of reasonable timing of the service, safety and environmental issues.

This variable is easy to measure and an itemised-category scale used simply asking the respondent whether the quality of the service provided is excellent, very good, average, below average, poor.

Complexity

Complexity indicates what range of services is available in the particular port. Ports may offer not only loading or discharging but also packaging, manipulating, measuring, quality and quantity control, sorting, sample taking, marking, labelling, repackaging etc. Apart from all kinds of cargo services, ports may provide all services rendered to vessels such as, delivery of fuel, drinking water, electricity or stowage materials. Complexity in this context means availability of options for the potential customers.

Complexity can be measured using exactly the same itemised-category scale as quality of services. The respondents will be asked whether the complexity of the service is excellent, very good, average, below average or poor.

Quantity

The amount of cargo and transportation capacity provided by the port daily/monthly/yearly is a measure of quantity. Speed of cargo handling, e.g. containers per hour, tonnes of cargo daily can be also considered. This variable can be regarded as one which is qualitative for the purpose of factor analysis.

In this case the most important thing seems to be cargo handling efficiency which again can be measured using a scale with categories: very efficient, efficient, neither efficient nor inefficient and very inefficient.

Reliability

The number of delays and the size of congestion can well measure the reliability of the port service. It is difficult to obtain this kind of data due to commercial sensitivity of such information. Good safety record, experience and reputation are additional elements that need to be taken into consideration.

It is necessary to split the reliability variable into three constructs, such as: level of congestion, safety record and experience combined with reputation. The congestion variable will be measured using a five-category scale with categories as follows: 1= very large, 2= large, 3= average, 4= below average, 5= minor. Both safety and experience with reputation variables can be measured using simply: excellent - poor scale. The average of the scores for these three sub variables needs to be calculated to give a full picture of the reliability variable.

Frequency

The frequency element is simply measured by looking at the interval between shipping and other services. This is another variable which is difficult to measure. Because of the lack of other choices it is necessary to adopt a Likert scale. The key statement, which the respondents will be asked to make judgements about, will be “The frequency of the services provided is very high”. The respondents have choice of: agree strongly, agree somewhat, neither agree nor disagree, disagree somewhat, disagree.

Promotion, the communication programme associated with marketing the product or service

Advertising

Advertising is major method of promotion. The extent of advertising carried out will be affected by the budget and the depth of advertising reflected in the media used as well as the frequency and types of advertising carried out.

This variable is simply measured using the five-categories excellent - poor.

Image

Developing corporate identity is one of the underlying concepts of positioning. Ports needed to project a new image and dispel the old state related one, for commercial reasons (Ledger & Roe, 1996). This involves considerable expense but was regarded as a priority by the port authorities. The image of the company does not only mean the logo and port publications of different kinds (brochures, booklets, handbooks) but also the design of the offices, furnishing and even the firm's uniforms and gifts.

It seems reasonable to assume that image can be defined using five elements such as: logo,

publications, designs of the office furnishing and uniforms plus gifts. We are going to assume that if the port has all the five elements reflected within a corporate identity it will score five, if one of them is missing the score will be four and so on.

Public Relations

Public Relations does not only mean maintaining contact with the press (the number, languages and destinations of these), TV and radio. It includes also writing articles about the situation in the port as well as inviting visitors - potential customers, organising open days and exhibitions. By sales promotion we mean both the number of exhibitions attended and their locations and exhibitions organised by the ports.

Public relations can be broken down into five elements such as: maintaining contact with the media, inviting visitors, organising open days and/or exhibitions, participation in exhibitions and sponsoring events. Similar to the previous element, if the port is active in all of the above fields, it will be given five points, if only in four of them, four and so on.

Market Research

Market Research is a very important element of operating a free market company and reflects the means and strength of promotion. The extent of market research depends on the market research budget and number of people employed in the marketing department.

A general market research excellent - poor scale is applied since questions that refer to the budget and employees are asked elsewhere.

Place, the distribution and logistic function involved in making firm's products and service available

Accessibility

Is the port open 7 days a week?

Is the port open on national holidays?

Is the port operating 24 hours? If not what are the opening hours?

Jetties and Basins -their length and number, the length of the largest vessel able to enter the port, basins.

Weather conditions. The customers may be interested in issues that include unloading trains fully independent of weather conditions, and in case of frost does the port have its own cargo defrosting system, and average number of days when icebreakers are required.

All of the above questions are very important and it would be best to have exact times and hours of opening but because answers to the variable are so varied and difficult to use in factor analysis, an itemised-category scale will be introduced. The respondents will be asked whether the port's accessibility is: excellent, good, average, below average or poor.

Terminals

Their number, size and specialisation. The respondents will be asked whether terminal choice is excellent, good, average, below average or poor.

Transportation Network

Railways, road network, approaching fairways, rivers - number, length, accessibility, distance,

This variable is also measured using an itemised-category scale, excellent poor.

People

People are an essential element in both production and delivery of most services and they are becoming part of the differentiation by which service companies seek to create added value and gain competitive advantage.

Qualifications and training

Qualifications provide a useful measure of quality of the personnel employed by a company. Sources and types of qualifications reflect importance attached to them. Professional training, courses in IT - their frequency, number of people attending, costs, sources of finance, destinations. The new training techniques will bring new perspectives into the company and present a company with an image of higher quality.

This variable will be broken down into more specific categories and a Likert scale will be used to measure each of them. Finally the average of the scores is calculated to give an overall impression of the quality of the qualifications and training. The statements to be introduced to the respondents are as follows:

1. A great number of employees come from very good educational and practical background.
2. The company provides professional training for its staff.
3. Courses in IT are very frequent and up to date.
4. A great number of people attend courses every year.
5. The company finances courses and training.

Processes

These are all the procedures and routines by which a service is created and delivered to the customer including policy about customer involvement and employee discretion issues.

Procedures, task schedules, mechanisms, and activities

The processes by which the services are created and delivered to the customer are a major factor within the service delivery system as part of the service itself. Thus decisions on operations management are of great importance to the success of the marketing of the service. In fact continuous co-operation between marketing and operations is essential to success in most businesses. All work activity is process. Processes involve the procedures, tasks schedules, mechanisms, activities and routines by which a product or service is delivered to the customer.

Respondents will be asked to indicate their degree of agreement or disagreement to the following statements and their average will be calculated.

1. Port procedures are defined clearly and easy to follow.
2. It is very easy to find information.
3. Tasks are clearly delegated.
4. Shift schedules are convenient for the employees.
5. Mechanisms and routines are reliable.
6. There is a wide range of time off activities organised for employees by their company.

Identification of process management

A Likert scale will be used to measure this element. The statement to be judged is: the role of

the management is very easy to identify.

Decision-making processes

Decision-making processes are also of relevance. Some service providers give their service deliverers the autonomy to make decisions. In ports there is little room for flexibility in pricing decisions.

This element is simply going to be measured by asking the respondents to indicate a degree of agreement or disagreement to the following statement: Pricing decisions in ports are very flexible. The scores will be allocated according to our multi-item scale and finally the averages of the above variables are calculated for each of the respondents.

Physical evidence

Also known as provisions of customer service. These are more demanding requiring higher levels of service and they need to be developed to achieve a closer relationship with customers. (Payne, 1993).

Information Technology

Facilities such as Internet, email, International Data Exchange.

Each of the above elements will be measured by itemised-category scale and their average calculated. The respondents will be asked how they would describe the Internet, email and International data Exchange facilities. They will be able to choose from excellent, very good, average, below average and poor.

At the end of the questionnaire there is one general question regarding port's effectiveness.

This variable is not included in the factor analysis. The reason why it is there is to enable the researcher to identify how selected factors are correlated with effectiveness. It is measured using single-item scale but the categories are labelled: very effective, effective, neither effective nor ineffective, ineffective and very ineffective.

The classification of all the variables and scales used in this research is provided in the table number 4.

The following chapter provides detailed analysis of the results of this survey. Both analyses of the ports of Gdansk and Gdynia are presented including principal component analysis; common factor analysis and correlation analysis.

Table 4. Classification of variables and scales used.

Variable	Scale	Categories' Labels	Scores
Price:			
Rebates & Discounts	itemised-category	excellent, very good, average, below average, poor	5;4;3;2;1
Subsidies	nominal		5;4;3;2;1
Marketing budget	itemised-category	very sufficient, sufficient, neither sufficient nor insufficient, insufficient, very insufficient	5;4;3;2;1
Market segmentation	itemised-category	very effective, effective, neither effective nor ineffective, ineffective, very ineffective	5;4;3;2;1
Currencies	nominal	all currencies, all convertible currencies plus Polish zloty, only convertible currencies, only euro and Polish zloty, only Polish zloty	5;4;3;2;1
Competition	Likert (multi-item)	agree strongly, agree somewhat, neither agree or disagree, disagree somewhat, strongly disagree	5;4;3;2;1
Product or Service Offered			
Quality	itemised-category	excellent, very good, average, below average, poor	5;4;3;2;1
Complexity	itemised-category	excellent, very good, average, below average, poor	5;4;3;2;1
Quantity	itemised-category	very efficient, efficient, neither efficient nor inefficient, inefficient, very inefficient	5;4;3;2;1
Reliability	itemised-category	very large, large, average, below average, minor, none and excellent-poor scale for safety and reputation	5;4;3;2;1
Frequency	Likert (multi-item)	agree strongly, agree somewhat, neither agree or disagree, disagree somewhat, strongly disagree	5;4;3;2;1
Promotion			
Advertising	itemised-category	excellent, very good, average, below average, poor	5;4;3;2;1
Image	nominal	all elements=5, one missing=4, two missing=3, three missing=2, four missing=1	5;4;3;2;1
Public relations	nominal	all elements=5, one missing=4, two missing=3, three missing=2, four missing=1	5;4;3;2;1
Market Research	itemised-category	excellent, very good, average, below average, poor	5;4;3;2;1
Place			
Accessibility	itemised-category	excellent, very good, average, below average, poor	5;4;3;2;1
Terminal's complexity	itemised-category	excellent, very good, average, below average, poor	5;4;3;2;1
Condition of Transportation Network	itemised-category	excellent, very good, average, below average, poor	5;4;3;2;1
People			
Qualifications and training	Likert (multi-item)	agree strongly, agree somewhat, neither agree or disagree, disagree somewhat, strongly disagree	5;4;3;2;1
Processes			
Procedures	Likert (multi-item)	agree strongly, agree somewhat, neither agree or disagree, disagree somewhat, strongly disagree	5;4;3;2;1
Identification of process management	Likert (multi-item)	agree strongly, agree somewhat, neither agree or disagree, disagree somewhat, strongly disagree	5;4;3;2;1
Decision making process	Likert (multi-item)	agree strongly, agree somewhat, neither agree or disagree, disagree somewhat, strongly disagree	5;4;3;2;1
Physical Evidence			
Information Technology	itemised-category	excellent, very good, average, below average, poor	5;4;3;2;1
Effectiveness	itemised-category	very effective, effective, neither effective nor ineffective, ineffective, very ineffective	5;4;3;2;1

Source: Author, 2000.

CHAPTER 10

PRINCIPAL COMPONENT ANALYSIS AND COMMON FACTOR ANALYSIS FOR THE PORT OF GDANSK AND GDYNIA

This chapter is a broad analysis of the results. The first section of this chapter provides background for the analysis including profile of the sample and the respondents and the two further sections provide detailed analysis for the ports of Gdansk and Gdynia.

Background to the Analysis

The sample used for the purpose of this research included all the companies from ports and related industries listed in the directory for Polish maritime industry and numbered 183 (see appendix B). The largest groups are freight forwarders (32.7 percent), agents (29.5 percent) and brokers (9.29 percent). Also a significant number of companies (8.74 and 6.56 percent) represent the operating companies within the ports and shipping lines. One company each only represents others such as ship suppliers or cargo inspectors. Table number 5 provides classification of the companies contacted according to the type of business they represent.

Twenty-nine responses were received (see appendix C), which is a 15.84 percent response rate. The low response rate was probably due to cultural reasons. After over forty years of government control, the behaviour pattern of not being open to the outside world remains quite strong. Companies were advised not to give away any information regarding their performance. This pattern has been changing slowly since the collapse of communism and the introduction of market economy reforms but there remains a great number of people from the old nomenclature in the industry, who are not willing to co-operate with outside research.

Twenty days after sending the questionnaire, telephone calls were made to remind those still

to respond to the questionnaire that they should have received. Some of the recipients openly said that they were not interested in co-operation, others claimed they had never received any questionnaire. After confirmation of the addresses the questionnaires were sent to the latter group once more but very few further responses were sent back.

Table 5. Profile of all companies contacted.

Profile of companies contacted		
Type	Number	Percentage
Freight Forwarding	60	32.79
Agents	54	29.5
Brokers	17	9.29
Companies within ports	16	8.74
Shipping Lines	12	6.56
Marine Consultancy	7	3.82
Road Freight	6	3.28
Crewing	2	1.09
Marine Insurance	3	1.64
Ship Suppliers	3	1.64
Cargo Inspection	1	0.55
Catering	1	0.55
Registry of Ships	1	0.55
Total	183	100

Source: Author, 2000.

There was also a group who admitted receiving the questionnaire and promised to deal with the questionnaire immediately but surprisingly only two of them did so.

The most effective way of collecting data was visiting the companies and conducting personal interviews with their marketing representatives. Only 15 percent of these questionnaires were completed (see table 6). However it was not possible to see the representatives from all of the companies listed. In order to conduct interviews with all the companies listed the researcher would have to remain in the region of Poland where they are found for a considerable period of time. This method of data collecting is extremely time consuming and requires a lot of flexibility and resources from the researcher. The Port Authorities of the ports of Gdansk and Gdynia and the companies operating within the ports themselves were given the highest priority and were all visited in September 1999, which required a three-week stay in the area. The classification of all the respondents is provided in table numbers 6. Companies operating within the ports account for 41.38 percent of total responses and 75 percent of all companies contacted of this type. Only two responses were received from shipping lines, which is 6.9 percent of all responses and 16 percent of all shipping lines. Four agents responded to the questionnaire accounting for 13.8 percent of all respondents and 7.41 percent of agents contacted. Only three brokers sent back their responses, which accounts for 10.34 percent of all the responses and 17.65 percent of all brokers included. Six freight-forwarding companies participated in the survey, which is 20.68 percent of all participants and 10 percent of all brokers contacted. Only one of both marine consultancy and road freight companies responded accounting for 3.45 percent of all responses each and 14.99 and 16.66 percent for all companies of each type.

Table 6. Profile of the respondents.

Profile of the Respondents			
Type	Number	Percent of all respondents	Percent of all companies of that type
Companies within Ports	12	41.38	75.00
Shipping Lines	2	6.90	16.00
Agents	4	13.80	7.41
Brokers	3	10.34	17.65
Freight Forwarders	6	20.68	10.00
Marine Consultancy	1	3.45	14.99
Road Freight	1	3.45	16.66
Total	29	100	N/A

Source: Author, 2000.

As stated earlier the multivariate technique of factor analysis was chosen to deal with the results of this research. Both principal component analysis and common factor analysis were applied. It seems that for this research common factor analysis would be more suitable because one wanted to find out the underlying constructs in port marketing strategy. On the other hand it is recommended that the researcher use a technique which produces a clearer to interpret structure. Another justification for choosing one type of the analysis over another is the amount of variance explained. The more of the variance explained by extracted factors or components the more suitable the technique (Tuna, 1999). In the analysis performed for the ports of Gdansk and Gdynia, for both principal components and common factors the total variance explained was almost exactly the same (74.442 in the port of Gdynia and 79.828 in the port of Gdansk).

Both variance outcomes for the port of Gdynia are presented in tables 30 and 34. Variance outcomes for the port of Gdansk are provided in tables 61 and 65. This was not that surprising as according to Hair (1998) differences between principal component analysis and common factor analysis occur only at the factor estimation and interpretation stages. Once the communalities are substituted on the diagonal, the common factor model extracts factors in a manner similar to component analysis. As both principal component and common factor analysis are so similar from the mathematical point of view and produce similar results it was decided to perform both types of analysis for the ports of Gdansk and Gdynia. Additionally it facilitated comparison of the outcomes of both types of analysis to see whether there were notable differences.

Analysis for the port of Gdynia

First of all the variables for the port of Gdynia are presented. Details of descriptive statistics can be found in appendix F. Additional tables of valid percentages of responses are discussed below. Table 7 shows the percentages of responses for rebates and discounts system variable.

Table 7. Rebates and Discounts Variable Rating.

Rebates & Discounts System					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below average	1	3.4	3.4	3.4
	average	5	17.2	17.2	20.7
	3.50	10	34.5	34.5	55.2
	good	10	34.5	34.5	89.7
	4.50	3	10.3	10.3	100.0
	Total	29	100.0	100.0	

Source: Author, 2000.

As can be noted only 3.4 % of all respondents thought that rebates and discounts system in the port of Gdynia is below average. 17.2 % thought it was average and as many as 34.5% that it

was between average and good and 34.5% that it was good. The overall rating is quite good with mean 3.63 and median 3.5 (see appendix F).

Table 8 shows rating of respondents for the next variable – Amount of Subsidies per year.

Table 8. Amount of Subsidies per year Variable Rating.

Amount of Subsidies per year					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.20	1	3.4	3.4	3.4
	4.00	3	10.3	10.3	13.8
	4.40	4	13.8	13.8	27.6
	4.60	2	6.9	6.9	34.5
	5.00	19	65.5	65.5	100.0
	Total	29	100.0	100.0	

Source: Author, 2000.

The above table shows that the majority of the respondents knows or thinks that the port of Gdynia is not subsidised at all. This is also the official statement of port authorities and that is why the mean for this variable is as high as 4.72. However some 34 percent still thinks that there are some subsidies provided.

The next variable is marketing budget and the percentages of various responses are presented in table 9.

Table 9. Marketing Budget Variable Rating.

Marketing budget					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very insufficient	5	17.2	17.2	17.2
	insufficient	7	24.1	24.1	41.4
	neither sufficient nor insufficient	8	27.6	27.6	69.0
	sufficient	7	24.1	24.1	93.1
	very sufficient	2	6.9	6.9	100.0
	Total	29	100.0	100.0	

Source: Author, 2000.

Only 6.9% of the respondent thought that the marketing budget in the port of Gdynia was very sufficient. Another 24.1% thought that it was sufficient, the remaining 69 percent decided it was below sufficient and as much as 24.1% thought it was insufficient. This is also reflected by the quite low mean 2.79 9 (see appendix F).

Table 10 provides response classification for the next variable - market segmentation in the port of Gdynia.

Table 10. Market Segmentation Variables Rating.

market segmentation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neither effective nor ineffective	11	37.9	37.9	37.9
	effective	15	51.7	51.7	89.7
	very effective	3	10.3	10.3	100.0
	Total	29	100.0	100.0	

Source: Author, 2000.

Generally all the respondents' opinions were positive. More than 50 % of them responded that market segmentation in the port of Gdynia was effective and 10.3% that it was very effective. The remaining 37.9% thought that it was neither effective nor ineffective but no one answered that it was ineffective. The high rating for this variable is also reflected by its mean 3.72 and median 4 (see appendix F).

Table 11 represents variable currencies accepted in the port of Gdynia.

Table 11. Currencies Accepted Variable Rating.

Currencies accepted					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	only convertible currencies	3	10.3	10.3	10.3
	all convertible currencies plus PLN	22	75.9	75.9	86.2
	all currencies	4	13.8	13.8	100.0
	Total	29	100.0	100.0	

Source: Author, 2000.

The highest value, 75.9% represents participants in the survey who answered that all convertible currencies plus Polish zloty are accepted by the port of Gdynia. Only 10.3% thought it was only convertible currencies and 13.8% that it was all currencies.

The next variable considered in this research is competition, and more specifically its impact on pricing decisions. Response rates for this variable are reflected in table 12.

Table 12. Competition Variable Rating.

Competition plays a very important role in pricing

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid disagree somewhat	1	3.4	3.4	3.4
neither agree nor disagree	3	10.3	10.3	13.8
agree somewhat	12	41.4	41.4	55.2
agree strongly	13	44.8	44.8	100.0
Total	29	100.0	100.0	

Source: Author, 2000.

A great majority of the respondents answered that competition plays an important role in pricing. Only 3.4% disagreed with this statement somewhat. Also both the mean and median are very high, obtaining values of 4.28 and 4.

Quality of service is the next variable in our research and its ratings are provided in table number 13.

Table 13. Quality of Service Variable Rating.

Quality of the service

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid average	8	27.6	27.6	27.6
good	19	65.5	65.5	93.1
excellent	2	6.9	6.9	100.0
Total	29	100.0	100.0	

Source: Author, 2000.

Opinions about the port of Gdynia quality of the service were varied with over 65% regarding

it as good, very few as excellent, and nearly one third as average.

Complexity of service variable is presented in table 14.

Table 14. Complexity of Service Variable Rating.

Complexity of the service

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid average	12	41.4	41.4	41.4
good	13	44.8	44.8	86.2
excellent	4	13.8	13.8	100.0
Total	29	100.0	100.0	

Source: Author, 2000.

The next variable in our research is the quantity of services provided another words an efficiency of cargo and ship services. This variable rating is presented in table 15.

Table 15. Quantity of Services Provided Variable Rating.

Quantity of services provided

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid neither efficient nor inefficient	14	48.3	48.3	48.3
efficient	15	51.7	51.7	100.0
Total	29	100.0	100.0	

Source: Author, 2000.

Opinions about cargo and ship services, the quantity of the services provided were not very varied. Nearly half of the respondents took a neutral position and responded that that it was neither efficient nor inefficient. The remaining half thought that it was efficient.

The next variable considered in this research is reliability of the service. Rating for this variable is shown below in table 16.

Table 16. Reliability of the Service Variable Rating.

Reliability of the service

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid average	2	6.9	6.9	6.9
3.33	6	20.7	20.7	27.6
3.66	6	20.7	20.7	48.3
good	3	10.3	10.3	58.6
4.33	12	41.4	41.4	100.0
Total	29	100.0	100.0	

Source: Author, 2000.

Over 50% of the respondents agreed that the reliability of the services in the port of Gdynia was good. This is also reflected by its high mean that obtains a value of 3.86.

The next table represents frequency of services variable. The respondents were asked to express the degree of their disagreement or agreement with the following statement: frequency of the services provided is very high. Table 17 shows its rating.

Table 17. Frequency of the Services variable Rating.

Frequency of the services provided is very high

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid neither agree nor disagree	9	31.0	31.0	31.0
agree somewhat	20	69.0	69.0	100.0
Total	29	100.0	100.0	

Source: Author, 2000.

As many as 69% of participants in this survey agreed somewhat with the statement that frequency of services is high and 3% took a neutral point on the scale – neither agree nor disagree.

The next variable in our research is the advertising variable. This is the first variable from promotion P. How the port users and customers see it in the port of Gdynia is reflected in the table 18.

Table 18. Advertising Variable Rating.

		Advertising			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below average	9	31.0	31.0	31.0
	average	15	51.7	51.7	82.8
	good	5	17.2	17.2	100.0
	Total	29	100.0	100.0	

Source: Author, 2000.

Only 17.2% of the respondents thought that advertising in the port of Gdynia was good. 51.7% thought it was average and 31% that it was below average. Also the mean and median are not very high – 2.86 and 3.

The next variable considered in this research is image, i.e. its five definable elements: logo, publications, designs, uniforms and gifts. The classifications of the respondents' opinions are provided below in table 19.

Table 19. Five Elements of Image Variable Rating.

		Five elements: logo,publications,designs, uniforms,gifts			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	three elements missing	4	13.8	13.8	13.8
	two elements missing	12	41.4	41.4	55.2
	one element missing	11	37.9	37.9	93.1
	port has all elements	2	6.9	6.9	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

The great majority of the respondents thought that corporate image of the port of Gdynia was quite good. Almost eighty percent of the respondents felt that the port marketing strategy is missing at most, only two elements of image. Only 13.8% felt that it was below that level and just 6.9% that the port of Gdynia was active in creating all element of the image.

The next variable that we included in our research was the variable called the five elements of public relations. The frequencies of the opinions of the participants are presented below in table

Table 20. Five Fields of Public Relations Variable Rating.

5 fields of PR activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	active in 2 fields	5	17.2	17.2	17.2
	active in 3 fields	14	48.3	48.3	65.5
	active in 4 fields	8	27.6	27.6	93.1
	active in all 5 fields	2	6.9	6.9	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

Nearly fifty percent of the participants thought that the port of Gdynia is active in three out of the five fields of public relations. As much as 27.6% of the respondents thought that this port was active in four elements of public relations. Finally just 2 of them (6.9%) thought it performed all of the public relations activities.

The next variable that we consider is market research. The frequencies of the responses received are presented in table 21.

Table 21. Market Research Variable Rating.

Market research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below average	14	48.3	48.3	48.3
	average	9	31.0	31.0	79.3
	good	5	17.2	17.2	96.6
	excellent	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

Nearly 50% of the respondents thought that the market research in the port of Gdynia is below average, 31% that it is average. The remaining 20.6% thought it was good or above. It indicates that this important field of marketing may well be underdeveloped. This is also indicated by a low mean – 2.76 and median - 3 (both in appendix F).

The next variable port accessibility is presented in table 22.

Table 22. Port Accessibility Variable Rating.

		Port accessibility			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below average	1	3.4	3.4	3.4
	2.50	1	3.4	3.4	6.9
	average	4	13.8	13.8	20.7
	3.50	11	37.9	37.9	58.6
	good	9	31.0	31.0	89.7
	4.50	2	6.9	6.9	96.6
	excellent	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

The great majority of respondents rated the accessibility of the port of Gdynia as between average and good, which is probably due to its peripheral location and relatively shallow waters. None of them said that it was poor.

The next variable in our research is the variable called terminal choice and its frequencies are presented in table 23.

Table 23. Terminal Choice Variable Rating.

		Terminal choice			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	average	3	10.3	10.3	10.3
	good	14	48.3	48.3	58.6
	excellent	12	41.4	41.4	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

Nearly 50% of the respondents thought the terminal choice in the port of Gdynia was good and as many as 41% rated it as excellent. This is also confirmed by very high mean – 4.31 and median 4. (see appendix F).

The next variable in our research is transportation network. The respondents' rating is presented in the table 24.

Table 24. Transportation Network Variable Rating

Transportation network					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below average	2	6.9	6.9	6.9
	average	7	24.1	24.1	31.0
	good	20	69.0	69.0	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

As many as 69% of the participants in our research answered that the transportation network for the port of Gdynia is good, 24% that it was average and only 6.9% that it was below average.

The next variable in our research was presented in a form of statement requiring the respondents to state the degree of their agreement or disagreement. It is very difficult to identify the major group, since this variable was created as a combination of more specific statements. However, it can be noted that nearly 80% of the respondents disagreed with the statement that: "Qualifications and training in the port of Gdynia is very good. The rating is provided in the table number 25.

Table 25. Qualification and Training Variable Rating.

Qualifications & Training is very good

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.06	1	3.4	3.4	3.4
	2.37	1	3.4	3.4	6.9
	2.56	1	3.4	3.4	10.3
	2.77	1	3.4	3.4	13.8
	2.90	1	3.4	3.4	17.2
	3.06	1	3.4	3.4	20.7
	3.12	2	6.9	6.9	27.6
	3.17	2	6.9	6.9	34.5
	3.20	1	3.4	3.4	37.9
	3.25	1	3.4	3.4	41.4
	3.29	1	3.4	3.4	44.8
	3.37	2	6.9	6.9	51.7
	3.40	2	6.9	6.9	58.6
	3.60	1	3.4	3.4	62.1
	3.62	1	3.4	3.4	65.5
	3.66	1	3.4	3.4	69.0
	3.76	1	3.4	3.4	72.4
	3.83	1	3.4	3.4	75.9
	agree somewhat	1	3.4	3.4	79.3
	4.10	2	6.9	6.9	86.2
	4.16	1	3.4	3.4	89.7
	4.20	2	6.9	6.9	96.6
	4.26	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

The next variable in our research is also presented in a form of statement. The respondents were asked to state their opinion about procedures and schedules being clear and convenient. Their rating is provided in table 26.

Table 26. Procedures and Schedules Variable Rating.

Procedures, schedules, etc are clear and convenient

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.42	5	17.2	17.2	17.2
	3.57	4	13.8	13.8	31.0
	3.62	7	24.1	24.1	55.2
	agree somewhat	9	31.0	31.0	86.2
	4.14	3	10.3	10.3	96.6
	4.66	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

As many as 86.2% answered: “agree somewhat” or rated this variable lower.

The next variable considered in our research is a variable called IT facilities. The rating of the respondents is provided in table 27.

Table 27. IT Facilities Variable Rating.

IT facilities					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.66	1	3.4	3.4	3.4
	2.33	6	20.7	20.7	24.1
	2.66	7	24.1	24.1	48.3
	average	2	6.9	6.9	55.2
	3.33	9	31.0	31.0	86.2
	3.66	1	3.4	3.4	89.7
	good	3	10.3	10.3	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

Over 50% of participants in this research thought that IT facilities in the port of Gdynia were average or below average. None of them answered excellent and just 10.3% that it was good.

The last variable in our research, which was used for correlation with the main factor and not included in the factor analysis, was effectiveness. The results of are provided in table 28.

Table 28. Effectiveness Variable Rating.

Effectiveness of the port					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neither effective nor ineffective	8	27.6	27.6	27.6
	effective	17	58.6	58.6	86.2
	very effective	4	13.8	13.8	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

As many as 58.6% of the research participants thought that the port of Gdynia was operating effectively. 13.8% that it was effective. None rated the port ineffective.

Factor Analysis for the Port of Gdynia

Factor analysis can identify the structure of a set of variables as well as provide a process for data reduction. In our research the perception of the port of Gdynia on 21 attributes will be examined to understand if these variables can be grouped and reduce them to a smaller number. Even the relatively small number of variables presents a complex picture of separate correlations. By grouping the perceptions we will be able to see the overview picture of marketing strategy in the port of Gdynia.

Understanding the structure of the perceptions of variables requires R-type factor analysis and a correlation between variables not respondents. All the variables are metric and constitute a homogeneous set of perception for factor analysis. The underlying statistical assumptions impact factor analysis to the extent that they affect the derived correlations. Departures from normality, homoscedascity, and linearity can diminish correlation between variables. The factorability of the correlation matrix also needs to be considered. A first step is a visual examination of the correlation, identifying those that are statistically significant. In this research over half of correlations are significant. This provides adequate basis for proceeding to the next level of examination of adequacy for factor analysis on both an overall basis and for each variable (Hair, Anderson, Tatham, Black, 1995).

The next step is to assess the overall significance of the correlation matrix with the Bartlett test. In this example, the correlations, when taken overall, are significant at the .0001 significant level (see table 29). This test is only for the presence of nonzero correlations, not the pattern of these correlations. The other test is the measure of sampling adequacy. This test is known as the Kaiser– Meyer– Olkin Measure of Sampling Adequacy. The value obtained was acceptable (0.518, the critical value is 0.5) (George, Mallery, 1999). This measure enables the researcher to judge whether the number of respondents is sufficient with respect to the number

of variables involved in the analysis (see table 29).

Table 29. Kaiser - Meyer – Olkin Measure of Sampling Adequacy and Bartlett's Test for the port of Gdynia.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.518
Bartlett's Test of Sphericity	Approx. Chi-Square	358.294
	df	210
	Sig.	.000

Source: Author, 2001.

The output from SPSS for windows version 9.0 is almost identical for both principal component analysis and common factor analysis. This indicates that each of the variables meets the fundamental requirements for factor analysis.

Factor analysis procedures are based on the initial computation of a complete table of intercorrelations among the variables (correlation matrix). The correlation matrix is then transformed through estimation of a factor model to obtain a factor matrix. The loadings on each variable on the factors are then interpreted to identify the underlying structure of the variables, in this case perceptions of the marketing strategy of the port of Gdynia. These steps of factor analysis contained in stage four, five and six will be examined first for principal component analysis. Then, a common factor analysis will be performed and comparisons made between the two factor models.

The first step is to select the number of components to be retained for further analysis. Table 30 contains the information regarding the six possible factors and their relative explanatory power as expressed by their eigenvalues. In addition to assessing the importance of each component, we can also use the eigenvalues to assist in selecting the number of factors.

Table 30. Results for the Extraction of Principal Components Analysis for the Port of Gdynia.

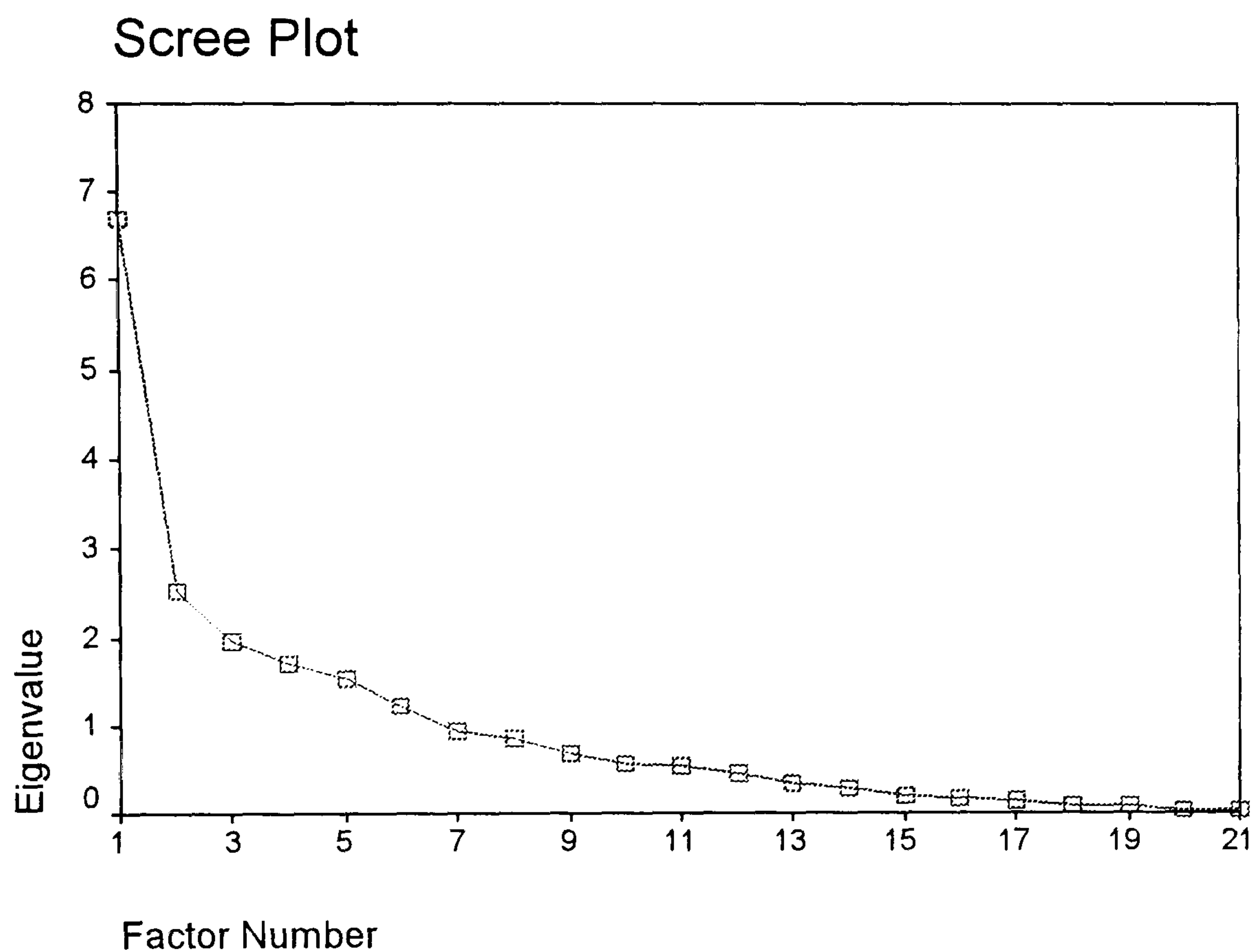
Total Variance Explained

Component	Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Total	% of Variance	Cumulative e %	Total	% of Variance	Cumulative e %
1	6.696	31.886	6.696	31.886	31.886	2.836	13.503	13.503
2	2.528	12.038	2.528	12.038	43.924	2.824	13.448	26.950
3	1.947	9.274	1.947	9.274	53.197	2.777	13.221	40.172
4	1.696	8.075	1.696	8.075	61.273	2.731	13.005	53.176
5	1.534	7.306	1.534	7.306	68.578	2.654	12.640	65.817
6	1.227	5.844	1.227	5.844	74.422	1.807	8.605	74.422
7	.944	4.497			78.919			
8	.859	4.092			83.010			
9	.676	3.218			86.229			
10	.558	2.656			88.885			
11	.548	2.612			91.497			
12	.443	2.112			93.608			
13	.338	1.608			95.217			
14	.279	1.328			96.544			
15	.211	1.005			97.549			
16	.157	.748			98.297			
17	.135	.644			98.941			
18	8.688E-02	.414			99.355			
19	7.473E-02	.356			99.711			
20	3.539E-02	.169			99.879			
21	2.532E-02	.121			100.000			

Extraction Method: Principal Component Analysis.

If we apply the latent root criterion six components will be retained. The scree test (Figure 7) however, indicates that seven components may be appropriate. If the eigenvalues are quite close to one then it might be considered to include the seventh factor. It was decided to retain the six with eigenvalues greater than one since their explanatory variance reached high 74.422%.

Figure 7. Scree Test for Principal Component Solution in the Port of Gdynia.



Source: Author, 2001.

The result of stage four is shown in Table 31, the unrotated component analysis factor matrix. Six columns in the table are shown. They present the results for six factors that are extracted (i.e., factor loadings on each variable on each of the factors). Table 32 provides summary statistics detailing how well each variable is explained by the six components and will be discussed in the next section. As expected the unrotated factor solution has extracted the factors in order of their importance, with factor one accounting for the most variance and factor six for the least. The total sum of squared factor loadings can be obtained by adding the individual sums of squares for each of the factors. It would represent the total amount of variance extracted by the factor solution. The percentages for each of the six factors are also shown in the communalities table (table 32).

Table 31. Unrotated Component Matrix for the Port of Gdynia.

	Component					
	1	2	3	4	5	6
Qualifications & Training is very good	.772	-.195	.300	.238	-.196	.233
Five elements: logo, publications, designs, uniforms, gifts	.730	-.435	-.190	-.134	7.704E-02	-.117
Procedures, schedules, etc are clear and convenient	.702	-.125	8.700E-02	9.477E-02	.222	.462
Terminal choice	.692	.433	.174	-7.356E-02	-.115	-.237
Quantity of services provided	.666	-4.881E-02	-.358	-.351	-.313	5.057E-02
Transportation network	.665	-8.950E-02	-.395	.114	.443	-2.581E-02
Advertising	.643	-.188	.378	8.054E-02	-.453	-9.875E-02
Quality of the service	.625	.257	-.149	.293	-.286	-5.968E-02
5 fields of PR activities	.614	-.331	-.136	-.534	-.153	-.181
Amount of Subsidies per year	.601	.383	.214	-.228	.240	.130
Port accessibility	.555	-.308	-.155	.269	.509	4.618E-03
Rebates & Subsidies System	.498	.493	-.133	-.447	1.310E-02	-.288
Frequency of the services provided is very high	.481	4.768E-02	-.289	.426	.141	-.185
Currencies accepted	-.219	.768	2.678E-02	.274	-.104	6.977E-02
market segmentation	.235	.540	-3.811E-04	-1.531E-02	.354	.359
Complexity of the service	.514	.539	2.600E-02	.182	.122	-.453
Marketing budget	.461	8.465E-02	-.650	-8.703E-02	-.200	.349
IT facilities	.506	4.071E-02	.550	-.249	-3.730E-02	.347
Market research	.438	-.428	.460	.258	.199	-.329
Competition plays a very important role in pricing	.362	.156	.450	-.215	.193	1.390E-02
Reliability of the service	.470	3.552E-02	-5.762E-02	.545	-.467	.127

Extraction Method: Principal Component Analysis.

a. 6 components extracted.

Table 32. Communalities for the Port of Gdynia in Principal Components Technique.

Communalities

	Initial	Extraction
Rebates & Subsidies System	1.000	.792
Amount of Subsidies per year	1.000	.681
market segmentation	1.000	.601
Currencies accepted	1.000	.729
Competition plays a very important role in pricing	1.000	.442
Quality of the service	1.000	.651
Complexity of the service	1.000	.809
Quantity of services provided	1.000	.798
Reliability of the service	1.000	.757
Frequency of the services provided is very high	1.000	.553
Advertising	1.000	.813
Five elements: logo, publications, designs, uniforms, gifts	1.000	.795
5 fields of PR activities	1.000	.846
Port accessibility	1.000	.758
Terminal choice	1.000	.772
Transportation network	1.000	.817
Qualifications & Training is very good	1.000	.873
Procedures, schedules, etc are clear and convenient	1.000	.787
IT facilities	1.000	.744
Market research	1.000	.802
Marketing budget	1.000	.811

Extraction Method: Principal Component Analysis.

Large communalities indicate that a large amount of the variance in the variable has been extracted by the factor solution. Small communalities show that a substantial portion of the variance in a variable is unaccounted for by the factors. Having defined the various elements of the unrotated component matrix it is possible to examine the factor loading pattern. As anticipated, the first factor accounts for the largest amount of variance and is a general factor, with every variable having a high loading. Loadings in each further factor will gradually decrease. Based on this factor loading pattern, interpretation would be extremely difficult and theoretically less meaningful. Therefore, we must proceed to rotate the factor matrix to redistribute the variance from the earlier factor to the later factors. Rotation should result in a simpler and theoretically more meaningful factor pattern. The VARIMAX rotated component analysis factor matrix is shown in Table 33.

Analysis followed using SPSS for windows version 9.0. Six components were extracted using the principal component extraction method, hence the name. They accounted for 74.422 per cent of total variance explained, retaining as much of the original information in as few components as possible. Total amount of variance extracted is the same in the rotated solution as it was in the unrotated one, 74.442%. Two major differences have to be noted. First, the variance has been redistributed so that the factor loading pattern is different, and the percentage of variance for each of the factors is different also. Thus the explanatory power has been distributed more evenly because of the rotation. Second, the interpretation of factor matrix has been simplified. No variable loads significantly on more than one factor.

When the satisfactory factor solution has been derived it is possible to attempt to name the factors to assign meaning to them. This process involves substantive interpretation of the pattern of factor loadings for the variables. Before the interpretation, a minimum acceptable

Table 33. VARIMAX Rotated Component Analysis Factor Matrix for the Port of Gdynia.

Rotated Component Matrix^a

	Component					
	1	2	3	4	5	6
Port accessibility	.830	.179	8.266E-02	-1.638E-02	.144	-9.876E-02
Transportation network	.816	.223	5.065E-02	.232	.102	.184
Frequency of the services provided is very high	.588	-2.516E-02	.327	.281	-.144	2.523E-02
5 fields of PR activities	9.272E-02	.852	7.171E-02	.242	.168	.139
Currencies accepted	-.232	-.727	9.590E-02	.326	-2.474E-02	.174
Five elements: logo, publications, designs, uniforms, gifts	.503	.682	.209	.116	.136	3.800E-02
Quantity of services provided	.110	.595	.290	.290	.134	.495
Reliability of the service	.154	-6.568E-02	.843	4.502E-02	-2.885E-02	.125
Qualifications & Training is very good	.271	.251	.698	-1.167E-02	.492	-7.774E-02
Advertising	-5.593E-02	.409	.690	.162	.295	-.229
Quality of the service	.229	1.821E-02	.618	.418	4.427E-02	.199
Complexity of the service	.272	-.152	.205	.806	6.943E-02	-.121
Rebates & Subsidies System	5.777E-03	.227	-8.807E-02	.789	.212	.254
Terminal choice	6.903E-02	.111	.343	.716	.353	-7.715E-04
IT facilities	-8.796E-02	.180	.221	4.024E-02	.806	-5.310E-02
Amount of Subsidies per year	.195	2.501E-02	2.385E-02	.451	.652	.112
Procedures, schedules, etc are clear and convenient	.519	.142	.307	-9.286E-02	.608	.159
Competition plays a very important role in pricing	1.752E-02	7.349E-02	-2.733E-02	.258	.572	-.204
market segmentation	.229	-.398	-.114	.243	.470	.313
Marketing budget	.273	.217	.258	8.499E-02	-6.092E-03	.785
Market research	.366	.287	.265	2.396E-02	.193	-.691

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

level of significance for a factor loading must be selected. All significant factor loadings typically are used in the interpretation process but variables with higher loadings influence to a great extent the name or the label selected to represent a factor. In this case, with a relatively small sample, only the variables that load on a component higher than 0.70 are regarded as significant but those close to this value can be also considered to some extent (Hair, Anderson, Tatham and Black, 1998). Substantive interpretation is based on significant higher loadings.

Factor one has two significant loadings. The two variables loading significantly on this factor are port accessibility and the transportation network, which can be neatly described as representing the port's overall accessibility. The second factor consisted of a variable labelled public relations and another labelled currencies accepted which was the closest to the significance level. It was decided to name it public relations. Three variables loaded highly on the third factor: however, reliability of service was the only one within the acceptable region, whilst qualifications and training and advertising loaded close to the limit. It is difficult to name this factor but since reliability is the only variable that is significant, it was called simply reliability. The fourth factor consisted of three variables again. These were complexity of service, rebates and discounts and terminal choice and therefore it was called complexity. Only one variable loaded highly on the fifth factor, IT facilities and so this would be the name of this factor. Finally the last, sixth factor – marketing budget, consisted of just this one variable. These constructs reflect the point of view of the wide spectrum of port users and operators. This all shows that the complex phenomenon of marketing strategy in the port of Gdynia can be summarised in these six constructs and since they were derived from the port users views, it provides guidance to the port's marketing department to concentrate on these key areas that are the most important for both port operators and users.

The data was also checked for reliability. The widely used Cronbach's alpha coefficient was applied. The generally agreed lower limit for this measure is 0.7 (Hair, Anderson, Tatham,

Black, 1998) and in the analysis it obtained a high value of 0.87, which means that the results of this analysis are highly reliable (see Appendix H).

To illustrate the differences that can occur between common factor and component analysis the common factor procedure was performed for the same data. Common factor analysis is the second major factor analytic model. The primary distinction between component analysis and common factor analysis is that the latter considers only the common variance associated with the variables. This aim is accomplished by factoring a reduced correlation matrix with estimated initial communalities in the diagonal instead of unities. The difference between component analysis and common factor analysis occurs only at the factor estimation and interpretation stages. Once the communalities are substituted on the diagonal, the common factor model extracts factors in a manner similar to component analysis. The same criteria for factor selection and interpretation are used.

We need to determine the number of factors to retain for examination and possible rotation. Table 34 shows results of the extraction statistics. The latent root criterion suggests that six factors would be retained, and the scree test confirms this (see Figure 8). The unrotated factor matrix (see Table 35) shows that the common factor solution accounted for 74.442% of the total variance. It can be noted that the communalities are lower than found in principal component analysis (see Table 36).

Examining the unrotated loadings, we note the need for a factor matrix rotation. Turning then to the VARIMAX rotated common factor analysis factor matrix (See Table 37) we examine how it compares with the component analysis rotated factor matrix.

Comparison of the information provided in the rotated common factor analysis factor matrix and the rotated component analysis factor matrix shows remarkable similarity. The primary differences between the component analysis and common factor analysis are the generally lower loadings in the common factor analysis, owing primarily to the lower communalities of the

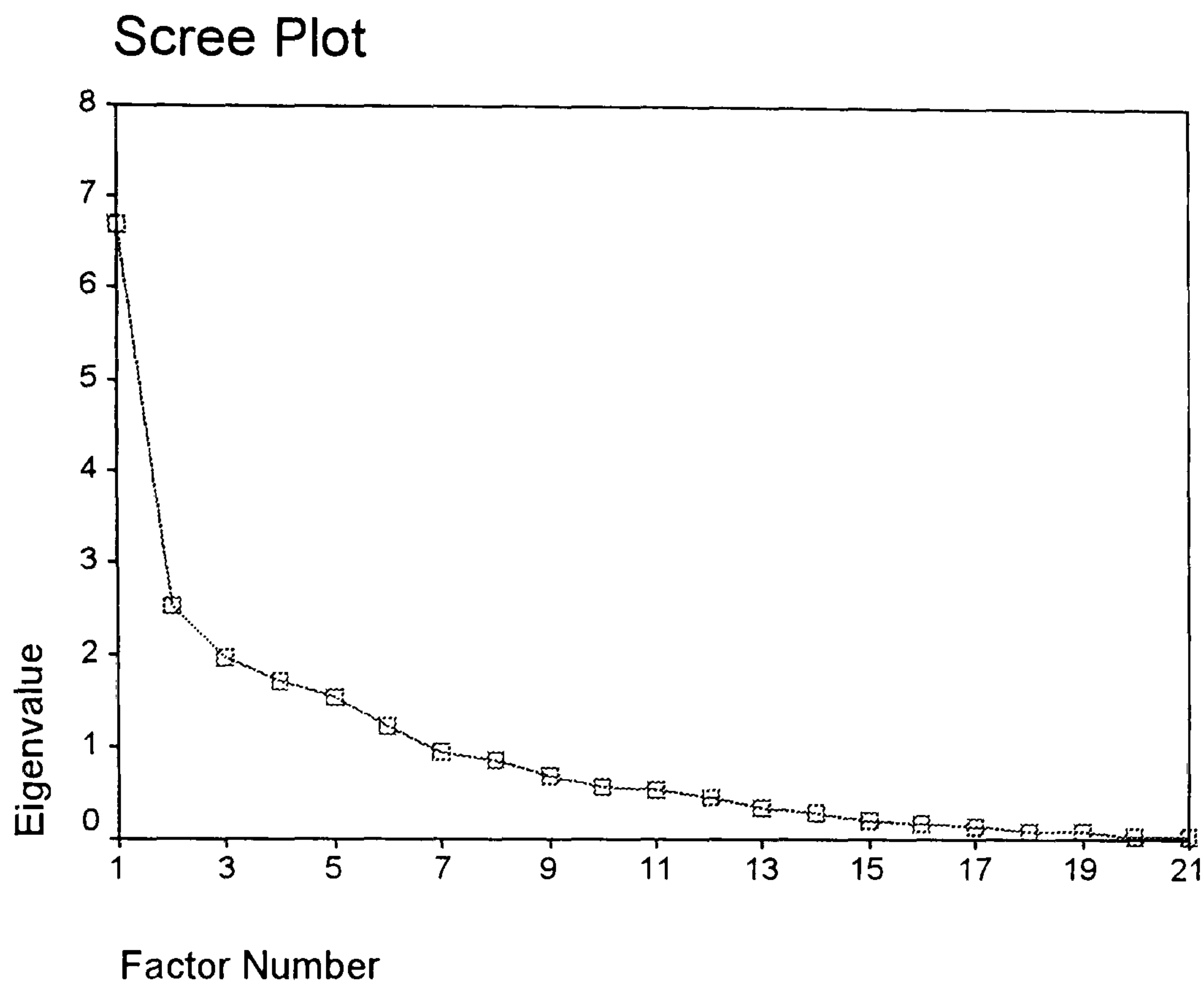
Table 34. Results of the Extraction for Common Factor Technique in the Port of Gdynia.

Total Variance Explained

Factor	Initial Eigenvalues		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings			
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.696	31.886	31.886	6.401	30.481	30.481	2.537	12.082	12.082
2	2.528	12.038	43.924	2.167	10.319	40.800	2.482	11.818	23.900
3	1.947	9.274	53.197	1.639	7.803	48.603	2.473	11.775	35.675
4	1.696	8.075	61.273	1.357	6.463	55.066	2.389	11.378	47.052
5	1.534	7.306	68.578	1.202	5.723	60.789	2.306	10.979	58.031
6	1.227	5.844	74.422	.911	4.340	65.129	1.491	7.098	65.129
7	.944	4.497	78.919						
8	.859	4.092	83.010						
9	.676	3.218	86.229						
10	.558	2.656	88.885						
11	.548	2.612	91.497						
12	.443	2.112	93.608						
13	.338	1.608	95.217						
14	.279	1.328	96.544						
15	.211	1.005	97.549						
16	.157	.748	98.297						
17	.135	.644	98.941						
18	8.688E-02	.414	99.355						
19	7.473E-02	.356	99.711						
20	3.539E-02	.169	99.879						
21	2.532E-02	.121	100.000						

Extraction Method: Unweighted Least Squares.

Figure 8. Scree Test for Common Factor Solution in the Port of Gdynia.



Source: Author, 2001.

variables used in common factor analysis. But even with these slight differences the patterns of loadings and basic interpretations are almost identical between the two analyses.

Common factor analysis emerged with six factors. The first consisted of transportation network and port accessibility, in the same way as the principal component analysis but just in a different order. It still can be called accessibility. The second factor has the highest loading on public relation activities and an insignificant loading on five elements of image variable and quantity of services provided and therefore is still named public relations. The third factor scores highly on exactly the same variables as for the component analysis. These are reliability of service, qualifications and training and advertising. Two variables load on the fourth factor, again identical with the ones in component analysis, so this factor is named complexity. The fifth and sixth factors are also identical, they are IT facilities and marketing budget factors.

Table 35. Unrotated Common Factor Matrix for the Port of Gdynia.

Factor Matrix^a

	Factor					
	1	2	3	4	5	6
Qualifications & Training is very good	.777	-.191	.361	.167	-.225	.208
Five elements: logo, publications, designs, uniforms, gifts	.724	-.413	-.208	-7.637E-02	8.465E-02	-.144
Procedures, schedules, etc are clear and convenient	.688	-.118	8.570E-02	.124	.169	.424
Terminal choice	.679	.433	.166	-.135	-2.840E-02	-.204
Transportation network	.660	-7.762E-02	-.383	.270	.375	-2.107E-02
Quantity of services provided	.654	-2.766E-02	-.367	-.271	-.266	3.558E-02
Advertising	.637	-.173	.393	-6.435E-02	-.374	-.173
5 fields of PR activities	.617	-.320	-.231	-.535	-6.345E-02	-.152
Quality of the service	.593	.246	-5.400E-02	.216	-.239	-6.235E-02
Amount of Subsidies per year	.576	.349	.138	-.193	.254	.183
Port accessibility	.537	-.275	-.123	.338	.380	2.846E-02
IT facilities	.490	2.871E-02	.436	-.322	3.059E-02	.346
Rebates & Discounts System	.481	.472	-.195	-.358	7.571E-02	-.183
Frequency of the services provided is very high	.444	5.274E-02	-.152	.338	5.032E-02	-.112
Competition plays a very important role in pricing	.328	.122	.263	-.169	.168	7.939E-02
Currencies accepted	-.214	.689	8.945E-02	.185	-9.286E-02	6.245E-02
Complexity of the service	.502	.539	6.928E-02	.151	.154	-.385
market segmentation	.214	.428	-6.608E-03	4.085E-02	.219	.222
Marketing budget	.453	9.689E-02	-.606	5.988E-02	-.277	.279
Market research	.429	-.401	.446	.149	.217	-.285
Reliability of the service	.457	4.631E-02	6.960E-02	.443	-.502	-7.934E-03

Extraction Method: Unweighted Least Squares.

a. 6 factors extracted. 6 iterations required.

Table 36. Communalities for the Port of Gdynia in Common Factor Technique.

Communalities

	Initial	Extraction
Rebates & Discounts System	.899	.659
Amount of Subsidies per year	.758	.609
Marketing budget	.702	.740
market segmentation	.664	.328
Currencies accepted	.769	.575
Competition plays a very important role in pricing	.715	.255
Quality of the service	.796	.523
Complexity of the service	.832	.742
Quantity of services provided	.810	.708
Reliability of the service	.858	.663
Frequency of the services provided is very high	.666	.353
Advertising	.885	.764
Five elements: logo, publications, designs, uniforms, gifts	.883	.771
5 fields of PR activities	.882	.850
Market research	.739	.694
Port accessibility	.787	.638
Terminal choice	.875	.736
Transportation network	.896	.802
Qualifications & Training is very good	.903	.893
Procedures, schedules, etc are clear and convenient	.879	.719
IT facilities	.823	.655

Extraction Method: Unweighted Least Squares.

Table 37. VARIMAX Rotated Common Factor Matrix for the Port of Gdynia.

Rotated Factor Matrix^a

	Factor					
	1	2	3	4	5	6
Transportation network	.812	.210	.248	5.873E-02	8.279E-02	.162
Port accessibility	.757	.166	1.754E-03	.102	.145	-7.754E-02
Frequency of the services provided is very high	.463	1.694E-02	.228	.284	-3.706E-02	5.967E-02
5 fields of PR activities	9.718E-02	.855	.217	5.294E-02	.198	.147
Five elements: logo, publications, designs, uniforms, gifts	.501	.666	.119	.208	.136	1.918E-02
Currencies accepted	-.227	-.634	.313	4.675E-02	-2.147E-02	.148
Quantity of services provided	.140	.546	.272	.274	.159	.465
Complexity of the service	.252	-.132	.773	.214	7.276E-02	-.111
Rebates & Discounts System	2.046E-02	.205	.718	-4.552E-02	.195	.247
Terminal choice	7.648E-02	.119	.700	.319	.352	-3.930E-03
Reliability of the service	.162	-4.594E-02	6.657E-02	.785	-1.686E-02	.122
Qualifications & Training is very good	.280	.227	-1.482E-02	.687	.535	-6.408E-02
Advertising	-3.084E-02	.407	.164	.657	.299	-.221
Quality of the service	.236	3.151E-02	.378	.524	.105	.194
IT facilities	-5.990E-02	.170	7.411E-02	.160	.768	-4.321E-02
Amount of Subsidies per year	.193	2.534E-02	.446	1.645E-02	.602	9.800E-02
Procedures, schedules, etc are clear and convenient	.510	.126	-3.439E-02	.256	.599	.133
Competition plays a very important role in pricing	4.664E-02	5.677E-02	.214	1.973E-02	.436	-.112
market segmentation	.163	-.279	.294	-6.734E-02	.311	.188
Marketing budget	.284	.187	.101	.252	-1.495E-03	.742
Market research	.342	.284	9.556E-03	.260	.203	-.623

Extraction Method: Unweighted Least Squares.

Rotation Method: Varimax with Kaiser Normalization.

Thanks to the analysis performed it is possible to define the main underlying constructs in the structure of the marketing strategy for the port of Gdynia. Moreover knowing which variables are key elements in this structure it was possible to investigate how they affect the overall effectiveness of port performance. At the end of the questionnaire a question about effectiveness was asked and in order to measure the relationships between effectiveness and all variables that significantly loaded on all six factors, a Pearson Product Moment correlation was run. The correlation matrix was created in syntax using SPSS (see appendix J). This enabled us to obtain a matrix containing only correlation of the variables involved in factors and effectiveness rather than having a matrix with correlations of all the variables involved with each other, which would have been unclear.

The first two variables in the matrix: port accessibility and transportation network show very strong positive correlation with effectiveness (0.78 and 0.762). That means that the better the port's accessibility the better the efficiency. In other words if it is easy and convenient to access the port, it can work more effectively. The transportation network's influence on effectiveness seems to be a simple consequence of accessibility, and similarly the greater the transportation network the better the effectiveness.

There is a medium positive correlation between effectiveness and the public relation activity variable. This can be interpreted as the more fields of public relations in which the marketing department is active, the higher the effectiveness. More customers are attracted to the port so it can more effectively utilise its potential.

The fourth variable correlated in the matrix is the variable "currencies accepted". This is the only variable showing quite weak negative correlation with overall effectiveness. If it was interpreted according to the correlation rules this would have meant that the more currencies

accepted the less effective the port. This does not seem correct but it is due to the fact that nowadays all payments are carried out via bank transfers and currencies are automatically converted into national currency and then US Dollar, which is very often the invoice currency. In Polish ports the official currency required for invoices is US Dollars therefore payments are transferred into this currency. It would be an important variable if there had been difficulties in money exchange but nowadays this problem can be easily overcome with electronic payment methods playing a more important role in the world's exchange of goods and services.

Another variable, which obtains a very high positive correlation (0.716) is the variable image. The better the overall image (often referred to as the corporate identity) the greater effectiveness of the port.

The next variable in the correlation matrix is reliability of service. This variable results in a weak positive correlation with effectiveness.

Two more variables in this correlation matrix show moderate positive correlation with effectiveness. These are variable qualifications and training and terminal choice. They obtain values 0.486 and 0.443. This can be interpreted as the better the qualifications and training the higher the effectiveness. The human element is very important in today's service and is regarded as the key feature that decides a company's success.

There are four more variables included in the correlation matrix. These are complexity of service, rebates and discount system, IT facilities and marketing budget. All these variables have weak positive correlation with effectiveness. This means that they have some influence on the port of Gdynia's effectiveness but not very much. The complexity of the service is nowadays very often taken for granted by port users and the majority of the world's ports have

the facilities to suit most kinds of cargo. All kinds of rebates and discounts are always welcomed by the port's customers and provide a useful tool for customer retention. IT facilities and marketing budgets are undoubtedly very important supporting features of any company and without developed computerisation it is not possible to compete in today's maritime world.

Analysis of the port of Gdansk

Descriptive statistics for each variable used in the analysis for the port of Gdansk are presented in their individual tables below. The first variable as in the case of the port of Gdynia is rebates and discounts. The rating for this variable is provided 38.

Table38. Rebates and Discounts Variable Rating.

Rebates & Discounts					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	average	3	10.3	10.3	10.3
	3.50	9	31.0	31.0	41.4
	good	16	55.2	55.2	96.6
	4.50	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

10.3 % of the participants in our research thought that the rebates and discounts system in the port of Gdansk is average. As many as 55.2 % rated this variable as good. The reasonably high mean (3.76) and median (4) also reflected that the overall opinion was positive. Both of these figures can be found in appendix G.

The next variable in our research is the variable named amount of subsidies per year. Frequency statistics are presented in table 39.

Table 39. Amount of Subsidies per Year Variable Rating.

		Amount of Subsidies per year			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-100 000 USD	9	31.0	31.0	31.0
	no subsidies	20	69.0	69.0	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

The great majority of respondents (nearly 70%) answered that there are no longer any subsidies provided for the port of Gdansk. However, 31% still thought that there were some sorts of subsidies, most likely indirect ones. The strong belief that there are no subsidies was confirmed by the very high mean (4.69) and median obtaining value 5. (see appendix I)

Yet another variable considered in our research is marketing budget. The rating for this variable is provided in table below 40.

Table 40. Marketing Budget Variable Rating.

		Marketing budget			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	insufficient	4	13.8	13.8	13.8
	neither sufficient nor insufficient	13	44.8	44.8	58.6
	sufficient	12	41.4	41.4	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

13.8% of participants in our research thought that the marketing budget for the port of Gdansk was insufficient. Nearly 45% of them thought that the marketing budget was neither sufficient nor insufficient and 41% that it was sufficient. Both mean and median are rather low (3.28 and 3) (see appendix I)

The next variable considered in our research is market segmentation. The rating for this variable is presented in table 41.

Table 41. Market Segmentation Variable Rating.

		market segmentation			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ineffective	2	6.9	6.9	6.9
	neither effective nor ineffective	7	24.1	24.1	31.0
	effective	17	58.6	58.6	89.7
	very effective	3	10.3	10.3	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

As many as 58.6% of the respondents thought that market segmentation in the port of Gdansk was effective. 24.1% of them thought that market segmentation in this port was neither effective nor ineffective and only 10.3% that it was very effective.

The rating for the next variable - currencies accepted is provided in table 42.

Table 42. Currencies Accepted Variable Rating.

		Currencies accepted			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	only PLN	5	17.2	17.2	17.2
	only convertible currencies	15	51.7	51.7	69.0
	all currencies	9	31.0	31.0	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

17.2% of the respondents thought that only Polish zloty is accepted in the port of Gdansk, 51.7% that it was all convertible currencies and 31% and it was all currencies.

The next variable considered in our research is competition. Participants were presented with a statement whether competition plays a very important role in pricing. As many as 31% of them agreed strongly with this statement. 58.6% agreed somewhat and 10.3% took a neutral

answer. The rating of the competition variable is provided table 43.

Table 43. Competition Variable Rating.

Competition plays a very important role in pricing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neither agree nor disagree	3	10.3	10.3	10.3
	agree somewhat	17	58.6	58.6	69.0
	agree strongly	9	31.0	31.0	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

Another variable included in our research is the quality of the service. Frequencies for this variable are provided below in table 44.

Table 44. Quality of the Service Variable Rating.

Quality of the service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	average	11	37.9	37.9	37.9
	good	16	55.2	55.2	93.1
	excellent	2	6.9	6.9	100.0
	Total	29	100.0	100.0	

Source: Author, 2001

As many as 55.2% the participants in our research thought that the quality of the service in the port of Gdansk is good, 37.9% that it was average and a few – 6.9%, that it was excellent. The mean (3.69) and median (4) also indicate good quality of services (see appendix G).

The next variable considered is complexity of service. Rating for this variable is presented in table 45.

Table 45. Complexity of the Service Variable Rating.

Complexity of the service

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid average	13	44.8	44.8	44.8
good	15	51.7	51.7	96.6
excellent	1	3.4	3.4	100.0
Total	29	100.0	100.0	

Source: Author, 2001.

Over 50% of the respondents rated the complexity of the services in the port of Gdansk as good and nearly 45% as average.

Another variable included in our analysis is quantity of services. Frequencies for this variable are provided in table 46.

Table 46. Quantity of the Services Provided Variable Rating.

Quantity of services provided

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid neither efficient nor inefficient	19	65.5	65.5	65.5
efficient	10	34.5	34.5	100.0
Total	29	100.0	100.0	

Source: Author, 2001.

The respondents were asked whether they thought that the port of Gdansk was efficient. 65.5% of the respondents thought that it was neither efficient nor inefficient. However 34.5% was of the opinion that the port of Gdansk was efficient.

The next variable in our research is reliability of service. The frequency table is provided below.

Table 47. Reliability of the Service Variable Rating.

Reliability of the service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.33	5	17.2	17.2	17.2
	3.66	5	17.2	17.2	34.5
	good	1	3.4	3.4	37.9
	4.33	11	37.9	37.9	75.9
	4.66	6	20.7	20.7	96.6
	excellent	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

Reliability of services in the port of Gdansk was regarded as below good by 34.5% of the respondents. Another 62% thought that reliability was between good and excellent and the remaining 3.4% that it was excellent.

The next variable in our research is the frequency of the services provided. The participants in our research were asked to state degree of their agreement or disagreement with the following statement: frequency of the services provided is very high. The rating for this variable is provided in table 48.

Table 48. Frequency of the Services Provided is Very High Variable Rating.

Frequency of the services provided is very high

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree somewhat	3	10.3	10.3	10.3
	neither agree nor disagree	14	48.3	48.3	58.6
	agree somewhat	12	41.4	41.4	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

Nearly 50% of the respondents chose neither the agree nor disagree option. 41.4% agreed somewhat the frequencies of the services in the port of Gdansk was very high and 10.3% disagreed somewhat with this statement. Both mean (3.31) and median (3) were rather low (see

appendix G).

The next variable in this research is the first element of promotion – advertising. Frequencies for this variable are presented in table 49.

Table 49. Advertising variable Rating.

		Advertising			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below average	5	17.2	17.2	17.2
	average	15	51.7	51.7	69.0
	4	1	3.4	3.4	72.4
	good	8	27.6	27.6	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

17.2% of the respondents thought that advertising was below average, 51.7% that it was average and the remaining 27.6% that it was above average. This is also represented by quite low mean – 3.12 and median – 3 (see appendix G).

The next variable in our research represents five elements of image. The respondents were asked to state how many missing elements of image they could identify. 10.3% of them said that there were three elements missing, 31% said that there were two elements of image missing and 51.7% that there was only one of the elements missing. Very few (6.9%) thought that the port of Gdansk was active in all elements of image. The rating for this variable is provided in table 50.

Table 50. Five Elements of Image Variable Rating.

Five elements: logo,publications,designs, uniforms,gifts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	three elements missing	3	10.3	10.3	10.3
	two elements missing	9	31.0	31.0	41.4
	one element missing	15	51.7	51.7	93.1
	port has all elements	2	6.9	6.9	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

The next variable in our research is the public relations variable. This variable was presented to the respondents in a similar manner to the image variable. The respondents were asked to identify in how many fields of public relations, the port of Gdansk is active. Table 51 provides the rating for public relations variable.

Table 51. Five Fields of Public Relations Variable Rating.

5 fields of PR activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	active in 2 fields	3	10.3	10.3	10.3
	active in 3 fields	12	41.4	41.4	51.7
	active in 4 fields	11	37.9	37.9	89.7
	active in all 5 fields	3	10.3	10.3	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

10.3% of the respondents thought that the port of Gdansk was active in two fields of public relations. 41.4% thought that it was three fields and 37.9% that it was active in four fields of public relations and another 10.3% said that it was active in all fields.

The next variable in our research is research market research. The rating for this variable is provided in table 52.

Table 52. Market Research Variable Rating.

		Market research			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below average	6	20.7	20.7	20.7
	average	16	55.2	55.2	75.9
	good	6	20.7	20.7	96.6
	excellent	1	3.4	3.4	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

Market research in the port of Gdansk was rated to be below average by 20.7% of the respondents. 55.2% thought it was average, a further 20.7% that it was good and just 3.4% that it was excellent. Overall the rating for this variable is rather low, which is also reflected by its mean – 3.07 and median - 3 (see appendix I).

The next variable considered in our research is port accessibility. The rating for this variable is provided in table 53.

Table 53. Port Accessibility variable Rating.

		Port accessibility			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	average	3	10.3	10.3	10.3
	3.50	9	31.0	31.0	41.4
	good	14	48.3	48.3	89.7
	4.50	1	3.4	3.4	93.1
	excellent	2	6.9	6.9	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

10.3% of the respondents rated accessibility of the port of Gdansk as average, 31% of them thought it was between average and good. As many as 48.3% decided that port accessibility was good and a further 10.3% that it was above average.

The next variable included in the analysis for the port of Gdansk was terminal choice. How the

participants in this study rated it is provided in table 54.

Table 54. Terminal Choice Variable Rating.

		Terminal choice			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below average	2	6.9	6.9	6.9
	average	10	34.5	34.5	41.4
	good	15	51.7	51.7	93.1
	excellent	2	6.9	6.9	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

Only 6.9% of the respondents thought that terminal choice at the port of Gdansk was below average. 34.5% of them rated terminal choice as average and the majority of 51.7% as good. Again only 6.9% thought that it was excellent. Overall rating for this variable is quite good with a quite high mean (3.59) and median (4) (see appendix G).

A further variable considered in our research is transportation network. The participants' opinion in this rating is presented in table 55.

Table 55. Transportation Network Variable Rating.

		Transportation network			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below average	3	10.3	10.3	10.3
	average	18	62.1	62.1	72.4
	good	8	27.6	27.6	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

A great majority of the participants in this research (62.1%) thought that the transportation network for the port of Gdansk was average, 27.6% of them thought that it was good and 10.3% that it was below average. The descriptive statistics for this variable are also reasonably low. The mean stands at 3.17 and median at 3 (see appendix G).

The next variable considered in our study is qualification and training. The rating of the participants is represented in table 56.

Table 56. Qualifications and training Variable Rating.

Qualifications & Training is very good

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.44	3	10.3	10.3	10.3
	neither agree or disagree	3	10.3	10.3	20.7
	3.12	2	6.9	6.9	27.6
	3.60	1	3.4	3.4	31.0
	3.75	7	24.1	24.1	55.2
	3.87	1	3.4	3.4	58.6
	agree somewhat	3	10.3	10.3	69.0
	4.12	7	24.1	24.1	93.1
	4.25	2	6.9	6.9	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

The respondents were asked to indicate their degree of agreement or disagreement with the following statement: Qualifications and Training are very good. Their opinions were varied and this variable represents the combination of a series of more specific variables. 26% of the respondents neither agreed nor disagreed with the above statement. 37.8% had an opinion in the region between neither agree nor disagree and agree somewhat. 10.3% agreed somewhat that qualifications and training are very good in the port of Gdansk and 31% felt even stronger towards agreement with this statement.

The next variable included in this study is called “procedures, schedules, etc are clear and convenient. Respondents’ rating for this variable is presented in table 57.

Table 57. Procedures, Schedules, etc. Are Clear and Convenient.

Procedures, schedules, etc are clear and convenient

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid neither agree nor disagree	2	6.9	6.9	6.9
3.12	1	3.4	3.4	10.3
3.37	7	24.1	24.1	34.5
3.50	4	13.8	13.8	48.3
3.80	4	13.8	13.8	62.1
4.25	5	17.2	17.2	79.3
4.37	6	20.7	20.7	100.0
Total	29	100.0	100.0	

Source: Author, 2001.

The respondents were to state the degree of agreement or disagreement with the above statement. Opinions for this statement are very variable. 6.9% neither agreed nor disagreed with this statement. 55.1% of the opinions fell in the region between neither agree nor disagree and agree somewhat. 37.9 had the opinion agreed somewhat.

The next variable in our research is called IT facilities. The rating of the respondents is provided in table 58.

Table 58. IT Facilities Variable Rating.

IT facilities

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2.33	4	13.8	13.8	13.8
2.66	4	13.8	13.8	27.6
average	3	10.3	10.3	37.9
3.33	6	20.7	20.7	58.6
3.66	8	27.6	27.6	86.2
good	4	13.8	13.8	100.0
Total	29	100.0	100.0	

Source: Author, 2001.

27.6% of the respondents thought that IT facilities in the port of Gdansk were below average.

10.3% thought that they were average, as many as 48.3% that they were between average and

good and only 13.8% that they were good.

Finally the last variable included in the analysis for the port of Gdansk was effectiveness.

Respondents' opinions for this variable are presented in table 59.

Table 59. Effectiveness Variable Rating.

		Effectiveness			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neither effective nor ineffective	19	65.5	65.5	65.5
	effective	6	20.7	20.7	86.2
	very effective	4	13.8	13.8	100.0
	Total	29	100.0	100.0	

Source: Author, 2001.

As many as 65.5% of the participants in this research thought that port of Gdansk was neither effective nor ineffective. 20.7% Thought that it was effective and 13.8% that it was very effective. The quite low rating for this variable is also reflected by its low mean - 3.48 and median – 3 (see appendix G).

The data reduction analysis using the SPSS package was also performed for the port of Gdansk. Similar to the analysis performed for the port of Gdynia, principal component analysis and common factor analysis were conducted.

As in the case of the port of Gdynia, analysis for the port of Gdansk is presented stage by stage.

The factorability of the correlation matrix also needs to be considered. A first step is a visual examination of the correlation, identifying those that are statistically significant. In this research over half of correlations are significant and this provides adequate basis for proceeding to the next level of examination of adequacy for factor analysis on both an overall basis and for each variable (Hair, Anderson, Tatham, Black, 1995).

The next step is to assess the overall significance of the correlation matrix with the Bartlett test.

In this example, the correlations, when taken overall, are significant at the .0001 significant level (see table 60). This test is only for the presence of nonzero correlations, not the pattern of these correlations. The other test is the measure of sampling adequacy. This test is known as Kaiser– Meyer– Olkin Measure of Sampling Adequacy. The value obtained was acceptable (0.588, the critical value is 0.5) (George, Mallery, 1999). This measure enables the researcher to judge whether the number of respondents is sufficient with respect to the number of variables involved in the analysis (see table 60).

Table 60. Kaiser - Meyer – Olkin Measure of Sampling Adequacy and Bartlett’s Test for the Port of Gdansk.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.588
Bartlett's Test of Sphericity	Approx. Chi-Square	396.225
	df	210
	Sig.	.000

Source: Author, 2001.

The output from SPSS for windows version 9.0 is virtually identical for both principal component analysis and common factor analysis. This indicates that each of the variables meets the fundamental requirements for factor analysis.

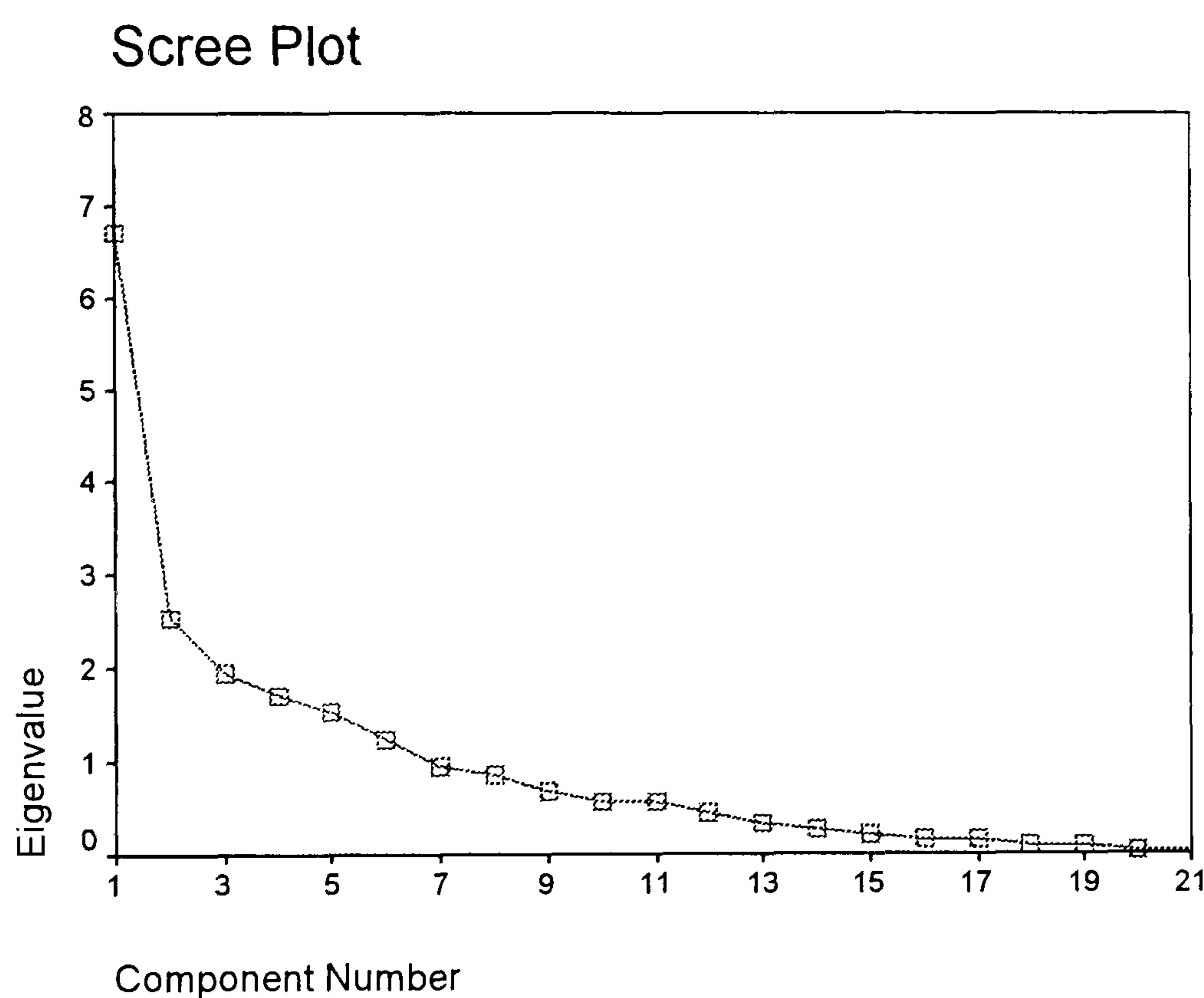
Factor analysis techniques are based on the initial computation of a complete table of intercorrelations among the variables (correlation matrix). The correlation matrix is later transformed through estimation of a factor model to obtain a factor matrix. The loadings on each variable on the factors are then interpreted to identify the underlying structure of the variables, in this case perceptions of the marketing strategy of the port of Gdansk. These steps of factor analysis contained in stage four, five and six will be examined first for principal component analysis. Then, a common factor analysis will be performed and comparisons made

between the two factor models.

The first step is to select the number of components to be retained for further analysis. Table 61 contains the information regarding the seven possible factors and their relative explanatory power as expressed by their eigenvalues. In addition to assessing the importance of each component, we can also use the eigenvalues to assist in selecting the number of factors.

If we apply the lateret root criterion seven components will be retained. The scree test (Figure 9) also indicates that seven components may be appropriate. It was decided to retain the seven components with eigenvalues greater than one. Their explanatory variance reached a relatively high 79.828%.

Figure 9. Scree Test in Principal Component Solution for the Port of Gdansk.



Source: Author, 2001.

The result of stage four is shown in Table 62, the unrotated component analysis factor matrix. Seven columns in the table are shown. They present the results for seven factors that are extracted (i.e., factor loadings on each variable on each of the factors). Table 63 provides summary statistics detailing how well each variable is explained by the seven components and will be discussed in the next section. As expected the unrotated factor solution has extracted

Table 61. Results for the Extraction of Principal Components for the Port of Gdansk.

Total Variance Explained

Component	Initial Eigenvalues		Extraction Sums of Squared Loadings		Rotation Sums of Squared Loadings	
	Total	% of Variance	Total	% of Variance	Total	% of Variance
1	7.603	36.205	7.603	36.205	5.978	28.468
2	2.206	10.504	2.206	10.504	2.671	12.717
3	2.138	10.179	2.138	10.179	2.152	10.249
4	1.398	6.659	1.398	6.659	1.678	7.990
5	1.308	6.230	1.308	6.230	1.636	7.793
6	1.106	5.268	1.106	5.268	1.376	6.551
7	1.005	4.783	1.005	4.783	1.273	6.060
8	.731	3.480				
9	.690	3.286				
10	.631	3.004				
11	.584	2.782				
12	.428	2.037				
13	.364	1.732				
14	.238	1.134				
15	.163	.777				
16	.135	.642				
17	9.490E-02	.452				
18	7.662E-02	.365				
19	4.028E-02	.192				
20	3.382E-02	.161				
21	2.681E-02	.128				
		100.000				

Extraction Method: Principal Component Analysis.

Table 62. Unrotated Component Analysis Factor Matrix for the Port of Gdansk.

Component Matrix^a

	Component						
	1	2	3	4	5	6	7
Rebates & Subsidies System	.184	-.463	.301	.622	6.634E-02	.417	-5.547E-04
Amount of Subsidies per year	-.104	.201	.170	.211	.728	-.117	.520
Marketing budget	.505	.263	.573	-1.205E-02	7.246E-02	-.458	-.136
market segmentation	.549	.303	.500	-.134	-2.539E-02	-8.700E-02	-.411
Currencies accepted	.147	.264	.669	-.211	-.322	6.461E-02	.359
Competition plays a very important role in pricing	.276	.703	.153	5.041E-02	.274	.352	-4.888E-02
Quality of the service	.523	.435	-.194	.280	-.380	.103	-.172
Complexity of the service	.658	-2.766E-02	.217	.388	.153	.258	-.177
Quantity of services provided	.236	.531	-.540	.338	.110	-.150	-.191
Reliability of the service	.717	.214	.199	-.119	-2.121E-02	.230	.103
Frequency of the services provided is very high	.449	-.111	4.842E-02	-.550	.404	.301	-.177
Advertising	.753	-.145	-6.701E-02	-1.040E-02	.210	-.339	-.103
Five elements: logo, publications, designs, uniforms, gifts	.674	6.495E-03	-.388	-.213	-.151	.313	.222
5 fields of PR activities	.719	.320	-.407	-.104	-5.751E-03	-.162	.254
Market research	.672	.162	-.373	-2.976E-02	7.585E-02	8.360E-02	9.886E-03
Port accessibility	.718	-9.490E-02	-.155	-9.879E-02	4.299E-02	5.485E-02	8.049E-02
Terminal choice	.673	-3.253E-03	.161	.386	-.281	-.181	.268
Transportation network	.757	-.354	-3.667E-02	7.442E-02	.219	-.158	-9.190E-02
Qualifications & Training is very good	.869	-.214	.178	-.141	-.121	5.849E-02	2.763E-02
Procedures, schedules, etc are clear and convenient	.711	-.565	-8.137E-02	-1.057E-02	5.743E-02	-9.156E-02	-.102
IT facilities	.797	-.216	-3.668E-02	-1.763E-02	-.160	-.105	.232

Extraction Method: Principal Component Analysis.

a. 7 components extracted.

Table 63. Communalities for the Port of Gdansk in Principal Component Technique.

Communalities

	Initial	Extraction
Rebates & Subsidies System	1.000	.904
Amount of Subsidies per year	1.000	.939
Marketing budget	1.000	.886
market segmentation	1.000	.838
Currencies accepted	1.000	.820
Competition plays a very important role in pricing	1.000	.797
Quality of the service	1.000	.764
Complexity of the service	1.000	.752
Quantity of services provided	1.000	.815
Reliability of the service	1.000	.677
Frequency of the services provided is very high	1.000	.804
Advertising	1.000	.762
Five elements: logo, publications, designs, uniforms, gifts	1.000	.820
5 fields of PR activities	1.000	.888
Market research	1.000	.631
Port accessibility	1.000	.570
Terminal choice	1.000	.811
Transportation network	1.000	.787
Qualifications & Training is very good	1.000	.871
Procedures, schedules, etc are clear and convenient	1.000	.854
IT facilities	1.000	.775

Extraction Method: Principal Component Analysis.

the factors in order of their importance, with factor one accounting for the most variance and factor seven for the least. The total sum of squared factor loadings can be obtained by adding the individual sums of squares for each of the factors. It would represent the total amount of variance extracted by the factor solution. The percentages for each of the seven factors are also shown in the communalities table (table 63).

Having defined the various elements of the unrotated component matrix it is possible to examine the factor loading pattern. As anticipated, the first factor accounts for the largest amount of variance and is a general factor, with every variable having a high loading. Loadings in each further factor will gradually decrease. Based on this factor loading pattern, interpretation would be extremely difficult and theoretically less meaningful. Therefore, we must proceed to rotate the factor matrix to redistribute the variance from the earlier factor to the later factors. Rotation should result in a simpler and theoretically more meaningful factor pattern. The VARIMAX rotated component analysis factor matrix is shown in Table 64.

Seven components were extracted using the principal component extraction method, hence the name. They accounted for 79.828 per cent of total variance explained, retaining as much of the original information in as few components as possible. Total amount of variance extracted is the same in the rotated solution as it was in the unrotated one, 79.828%. It can be noted that: the variance has been redistributed so that the factor loading pattern is different, and the percentage of variance for each of the factors is different also. Thus the explanatory power has been distributed more evenly because of the rotation. Moreover, the interpretation of factor matrix has been simplified. No variable loads significantly on more than one factor.

When the satisfactory factor solution has been derived it is possible to attempt to name the factors to assign meaning to them. This process involves substantive interpretation of the pattern of factor loadings for the variables. Before the interpretation, a minimum acceptable

Table 64. VARIMAX Rotated Component Analysis Factor Matrix for the port of Gdansk.

Rotated Component Matrix^a

	Component						
	1	2	3	4	5	6	7
Rebates & Subsidies System	.120	-.135	-7.635E-02	.926	1.194E-02	-8.518E-02	3.681E-02
Amount of Subsidies per year	-7.798E-02	1.580E-04	1.318E-02	4.782E-02	2.252E-02	7.564E-03	.964
Marketing budget	.253	5.445E-02	.865	-2.278E-02	.212	-7.080E-02	.141
market segmentation	.176	.206	.786	8.787E-02	.222	.244	-.176
Currencies accepted	-2.484E-02	-8.594E-02	.290	-2.252E-02	.852	-3.709E-02	2.890E-02
Competition plays a very important role in pricing	-.134	.653	.244	.118	.264	.374	.263
Quality of the service	.238	.727	.143	.113	.120	-.168	-.321
Complexity of the service	.392	.300	.300	.632	2.779E-02	.133	2.983E-02
Quantity of services provided	7.126E-02	.781	5.086E-02	-.131	-.386	-.155	8.355E-02
Reliability of the service	.483	.331	.236	.147	.427	.273	4.418E-03
Frequency of the services provided is very high	.377	-5.108E-02	.123	-1.728E-02	1.116E-02	.802	1.301E-02
Advertising	.742	9.461E-02	.385	9.648E-03	-.214	4.511E-02	7.785E-02
Five elements: logo,publications,designs, uniforms,gifts	.677	.372	-.301	-3.999E-02	.215	.241	-.164
5 fields of PR activities	.683	.554	1.164E-02	-.306	8.543E-02	-1.216E-02	.116
Market research	.585	.502	-1.813E-02	-3.181E-02	-5.684E-02	.178	-9.180E-03
Port accessibility	.699	.203	4.006E-02	6.046E-02	5.618E-02	.177	-2.641E-02
Terminal choice	.588	.222	.231	.275	.299	-.443	2.046E-02
Transportation network	.778	-1.179E-02	.259	.239	-.217	9.150E-02	4.120E-02
Qualifications & Training is very good	.787	3.320E-02	.265	.205	.275	.173	-.179
Procedures, schedules, etc are clear and convenient	.821	-.173	.118	.249	-.203	9.057E-02	-.155
IT facilities	.838	7.352E-02	8.887E-02	8.598E-02	.199	-8.831E-02	-6.617E-02

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

level of significance for a factor loading must be selected. All significant factor loadings typically are used in the interpretation process but variables with higher loadings influence to a great extent the name or the label selected to represent a factor. In this case, with a relatively small sample, only the variables that load on a component higher than 0.70 are regarded as significant but those close to this value can be also considered to some extent (Hair, Anderson, Tatham and Black, 1998). Substantive interpretation is based on significant higher loadings.

A number of variables loaded highly on the first component. These are IT facilities, procedures and schedules, qualifications and training, transportation network and advertising. This already makes it very difficult to name this component but there are another three variables that load highly on this component, just under the significance level: port accessibility (0.699), public relations (0.683) and elements of image (0.677). It would be reasonable to say that this factor is undefined but knowing where in the structure of the 7 Ps these variables belong, it is possible to describe it if not name it. Convenient and clear procedures depend very much on good IT facilities and so do qualifications and training. These variables come from three different Ps; form process, physical evidence and people. Transportation network and port accessibility belong to place and can be also defined as accessibility, which was the first component in the analysis of the port of Gdynia. Finally we have three variables belonging to promotion: advertising, public relations and image. A number of variables form five of the 7 Ps of service marketing and load highly on the first component, and this shows that all of these activities are of great importance for the port of Gdansk. The second component consists of the quality and quantity of service provided and the name is the same. Two variables load highly on the third component, these are marketing budget and market segmentation. Both of these variables come from price and so does the only variable loading highly on the fourth component – rebates and discounts system. It shows clearly that elements of price are also very important as far as the port of Gdansk is concerned. Component number five is again one variable – the currencies

accepted, which also is included in the price element of 7 Ps of service marketing. Frequency of services provided is the only variable loading highly on the sixth component and finally the amount of subsidies per year is the only variable in the last, seventh component.

Next our data was also checked for reliability. The widely used Cronbach's alpha coefficient was applied. The generally agreed lower limit for this measure is 0.7 (Hair, Anderson, Tatham, Black, 1998) and in the analysis it obtained a relatively high value of 0.872, which means that the results of this analysis are highly reliable (see Appendix I).

As in the case of the analysis for the port of Gdynia it is noted that differences can occur between common factor and component analysis and so the common factor procedure was performed for the same data. Common factor analysis is the second major factor analytic model.

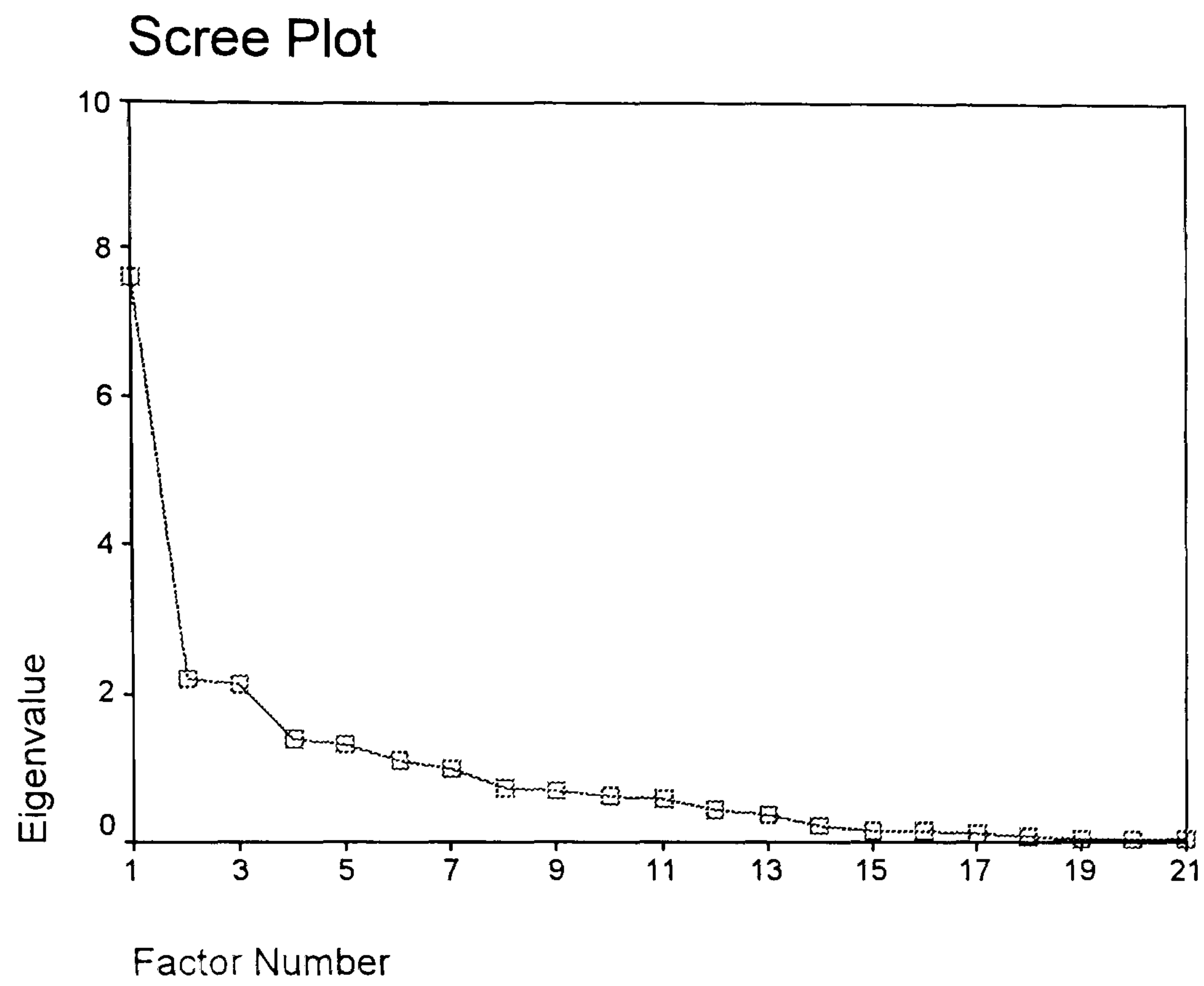
There is a need to determine the number of factors to retain for examination and possible rotation. Table 65 shows results of the extraction statistics. The latent root criterion suggests that seven factors would be retained, and the scree test confirms this (see Figure 10). The unrotated factor matrix (see Table 66) shows that the common factor solution accounted for 79.828% of the total variance. It can be noted that the communalities are lower than found in principal component analysis (see Table 67).

Examining the unrotated loadings, the need for a factor matrix rotation can be noted. Turning then to the VARIMAX rotated common factor analysis factor matrix (See Table 68) we examine how it compares with the component analysis rotated factor matrix.

Comparison of the information provided in the rotated common factor analysis factor matrix and the rotated component analysis factor matrix shows remarkable similarity. The primary differences between the component analysis and common factor analysis are the generally lower loadings in the common factor analysis, owing primarily to the lower communalities of the

variables.

Figure 10. Scree Test in Common Factor Solution for the Port of Gdansk.



Source: Autor, 2001.

Table 65. Results of the Extraction for Common Factors in the Port of Gdansk.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative e %	Total	% of Variance	Cumulative e %	Total	% of Variance	Cumulative e %
1	7.603	36.205	36.205	7.318	34.849	34.849	4.299	20.472	20.472
2	2.206	10.504	46.710	1.960	9.334	44.183	2.808	13.371	33.843
3	2.138	10.179	56.889	1.864	8.877	53.060	2.584	12.303	46.146
4	1.398	6.659	63.548	1.196	5.697	58.757	1.860	8.857	55.003
5	1.308	6.230	69.777	1.068	5.088	63.845	1.374	6.541	61.544
6	1.106	5.268	75.045	.843	4.016	67.861	1.202	5.725	67.269
7	1.005	4.783	79.828	.754	3.593	71.454	.879	4.185	71.454
8	.731	3.480	83.308						
9	.690	3.286	86.594						
10	.631	3.004	89.598						
11	.584	2.782	92.381						
12	.428	2.037	94.418						
13	.364	1.732	96.150						
14	.238	1.134	97.284						
15	.163	.777	98.061						
16	.135	.642	98.703						
17	9.490E-02	.452	99.155						
18	7.662E-02	.365	99.519						
19	4.028E-02	.192	99.711						
20	3.382E-02	.161	99.872						
21	2.681E-02	.128	100.000						

Extraction Method: Unweighted Least Squares.

Table 66. Unrotated Common Factor Matrix for the Port of Gdansk.

Factor Matrix^a

	Factor						
	1	2	3	4	5	6	7
Qualifications & Training is very good	.873	-.245	.108	-.182	-4.560E-02	9.199E-02	-6.524E-02
IT facilities	.785	-.179	-8.704E-02	-4.800E-02	5.802E-03	-4.363E-02	-.262
Transportation network	.747	-.297	-.100	.176	-.100	-.166	.138
Advertising	.733	-8.849E-02	-7.289E-02	.108	-.164	-.238	6.892E-02
5 fields of PR activities	.722	.431	-.317	3.805E-04	-.126	-5.733E-02	-.241
Procedures, schedules, etc are clear and convenient	.714	-.518	-.208	6.099E-02	-9.709E-02	-.146	.114
Reliability of the service	.690	.143	.204	-6.840E-02	-3.288E-02	.216	-3.116E-02
Port accessibility	.684	-3.611E-02	-.146	6.574E-03	-7.812E-02	5.246E-02	3.524E-03
Five elements: logo, publications, designs, uniforms, gifts	.666	9.737E-02	-.380	-.160	-5.925E-02	.349	-.168
Terminal choice	.665	-3.769E-02	.143	8.555E-02	.374	-.173	-.343
Market research	.643	.211	-.266	5.259E-02	-3.242E-02	6.856E-02	3.827E-02
Complexity of the service	.634	-7.161E-02	.186	.234	.215	.153	.176
market segmentation	.537	.164	.514	-.216	-1.494E-02	-5.654E-02	.263
Quality of the service	.501	.384	-7.435E-02	-6.505E-02	.394	-1.090E-02	4.703E-02
Quantity of services provided	.233	.617	-.361	.266	.234	-.224	.222
Competition plays a very important role in pricing	.266	.566	.292	.120	1.414E-02	.324	.180
Rebates & Subsidies System	.185	-.541	.190	.429	.466	.285	8.713E-02
Marketing budget	.508	.134	.647	-2.543E-02	-.107	-.419	6.614E-02
Currencies accepted	.141	7.966E-02	.578	-.263	2.569E-02	.111	-.294
Amount of Subsidies per year	-.107	.192	.281	.789	-.423	6.381E-02	-.272
Frequency of the services provided is very high	.428	-8.891E-02	9.112E-03	-8.763E-02	-.433	.252	.288

Extraction Method: Unweighted Least Squares.

a. 7 factors extracted. 7 iterations required.

Table 67. Communalities for the Port of Gdansk in Common Factor Technique.

Communalities^a

	Initial	Extraction
Rebates & Subsidies System	.735	.852
Amount of Subsidies per year	.772	.999
Marketing budget	.911	.886
market segmentation	.874	.699
Currencies accepted	.780	.529
Competition plays a very important role in pricing	.818	.628
Quality of the service	.835	.566
Complexity of the service	.847	.597
Quantity of services provided	.864	.790
Reliability of the service	.774	.591
Frequency of the services provided is very high	.816	.533
Advertising	.760	.650
Five elements: logo, publications, designs, uniforms, gifts	.885	.777
5 fields of PR activities	.908	.885
Market research	.761	.538
Port accessibility	.732	.500
Terminal choice	.872	.758
Transportation network	.842	.744
Qualifications & Training is very good	.938	.881
Procedures, schedules, etc are clear and convenient	.911	.868
IT facilities	.881	.728

Extraction Method: Unweighted Least Squares.

- a. One or more communitiy estimates greater than 1.0 were encountered during iterations. The resulting solution should be interpreted with caution.

Table 68. VARIMAX Rotated Common Factor Matrix for the Port of Gdansk.

Rotated Factor Matrix^a

	Factor						
	1	2	3	4	5	6	7
Procedures, schedules, etc are clear and convenient	.878	.172	-4.382E-02	-7.206E-02	.195	-.137	6.562E-02
Transportation network	.812	.166	9.080E-02	.104	.179	1.117E-02	7.805E-02
Advertising	.731	.207	.185	.184	-1.133E-02	5.341E-02	4.084E-02
Qualifications & Training is very good	.640	.495	.390	-.104	.186	-.162	6.369E-02
IT facilities	.625	.511	.185	-1.433E-02	9.420E-02	-5.226E-02	-.175
Port accessibility	.519	.425	.116	.142	7.279E-02	-3.082E-02	9.872E-02
Five elements: logo,publications,designs, uniforms,gifts	.311	.794	-4.419E-02	.125	1.058E-02	-.122	.131
5 fields of PR activities	.394	.663	.114	.433	-.268	.111	-7.697E-02
Reliability of the service	.285	.491	.463	.117	.143	2.372E-02	.142
Market research	.393	.477	5.226E-02	.375	1.767E-03	-1.627E-03	.113
Marketing budget	.391	-.143	.820	.105	-8.325E-02	.130	-7.484E-02
market segmentation	.238	6.029E-02	.746	.142	5.219E-02	-.127	.206
Currencies accepted	-.166	.181	.612	-.273	2.051E-02	2.134E-02	-.139
Competition plays a very important role in pricing	-.223	.260	.436	.411	.122	.212	.303
Quantity of services provided	5.432E-02	8.216E-02	-9.189E-02	.870	-.100	4.796E-02	-5.552E-02
Quality of the service	9.847E-02	.351	.252	.542	.118	-.209	-.134
Rebates & Subsidies System	.181	-6.311E-02	-4.186E-02	-.123	.889	3.433E-02	-8.615E-02
Complexity of the service	.383	.215	.309	.227	.498	3.173E-02	9.517E-02
Amount of Subsidies per year	-5.132E-02	-6.998E-02	2.297E-02	-4.258E-03	4.226E-02	.998	1.642E-02
Frequency of the services provided is very high	.354	.235	.142	-8.345E-02	-2.113E-02	1.442E-02	.570
Terminal choice	.416	.345	.354	.155	.270	-1.184E-02	-.494

Extraction Method: Unweighted Least Squares.

Rotation Method: Varimax with Kaiser Normalization.

In common factor analysis quite a few of the variables load highly on the first factor. These are procedures, schedules are clear and convenient (0.878), transportation network (0.747), advertising (0.731). They all load above the critical level of significance. There are also two variables which loaded just below the significance level: qualifications and training (0.640) and IT facilities (0.25). One variable obtained a significant loading on factor two, five elements of image (0.794) and one was close to this level, public relations reached 0.663. Two variables loaded highly on factor three. These were market segmentation (0.746) and marketing budget (0.820). Just one variable loaded significantly on factor four - quantity of the services provided (0.870). Only one variable also loaded on factor five - rebates and subsidies system (0.889). The same situation occurred for factors six and seven. The only high loading for factor six was the variable called amount of subsidies per year (0.998) and for factor seven frequency of the services provided (0.570) The structure of common factor is somewhat different from principal components in the case of the port of Gdansk. However the underlying constructs remain very similar.

There are three variables that load highly but under the level of significance on factor two. These are quantity of service (0.617), competition (0.566) and system of rebates and discounts (-0.541). Again naming this factor is a rather problematic issue, but assuming that competition plays a very important role in pricing, the quantity of the service provided depends very much on their competitiveness and a well developed and convenient system of rebates and discounts serve as important tools in competition. Therefore this factor is called competitiveness.

The analysis of marketing strategy of the port of Gdansk using factor analysis did not produce such a clear structure as in the case of the port of Gdynia but the most important elements of the strategy can still be recognised and defined.

In order to gain an indication of how to influence the effectiveness of the port of Gdansk, correlations were calculated again using the Pearson Product Moment correlation technique. The variables highly loading in the factor matrix were correlated with effectiveness (see appendix K).

The first variable in the correlation matrix was IT facilities. This variable has a weak positive correlation (0.215) with the variable effectiveness. This means to some extent that the better the IT facilities the better overall effectiveness of the port of Gdansk. This is a reasonable explanation and nowadays, such facilities are of great importance and highly influence the effectiveness of port activity.

The second variable in the correlation matrix was a variable called procedures, schedules. It shows moderate positive correlation (0.500) with the variable effectiveness. It seems to be very clear that well organised procedures and convenient schedules positively influence the effectiveness of the company.

The next variable on the list was qualifications and training. This variable also has a moderate positive correlation (0.425) with effectiveness, which means that the better the qualifications and training of the employees in the port of Gdansk the more effectively the company operates.

Transportation network is the variable that obtained the highest of all positive correlations (0.691) with effectiveness. The transportation network is a very important factor influencing effectiveness, The smooth and timely traffic flow to and from the port enables effective operation within the port and helps to ensure reliability and prevent congestion.

The next variable in the correlation matrix was advertising. It had a weak positive correlation with effectiveness (0.308). It can be also interpreted as the better the advertising of the port of Gdansk, the higher the effectiveness.

The sixth variable in the Pearson correlation matrix was port accessibility. This variable had a moderate positive correlation (0.439) with effectiveness. Port accessibility like the transportation network, plays a very important role in port attractiveness. It seems to be very obvious that if the port is easily and permanently accessible, effectiveness is going to increase. In other words the greater the port accessibility the higher the effectiveness of the port in meeting customer needs.

Image and its elements is the seventh variable in our correlation matrix. It displays a rather weak positive correlation (0.326). It can be interpreted as the more active elements of image the port has, the better the effectiveness in achieving customer desires.

Terminal choice also shows a weak positive correlation with effectiveness. This indicates that the more terminals there are to choose from, the more effective the port becomes.

Quantity and quality of services provided in the port of Gdansk are two variables on the list that both have weak positive correlation with effectiveness, (quantity (0.317) and (quality 0.188) and again the higher the level of these two variables, the better the effectiveness of the ports.

Marketing budget and market segmentation are the next two variables in the correlation matrix.

Again between them and effectiveness there is a weak positive correlation, (marketing budget – 0.285 and market segmentation – 0.184)

The rebates and discounts system is the first variable that reflects hardly any correlation

(-0.081). It can be interpreted as that there is no relationship between the system of rebates and discounts and effectiveness. Rebates and discounts may possibly attract more customers to the port but do not really directly influence the port of Gdansk's achievement in meeting customer needs.

The next variable in our correlation matrix is currencies accepted. This variable again has weak, negative correlation with effectiveness. It normally would be interpreted that the more currencies accepted the lower the effectiveness. Nevertheless as in the case of the port of Gdynia, the currencies accepted are converted into USD and all the payments are carried out via bank transfer and thus there is no clear relationship between currencies accepted and effectiveness.

Frequency of the services provided has weak positive correlation with effectiveness. These two variables are very closely related and it is logical that the higher the frequency of the services provided the higher the effectiveness in meeting customer needs.

Finally the last variable in our correlation matrix is the amount of subsidies per year. It shows hardly any negative correlation with the effectiveness of the port of Gdansk. There are no obvious subsidies provided for this port at the moment and it can be said that there is no correlation between the amount of subsidies and effectiveness.

Conclusions

Principal component analysis and common factor analysis provide the researcher with several key insights into the structure of the variables upon port marketing strategy and provide options for data reduction. First, concerning the structure of the variables, in Gdynia there are clearly

six separate and distinct dimensions termed: complexity, IT facilities, port's overall accessibility, reliability, currencies accepted and marketing budget. Business planners within the port of Gdynia can now discuss plans revolving around these six areas instead of having to deal with the separate variables. Having performed correlations with the key variables which contributed to the six factors of our interest, this also confirmed they are influential on the total performance of the port of Gdynia.

The same type of analysis has also been conducted for the port of Gdansk. The twenty variables were reduced to seven. They accounted for 79.828% of the total variance. The factors that were extracted for the port of Gdansk are quite different from the ones in the case of the port of Gdynia and were also not so easily definable. We can only say that the first factor includes different variables from processes, physical evidence and people, promotion and place sections of the marketing mix. The next factors are quality and quantity of the service provided, marketing budget and market segmentation, rebates and discounts system, currencies accepted, frequency of services provided and finally the amount of subsidies per year. From the analysis for the port of Gdansk it cannot be seen clearly upon what the marketing department should concentrate but we know that variables such as currencies accepted or amount of subsidies per year are no longer an issue. Payments are carried out via bank transfers and there are no more subsidies for the port.

Another criterion to limit key concepts that the marketing department should concentrate on can be the correlation matrix. Those variables, which have high positive correlation with the overall effectiveness of the port of Gdansk, are more important. These are transportation network, procedures and schedules, port accessibility and also qualifications and training.

Analyses for both ports indicate that accessibility and transportation network is one of the key issues. They are important since today's transportation relies on multimodal systems and requires reliable facilities and flexible connections between the modes.

Service marketing is a very complex process and relies upon interdependence between port sections. For the success of any organisation all the elements of the marketing process need to be carried out. Marketing should take place in particular order starting with analysis, followed by planning, implementation, organisation and control.

Every marketing orientated organisation should have a clearly stated and unique mission, which would distinguish it from competing organisations in the market. The Polish ports do not seem to have mission statements as such, instead they produce more detailed information about services available and their aims for the future.

In the port industry market segmentation represents another important element of service marketing and is very difficult to implement. The ports have to be prepared to serve the varied needs of their customers and to try and attract traffic from anywhere to fully utilise their potential. Bearing that in mind it can be concluded that segmentation in Polish ports is beginning to be carried out effectively. In terms of positioning Polish ports are looking to serve constantly increasing trade with the countries of the Former Soviet Union. However they are not the only ones in the Baltic Sea region trying to attract this trade. Latvian, Lithuanian, Estonian and Finnish ports are also present in this area and represent significant competition.

The marketing mix can be regarded as the best measure for defining overall marketing strategy. It includes all the elements necessary to successfully market an organisation. The analysis

performed for this research enabled the identification of the elements that should be given the greatest attention in marketing strategies in the ports of Gdansk and Gdynia.

As far as the port of Gdynia is concerned the most important elements of the mix to port customers were; accessibility - a very important factor from the point of view of potential customers, public relations, reliability, complexity, IT facilities and marketing budget. From these results it can be noted that price, product or service, promotion, place and physical evidence elements of the marketing mix are the key areas for the marketing department of the port of Gdynia. The human element, so important in service-orientated companies, is also not forgotten. It appears in the form of the qualifications and training variable in the second factor. However it does not obtain a statistically significant loading. The processes element does not appear at all in the analysis. This shows that the port of Gdynia marketing strategy is a complex one, covering six of the seven elements of the mix. In the future the marketing department should also consider developing processes identification more.

Unfortunately in the case of the port of Gdansk the analysis conducted does not produce so clearly understandable or definable results. It is still possible to identify the main factors involved in the marketing mix and discuss the port's strategy. The statistically significant variables are IT facilities, procedures and schedules, transportation network, qualifications and training, advertising, accessibility, public relations, image, marketing budget, market segmentation, rebates and discounts system, currencies, frequency, and subsidies. All these elements are of great importance in the marketing mix of the port of Gdansk. All of the 7 Ps are covered which helps to suggest that the port of Gdansk is becoming a modern port with a good marketing strategy. However it remains very difficult to distinguish the key areas that its marketing department should concentrate on, unlike the port of Gdynia where identification of key elements is much easier.

CHAPTER 11

IMPLICATIONS, CONCLUSIONS AND RECOMMENDATION FOR FURTHER RESEARCH

The aim of this chapter is to discuss the implications for theory and practice shown by the results obtained from this study. This chapter provides a discussion of the practical implications of this research and the contribution of the study in the areas of theory development and research in maritime organisations in general and seaports in particular. Consideration will be given to the limitations of the study and recommendations for further research in the port marketing area will be made.

Conclusions

As noted in the previous chapter, common factor analysis provides the researcher with several key insights into the structure of the variables and provides options for data reduction. First, concerning the structure of the variables, there are clearly six separate and distinct dimensions termed: accessibility, public relations, reliability, complexity, IT facilities and marketing budget. Business planners within the port of Gdynia can now discuss plans revolving around these six areas instead of having to deal with all the separate variables representing different Ps of service marketing with no clear idea of priority. We can note as well that marketers in the port of Gdynia do not use the entire marketing mix. The analysis shows that the element of processes and human factors seems to be underdeveloped and planners are concentrating mainly on the development of services, improving port accessibility, public relations, IT facilities and convenient methods of pricing. All these elements are of course of great importance; however the full marketing mix needs to be considered and directed towards the target markets.

In service marketing, in particular both processes as well as human factors are extremely important. Processes are a vital part of what the customers are buying and in an industry such as ports they must not be underestimated. Instead ports should constantly work on their development and improvement. As far as the human factor is concerned it is often said that in service organisations, skilled people are the element that dictates a company's success or failure.

Principal component analysis has also been performed and as expected, produced very similar results to common factor analysis extracting exactly the same variables.

In the case of the port of Gdansk the situation is quite different to the one in the port of Gdynia. We can only see that the first factor includes different variables from processes, physical evidence and people, promotion and place sections of marketing. The next factors are quality and quantity of the service provided, marketing budget and market segmentation, rebates and discounts system, currencies accepted frequency of services provided and finally the amount of subsidies per year. From the analysis for the port of Gdansk it cannot be seen clearly upon what the marketing department should mainly concentrate. However, it does indicate that the marketing mix and strategy in the port of Gdansk is more complete than that in the port of Gdynia.

Discussion

The main objective of this study was to identify the main elements of marketing strategies in the port of Gdansk and Gdynia to assess whether they met up with customer needs and desires.

First of all emergence of service marketing and its differentiation from goods marketing was analysed. It was important to point out that services are different from goods and therefore that they need a very different marketing approach. First of all it requires a more developed marketing mix. This vital part of marketing strategy included three additional elements: people- most of the time the most important element of the mix for services, processes and physical evidence.

Relationship marketing was another novelty in the early nineties. This approach works very well for service organisations. It was decided that this issue should be discussed in the first chapter of the thesis. Other aspects of service marketing such as mission, market segmentation, positioning and planning have also been analysed. There has been a substantial growth in the amount of research and publishing in the marketing area and service marketing has also enjoyed growing attention since the 1960's. However, research has mainly concerned organisations such as airlines, banks or fast food restaurants. The maritime sector has never enjoyed great attention from marketing researchers. Probably the first maritime organisations to receive marketing attention were ferry services and cruise holidays and the marketing approach developed for such organisations is very different from marketing of a port or a regular container shipping line. Ferry and cruise holidays' marketing is mainly directed towards the private individuals and in a way is very similar to approaches adopted in the airline industry. However in recent years there has appeared an interest in shipping and port marketing. Although the world's leading ports have been marketing their services successfully for a number of years, research in these areas is still extremely limited. There is little literature regarding port marketing available and therefore this study can be considered a unique piece of work since it gathers much of the limited research that does exist on port marketing and then applies it for the first time in the context of transition in Eastern Europe and the growth of the new customer driven free market.

Polish ports are in the region of former influence of the Soviet Union and they used to operate under centrally planned system. All sectors of the Polish economy including the ports have undergone a complex and multi-stage process of transition. This has meant a number of commercial, structural, organisational and ownership changes, which are discussed in chapter 3. Following this phase the subject of study – the Polish ports of Gdansk and Gdynia were introduced.

All this complex information is put together into the conceptual model, which clearly indicates the central role of marketing in ports operating in the newly emerged highly competitive environment. In order to measure such complex phenomenon it was decided that a multivariate approach must be implemented. The conceptual model section is followed by review of multivariate techniques considered for application for this study. The chosen technique – factor analysis was discussed in detail.

Finally a review of the variables and scales chosen for this study was provided. The choice of all the variables characterising the 7Ps of the service marketing are carefully justified and the scales are applied to measure the respondents' opinion (in this case the port users) about each particular one.

The review is an essential part of any research study as it provides a comprehensive synthesis of the current knowledge in the subject area. The review of service marketing, port marketing and Eastern Europe and Poland during the transition period and their developments in post-transitional stage and multivariate analysis undertaken as part of this study, make a significant contribution to the development of the theory.

This study also makes a contribution to practical and theoretical knowledge by identifying the

most important elements of marketing strategies in the Polish ports of Gdansk and Gdynia. And the research could be applied not only to Gdansk and Gdynia but also other ports situated in the region where extensive political and economical changes have occurred. The identification of marketing strategies derived from users' opinion can be used for guidance when assessing the current situation in marketing, as well as strategic decisions and in a range of transitional regions, to improve the existing marketing strategy or develop a new one. All the elements of the marketing mix involved in strategies play important roles in overall port performance and influence efficiency in achieving customer desires. From the ports and port users point of view it is necessary to constantly improve each of the elements of the marketing mix and at the same time ensure that they are working together towards providing higher quality services.

The theoretical contribution of this study is that it provides a foundation for further studies in the port marketing area. The adoption of the factor analysis technique and the questionnaire design based upon the 7 Ps of service marketing proved its usefulness for this type of research and could be implemented in a similar study conducted in any other port. It could also be adapted to suit research in other areas of transport as well as other industries such as financial services, insurance or consulting.

As far as this particular study is concerned it would have been preferable to employ a bigger sample. The researcher concentrated only on the Polish maritime sector companies and did not include foreign users. The reason for that was that it would have been very difficult to obtain a complete list of them and therefore selection would have been very difficult. However, in the future it would be very beneficial to identify foreign enterprises and compare new results with this study. It should be stressed that the data obtained from this sample was still sufficient to perform factor analysis and therefore reliable results were obtained. As noted in earlier part of this thesis, it has been extremely difficult to deal with representatives of Polish enterprises.

Current cultural climate is still to large extent affected by the patterns obligatory in the old regime.

Another option would be to include some of the smaller ports in Poland and see how developed their marketing strategies are. Then the small ports could be compared with the main ones in order to find out whether there is any common pattern of marketing strategies in Polish ports or not. Moving on other ports in the region of the Baltic Sea (the main competitors to Polish ports) could be included in the study and finally compared within their national boundaries and between the participating countries.

Scope of the study

While designing this research important factors such as time and cost had to be considered. Even though personal interviews were regarded as the most effective way of data collection in terms of returns and additional information obtained, it was not possible to contact all of the participants personally as both problems of time and cost appeared. In order to organise interviews with port representatives a visit to Gdansk and Gdynia was paid requiring a three-week stay. Interviewing all 183 enterprises was not possible unless the researcher lived in Poland permanently and had unlimited resources. Since this alternative could not be considered, all the remaining companies (except the ports themselves) were mailed the same questionnaire that was used during the personal interviews. Another constraint of this study was the sample size. There is a limited number of companies in the maritime sector of the Polish economy; however the response rate was considered reasonably high for this type of data collection in the maritime sector. It should be noted here that the entire population of relevant companies was included in this study. The data was firstly checked for sampling adequacy employing the Kaiser – Meier –Olkin test that is normally used while dealing with data that is to be factor analysed. In both cases of the ports of Gdansk and Gdynia, this measure was above the critical level. The

most likely reason for not achieving a higher response rate was the fact that a great number of Polish enterprises, and especially in the maritime sector, are still staffed with old nomenclature. In the past these people have never been allowed to co-operate or share company data with outsiders. Although the political situation has completely changed, the old pattern still remains quite strong in a number of companies. Fortunately the number of responses met the requirements of the methodology employed and produced interpretable results.

Recommendations for Future Research

This study has attempted to make a contribution to both the theory of service marketing and port marketing strategies. Although some immediate questions can be answered on the basis of the study, the study has also raised a significant number of other questions that require further research. It would be highly beneficial if a similar study can be undertaken but in a different context. For instance, a study could concentrate on marketing strategies in other countries of transition such as Bulgaria or Romania, which had a similar political system to Poland before 1989. It would be useful to see if there is any common pattern of developing marketing strategies. Such a study would provide important insights through comparison of the results. Such studies however must consider overcoming the problem of identification of port clients. The unavailability of such information means that this is a major constraint.

Bearing in mind the limited research in the area and the wealth of the information obtained during the study, the results can be used to make reasoned speculations about the port marketing industry. A contribution to further development of theory depends, to a large extent, on the current knowledge in the subject area as well as the generalisation of the results to a wider context. This is reflected in the review of port marketing development as well as the wider implications of the research in port marketing strategy phenomena.

This model of investigating the structure of marketing strategy can be implemented to measure marketing activities of any port service provider. There is a great number of possibilities where and how this model could be utilised. As suggested earlier similar study could be conducted for any transport service provider. Ports in other countries that have undergone transition, shipping lines and perhaps freight forwarders and logistics companies are only some examples where this model could have been implemented. The development of marketing in maritime service organisations and enterprises is of great importance. Even more important is promoting research in this area and publishing the results. As the researcher noticed, there is hardly any literature available in the port marketing area and as a result this work makes a significant contribution to the current development in the area.

This study represents an initial attempt to research marketing of the port industry at a scientific level. The importance of the role of ports in the international maritime scene is undisputed and as a result it is essential to continue to endeavour to research such areas of the maritime industry.

APPENDICES

APPENDIX A
THE QUESTIONNAIRE: MARKETING IN POLISH PORTS: A STUDY AMONG
PORT SERVICE USERS

MARKETING IN POLISH PORTS

A STUDY AMONG PORT SERVICE PROVIDERS AND USERS

The choice of variables has been based on the 7 Ps of service marketing. However they were broken down to give a complete overview of marketing activity.

Uniforms to certain extent scales were introduced to make the data directly comparable to unabled factor analysis. This technique was chosen to analyse data to perform the analysis.

In completing this questionnaire, please ensure that you have answered ALL the questions, as the research becomes invalid if a question is inadvertently left out.

If you have any questions contact:

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Institute of Marine Studies

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UK

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E-mail: apieczek@plymouth.ac.uk

Questionnaire

Please tick the boxes.

I. Price.

The amount of the services sold by the particular port, cargo throughput.

The most important element of the price in ports is the price of the services provided by the port, port tariff. There is possibility of negotiation especially for regular customers or these who declare large quantities of cargo or ship their cargoes on a regular basis. One way of gaining customer loyalty is offering rebates. Discounts play a very similar role to rebates, as they are frequently offered to customers who regularly use the port service or need to ship large quantities of cargo.

Q 1. Rebates and Discounts

Is the rebates and discounts system:

Port of Gdansk

excellent

good

average

below average

poor?

Port of Gdynia

excellent

good

average

below average

poor?

Comments:.....
.....

Q 2. Subsidies.

Subsidies mean direct and indirect help from the government including financial support as well as new buildings and other capital equipment.

Direct subsidises. The extent and size of subsidies needs to be placed on 1 to 5 scale. 1 for the most developed system of subsidies and 5; for the least developed system of subsidies.

Port of Gdansk

5

4

3

2

1

Port of Gdynia

5

4

3

2

1

Indirect subsidies. The extent and size of subsidies in each group listed below needs to be placed on 1 to 5 scale. 1 for the most developed system of subsidies and 5 for the least developed system of subsidies.

Lower than the commercial rate of:

Port of Gdansk

land hire	telephone charges	power	water	other public services
<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5
<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1

Port of Gdynia

land hire	telephone charges	power	water	other public services
<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5
<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1

Comments:.....

Q 3. Marketing Budget.

Marketing budget can be based on the percentage of the total volume of sales or profits annually.

Is it:

Port of Gdansk

- very sufficient
- sufficient
- neither sufficient nor insufficient
- insufficient
- very insufficient

Port of Gdynia

- very sufficient
- sufficient
- neither sufficient nor insufficient
- insufficient
- very insufficient

Comments:.....

Q 4. Market Segmentation.

The basis for market segmentation includes mainly: service required, customer, cargo, season and quality of the service. Effective segmentation should group buyers into segments in ways that result in as much similarity as possible on the relevant characteristics within each segment but dissimilarity on those same characteristics between each segment.

Is it:

Port of Gdansk

- very effective
- effective
- neither effective nor ineffective
- ineffective
- very ineffective

Port of Gdynia

- very effective
- effective
- neither effective nor ineffective
- ineffective
- very ineffective

Comments:.....
.....

Q 5. Currencies.

Which currencies are acceptable?

Port of Gdansk

- all currencies
- only convertible currencies
- all convertible currencies plus

PLN

- only Euro and PLN
- only PLN

Port of Gdynia

- all currencies
- only convertible currencies
- all convertible currencies plus

PLN

- only Euro and PLN
- only PLN

Comments:.....
.....

Q 6. Competition.

Setting prices with regards to competitors' prices for any particular service reflects an organisation's position in the market place.

Competition plays a very important role in pricing.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Comments:.....
.....

II. Product (Service) Being Offered.

We view a product as an overall package of objects or processes which provide some value to customers whilst a service is a subcategory which describes a type of product. A service is an activity which has some element of intangibility associated with it, which involves some interaction with customers or with property in their possession, and does not result in a transfer of ownership.

Q 1. Quality of the service.

Nowadays quality is more important for the present and potential customers than any other factors of the service. Quality in the service means to meet the world's standards and customers' expectations in terms of speed, safety and sureness.

Is it:

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Comments:.....

.....

Q 2. Complexity.

Complexity indicates what range of services is available in the particular port. Ports may provide all kinds of cargo services as well as all services rendered to vessels.

Is it:

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Comments:.....

Q 3. Quantity.

Can be described as cargo handling efficiency.

Is it:

Port of Gdansk

- very efficient
- efficient
- neither efficient nor inefficient
- inefficient
- very inefficient

Port of Gdynia

- very efficient
- efficient
- neither efficient nor inefficient
- inefficient
- very inefficient

Comments:.....

.....

Q 4. Reliability.

In this research it has been divided into 3 categories: level of congestion, safety record and experience with reputation.

Is congestion:

Port of Gdansk

- very large
- large
- average
- below average
- minor

Port of Gdynia

- very large
- large
- average
- below average
- minor

Is safety record:

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Is experience with reputation:

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Comments:.....

Q 5. Frequency.

The frequency of the services provided is very high.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Comments:.....

III. Promotion, the communication programme associated with marketing product or service.

Q 1. Advertising.

Advertising is major method of promotion. The extent of advertising carried out will be affected by the budget and the depth of advertising reflected in the media used as well as the frequency and types of advertising carried out.

Is it:

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Comments:.....

Q 2. Image.

In this research image has been broken down into five main elements: logo, publications, design of the offices plus furnishing, uniforms, gifts.

Port of Gdansk

- port has all five elements of corporate identity
- one of them is missing
- two of them are missing
- three of them are missing
- four of them are missing

Port of Gdynia

- port has all five elements of corporate identity
- one of them is missing
- two of them are missing
- three of them are missing
- four of them are missing

Comments:.....
.....

Q 3. Public Relations.

In this research public relations has been broken down into five elements such as: maintaining contacts with the media, inviting visitors, organising open days and/or exhibitions, participation in exhibitions, sponsoring events.

Port of Gdansk

- port is active in all of the above fields
- port is active in four of the above fields
- port is active in three of the above fields
- port is active in two of the above fields
- port is active in only one of the above fields

Port of Gdynia

- port is active in all of the above fields
- port is active in four of the above fields
- port is active in three of the above fields
- port is active in two of the above fields
- port is active in only one of the above fields

Comments:.....
.....

Q 4. Market Research.

Market Research is a very important element of operating as a free market environment company and generates the means and strength of promotion. The extent of market research depends on the market research budget and number of people employed in the marketing department.

Is it :

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Comments:.....
.....

V. Place, the distribution and logistic function involved in making firm's product and service available.

Q 1. Port's accessibility.

Is it:

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Comments:.....

Q 2. Wide choice of specialist terminals.

Is it:

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Comments:.....

Q 3. Condition of transportation network.

Is it:

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Comments:.....

V. People.

They are an essential element in both production and delivery of most services and they are becoming part of the differentiation by which service companies seek to create added value and gain competitive advantage.

Q 1. Qualifications and training.

Qualifications provide a useful measure of quality of the personnel employed by a company. Sources and types of qualifications and the importance attached to them. The professional training, courses in IT - they frequency, number of people attended, costs, sources of finance, destinations. The new training techniques will bring new perspectives into the company and

present a company with an image of higher quality.

A great number of people come from very good educational and practical background.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

The company provides professional training for its staff.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Courses in IT are very frequent and up to date.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

A great number of people attends the courses every year.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

The courses and training are financed by the company.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Comments:.....
.....
.....

VI. Processes.

These are all the procedures and routines by which a service is created and delivered to the customer including policy about customer involvement and employee discretion issues.

Q 1. Procedures, tasks, schedules, mechanisms and activities.

The procedures are defined clearly and easy to follow.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

It is very easy to find needed information.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Tasks are clearly delegated.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Schedules are convenient for the employees.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Mechanisms are reliable.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

There is a wide range of time off activities.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Comments:.....
.....
.....

Q 3. Identification of process management.

The role of the management is very easy to identify.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Comments:.....
.....

Q 4. Decision-making processes.

Pricing decisions in ports are very flexible.

Port of Gdansk

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Port of Gdynia

- agree strongly
- agree somewhat
- neither agree nor disagree
- disagree somewhat
- disagree

Comments:.....
.....

VII. Physical Evidence.

Also known as provisions of the customer service. These are more demanding requiring higher levels of service and they need to build closer relationship with the customers.

Q 1. Information Technology.

Internet access facilities. Are they:

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Email facilities. Are they:

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

International Data Exchange facilities. Are they?

Port of Gdansk

- excellent
- good
- average
- below average
- poor

Port of Gdynia

- excellent
- good
- average
- below average
- poor

Comments:.....
.....

Q General. Effectiveness

Effectiveness. Is the port in general:

Port of Gdansk

- very effective
- effective
- neither effective nor ineffective
- ineffective
- very ineffective

Port of Gdynia

- very effective
- effective
- neither effective nor ineffective
- ineffective
- very ineffective

Comments:.....
.....

THANK YOU FOR YOUR COOPERATION

APPENDIX B
LIST OF COMPANIES CONTACTED DURING THE SURVEY

List of all the companies contacted:

Companies within the ports:

Port Authorities:

The Port Authority of Gdansk
Marketing Department, (Mr Ryszard Mazur)
18 Zamknieta Str.
80-955 Gdansk
Poland

Port of Gdynia S.A.
Marketing Department, (Mr Jan Lewko)
9 Rotterdamska Str.
81-337 Gdynia
Poland

Terminals and port operating companies:

Baltic Container Terminal Ltd.(Port of Gdynia)
60 Kwiatkowskiego Str.
81-127 Gdynia
Poland

Maritime Bulk Terminal Gdynia Ltd.
4 Węglowa Str.
81-341 Gdynia
Poland

Baltic General Cargo Terminal Gdynia Ltd.
7 Dokerow Str.
81-336 Gdynia
Poland

Baltic Grain Terminal Ltd. (Port of Gdynia)
2 Indyjska Str.
81-336 Gdynia
Poland

Gdansk Phosphatic Fertiliser Plant (Fosfory Co.)
2 Kujawska Str.
80-550 Gdansk
Poland

Chemiki Gdansk
4 Chemikow Str.
80-550 Gdansk
Poland

Basen Gorniczny Spolka zoo.
Przedsiębiorstwo Usług Portowych
6 Roberta de Plelo
80-548 Gdansk
Poland

WOC Spolka zoo. (Free Zone)
Przedsiębiorstwo Przeladunkowo Składowo Usługowe
20 Przemysłowa Str.
80-542 Gdansk
Poland

Siark Port Spolka zoo.
Przedsiębiorstwo Przeladunkowo Usługowe
7 Pokładowa Str.
80-561 Gdansk
Poland

Westerplatte Spolka zoo.
Przedsiębiorstwo Usługowo Składowe
18 Zamknięta Str.
80-955 Gdansk
Poland

Port Polnocny Spolka zoo.
Przedsiębiorstwo Przeladunkowo Składowe
23 Budowniczych Portu Polnocnego
80-601 Gdansk
Poland

Port Wisłany Spolka zoo.
33 Chodackiego
80-555 Gdansk
Poland

Port Gdanski Eksploatacja
18 Zamknięta Str.
80-955 Gdansk
Poland

EUROPORT IMC. POLAND
18 Zamknięta Str.
80-955 Gdansk
Poland

Shipping Companies:

Polish Ocean Lines (POL)
24 10 Lutego Str.
81-364 Gdynia
Poland

POL America SA
24 10 Lutego Str.
81-364 Gdynia
Poland

POL Levnt
24 10 Lutego Str.
81-364 Gdynia
Poland

EuroAfrica Linie Zeglugowe Spolka zoo.
3/4 Energetykow Str, PO Box 511
70-952 Szczecin
Poland

Baltic Container Lines Co.Ltd.
60 Kwiatkowskiego Str. p.215a
81-127 Gdynia
Poland

Chipolbrok SA
17 Slaska Str.
81-319 Gdynia
Poland

Zegluga Gdanska Ltd. Spolka zoo.
2 Ponczosznikow Str
80-830 Gdansk
Poland

POL ATLANTIC Spolka zoo.
24 10 Lutego 24 Str.
81-364 Gdynia
Poland

UNITY LINE
8 Rodła Pl.
70-419 Szczecin
Poland

POLSKA ZEGLUGA BALTYCKA SA
POLFERRIES, BAZA PROMOWA
1 Przemysłowa Str.
80-542 Gdansk
Poland

CHOPOL
Koreansko-Polskie Towarzystwo Zeglugowe
4F Gorczykowa Str.
81-591 Gdynia
Poland

POL SEAL SHIPPING LINES

24 10 Lutego 24 Str.

81-364 Gdynia

Poland

Agents:

Morska Agencja Gdynia Ltd.

Gdynia Terminal Kontenerowy

60 Kwiatkowskiego Str.

81-127 Gdynia

Poland

Morska Agencja Gdynia

15 Wendy Str.

81-341 Gdynia

Poland

Euro East Maritime Agency (Partly owned by POL)

24 10 Lutego Str.

81-364 Gdynia

Poland

Polsteam Tankers Ltd.

34 Waszyngtona Str.

81-342 Gdynia

Poland

ALPHA SHIPPING & TRADING Spolka zoo.

41 Abrahama Str.

81-395 Gdynia

Poland

ANIMEX TRANS F/GDYNIA

20 Polska Str.

81-339 Gdynia

Poland

BALTIC SHIPPING AGENCY Ltd.

3 Wybickiego Str.

81-391 Gdynia

Poland

EUROCARGO SHIPPING

1 Kollataja Str

81-332 Gdynia

Poland

EUROS SC

1/616 Waly Piastowskie Str.

80-855 Gdansk

Poland

JAS FBG SA Agencja Celna
3 Rotterdamska Str.
81-337 Gdynia
Poland

JAS FBG SA Agencja Celna
33a Oliwska Str.
80-563 Gdansk
Poland

JSS CHARTERING
71 Haffnera Str
81-715 Sopot
Poland

M&S SHIPPING (POLAND)
42b/12 Opoczynska Str.
02-526 Warszawa
Poland

MAERSK POLAND
1 Aleja Zjednoczenia
81-345 Gdynia
Poland

MARBALCO SHIPPING
21/2 3-go Maja Str.
81-747 Sopot
Poland

MARSPED
60 Kwiatkowskiego Str.
81-127 Gdynia
Poland

PUBLINE SHIPPING Spolka zoo.
6 Pułaskiego Str.
81-368 Gdynia
Poland

PERFEKT Spolka zoo.
15 Indyjska Str.
81-336 Gdynia
Poland

POL AGENT AGENCJA CELNA
13 Indyjska Str.
81-336 Gdynia
Poland

POLSHIPPING

Spolka zoo.

9/6 Armii Krajowej Str.

81-372 Gdynia

Poland

POLSIN OVERSEAS SHIPPING

49 Wyzwolenia Str.

80-537 Gdansk

Poland

POLSKA ZJEDNOCZONA KORPORACJA BALTYCKA

6 Pułaskiego Str.

81-368 Gdynia

Poland

UNI CARGO

3 Rotterdamska Str

81-337 Gdynia

Poland

UNIPAW SERVICE Spolka zoo.

30 Polska Str.

81-334 Gdynia

Poland

ARAMIS SHIPPING AGENCY

6 Pułaskiego Str.

81-368 Gdynia

Poland

B+K AGENCY

68/4 Armii Krajowej Str.

81-844 Sopot

Poland

BALTA SA

4 Mariacka Str.

80-833 Gdansk

Poland

BALTIC UNISERVICE GDYNIA

11 Wolności Str.

81-324 Gdynia

Poland

BAMAR SHIPPING

Spolka zoo.

13 Indyjska Str.

81-336 Gdynia

Poland

GSS GEORG SHUMACHER SHIPPING

1 Waszyngtona Str.
81-342 Gdynia
Poland

INTER MARINE

9 Zjednoczenia Str.
81-345 Gdynia
Poland

JUPITER SHIPPING SERVICES

13/2 Armii Krajowej Str.
81-372 Gdynia
Poland

KOSIOR SHIPPING

6/70 Chwarzniowska Str.
81-613 Gdynia
Poland

OCEANMASTER SHIPPING

1 Zjednoczenia Str.
81-345 Gdynia
Poland

PETROSHIP

6 Pułaskiego Str.
81-368 Gdynia
Poland

POLISH BALTIC COMPANY

PHZ SC
11 Heweliusza Str.
80-890 Gdansk
Poland

SCAN GROUP AGENCIES

6 Pułaskiego Str.
81-368 Gdynia
Poland

SEABIS SHIPPING AGENCY

11 Zjednoczenia Str.
81-345 Gdynia
Poland

SEATRUST Int. Ltd.

9 Zjednoczenia Str.
81-345 Gdynia
Poland

SMT SHIPMANAGEMENT
AND TRANSPORT GDYNIA
7/9 Wendy (building WTC Expo, IVp.)
81-341 Gdynia
Poland

UB SHIPPING POLAND
8 Pułaskiego Str
81-368 Gdynia
Poland

V. SHIPS PL SHIPPING AGENCY
1 Zjednoczenia Str.
81-345 Gdynia
Poland

WLW CHARTERING Ltd.
6 Pułaskiego Str.
81-368 Gdynia
Poland

ALAND SHIPPING Spolka zoo.
61/10 Władysława IV Str.
81-384 Gdynia
Poland

POMERANKA Spolka zoo.
46/47 Ogarna Str.
80-826 Gdansk
Poland

TRANSOCEAN GDYNIA
130 Slaska
81-304 Gdynia
Poland

TRIMAR SHIPPING
13 Indyjska Str.
81-336 Gdynia
Poland

WUZ PRZEDSIĘBIORSTWO USŁUG
ZEGLUGOWYCH I PORTOWYCH GDYNIA
1 Polska Str.
81-339 Gdynia
Poland

A.P. & A Ltd. Poland
Shipping and Trading
1 Na Ostrowiu Str.
80-958 Gdansk
Poland

B+ B SHIPPING & TRADING SERVICES

8 Zgoda Str.
81-361 Gdynia
Poland

INVESTA MARINE

13 Jagiellonska Str.
80-371 Gdansk
Poland

KWANT Spolka zoo.

26 Rzeczypospolitej Ave.
80-463 Gdansk
Poland

Balticon Spolka zoo.

1 Krzywoustego Str.
81-035 Gdynia
Poland

Eron Trans s.c.

9/2 3-go Maja Str.
80-802 Gdansk
Poland

Brokers:

POL Agent Shipbrokers Ltd.

60 Kwiatkowskiego Str
81-127 Gdynia
Poland

Polsteam Brokers

8 Plazowa Str
81-523 Gdynia
Poland

Polfracht Forwarding Ship Broking & Chartering Co.

8 Pulaskiego Str.
81-368 Gdynia
Poland

EXPOLCO TRANSPED

13 Indyjska Str.
81-336 Gdynia
Poland

GAC NORPOL SHIPPING

Spolka zoo. O/Gdynia
17 Slaska Str.
81-319 Gdynia
Poland

NAWIGATOR SHIPPING Spolka zoo.
13b Władysława IV Str.
80-547 Gdansk
Poland

ROMEX CARGO SERVICE
27 Czarneckiego Str.
83-000 Pruszcz Gdanski
Poland

RUSAK BUSINESS SERVICES
3 Na Zaspe Str.
80-546 Gdansk
Poland

RUSAK BUSINESS SERVICES
43 Polska Str.
81-334 Gdynia
Poland

DALMOR PORT Spolka zoo.
10 Hryniewieckiego Str.
81-340 Gdynia
Poland

EAST-MAR Ltd. SHIPBROKERS
9 Dokerow Str.
81-336 Gdynia
Poland

East & Weast Spolka zoo.
2 Narwicka Str.
80-557 Gdansk
Poland

MAR YARD Ltd. SHYPBROKERS,
Husbandry Agents
1 Na Ostrowiu Str.
81-958 Gdansk
Poland

OKMARIT Spolka zoo.
SHIPBROKING Co.
7 Zjednoczenia Str.
81-345 Gdynia
Poland

OLIMPIC GROUP
11 Brzechwy Str.
81-590 Gdynia
Poland

Polbrok Spolka zoo.
9/3 Starowiejska Str.
81-356 Gdynia
Poland

Promexim- Peko Spolka zoo.
123 Mialki Szlak Str
80-717 Gdansk
Poland

Cargo Inspection:

Polcargo Spolka zoo.
Rzeczoznastwo i Kontrola Towarow w Obrocie Miedzynarodowym
13b Wladyslawa IV
80-547 Gdansk
Poland

Catering:

POL Catering, (Ms Lucyna Dula)
24 10 Lutego Str
81-364 Gdynia
Poland

Crewing:

POL Crewing, (President Mr Pawel Pietrzak)
49a Slaska Str
81-310 Gdynia
Poland

MARINE MANNING SERVICE Ltd.
34/36 Waszyngtona Str.
81-342 Gdynia
Poland

Freight Forwarding:

C Hartwig Gdansk
3 Na Zaspe Str.
80-504 Gdansk
Poland

C Hartwig Gdynia
7 Derdowskiego Str.
81-369 Gdynia
Poland

Mirtrans International Forwarding Co Ltd. (Partly owned by Port of Gdynia)
23 Polska Str.
81-334 Gdynia
Poland

Spedcont Spedycja (Partly owned by Port of Gdynia)
60 Kwiatkowskiego Str
80-127 Gdynia
Poland

Terramar Ltd.
3 Rotterdamska Str.
81-337 Gdynia (Partly owned by Port of Gdynia)
Poland

Uniport Co Ltd. (Partly owned by Port of Gdynia)
25 Polska Str.
81-337 Gdynia
Poland

AGROLAND Spolka zoo.
Spedycja Miedzynarodowa
12 Krzywoustego Str.
81-960 Gdynia

AGROS Spolka zoo
13 Indyjska Str.
81-369 Gdynia
Poland

ALFA Forwarding Spolka zoo.
ul. Pułaskiego 6
81-368 Gdynia
Poland

ALLcom Spolka zoo
BIURO PORTOWE
60 Kwiatkowskiego Str.
81-127 Gdynia
Poland

ANSTAR Forwarding & Transport Co.
13 Indyjska Str.
81-336 Gdynia
Poland

Arrow Logistics Spolka zoo.
Spedycja Miedzynarodowa
9 Dokerow Str.
81-336 Gdynia
Poland

ATS Internationale Spedition
Spolka zoo. O/Gdansk
14 Oliwska Str.
80-5463 Gdansk
Poland

BALT TRADE SERVICE Spolka zoo.
89/3 Swieojanska Str.
81-381 Gdynia
Poland

BALTAVIA Przedsiębiorstwo Spedycyjne
60 Kwiatkowskiego Str.
81-155 Gdynia
Poland

BALTIMARE Spolka zoo.
13 Indyjska Str.
81-336 Gdynia
Poland

Baltycka Agencja Celną i Spedycyjna
12 Jana z Kolna Str.
81-351 Gdynia
Poland

Baxima Spolka zoo.
2 Stoczniowa Str., building A6
82-300 Elbląg
Poland

BEST TRADE Spedycja Krajowa i Miedzynarodowa
13 Indyjska Str.
81-336 Gdynia
Poland

CARGO SERVICE AGENCY
Spolka zoo. O/Gdynia
3 Rotterdamska Str.
81-337 Gdynia
Poland

Centromor SA
7 Okopowa Str
80-819 Gdansk
Poland

CHEM TRANS LOGISTICS POLNOC
25/20 3-go Maja Str.
80-802 Gdansk
Poland

CONTRAM Spolka zoo.
31 Janka Wisniewskiego Str.
80-183 Gdynia
Poland

DALTON Spolka zoo.
13 Indyjska Str.
81-336 Gdynia
Poland

DLS POLAND
Spolka zoo.
3 Modlinska Str.
81-260 Gdynia
Poland

ECS EUROARGO SPEDYCYJNA
1 Szkolna Str.
80-562 Gdansk
Poland

KGL Spolka zoo.
36 Unruga Str.
81-188 Gdynia
Poland

KOLSPED Spolka zoo, Spedytor Miedzynarodowy
3 Celnna Str.
81-337 Gdynia
Poland

Kühne & NAGEL
200 Slowackiego Str.
80-298 Gdansk
Poland

LOGO TRANS Spolka zoo.
85 Oliwska Str.
80-542 Gdansk
Poland

MARCANTILE FORWARDING
60 Kwiatkowskiego Str.
81-127 Gdynia
Poland

NAVATRANS GDYNIA Spolka zoo.
35/37 Slaska Str.
81-310 Gdynia
Poland

NAVITRANS Spolka zoo.
6 Chrzanowskiego Str.
81-338 Gdynia
Poland

NOWINEX HANNA BLEJER
53a. Nowiny Str.
80-020 Gdansk
Poland

NTA Spolka zoo.
ul. Indyjska 13
81-336 Gdynia
Poland

OMEGA TRANSPORT SC
Przedsiębiorstwo Spedycyjno Usługowe
49 Kusnierska Str.
81-162 Gdynia
Poland

OSKAR SA
Polskie Towarzystwo Spedycyjne
30 Kolobrzaska Str.
80-394 Gdansk
Poland

POLFRACHT Polskie Przedsiębiorstwo Maklerskie
8 Pulaskiego Str.
81-368 Gdynia
Poland

POLSKI ZWIAZEK SPEDYTOROW
MIEDZYNARODOWYCH
3/2 Swietojanska Str.
81-368 Gdynia
Poland

RETRANS OCEAN
Spedycja Miedzynarodowa
33 Wislana Str.
80-555 Gdansk
Poland

RHENUS POLAND
85 Oliwska Str.
81-542 Gdansk
Poland

RHENUS POLAND
13 Indyjska Str.
81-336 Gdynia
Poland

SOTRANS SCANDINAVIEN

Transport Spedycja

6/3 Hallera Str.

80-401 Gdansk

Poland

SPEDCON SC

31 Janka Wisniewskiego Str.

81-183 Gdynia

Poland

SPEDPOL Spolka zoo.

Spedycja Polska O/ Gdynia

36 Hutnicza Str.

81-038 Gdynia

Poland

SPEDPOL Spolka zoo.

Spedycja Polska O/ Gdańsk

7 Pod Zrebem Str.

80-821 Gdansk

Poland

SPEDRAPID Spolka zoo.

8 Zgoda Str.

81-361 Gdynia

Poland

SPEDYCJA I TRANSPORT

7 Derdowskiego Str.

81-369 Gdynia

Poland

STS TRANSPOL Spolka zoo

15 Mickiewicza Str.

81-832 Sopot

Poland

TERMAR AGENCY

1 Zjednoczenia Str.

81-345 Gdynia

Poland

TRANS PAGED Spolka zoo

Biuro Spedycyjne Biuro Portowe

13 Oliwska Str.

80-536 Gdansk

Poland

TRANS PAGED Spolka zoo
Biuro Spedycyjne Biuro Portowe
31 Janka Wisniewskiego Str.
81-183 Gdynia
Poland

WmH MÜLLER & Co. Ltd.
72 Swietojanska Str.
81-388 Gdynia
Poland

ENA Ltd. Spolka zoo.
9 Waszyngtona Str.
81-342 Gdynia
Poland

POSEIDON & FRACHTCONTOR JUNGE
45 I Armii Wojska Polskiego Str.
81-383 Gdynia
Poland

F & T Agencja, Transport i Spedycja
60 Kwiatkowskiego Str.
81-127 Gdynia
Poland

Maritime Freight Poland
8 Pułaskiego Str.
81-368 Gdynia
Poland

Nordtrans Ltd
5 Energetykow Str.
81-184 Gdynia
Poland

Rolimpex Marine Spolka zoo.
9 Dokerow Str.
81-336 Gdynia
Poland

Traffic Internationale Spedition
799 A Niepodleglosci Ave.
81-810 Sopot
Poland

Marine Consultancy:

Polsteam Consulting
8 Rodla plac
70-419 Szczecin
Poland

SCAN CONSULT Spolka zoo.
35/37 Slaska Str.
81-310 Gdynia
Poland

C&T MARINE CONSULTANTS
25 Graniczna Str.
81-626 Gdynia
Poland

CONSOLIDATED MARINE SERVICES
25 3-go Maja Str.
81-747 Sopot
Poland

PUMAR CONSUTING AGENCY
1 Zjednoczenia Ave.
81-345 Gdynia
Poland

VIK & SKANDVIK
Ship Consultants Spolka zoo.
2 Luzycka Str.
81-537 Gdynia
Poland

Scan Consult Spolka zoo.
13 Korczaka Str.
81-437 Gdynia
Poland

Marine Insurance:

POL-Marine- Ltd-Gdynia
24 10 Lutego Str.
81-364 Gdynia
Poland

Warta S.A.
1 Kollataja Str.
81-332 Gdynia
Poland

Hestia Insurance S.A.
13/15 Reja Str.
81-874 Sopot
Poland

Road Freight:

Franck and Tobiesen Poland Ltd.
27 Wisniewskiego Str.
81-969 Gdynia
Poland

Pekaes (Partly owned by EuroAfrica) Multi Spedytor Spolka zoo.
Biuro Spedycyjne Gdynia
60 Kwiatkowskiego Str.
81-127 Gdynia
Poland

I.C.E. Transport Poland
34/36 Waszyngtona Str.
81-342 Gdynia
Poland

INTERLINK Ltd. Spolka zoo.
50 Pomorska Str.
81-314 Gdynia
Poland

Intersped Ltd. O/Gdynia
13 Indyjska Str.
81-336 Gdynia
Poland

INTRANS POLEN
141Grunwaldzka Str.
80-952 Gdansk
Poland

Ship Suppliers:

Baltona Przedsiębiorstwo Handlu Zagranicznego S.A.
3 Luzycka Str.
81-537 Gdynia
Poland

HERMES Spolka zoo.
7 Kielecka Str.
81-306 Gdynia
Poland

POLSKI SERWIS KONTENEROWY

Terminal Wislany
33 Chodackiego Str.
80-555 Gdansk
Poland

Polish Registry of Ships

Polski Rejestr Statkow
126 Generala Jozefa Hallera Ave.
81-416 Gdansk
Poland

APPENDIX C
LIST OF COMPANIES THAT RESPONDED TO THE QUESTIONNAIRE

List of companies that responded to the questionnaire:

Companies within the Ports:

Port Authorities:

The Port Authority of Gdansk
Marketing Department (Mr Ryszard Mazur)
18 Zamknieta Str.
80-955 Gdansk
Poland

Port of Gdynia S.A.
Marketing Department (Mr Jan Lewko)
9 Rotterdamska Str.
81-337 Gdynia
Poland

Terminals and port operating companies:

Baltic Container Terminal Ltd.(Port of Gdynia)
60 Kwiatkowskiego Str.
81-127 Gdynia
Poland

Maritime Bulk Terminal Gdynia Ltd.
4 Weglowa Str.
81-341 Gdynia
Poland

Baltic General Cargo Terminal Gdynia Ltd.
7 Dokerow Str.
81-336 Gdynia
Poland

Baltic Grain Terminal Ltd. (Port of Gdynia)
2 Indyjska Str.
81-336 Gdynia
Poland

Basen Gorniczny Spolka zoo.
Przedsiębiorstwo Usług Portowych
6 Roberta de Plelo
80-548 Gdansk
Poland

WOC Spolka zoo. (Free Zone)
Przedsiębiorstwo Przeladunkowo Skladowo Uslugowe
20 Przemyslowa Str.
80-542 Gdansk
Poland

Westerplatte Spolka zoo.
Przedsiębiorstwo Uslugowo Skladowe
18 Zamknieta Str.
80-955 Gdansk
Poland

Port Polnocny Spolka zoo.
Przedsiębiorstwo Przeladunkowo Skladowe
23 Budowniczych Portu Polnocnego
80-601 Gdansk
Poland

Port Wislany Spolka zoo.
33 Chodackiego
80-555 Gdansk
Poland

Port Gdanski Eksploatacja
18 Zamknieta Str.
80-955 Gdansk
Poland

Shipping Lines:

POL America SA
24 10 Lutego Str.
81-364 Gdynia
Poland

Baltic Container Lines Co.Ltd.
60 Kwiatkowskiego Str. p.215a
81-127 Gdynia
Poland

Agents:

Polsteam Tankers Ltd.
34 Waszyngtona Str
81-342 Gdynia
Poland

ALPHA Shipping & Trading
41 Abrahama Str
81-395 Gdynia
Poland

Baltic Shipping Agency Ltd.
3 Wybickiego Str
81-391 Gdynia
Poland

Marbalco Shipping
21/2 3 Maja Str
81-747 Sopot
Poland

Brokers:

POL Agent Shipbrokers Ltd.
60 Kwiatkowskiego Str
81-127 Gdynia
Poland

Polfracht Forwarding Ship Broking & Chartering Co.
8 Pulaskiego Str
84-368 Gdynia
Poland

East & West Spolka zoo.
2 Narwicka Str
80-557 Gdansk
Poland

Freight Forwarders:

Polfracht Forwarding Ship Broking & Chartering Co.
8 Pulaskiego Str.
81-368 Gdynia
Poland

C Hartwig Gdansk
3 Na Zaspe Str
80-504 Gdansk
Poland

C Hartwig Gdynia
7 Derdowskiego Str.
81-369 Gdynia
Poland

Mirtrans International Forwarding Co Ltd. (Partly owned by Port of Gdynia)
23 Polska Str
81-334 Gdynia
Poland

Terramar Ltd.
3 Rotterdamska Str
81-337 Gdynia (Partly owned by Port of Gdynia)
Poland

Spedpol Spolka zoo.
Spedycja Polska O/ Gdynia
36 Hutnicza Str
81-038 Gdynia
Poland

Marine Consultancy:

C&T MARINE CONSULTANTS
25 Graniczna Str
81-626 Gdynia
Poland

Road Freight:

INTRANS POLEN
141 Grunwaldzka Str
80-952 Gdansk
Poland

APPENDIX D
VARIABLES RATING FOR THE PORT OF GDYNIA

REBATES	SUBSID	MARKBUDG	MARKSEGM	CURREN	COMPETIT	QUALITY	COMPLEX	QUANTITY	RELIABIL
3.50	5.00	2	4	4	4	4	3	4	3.66
3.50	5.00	3	3	3	5	4	3	4	4.33
3.50	5.00	2	3	3	4	4	4	4	3.33
3.00	4.00	5	3	4	2	4	3	4	4.33
3.00	3.20	3	3	4	4	3	3	3	4.00
2.00	5.00	3	4	4	4	4	3	3	4.33
4.00	4.60	3	4	3	5	3	4	4	4.33
3.00	4.40	1	3	4	5	4	3	3	4.33
3.50	5.00	1	4	5	4	4	5	3	4.00
4.00	5.00	2	3	4	5	4	4	3	4.33
3.50	4.40	2	4	5	5	3	3	3	3.33
4.50	5.00	3	5	4	5	4	4	4	4.33
3.50	4.60	4	5	4	4	4	3	3	4.33
4.50	5.00	4	4	4	5	3	3	4	3.33
3.50	5.00	1	4	4	4	4	4	3	3.33
3.50	5.00	2	5	4	4	3	5	3	3.66
4.50	5.00	4	4	5	3	4	4	4	4.33
4.00	4.40	2	4	4	4	4	4	3	3.66
4.00	5.00	4	4	4	5	4	4	3	3.66
3.00	4.00	1	3	4	3	3	3	3	3.00
4.00	5.00	4	4	4	4	4	4	4	4.33
3.50	5.00	2	3	4	5	3	3	3	3.00
4.00	4.40	3	3	4	5	4	4	4	4.33
4.00	5.00	3	4	5	5	5	5	4	4.33
4.00	5.00	4	4	4	4	4	4	4	3.66
3.00	4.00	1	3	4	3	3	3	3	3.33
4.00	5.00	5	3	4	5	5	5	4	4.00
4.00	5.00	3	4	4	5	4	4	4	3.66
3.50	5.00	4	4	4	4	4	4	4	3.33

FREQUENC	ADVERT	IMAGE	PR	MARKETRE	ACCESS	TERMINAL
3	4	3	4	2	2.00	4
4	3	5	5	4	5.00	4
4	4	5	5	5	4.50	5
4	3	4	4	2	4.00	4
4	2	2	2	2	3.50	3
4	3	3	2	3	3.50	3
3	4	4	3	4	3.50	4
4	3	3	2	4	3.50	4
4	3	2	2	4	3.50	5
3	3	2	3	2	3.00	5
3	3	2	3	3	3.50	4
4	3	4	3	3	4.50	5
3	3	4	3	2	4.00	5
4	2	3	4	2	3.00	4
4	2	3	3	2	4.00	4
4	3	4	3	3	4.00	5
4	3	3	3	3	3.50	5
4	3	4	4	4	3.50	4
4	2	3	3	2	4.00	4
3	2	3	2	2	3.00	3
4	3	4	4	3	3.50	5
3	2	3	3	3	4.00	4
4	4	4	4	3	4.00	5
4	3	4	3	2	3.50	5
4	2	3	3	2	3.50	4
3	2	3	3	2	2.50	4
4	4	4	4	3	4.00	5
4	3	4	4	2	3.00	5
3	2	3	3	2	4.00	4

TRANSP	QUALIFIC	PROCEDUR	IT	EFFECTIV
3	3.12	3.57	3.00	3.00
4	4.00	4.00	3.00	5.00
4	4.20	4.66	4.00	5.00
4	3.76	4.14	2.66	4.00
3	2.06	2.42	1.66	3.00
3	4.20	4.00	3.33	3.00
4	4.16	4.00	2.33	4.00
4	3.83	4.00	3.33	4.00
3	3.62	4.00	2.66	3.00
2	3.60	2.42	3.33	3.00
3	3.20	3.62	4.00	4.00
4	4.10	3.57	3.66	5.00
4	3.66	4.14	3.33	4.00
3	3.37	4.00	4.00	3.00
4	3.40	3.62	2.33	4.00
4	3.12	4.00	3.33	4.00
4	3.37	3.57	2.33	4.00
4	2.90	2.42	2.66	4.00
4	3.25	3.62	2.33	4.00
3	2.37	2.42	2.33	3.00
4	3.29	3.57	2.66	4.00
4	2.56	3.62	2.66	4.00
4	4.26	4.14	3.33	4.00
4	3.40	4.00	3.33	4.00
4	3.17	3.62	2.66	4.00
2	2.77	2.42	2.33	3.00
4	4.10	3.62	3.33	5.00
4	3.17	3.62	3.33	4.00
4	3.06	4.00	2.66	4.00

APPENDIX E
VARIABLES RATING FOR THE PORT OF GDANSK

REBATES	SUBSID	MARKBUDG	MARKSEGM	CURREN	COMPETIT	QUALITY	COMPLEX	QUANTITY
3.50	5.00	3	4	5	4	3	4	3
4.00	5.00	4	4	3	4	3	4	3
4.00	5.00	4	4	3	4	3	4	3
4.00	5.00	4	4	3	5	5	4	1
4.00	5.00	2	3	1	5	3	3	4
3.00	4.00	3	4	3	4	4	3	3
3.50	4.00	2	3	1	4	4	4	4
3.50	5.00	3	3	1	5	4	3	4
3.50	5.00	4	3	5	4	4	3	4
4.00	4.00	3	3	3	3	4	3	3
4.00	5.00	4	4	3	4	3	4	3
3.50	5.00	3	4	3	5	4	4	4
3.50	5.00	4	4	3	4	3	3	3
4.00	5.00	2	2	1	3	3	3	3
4.00	4.00	3	4	5	4	4	4	4
3.00	5.00	4	4	3	4	4	3	4
4.50	5.00	3	4	3	4	4	4	3
4.00	4.00	4	5	5	5	4	4	3
4.00	5.00	3	4	3	4	4	4	3
3.50	5.00	4	5	5	5	4	3	3
4.00	4.00	3	4	3	4	3	3	3
4.00	4.00	4	5	1	4	5	5	1
3.50	5.00	2	2	3	3	3	3	3
3.00	4.00	3	4	3	4	3	3	3
4.00	5.00	4	4	5	4	4	4	3
4.00	5.00	3	4	3	5	3	4	3
4.00	4.00	3	3	5	4	4	3	3
3.50	5.00	4	4	5	5	4	4	4
4.00	5.00	3	3	5	5	4	4	3

RELIABIL	FREQUENC	ADVERT	IMAGE	PR	MARKETRE	ACCESS	TERMINAL	TRANSP
4.66	3	3	4	4	2	4.00	4	3
4.33	4	4	3	3	3	4.00	4	4
4.33	4	4	3	3	3	4.00	4	4
5.00	2	4	4	5	4	4.50	5	3
3.33	3	2	2	2	2	3.00	3	2
4.33	4	3	3	2	3	3.50	2	2
3.66	4	4	5	5	5	4.00	4	4
4.33	4	3	5	5	4	5.00	3	4
3.66	3	3	2	3	3	3.00	4	3
4.00	3	3	4	3	2	3.50	3	3
4.33	4	4	3	3	3	4.00	4	4
4.66	4	3	4	4	4	3.50	3	3
3.66	3	4	4	4	3	4.00	3	3
3.33	2	2	2	2	2	3.50	2	3
4.66	4	4	4	4	3	5.00	5	4
3.33	2	3	3	4	3	3.50	4	3
4.33	3	3	4	3	4	4.00	4	3
3.66	3	2	3	3	3	4.00	4	3
4.33	4	4	4	4	4	4.00	4	3
4.66	4	3	3	4	3	4.00	3	3
3.33	3	3	3	3	3	3.50	3	3
4.66	3	4	4	4	3	4.00	4	4
3.33	3	2	3	3	2	3.50	3	2
4.33	3	3	4	4	3	3.50	4	3
4.33	4	3	4	4	4	4.00	4	4
3.66	3	3	4	3	2	3.50	3	3
4.33	3	2	4	3	3	4.00	4	3
4.66	4	3	4	4	3	4.00	3	3
4.33	3	3	4	3	3	3.00	4	3

QUALIFIC	PROCEDUR	IT	EFFECTIV
3.60	3.37	3.00	3.00
4.12	4.37	3.66	5.00
4.12	4.37	3.66	4.00
3.75	3.80	4.00	3.00
2.44	3.00	2.33	3.00
3.00	3.50	2.66	3.00
4.25	4.25	4.00	4.00
4.00	4.25	3.00	5.00
3.12	3.50	2.66	3.00
3.75	4.37	3.66	3.00
4.12	4.37	3.66	3.00
3.00	3.37	3.33	3.00
3.75	3.80	3.33	3.00
2.44	3.37	2.33	3.00
4.12	4.25	4.00	4.00
3.12	3.50	3.33	4.00
3.75	3.80	3.66	3.00
4.12	3.37	2.66	3.00
4.25	4.37	4.00	3.00
3.75	3.37	3.66	3.00
3.00	3.37	2.33	3.00
4.12	4.25	3.33	5.00
2.44	3.00	2.33	3.00
4.12	3.37	3.66	4.00
4.00	4.37	3.33	5.00
3.75	3.80	3.00	3.00
4.00	4.25	3.66	3.00
3.75	3.50	2.66	4.00
3.87	3.12	3.33	3.00

APPENDIX F
DESCROPTIVE STATISTICS FOR THE PORT OF GDYNIA

Statistics

Rebates & Discounts System

N	Valid	29
	Missing	0
Mean		3.6379
Median		3.5000
Std. Deviation		.5493
Variance		.3017
Skewness		-.769
Std. Error of Skewness		.434
Kurtosis		1.442
Std. Error of Kurtosis		.845
Minimum		2.00
Maximum		4.50
Sum		105.50

Statistics

Amount of Subsidies per year

N	Valid	29
	Missing	0
Mean		4.7241
Median		5.0000
Std. Deviation		.4549
Variance		.2069
Skewness		-1.802
Std. Error of Skewness		.434
Kurtosis		3.242
Std. Error of Kurtosis		.845
Minimum		3.20
Maximum		5.00
Sum		137.00

Statistics

Marketing budget

N	Valid	29
	Missing	0
Mean		2.79
Median		3.00
Std. Deviation		1.21
Variance		1.46
Skewness		.034
Std. Error of Skewness		.434
Kurtosis		-.911
Std. Error of Kurtosis		.845
Minimum		1
Maximum		5
Sum		81

Statistics

market segmentation

N	Valid	29
	Missing	0
Mean		3.72
Median		4.00
Std. Deviation		.65
Variance		.42
Skewness		.332
Std. Error of Skewness		.434
Kurtosis		-.591
Std. Error of Kurtosis		.845
Minimum		3
Maximum		5
Sum		108

Statistics

Currencies accepted

N	Valid	29
	Missing	0
Mean		4.03
Median		4.00
Std. Deviation		.50
Variance		.25
Skewness		.086
Std. Error of Skewness		.434
Kurtosis		1.593
Std. Error of Kurtosis		.845
Minimum		3
Maximum		5
Sum		117

Statistics

Competition plays a very important role in pricing

N	Valid	29
	Missing	0
Mean		4.28
Median		4.00
Std. Deviation		.80
Variance		.64
Skewness		-1.010
Std. Error of Skewness		.434
Kurtosis		.861
Std. Error of Kurtosis		.845
Minimum		2
Maximum		5
Sum		124

Statistics

Quality of the service

N	Valid	29
	Missing	0
Mean		3.79
Median		4.00
Std. Deviation		.56
Variance		.31
Skewness		-.067
Std. Error of Skewness		.434
Kurtosis		.017
Std. Error of Kurtosis		.845
Minimum		3
Maximum		5
Sum		110

Statistics

Complexity of the service

N	Valid	29
	Missing	0
Mean		3.72
Median		4.00
Std. Deviation		.70
Variance		.49
Skewness		.446
Std. Error of Skewness		.434
Kurtosis		-.802
Std. Error of Kurtosis		.845
Minimum		3
Maximum		5
Sum		108

Statistics

Quantity of services provided

N	Valid	29
	Missing	0
Mean		3.52
Median		4.00
Std. Deviation		.51
Variance		.26
Skewness		-.073
Std. Error of Skewness		.434
Kurtosis		-2.148
Std. Error of Kurtosis		.845
Minimum		3
Maximum		4
Sum		102

Statistics

Reliability of the service

N	Valid	29
	Missing	0
Mean		3.8586
Median		4.0000
Std. Deviation		.4673
Variance		.2184
Skewness		-.351
Std. Error of Skewness		.434
Kurtosis		-1.347
Std. Error of Kurtosis		.845
Minimum		3.00
Maximum		4.33
Sum		111.90

Statistics

Frequency of the services provided is very high

N	Valid	29
	Missing	0
Mean		3.69
Median		4.00
Std. Deviation		.47
Variance		.22
Skewness		-.865
Std. Error of Skewness		.434
Kurtosis		-1.349
Std. Error of Kurtosis		.845
Minimum		3
Maximum		4

Statistics

Advertising

N	Valid	29
	Missing	0
Mean		2.86
Median		3.00
Std. Deviation		.69
Variance		.48
Skewness		.189
Std. Error of Skewness		.434
Kurtosis		-.787
Std. Error of Kurtosis		.845
Minimum		2
Maximum		4
Sum		83

Statistics

Five elements: logo, publications, designs, uniforms, gifts

N	Valid	29
	Missing	0
Mean		3.38
Median		3.00
Std. Deviation		.82
Variance		.67
Skewness		.000
Std. Error of Skewness		.434
Kurtosis		-.398
Std. Error of Kurtosis		.845
Minimum		2
Maximum		5
Sum		98

Statistics

5 fields of PR activities

N	Valid	29
	Missing	0
Mean		3.24
Median		3.00
Std. Deviation		.83
Variance		.69
Skewness		.309
Std. Error of Skewness		.434
Kurtosis		-.214
Std. Error of Kurtosis		.845
Minimum		2
Maximum		5
Sum		94

Statistics

Market research

N	Valid	29
	Missing	0
Mean		2.76
Median		3.00
Std. Deviation		.87
Variance		.76
Skewness		.857
Std. Error of Skewness		.434
Kurtosis		-.158
Std. Error of Kurtosis		.845
Minimum		2
Maximum		5
Sum		80

Statistics

Port accessibility

N	Valid	29
	Missing	0
Mean		3.6207
Median		3.5000
Std. Deviation		.6073
Variance		.3688
Skewness		-.371
Std. Error of Skewness		.434
Kurtosis		1.228
Std. Error of Kurtosis		.845
Minimum		2.00
Maximum		5.00

Statistics

Terminal choice

N	Valid	29
	Missing	0
Mean		4.31
Median		4.00
Std. Deviation		.66
Variance		.44
Skewness		-.431
Std. Error of Skewness		.434
Kurtosis		-.628
Std. Error of Kurtosis		.845
Minimum		3
Maximum		5

Statistics

Transportation network

N	Valid	29
	Missing	0
Mean		3.62
Median		4.00
Std. Deviation		.62
Variance		.39
Skewness		-1.451
Std. Error of Skewness		.434
Kurtosis		1.164
Std. Error of Kurtosis		.845
Minimum		2
Maximum		4

Statistics

Qualifications & Training is very good

N	Valid	29
	Missing	0
Mean		3.4162
Median		3.3700
Std. Deviation		.5689
Variance		.3237
Skewness		-.388
Std. Error of Skewness		.434
Kurtosis		-.150
Std. Error of Kurtosis		.845
Minimum		2.06
Maximum		4.26

Statistics

Procedures, schedules, etc are clear and convenient

N	Valid	29
	Missing	0
Mean		3.6138
Median		3.6200
Std. Deviation		.6095
Variance		.3715
Skewness		-1.085
Std. Error of Skewness		.434
Kurtosis		.429
Std. Error of Kurtosis		.845
Minimum		2.42
Maximum		4.66

Statistics

IT facilities

N	Valid	29
	Missing	0
Mean		2.9617
Median		3.0000
Std. Deviation		.5877
Variance		.3454
Skewness		.045
Std. Error of Skewness		.434
Kurtosis		-.466
Std. Error of Kurtosis		.845
Minimum		1.66
Maximum		4.00

Statistics

Effectiveness of the port

N	Valid	29
	Missing	0
Mean		3.8621
Median		4.0000
Std. Deviation		.6394
Variance		.4089
Skewness		.119
Std. Error of Skewness		.434
Kurtosis		-.403
Std. Error of Kurtosis		.845
Minimum		3.00
Maximum		5.00

APPENDIX G
DESCRIPTIVE STATISTICS FOR THE PORT OF GDANSK

Statistics

Rebates & Discounts

N	Valid	29
	Missing	0
Mean		3.7586
Median		4.0000
Std. Deviation		.3689
Variance		.1361
Skewness		-.636
Std. Error of Skewness		.434
Kurtosis		-.027
Std. Error of Kurtosis		.845
Minimum		3.00
Maximum		4.50

Statistics

Amount of Subsidies per year

N	Valid	29
	Missing	0
Mean		4.6897
Median		5.0000
Std. Deviation		.4708
Variance		.2217
Skewness		-.865
Std. Error of Skewness		.434
Kurtosis		-1.349
Std. Error of Kurtosis		.845
Minimum		4.00
Maximum		5.00

Statistics

Marketing budget

N	Valid	29
	Missing	0
Mean		3.28
Median		3.00
Std. Deviation		.70
Variance		.49
Skewness		-.446
Std. Error of Skewness		.434
Kurtosis		-.802
Std. Error of Kurtosis		.845
Minimum		2
Maximum		4

Statistics

market segmentation

N	Valid	29
	Missing	0
Mean		3.72
Median		4.00
Std. Deviation		.75
Variance		.56
Skewness		-.572
Std. Error of Skewness		.434
Kurtosis		.496
Std. Error of Kurtosis		.845
Minimum		2
Maximum		5

Statistics

Currencies accepted

N	Valid	29
	Missing	0
Mean		3.28
Median		3.00
Std. Deviation		1.39
Variance		1.92
Skewness		-.189
Std. Error of Skewness		.434
Kurtosis		-.787
Std. Error of Kurtosis		.845
Minimum		1
Maximum		5

Statistics

Competition plays a very important role in pricing

N	Valid	29
	Missing	0
Mean		4.21
Median		4.00
Std. Deviation		.62
Variance		.38
Skewness		-.151
Std. Error of Skewness		.434
Kurtosis		-.365
Std. Error of Kurtosis		.845
Minimum		3
Maximum		5

Statistics

Quality of the service

N	Valid	29
	Missing	0
Mean		3.69
Median		4.00
Std. Deviation		.60
Variance		.36
Skewness		.239
Std. Error of Skewness		.434
Kurtosis		-.508
Std. Error of Kurtosis		.845
Minimum		3
Maximum		5

Statistics

Complexity of the service

N	Valid	29
	Missing	0
Mean		3.59
Median		4.00
Std. Deviation		.57
Variance		.32
Skewness		.266
Std. Error of Skewness		.434
Kurtosis		-.812
Std. Error of Kurtosis		.845
Minimum		3
Maximum		5

Statistics

Quantity of services provided

N	Valid	29
	Missing	0
Mean		3.34
Median		3.00
Std. Deviation		.48
Variance		.23
Skewness		.689
Std. Error of Skewness		.434
Kurtosis		-1.644
Std. Error of Kurtosis		.845
Minimum		3
Maximum		4

Statistics

Reliability of the service

N	Valid	29
	Missing	0
Mean		4.1221
Median		4.3300
Std. Deviation		.5072
Variance		.2572
Skewness		-.374
Std. Error of Skewness		.434
Kurtosis		-1.134
Std. Error of Kurtosis		.845
Minimum		3.33
Maximum		5.00

Statistics

Frequency of the services provided is very high

N	Valid	29
	Missing	0
Mean		3.31
Median		3.00
Std. Deviation		.66
Variance		.44
Skewness		-.431
Std. Error of Skewness		.434
Kurtosis		-.628
Std. Error of Kurtosis		.845
Minimum		2
Maximum		4

Statistics

Advertising

N	Valid	29
	Missing	0
Mean		3.12
Median		3.00
Std. Deviation		.68
Variance		.46
Skewness		-.194
Std. Error of Skewness		.434
Kurtosis		-.674
Std. Error of Kurtosis		.845
Minimum		2
Maximum		4

Statistics

Five elements: logo, publications, designs, uniforms, gifts

N	Valid	29
	Missing	0
Mean		3.55
Median		4.00
Std. Deviation		.78
Variance		.61
Skewness		-.423
Std. Error of Skewness		.434
Kurtosis		-.099
Std. Error of Kurtosis		.845
Minimum		2
Maximum		5

Statistics

5 fields of PR activities

N	Valid	29
	Missing	0
Mean		3.48
Median		3.00
Std. Deviation		.83
Variance		.69
Skewness		.059
Std. Error of Skewness		.434
Kurtosis		-.366
Std. Error of Kurtosis		.845
Minimum		2
Maximum		5

Statistics

Market research

N	Valid	29
	Missing	0
Mean		3.07
Median		3.00
Std. Deviation		.75
Variance		.57
Skewness		.424
Std. Error of Skewness		.434
Kurtosis		.270
Std. Error of Kurtosis		.845
Minimum		2
Maximum		5

Statistics

Port accessibility

N	Valid	29
	Missing	0
Mean		3.8276
Median		4.0000
Std. Deviation		.4869
Variance		.2371
Skewness		.526
Std. Error of Skewness		.434
Kurtosis		.986
Std. Error of Kurtosis		.845
Minimum		3.00
Maximum		5.00

Statistics

Terminal choice

N	Valid	29
	Missing	0
Mean		3.59
Median		4.00
Std. Deviation		.73
Variance		.54
Skewness		-.320
Std. Error of Skewness		.434
Kurtosis		.069
Std. Error of Kurtosis		.845
Minimum		2
Maximum		5

Statistics

Transportation network

N	Valid	29
	Missing	0
Mean		3.17
Median		3.00
Std. Deviation		.60
Variance		.36
Skewness		-.069
Std. Error of Skewness		.434
Kurtosis		-.164
Std. Error of Kurtosis		.845
Minimum		2
Maximum		4

Statistics

Qualifications & Training is very good

N	Valid	29
	Missing	0
Mean		3.6421
Median		3.7500
Std. Deviation		.5661
Variance		.3205
Skewness		-1.040
Std. Error of Skewness		.434
Kurtosis		-.070
Std. Error of Kurtosis		.845
Minimum		2.44
Maximum		4.25

Statistics

Procedures, schedules, etc are clear and convenient

N	Valid	29
	Missing	0
Mean		3.7717
Median		3.8000
Std. Deviation		.4757
Variance		.2263
Skewness		.036
Std. Error of Skewness		.434
Kurtosis		-1.514
Std. Error of Kurtosis		.845
Minimum		3.00
Maximum		4.37

Statistics

IT facilities

N	Valid	29
	Missing	0
Mean		3.2490
Median		3.3300
Std. Deviation		.5542
Variance		.3071
Skewness		-.386
Std. Error of Skewness		.434
Kurtosis		-1.076
Std. Error of Kurtosis		.845
Minimum		2.33
Maximum		4.00

Statistics

Effectiveness

N	Valid	29
	Missing	0
Mean		3.4828
Median		3.0000
Std. Deviation		.7378
Variance		.5443
Skewness		1.210
Std. Error of Skewness		.434
Kurtosis		.034
Std. Error of Kurtosis		.845
Minimum		3.00
Maximum		5.00

APPENDIX H
RELIABILITY ANALYSIS FOR THE PORT OF GDYNIA

RELIABILITY ANALYSIS - SCALE (ALPHA)

Reliability Coefficients

N of Cases = 29.0

N of Items = 28

Alpha = .8706

APPENDIX I
RELIABILITY ANALYSIS FOR THE PORT OF GDANSK

RELIABILITY ANALYSIS - SCALE (ALPHA)

Reliability Coefficients

N of Cases = 29.0

N of Items = 21

Alpha = .8720

APPENDIX J
CORRELATION MATRIX FOR THE PORT OF GDYNIA

Correlations

		Effectiveness of the port
Port accessibility	Pearson Correlation Sig. (2-tailed) N	.780 .000 29
Transportation network	Pearson Correlation Sig. (2-tailed) N	.762 .000 29
5 fields of PR activities	Pearson Correlation Sig. (2-tailed) N	.536 .003 29
Currencies accepted	Pearson Correlation Sig. (2-tailed) N	-.321 .090 29
Five elements: logo, publications, designs, uniforms, gifts	Pearson Correlation Sig. (2-tailed) N	.716 .000 29
Reliability of the service	Pearson Correlation Sig. (2-tailed) N	.173 .370 29
Qualifications & Training is very good	Pearson Correlation Sig. (2-tailed) N	.486 .007 29
Complexity of the service	Pearson Correlation Sig. (2-tailed) N	.310 .102 29
Rebates & Discounts System	Pearson Correlation Sig. (2-tailed) N	.361 .054 29
Terminal choice	Pearson Correlation Sig. (2-tailed) N	.443 .016 29
IT facilities	Pearson Correlation Sig. (2-tailed) N	.304 .109 29
Marketing budget	Pearson Correlation Sig. (2-tailed) N	.332 .078 29

APPENDIX K
CORRELATION MATRIX FOR THE PORT OF GDANSK

Correlations

		Effectiveness
IT facilities	Pearson Correlation	.215
	Sig. (2-tailed)	.262
	N	29
Procedures, schedules, etc are clear and convenient	Pearson Correlation	.500
	Sig. (2-tailed)	.006
	N	29
Qualifications & Training is very good	Pearson Correlation	.425
	Sig. (2-tailed)	.022
	N	29
Transportation network	Pearson Correlation	.691
	Sig. (2-tailed)	.000
	N	29
Advertising	Pearson Correlation	.308
	Sig. (2-tailed)	.104
	N	29
Port accessibility	Pearson Correlation	.439
	Sig. (2-tailed)	.017
	N	29
5 fields of PR activities	Pearson Correlation	.423
	Sig. (2-tailed)	.022
	N	29
Five elements: logo, publications, designs, uniforms, gifts	Pearson Correlation	.326
	Sig. (2-tailed)	.084
	N	29
Terminal choice	Pearson Correlation	.251
	Sig. (2-tailed)	.190
	N	29
Quantity of services provided	Pearson Correlation	.317
	Sig. (2-tailed)	.093
	N	29
Quality of the service	Pearson Correlation	.188
	Sig. (2-tailed)	.329
	N	29
Marketing budget	Pearson Correlation	.285
	Sig. (2-tailed)	.133
	N	29
market segmentation	Pearson Correlation	.184
	Sig. (2-tailed)	.338
	N	29
Rebates & Subsidies System	Pearson Correlation	-.081
	Sig. (2-tailed)	.674
	N	29
Currencies accepted	Pearson Correlation	-.205
	Sig. (2-tailed)	.287
	N	29
Frequency of the services provided is very high	Pearson Correlation	.341
	Sig. (2-tailed)	.070
	N	29
Amount of Subsidies per year	Pearson Correlation	-.067
	Sig. (2-tailed)	.728
	N	29

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