

Liverpool John Moores University

School of Engineering

***CYPRUS AND MEDITERRANEAN
CRUISE MARKET: “A FINANCIAL
AND ECONOMIC APPRAISAL”***

By

Petros Lois MSc

Thesis submitted for the Degree of Doctor of Philosophy

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*This thesis is especially dedicated to the memory of my father
Stylianos Lois*

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Abstract

The work described in this thesis is concerned with economic and financial issues, including safety analysis, and their application to the companies operating in the Cyprus and Mediterranean cruise market.

This thesis applies “financial and economic” methodologies suitable for a cruise product. They are used as the basis for the development of more scientific and objective financial and economic methods and safety modelling techniques applicable to the operation of cruise ships in the Cyprus and Mediterranean regions.

A qualitative methodology is developed to analyse the passengers’ attitudes to cruise tourism, the fundamental considerations of competition at sea and the factors considered important for choosing a destination in the Cyprus and Mediterranean regions.

A business strategy model is developed to provide an established mechanism for cruise companies in making decisions on the coming into service of a cruise ship or when entering the cruise market.

A Formal Safety Assessment (FSA) model is developed to determine its applicability to cruise ships. For this reason, a test case study, which is limited to one accident category, namely fire, is conducted in order to demonstrate the feasibility of the proposed methodology.

A cost, benefit and risk assessment methodology is developed to help cruise companies in their strategic planning and decision-making process for the safest, economic and efficient operation of cruise ships.

This thesis also presents a proposed methodology involving the use of investment appraisal and risk assessment techniques. This approach may be used by cruise companies to evaluate project alternatives and make decisions that will be beneficial for them.

A generic cruise ship and anonymous cruise companies are used to demonstrate the methodologies developed in this thesis.

Finally, the results of the research project are summarised and the areas where further effort is seen to be required to improve the developed methodologies are outlined.

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Abbreviations

ALARP	As Low As Reasonably Practicable
ARR	Accounting Rate of Return
CBA	Cost-Benefit Analysis
CLIA	Cruise Lines International Association
CSE	Cyprus Stock Exchange
CTO	Cyprus Tourism Organisation
DCF	Discounted Cash Flows
ETA	Event Tree Analysis
FMEA	Failure Mode and Effects Analysis
FSA	Formal Safety Assessment
FTA	Fault Tree Analysis
HAZID	HAZard IDentification
HAZOP	HAZard and OPerability Studies
IMO	International Maritime Organisation
IRR	Internal Rate of Return
ISM	International Safety Management Code
MAIB	Marine Accident Investigation Board
MCA	Maritime and Coastguard Agency
MSC	Marine Safety Committee
NPV	Net Present Value
OECD	Organisation for Economic Co-operation and Development
PHA	Preliminary Hazard Analysis
PSR	Passenger Space Ratio
PVA	Passenger Vessel Association
QRA	Quantitative Risk Assessment
RCO	Risk Control Options
RCT	Risk Contribution Tree
ROCE	Return on Capital Employed
RRN	Risk Ranking Number
SMM	Safety Management Manual
SMS	Safety Management System

SOLAS	Safety Of Life At Sea
STCW	Seafarer's Training, Certificate and Watchkeeping Code
SWOT	Strengths, Weaknesses, Opportunities, Threats
USCG	United States Coast Guard
WTO	World Tourism Organisation

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CHAPTER 1

INTRODUCTION

Summary

This chapter gives a brief review of the historical developments of the cruise industry. This is followed by a discussion of whether the consolidation of the cruise market is complete or not, outlining the different phases and explaining the possible effects that the industry will face in the future. It also studies general issues concerning the globalisation of the industry. Finally, the difficulties and limitations of this study are addressed, the objectives are analysed and the scope of this thesis is outlined.

1.1 Historical Developments

Since the end of the Second World War (1945) a number of renowned passenger ships have gone into service. During the past thirty years, scientific and technological advances have brought about tremendous improvements in the design, power supply, accommodation and catering facilities of passenger ships. These include the use of aluminium or light alloy for upperworks and superstructure, the installation of efficient stabilizers and air-conditioning, the use of laminated plastics in the public rooms and cabins and of stainless steel in the galley, improved radio communication and navigation systems, etc. Such improvements not only give passengers a safer and more comfortable voyage, but also contribute to the efficiency of the ship and make possible competition with land-based holidays.

According to the Organisation for Economic Co-operation and Development (OECD) [OECD, 2003], there was a decline in sea travel in the period 1957-1970, which reduced the need for passenger ships. However, as a result of air competition, there has been a marked shift of emphasis from scheduled passenger services to cruising amongst all passenger ship operators. This change in function has altered once more the types of

passenger vessels being built. Very large ships were unsuited to cruising since they cannot always berth at many ports that attract holiday passengers, nor can they expect large numbers of cruise passengers throughout the year in a highly competitive market. These are some of the main factors that reduced the size of passenger vessels from capacities of, for example, over 3,000 passengers to about 1,000. It was believed that the British Queen Elizabeth II of 65,863 gross tons, launched in 1968, with accommodation for 2,000 passengers and 1,000 crew, might be the last of the very large passenger ships. However, nowadays there is a tremendous increase in larger cruise shipbuilding. This may be demonstrated by the fact that Oriana (69,000 gross tons, 1,975 berths) was launched by P&O (Peninsular and Oriental) in 1995, Grand Princess (109,000 gross tons, 2,600 berths) entered service in 1998, and the world's largest cruise ship Voyager of the Seas (142,000 gross ton, 3,840 berths) was launched by Royal Caribbean International in 2000. Cunard Line will also launch its new cruise ship, namely Queen Mary II (150,000 gross ton, 2,620 berths) in 2004.

The main reasons for such a recent change can be described as follows [Cruise Industry News, 2000a]:

- a. Large ships offer the operating companies better economies of scale, that is, lower operating costs. Theoretically, lower operating costs give a cruise line a higher profit margin and also provide a cruise line with the flexibility to lower prices if necessary, to expand the market and remain profitable.
- b. Large ships allow cruise lines to offer more attractive staterooms, more and larger revenue-generating facilities onboard (such as casinos, spas and shops) and more choices of activities for passengers.

With 71% of the globe covered with water, humanity seems to have rediscovered a taste for “the holiday with everything” (an advertising slogan developed by P&O). The image of the ship on a shining unpolluted sea carrying its passengers through changing scenes with every amenity available in their moving hotel is a compelling one.

1.2 Market Structures and Relationships

Although, in the first instance, it would appear arguable that cruising is a shipping activity that falls exclusively within the subject's (i.e. shipping activity) classic framework, further consideration suggests that this is not the case [Wild P., Dearing J., 2000a]. Fundamentally, as shown in Figure 1.1, it would appear that the market structure for cruising is comprised of three basic elements. These are (i) *transport*, typified by a cruise, (ii) *tourism and leisure*, which is attractive to the cruise tourist, passenger or guest and (iii) *travel*, which forms the cruise itinerary. The classic shipping activity is far more focused on the transport of goods/people etc. from A to B, while for cruise ships it is the process of transport that matters and also provides a holiday.

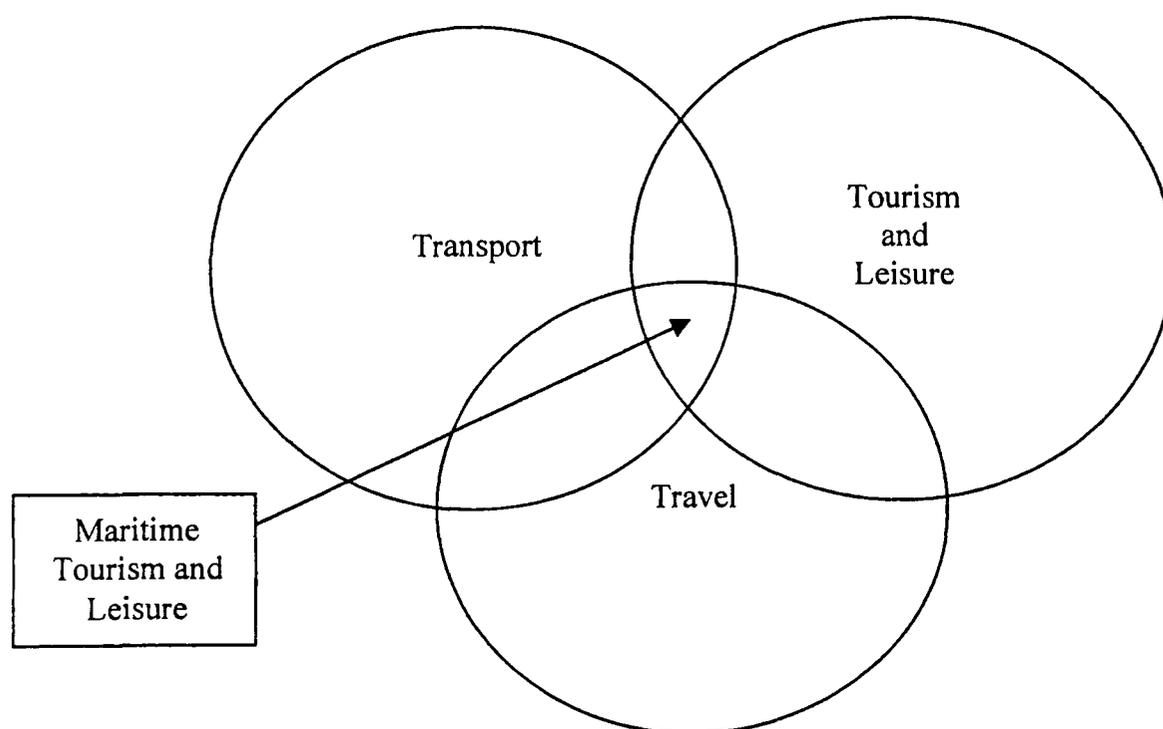


Figure 1.1: Fundamental market structure and relationships

Source: Wild P., Dearing J., 2000a

Cruising is part of the market for maritime tourism and leisure and, as is illustrated in Figure 1.1, conceptually it may be viewed as residing in that segment of the market somewhere in the mid-section where these three key elements overlap [Wild P., Dearing J., 2000a]. The basic relationship between maritime tourism and leisure and the shipping markets is identified in Figure 1.2. Figure 1.2 shows a clear distinction

between passenger services, such as those provided by traditional passenger liners and certain types of ferry service, and the market for maritime tourism and leisure.

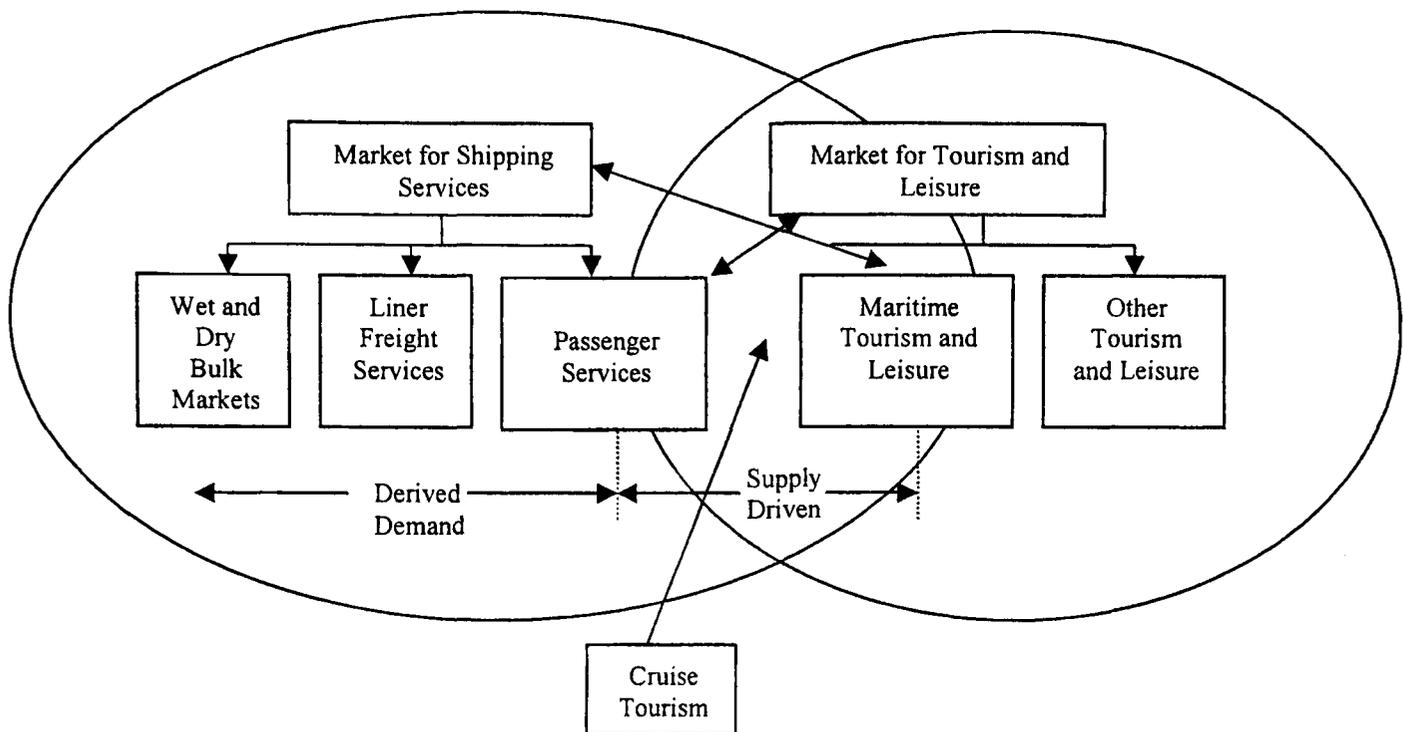


Figure 1.2: Maritime tourism (an examination of market links)

Source: Wild P., Dearing J., 2000a

Moreover, cruises can be characterised as one of the most augmented tourist products in the world as they offer an almost all-inclusive vacation. During 1999, the cruise ships around the world carried almost 9 million passengers. According to several studies [Cruise Industry News, 2000a; Wild P., Dearing J., 1999, 2000a] there is a great potential in the industry and by the year 2006 at least 17 million passengers will take cruise holidays. Table 1.1 shows the estimated world cruise fleet until the year 2006. The trend is to build larger ships that can accommodate more than 2,000 passengers. Larger ships can exploit economies of decreasing the operating costs and at the same time increasing the revenue on board due to additional amenities that they can accommodate.

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Ships	217	228	240	255	268	271	289	292	293
Berths	182,407	199,116	219,337	245,213	269,353	297,169	313,043	319,843	321,843
Market capacity (million)	9,300	10,279	11,465	12,801	14,134	15,487	16,509	16,715	16,795
Increase in capacity	---	10.5%	11.5%	11.7%	10.4%	9.6%	6.6%	1.3%	0.5%

Table 1.1: World cruise fleet (1998-2006)

Source: Cruise Industry News, 2000b

Figure 1.3 shows a more detailed illustration of the inter-relationships between maritime tourism, cruise tourism and maritime leisure. In Figure 1.3, cruise tourism is distinctly defined as a clearly identifiable segment of maritime tourism and leisure. It is also envisaged that the wider market for maritime tourism and leisure also encompasses the yacht and leisure craft markets. The inter-linking between maritime tourism and maritime leisure shows that there is a small but growing number of leisure seekers who are choosing a cruise yacht experience rather than a pure yacht based vacation [Wild P., Dearing J., 2000a]. In comparison, maritime tourism spans cruise tourism, passenger services and maritime leisure, but embraces only a part of the latter's market segment. In relation to maritime tourism, as can be seen from Figure 1.3, it is envisaged that freight and travel do not form part of this market, but lie within the passenger services market. In comparison, tourism, whether on a ferry, passenger cargo ship or cruise vessel, is generally regarded as lying within the market for maritime tourism [Wild P., Dearing J., 2000a]. The actual dividing line between these various market segments is not always as distinct as might be concluded from Figure 1.3. For example, Blue Star Ferries promotes its services within the cruise market but essentially remains a coastal ferry service company.

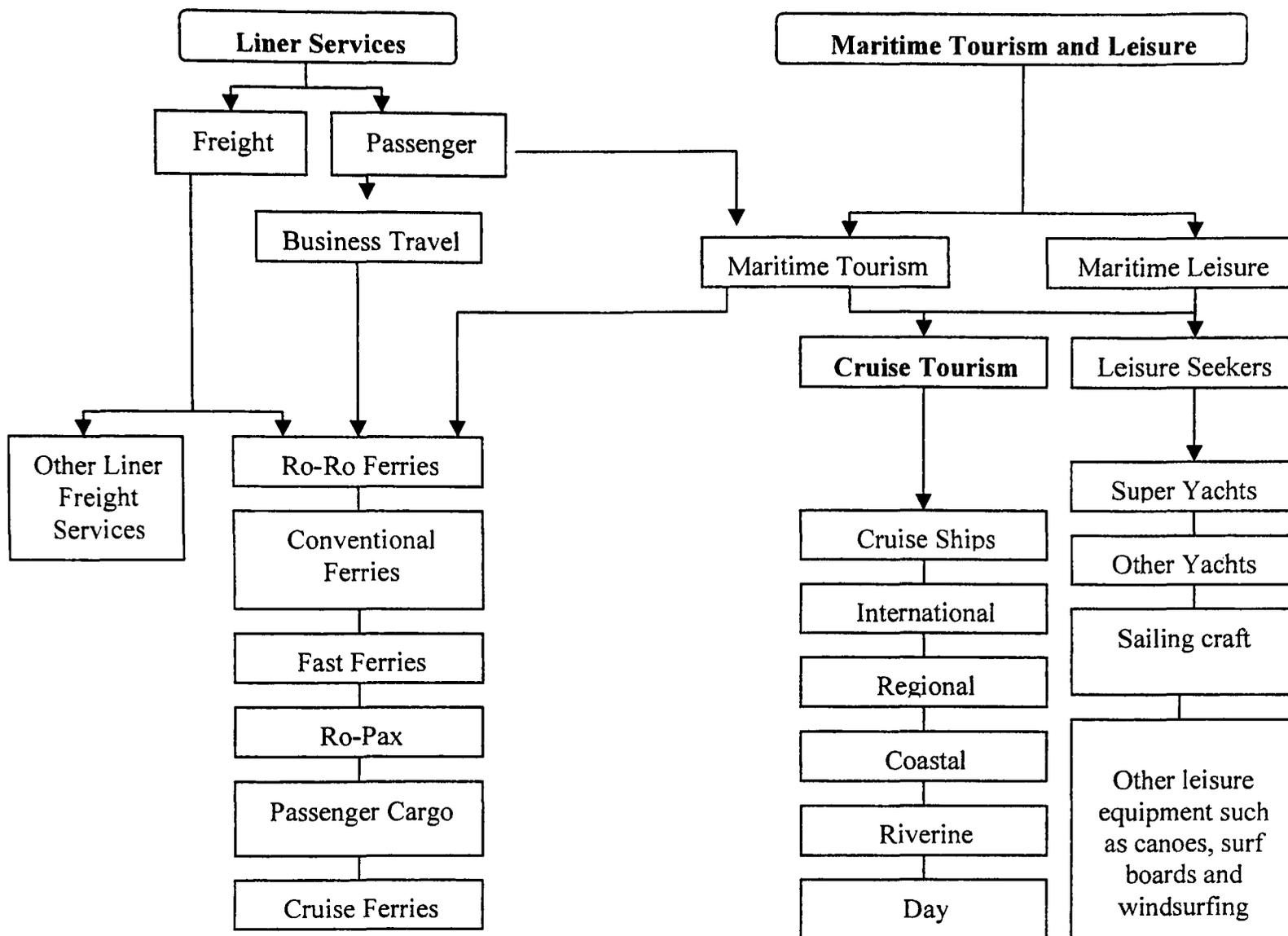


Figure 1.3: Relationship between maritime tourism, cruise tourism and maritime leisure

Source: Wild P., Dearing J., 2000a

After examining the inter-linking between the different shipping markets, it would be useful to consider another important trend in the cruise industry, that is, the consolidation of the cruise shipping industry.

1.3 Consolidation of Cruise Shipping Industry: Complete or Incomplete?

1.3.1 General Outlook

The cruise sector of the shipping industry is unique in that it is a hybrid of shipping, hotel resort, gaming, and travel or tour agency businesses. It is also unique in the vigorous growth and expansion it has enjoyed over the last decade [Sahni M., 1993/4].

Prior to the age of the jet airplane, cruise ships were primarily used as a transoceanic carrier service. The modern cruise ships of today are often marketed as a destination in themselves and resemble a full-service hotel with many of the facilities and comforts of the world's best resorts. Innovations such as outside cabins, large public rooms, expensive shopping malls, and a growing range of entertainment, cuisine, gaming and other on-board facilities continue to improve the quality of the product.

While over the last decade the cruise industry has blossomed into a global business, North America continues to represent over 80% of the overall market followed by Europe with 10%. According to the Cruise Lines International Association (CLIA) [Orban D. M., 1999], the Caribbean is by far the most popular cruising area in the world. This is because it enjoys certain unique features, such as year-round good weather, a variety of island destinations and a convenient location close to the large, affluent North American market.

Emerging from its beginnings in the 1970s the industry sailed into the 1980s and was still young and fragmented. As yet, no company had developed the skills and resources to command a significant market share. Today's market leader, Carnival Cruise Lines (CCL) [Mathisen O., 1998], was in 1980 still only a three-ship enterprise. With the prospects of continued growth ahead, expansion of existing brand names was certain to be used to full capacity. Apart from Cunard's acquisition of Norwegian American Cruises in 1981 and Kloster Cruise's purchase of Royal Viking Line, in 1984, the early part of the decade gave little hint of the consolidation to come.

1.3.2 Phase One (1987-1990)

By the mid-1980s, it was becoming clear that those who had failed to take steps to secure their position, either through the purchase of new ships or creation of a strong brand identity, were in danger of being eclipsed by the larger players. Intense competition had so changed the industry that small-size operations were no longer competitive or profitable.

The natural strategic buyers in the industry, as it began to undergo consolidation for the first time, were existing industry participants. For the larger, better capitalised cruise companies the need to capture market share, to position themselves in different segments and to acquire additional tonnage was fast becoming an imperative. Their need for economies of scale to finance expanding marketing and advertisement commitments, higher ship construction costs and infrastructural requirements fuelled several mergers and acquisitions in rapid succession. The first phase (1987-1990) saw many mergers and acquisitions, of which the major were the following [Wild G. P., 1994a]:

- a. In 1987, Ocean Cruise Line and Pearl Cruises merged.
- b. In 1989, the Peninsular and Oriental Steamship Navigation Company (P&O) purchased Sitmar Cruises.
- c. In 1989, Commodore Cruise Lines acquired Bermuda Star Line.
- d. In 1990, Paquet Cruises acquired Ocean Cruise Line and Pearl Cruises, which had merged in 1987.

Apart from the competitive advantage gained due to economies of scale and increased market share, consolidation had the obvious attraction of raising barriers to entry and better insulating the survivors against possible new competition. Certain acquisitions were driven by the recognition of valuable assets not shown on the balance sheets of the cruise companies. For instance, a primary strategic rationale for Princess' purchase [Wild G. P., 1994a] of Sitmar (1988) was to gain access to Sitmar's new building order book that would bring them three new ships at prices considerably below prevalent market prices.

1.3.3 Phase Two (1991-1994)

The merger trend of the 1980s decelerated dramatically after 1990. Apart from Commodore Cruise Lines' purchase of Crown Cruise Line [Wild G. P., 1994a] in 1991-92 there had not been any more purchases. However, consolidation within the cruise industry had not disappeared; rather it had taken on a new guise. The new face of consolidation was joint ventures and strategic alliances as opposed to the earlier transactions between willing buyers and willing sellers. For example, in 1992 and 1993 Seabourne Cruise Line allied itself to Carnival (CCL) by selling CCL a 25% stake with an option to increase this to 50% [Mathisen O., 1998].

The question that arises here is why the nature of consolidation has changed.

During the second phase, the major countries participating within the cruise market – e.g. the UK, USA, Spain – were faced with the dilemma of how to overcome the problems arising during the recession. The Gulf War also caused several problems whereby it kept travellers at home. With demand low and supply high, ticket prices soon reached a new equilibrium resulting in a pronounced and prolonged wave of discounting which has yet to moderate.

The financial impact of the lower yields and increased competition resulting from the supply and demand imbalance was recognised most by the second-tier cruise companies. Lacking the economies of scale and greater capital resources available to the major cruise lines, they needed to develop a course of action to ensure that they remained competitive. Their choice of possible actions, however, was more limited than that available to them a few years earlier.

Firstly, expansion through new ship building in an effort to reach a critical mass and thus generate economies of scale in operating, marketing and distribution was not yet a viable option. New building prices had risen substantially since the 1980s as a result of inflation. According to Citicorp Securities Incorporation, a 1500-passenger ship, which could have been ordered for approximately £95m (UK) in 1987, would have cost £150m (UK) in 1994 [Sahni M., 1993/4].

Secondly, the strategic buyers who had participated in the earlier acquisitions were either temporarily satisfied or else happy with their position. For example, Carnival was intent on building both the Carnival and Holland America fleets of the future. Kloster was working to resolve financial issues in order to retain its top spot in the top tier and Princess was looking to fleet and brand renewal rather than to further acquisition to remain competitive [Sahni M., 1993/4].

1.3.4 Phase Three (1995-1998)

During this period cruising perhaps had the most explosive market development that the travel and leisure industry has ever seen. This development is best illustrated by the growth of berths. In 1988 there were 99,000 cruising berths available and this number had grown to 165,000 by 1996. Another important statistic is that 80% of the market was still generated in the USA, with Europe in second place at around 11% [Davis J., 1996].

At the same time, some of the most beautiful ships had been produced, ships that are stunning in both size and amenities. When Kloster bought France, now Norway, there were fears that she was simply too big for her new role. Yet she has been a huge success and there are now fleets of super ships with capacities far in excess of Norway's. Economies of scale had become more and more apparent since so many costs were fixed and were much the same for both large and small ships. The relentless trend was for larger vessels to serve the main market.

In the period 1995 to 1998, the other trends were toward specialised market segments like sailing-ship cruises, yacht-like cruises with the Sea Goddess and Seabourne luxury vessels, Discovery Cruises, Swan Hellenic Culture Cruises, etc. [Davis J., 1996].

It is interesting to refer to some events that occurred during the third phase. In 1996, Carnival Cruise Lines added to its fleet its third ship where by Carnival's stake in the company was increased to 50% [Allen R., 1997]. As a result of the company's acquisition, it was decided that the name of Carnival's parent company, Carnival Cruise

Lines should be changed to Carnival Corporation. This provides a better distinction between the corporate entity and the brand name Carnival Cruise Lines.

Carnival formed a joint venture with Hyundai Merchant Marine of Korea, in the formation of Carnival Cruises Asia. This had commenced in 1998 using the *Tropicale*, which had been transferred from the Carnival fleet.

Another acquisition was made in July 1997. This was the US\$1.3 billion acquisition of Celebrity Cruises by Royal Caribbean Cruises Limited (RCCL) [Mathisen O., 1997]. The acquisition has meant a second brand for RCCL to operate alongside its recently named Royal Caribbean International (RCI) brand. It is obvious that the most strategic reason for these acquisitions was to achieve worldwide expansion.

Holland America Line made an expansion move by acquiring Windstar Cruises and its three 144-passenger sail-assisted ships in 1998. In 1997, the company acquired the Club Med I from Club Med, which entered service in Spring 1998 as the *Wind Surf* [Lanterman A. K., 1998].

1.3.5 Phase Four (1999-date)

The majority of industry experts agree that the consolidation process is bound to continue, but point out that opportunities for acquisition are more limited [Lloyd's Shipping, 1999]. The industry has become reasonably concentrated with Royal Caribbean, Carnival and Princess Cruises sourcing its passengers from North America. However, there is some room for consolidation, as smaller, less efficient companies are more likely to be subject to the consolidation trend [Lloyd's Shipping, 1999]. For example, in October 1999 the Cyprus-based company, Louis Cruise Lines, moved towards buying a controlling stake in Royal Olympic Cruises (ROC), the Nasdaq-listed company. Louis Cruise Lines paid about \$40 million for a 70% share in the company [Lowry N., 1999].

In 2000, moves towards consolidation within the cruise industry were considerably constrained due mainly to the drop in the evaluation of companies' financial positions. The financial markets slowed down ideas for consolidation and P&O's purchase of Festival did not come through [Salles B. R., 2001]. However, the following mergers and acquisitions took place during this year:

- a. Carnival had been able to buy Airtours from Costa at a price of \$25 million, leaving the latter group with a very healthy profit of nearly \$400 million in just three years.
- b. Royal Caribbean, which had no foothold in Europe in contrast to its rival Carnival, had established a cruise joint venture with the British tour operator First Choice, which runs the Viking Serenade.

These two operations prove the growing interest from North American companies for the European market.

There was further consolidation within the cruise industry in 2001 after the announcement of the merger between P&O Princess Cruises and Royal Caribbean Cruises. With this new entity of an estimated worth of \$6 billion, 80% of the North American cruise market would be controlled by two companies [Bly L., 2001; Salles B. R., 2003]. The entity is active in the American market and Northern Europe and should consolidate its position in Southern Europe. It is for this reason that the company has made known its intention of putting four new joint ships into this market [Salles B. R., 2003]. Carnival, surprisingly, was also involved in the biggest take-over and offered to the shareholders of P&O \$5.5 billion to entice them to change tack and join their group [Mott D., 2000]. Neither bid proceeded due to the European Union's intervention. European Union regulators had unconditionally cleared Carnival's bid for P&O Princess Cruises in July 2002 [McSorley C., 2002], although three months earlier, it seemed that the Commission was supporting Royal Caribbean's case [Maritime Matters, 2002]. In February 2003, the European Commission issued a press release stating that it had approved an agreement whereby Carnival and P&O Princess would create a dual-listed company structure combining their activities [Maritime Matters, 2003]. The agreement

to combine the two companies through a dual listed company will create the world's largest cruise vacation group, with a fleet of 65 cruise ships offering 100,000 berths [Travel News Europe, 2003b]. As the industry moved into 2003, it was facing up to the most dramatic consolidation of all.

1.3.6 The Future

The consolidation of the cruise industry is not yet complete. Competitive pressures and structural changes will force the disappearance of some companies and cause further merging and strategic alliances to take shape. This will lead to greater concentration of market share in the hands of a few operators. As price discounting continues due to weak demand and capacity overhang (i.e. projection), the high operating leverage inherent in the industry will ensure that success favours those operators who enjoy economies of scale. Today, those economies that have yet to establish a viable franchise face a dilemma.

Though smaller, older vessels carry a lower capital cost, they are at a disadvantage from both an image and a cost-efficiency standpoint. Yet, the capital required to build up a fleet through new buildings may be prohibitive. According to Manish Sanui [Sahni M., 1993/4], a 2000-passenger ship would cost approximately £185m (UK) today, implying that new buildings can only be absorbed by those larger established operators whose existing fleet generates sufficient operating cash flow to support the investment in future returns. On the other hand, the smaller operators can buy and operate a cruise ship through a second hand market, where prices are obviously lower. In addition, the capital-intensive nature of the business means that access to attractively priced capital will continue to be a competitive advantage, which will further benefit the large, well-capitalised companies.

As new capacity continues to come on stream [Mathisen O., 1999b] the need for players to approach new markets will intensify. Increased competition, lower returns and infrastructural constraints will gradually ensure that large, cost-efficient new ships will dominate the market. This may force the major operators to relocate their older ships to

obtain higher returns elsewhere as well as to avoid confusion of their brand identity. This may arise as the gap between the oldest and newest ships in the fleet increases. Developing new markets may exact a high price in the infrastructure that must be built to support marketing and distribution functions [Sahni M., 1993/4]. This may also exact a high price in the investment of management time and skills that are required. Clearly, the risks of failure are higher. Not only are the brand identities unknown to consumers in the new market but also existing competitors hold the advantage of historic presence and local operating knowledge.

While the industry will undoubtedly grow and change in the 2000s, the rising capital costs, greater marketing requirements and critical legislative amendments may all lead to the conclusion that the coming years will see increasing consolidation and greater concentration of market share within the cruise industry.

Economic logic drives every industry along its own particular life cycle. In the case of the cruise industry, the first phase of consolidation (1987-90) was dictated by the need for smaller operators either to cash out or face the prospect of slow growth, as those with better foresight, access to capital, and adaptive powers overtook them. Those owners who chose to exit at this time recognised the new economic forces that were shaping the industry and decided that they were probably better off redeploying their capital elsewhere. Those of the smaller operators who stayed on, or entered the industry during this period, were soon to find themselves forced to participate in the second phase (1991-94) that was to occur. While faced with essentially the same issues that had precipitated the first phase, in particular the need to build a critical mass to achieve economies of scale, they also had to contend with structural changes affecting the industry.

Furthermore, one of the effects of tour operator involvement in the cruise industry is to bring the disparate shipping and travel segments of the business closer together. Tour operators, such as Airtours, Thomson and First Choice have a dynamic presence in the cruise industry. For example, Airtours, which is now called MyTravel, is operating four cruise ships, one of which is chartered to Royal Olympic Cruises [MyTravel, 2003].

The unprecedented supply and demand growth has changed the face of cruising worldwide with significant product segmentation, polarization of ship sizes and styles, and crucially a radical consolidation of cruise companies through mergers and acquisitions [Peisley T., 2002]. It is believed that there will be a continued consolidation in the cruise industry. This may not be via the traditional path of merger and acquisition. Based on the substantial investment in new capacity and little or no renewal of older, smaller fleets, the major cruise lines will continue to increase their market share and, hence, consolidate the industry. The major lines can turn their policies into this new path because nobody is safe in the hunt for acquisitions [Mott D., 2000; Salles B. R., 2001].

It is believed that the success story of mergers and acquisitions will continue. However, it has been noticed by the author that there are dangerous rocks ahead. Unprecedented numbers of new buildings are coming on to the market, while the older ships still remain sailing, though perhaps “cascaded” to less demanding itineraries and markets. Thus capacity is growing at a huge pace and for this, new cruising areas have to be found, new markets have to be encouraged and care has to be taken so that the oversupply does not have the chilling result of rate erosion.

1.4 The Globalisation of the Cruise Market

The phenomenal growth of the cruise industry over the past decade has fuelled many spirited discussions and much hand wringing over whether or not the continuous increase in berths can be absorbed. The cruise industry will be required to absorb another huge amount of new buildings over the next years. The cruise industry is under the scrutiny of governments and worldwide regulatory agencies [Schibuola D., 1994].

The overriding question in the mind of cruise line management over the next few years may be filling all the new tonnage at an acceptable yield. Currently, most of the industry tends to position its new berths in the Caribbean [Holders J., 1999].

Cruise vacations in the European market are in their infancy but are fast growing. Far greater potential exists in that market for operators already strongly positioned there. While the European market is only one area of potential globalisation and the Australian market is beginning to emerge, they do not provide a good example of the unique challenges associated with attracting and catering to a global audience. Although Europe tends to be labelled as one market, in reality it is many different markets under one umbrella. It could almost be said that globalisation is really localisation. In other words, to appeal to the many varied markets in Europe, for example, Italian, German, French, British and Spanish, cruise lines are first required to be able to market themselves properly in each of these countries.

More importantly, the ability to cater to a multi-national clientele on board is crucial for being successful in operating in a global environment. Recruiting and training onboard personnel fluent in more than two languages, in some cases, is a challenge to any global operator. The officers, staff and crew must possess a thorough knowledge of different national tastes (e.g. in cuisine, entertainment or itineraries) plus, of course, the technical skills related to their respective jobs. This situation applies particularly in the Mediterranean market. For example, taking into account the Cyprus cruise market, all the Cypriot liners face such challenges.

The passengers cruising from Cyprus come from Greece, UK, Germany, Italy, Asia, Arab countries and Russia [Republic of Cyprus, 1998]. The particular liners provide the passengers with the needs and expectations of a true Mediterranean vacation. The cuisine, while predominantly Greek, incorporates various culinary specialities from around the world. Social activities and onboard programmes are geared to bring the different cultures and nationalities together in a spirit of friendly competition. This creates levels of interaction among passengers well beyond what travellers would ever experience. Staff and crew, especially those with a key job position onboard (i.e. reception, purser's office and bars) are able to speak more than two languages.

Furthermore, in order to penetrate the global market, companies must recognise the difference in selling to various nationalities. For example, what may work in Britain

will not necessarily drive the business in Germany. Furthermore, a worldwide network of sales and marketing offices in participating countries should evidence the commitment of companies to the globalisation of the cruise package. Each of these offices is required to have at its disposal all the necessary information and tools to attract passengers in their respective countries. The author's philosophy here is to THINK GLOBALLY and ACT LOCALLY. A good example is Costa Cruise Lines which has set up sales and marketing offices in countries such as Italy, Switzerland, Germany, France, Britain, Brazil, Argentina, Venezuela and Mexico [Sahni M., 1993/94]. It is therefore encouraging to see the cruise industry enjoy continued positive growth. The author believes that this could happen if other cruise line companies follow the paradigm of Costa Cruise Lines.

Globalisation of the cruise sector has led to increased internationalisation of owner concentration in this business, with a massive shakeout reducing the number of players. Acquisitions and bankruptcies have been dizzying over the past two decades [Robertson G., 2002].

The globalisation of the cruise industry will continue in the future. Cruising is becoming a global industry, with significant growth in the UK, Europe and, despite economic troubles, in Asia. Innovative itineraries are necessary in staying competitive. The cruise lines are actively looking for new destinations [Kalosh A., 1999]. To attract more cruise passengers it is necessary for the operators to develop a specific marketing strategy and a dedicated product [Bruton G., 2000]. For American passengers, operators need to provide better flight connections, airports closer to the ports and better fares. An improvement in port terminal facilities may also be needed, especially given the increasing numbers of passengers they have to deal with. Co-operation among regional ports in key areas like marketing, security and improving operational standards is also of the utmost importance.

Although globalisation appears to be unstoppable, there are possible constraints to expanded deployment such as war, terrorism, global economic depression, environmental limitations and infrastructure limitations including airlift. Not all cruise

in tourist arrivals during the winter months, the Cyprus companies do not operate their ships during this period (November to March). This cruise performance gap can be taken into account by the cruise lines in order to overcome the economic and competitive problems that exist during this period.

- f. Fly-cruises will continue to dominate the cruise market, with the Mediterranean likely to remain the most popular destination for UK consumers in the longer run, although events in the Middle East may affect prospects in the short term [Wild P., Dearing J., 2000a].
- g. The cruise lines will continue to provide greater value to the vacationing consumer compared with resorts and other types of vacation. As value has become increasingly important to consumers, the all-inclusive cruise vacation has become more attractive to a large segment of the world's population.
- h. Co-operation between tourism boards and cruise lines, travel agents and cruise lines, and air lines and cruise lines is necessary for ensuring long-term growth.
- i. Due to varied cultures, languages and tastes, cruise lines will have to rise to the challenge of making their ships an attraction that crosses cultural and language barriers.
- j. The cruise lines can enlighten national port authorities and governments on the benefits (economic benefits, increase in tourist numbers and promotion of the country) of the cruise industry, and can promote international awareness.
- k. The cruise product will be improved over the next years both in terms of hardware and software due to technological advancements.

The future environment of the cruise industry can be hospitable. The industry can look forward to tremendous and exciting growth, new vessels and increased passengers and traffic to different and attractive world destinations. As new cruise capacity is added,

more options are provided to the consumers and as more vacationers are interested to take a cruise within the next five years, the cruise industry is poised for dynamic growth well into the next five years and beyond.

1.6 Difficulties and Limitations of the Project

Although financial and economic assessment techniques have been increasingly developed and applied by both the tourist industry [World Tourism Organisation, 1993, 2001] and tourism researchers [Briggs S., 1997; Brunt P., 1997; Bull A. 1995; Evans M. J., Montinho L., Van Raaij W. F., 1996; Harris P., 1995; Knowles T., Egan D., 2002; Laws E. 1995; Turner L. W., Witt S. F., 2001] there are still some problems for these techniques to be widely applied in the cruise industry, especially in the Cyprus and Mediterranean regions. In order to effectively use these techniques and to develop more objective methods, it is necessary to describe the difficulties involved in the “financial and economic” assessment process. Such difficulties and limitations are briefly outlined below:

- i. A consistent point made is the lack of research and studies into the cruise industry. However, there would appear to be 20-30 academics around the world who specialise in this field. They cover different regions, compare/share their findings and identify future priorities. There is evidence that some are beginning to work on inter-regional projects and have a desire to form their own mailing lists and discussion forums.
- ii. The cruise companies in Cyprus operate their ships only for seven months per year. This is due to very low demand for cruises during the winter months. Therefore, it may be extremely difficult to compete with the ‘big players’ who have entered the region and operate their ships all the year round.
- iii. The limited operation period may cause serious problems and increase the costs of the Cyprus companies, because they have certain fixed expenses throughout the whole year.

- iv. A fully quantified formal safety assessment analysis entails considerable work and therefore is costly.
- v. The quantification of effects and consequences of the identified hazards involves great uncertainty, even in those cases where the physical elements are clearly understood.
- vi. An analytical exercise associated with the quantification of risks involves a large number of assumptions, estimates, judgements and opinions, which are often subjective. Therefore, it may need considerable skill for a cruise analyst to interpret the results produced.
- vii. It is extremely difficult to set up absolute criteria for cost and risk assessment, since there are no fixed rules about how this assessment should be undertaken and because companies may use different risk acceptance criteria.

1.7 Objectives

The main aim of this research is to analyse economic and financial issues concerning the Cyprus and Mediterranean cruise sector of the shipping industry and propose a detailed appraisal of the current and future prospects within the cruise market.

The specific objectives of this work are outlined below:

- i. To investigate the characteristics of the cruise market with particular reference to the Cyprus and Mediterranean regions.
- ii. To investigate the major factors that influence the development of the Cyprus and Mediterranean cruise market.
- iii. To identify cruisers' attitudes and also the current status of the cruising market with particular attention to the Cyprus and Mediterranean cruise regions.

- iv. To develop an operation strategy that can be used by a cruise company operating in the Cyprus and Mediterranean cruise regions so that a decision on commissioning a cruise ship can be made.
- v. To examine the applicability of formal safety assessment to the cruise industry, and investigate how the Cyprus and Mediterranean cruise industry can benefit from formal safety analysis and cost-benefit analysis.
- vi. To develop practical methodologies and test cases in the areas of cost, risk and investment appraisal that can be used by cruise companies in the Cyprus and Mediterranean cruise regions.

1.8 Scope of the Work

It is obvious that the financial and economic issues of the cruise industry described and developed in this work are of a general nature and can effectively and efficiently be used by any cruise ship company and ship owner, especially those in the Cyprus and Mediterranean regions.

Chapter 2 studies the segmentation of the cruise market. In particular, it examines the different sectors of cruise operation, and analyses the “Big Players” in the Mediterranean and Cyprus regions. It also looks into the characteristics of the European cruise market, and evaluates the factors that affect the development of prospects for cruising. The factors that can limit the expansion of cruising are also examined. The development of cruising in Cyprus is examined as a case study.

Chapter 3 investigates an approach to cruising, including consumer attitudes to cruise tourism and fundamental considerations of competition. It also examines how the participants within the cruise market try to find which of the types of cruise defined in the chapter is the most advantageous and beneficial for them. Consumer attitudes and fundamental considerations of competition, and the factors considered for choosing a destination are extensively examined by analysing the results of cruise passenger

surveys [Appendices 4 & 5] and group discussions organised by the author. This chapter also examines the demand and supply issues via the analysis of public statistical data drawn from various sources.

Chapter 4 studies the major elements of marketing that affect the cruise market, including pricing policy, advertising, publicity and direct selling of the company's services. Revenue opportunities to maximise profitability both on board and ashore are assessed and new ways are proposed. A proposed business strategy for a cruising company is developed. Initially, this is focused on a tourist company operating from Cyprus and planning to enter the Mediterranean cruise market. The developed operation strategy examines the competition in the market, the company's potential customers, and the marketing strategies that it may follow. It also undertakes a SWOT (strengths, weaknesses, opportunities, threats) analysis.

In Chapter 5, great emphasis is laid on safety issues and the applicability of formal safety assessment to the cruise industry is examined. Formal safety assessment and its development in the cruise shipping market are described. Cruise ship accident statistics are studied and discussed. This is followed by an analysis of cruise ship characteristics and a proposed formal safety assessment methodology for cruise ships. The case study conducted to demonstrate the proposed methodology examines only one accident category, namely 'fire'. This chapter investigates how the cruise industry can benefit from formal safety analysis and cost-benefit analysis. Further development in formal safety assessment in the context of cruise ships is finally discussed in detail.

In Chapter 6, different categories of cruise ship costs are examined. Attention is focused upon capital, and running and operating costs, in the hope that they can be reduced to improve the performance of the company. The costs are examined in the context of the different cost categories aboard the cruise ship, including the five phases of cruise operation from the time the passengers embark to when they last depart. A cost-benefit analysis is carried out in order to identify the cost elements arising from each cost category involved in the examined operation phase, namely 'cruising', and estimate the benefits for each cost element. Risk analysis is another issue that is examined. Risk

assessment techniques are studied and the risk criteria for determining whether a risk is acceptable or not, are established. The proposed cost, benefit and risk assessment methodology is developed in the light of decisions of the cruise companies about the safe, economic, efficient and effective operation of their cruise ships.

Chapter 7 examines the applicability of risk analysis to the investment of capital projects in the Cyprus and Mediterranean cruise industry. Investment appraisal techniques and their significance in investment decisions are described. This is followed by a description of a proposed investment risk methodology for cruise ships. Risk factors are also incorporated into the analysis. The proposed methodology is developed on the basis of qualitative risk techniques. A probability and consequence matrix is used in order to establish the level of risk for the possible events occurring. The approach can be applied to cruise companies in an attempt to evaluate project alternatives under uncertainty. The factors that are also taken into account in the decision making process include the clearly defined objectives, market competition and a SWOT analysis of the company.

Chapter 8 discusses the effectiveness of the thesis and further work that can improve the proposed methodologies. Finally, conclusions are presented in Chapter 9.

1.9 Proposed Methodology

The thesis is an applied research project addressing cruising, shipping, risk assessment and investment study with particular reference to the Cyprus and Mediterranean regions. The practical methodologies and test cases proposed may develop a reference that can be practically used by cruise operators and researchers of the Cyprus and Mediterranean regions. Each chapter is based on different methodology because the thesis examines various different aspects of the industry. Statistical data for a generic vessel type and cruise company are obtained from primary and secondary sources. Primary data are data collected specially for the purpose of whatever survey is being conducted, whereas secondary data are those which have already been collected elsewhere, for some other

purpose, but which can be used for the survey being conducted [Certified Accounting Technician, 2000]. The proposed methodologies can be described as follows:

In chapter 3, a generic qualitative assessment model is developed in order to synthesise competition factors and measure the cruisers' attitudes to cruise tourism. The competition factors and cruisers' attitudes are derived from market surveys carried out in the Cyprus cruise region. "Quota sampling technique" was used in carrying out the two market surveys. This means to decide how many of each category of people should be included in the sample and then look for the right number of people in each category until the quota was filled [Oppenheim A. N., 1996].

Chapter 4 focuses on the development of an operation strategy of a cruise company. The developed strategy consists of five stages (i.e. Define goals and objectives, Analyse the competition and potential customers, Create new market opportunities, Undertake a SWOT analysis, Monitor and Review). The proposed operation strategy can be used by a cruise company so that a decision on commissioning a cruise ship can be made. It can also be used as an established mechanism to achieve its goals and objectives, and remain competitive in the cruise industry environment. For the development of the proposed strategy, an anonymous company with actual information has been chosen. The author was requested to carry out such a study for the company. The information not mentioned in this chapter includes the acquisition deal, financial projections, funding requirements, operational plans and organisation structure. The proposed strategy was developed in the context of a cruise ship operating from Cyprus. This can be modified and used by other companies operating in other cruise areas. The possible changes to the proposed strategy may be based on different factors, including larger ships, higher prices and different distribution channels.

In Chapter 5, a Formal Safety Assessment (FSA) methodology is developed. The FSA framework consists of the following five steps [IMO, 1997; Kuo C., 1998; Maritime Safety Agency, 1993; Riding J. F., 1997; Wang J., Foinikis P., 2001]:

1. Identification of hazards (a list of all relevant accident scenarios with potential causes and outcomes).
2. Assessment of risks (evaluation of risk factors).
3. Risk control options (devising regulatory measures to control and reduce the estimated risks).
4. Cost benefit assessment (determining cost effectiveness of each risk control option).
5. Recommendations for decision-making (information about hazards, their associated risks and cost effectiveness of alternative risk control options is provided).

The test case study conducted to demonstrate the feasibility of the proposed FSA methodology is limited to one accident category only, namely 'fire'. This is because a full-scale trial application would be too large in volume.

A proposed cost-benefit risk assessment methodology is developed in Chapter 6. The stages of this process are described as follows:

1. Define, or breakdown the plan/process into its elements by drawing a flowchart or list of activities and events.
2. Study the cost and benefit associated with each element.
3. Model cost elements. The cost elements are classified into four categories, namely ship, crew, passenger-related costs, and administration and general costs. In this step, a possible annual rise for each cost element is estimated and a controllability factor is used. A controllability factor is a level within which each cost element can be controlled and is expressed in percentage terms. Areas of possible control are also exercised.

4. Rank the cost elements in terms of impact of their potential success/failure on the whole process and assign weighting values to each element. This can be done by estimating the average controllability factor for each cost element and then assigning relative values to the cost elements being considered.
5. Estimate the likelihood and consequences of possible hazards. In this step, the importance of risks to a cruise company will be determined. The analysis will determine the tolerability of the risk level.
6. Propose control measures to reduce the risks associated with significant hazards.

Following the detailed analysis of the proposed cost, benefit and risk methodology of cruise passenger ships, a test case is conducted in order to demonstrate its feasibility. The test case is limited to one phase of operation only, namely ‘cruising’. This is because a full-scale trial application would be too large in volume. The test case is based on a hypothetical cruise company.

In Chapter 7, an investment risk methodology is proposed and consists of the following stages:

1. Preliminary Planning
2. Define Objectives
3. Identify Options
4. Identify Costs and Benefits for Each Option
5. Identify Risk Factors
6. Probability and Consequence Matrix
7. Prioritise the Risks
8. Choose the Best Option

The above stages are described in Chapter 7 in section 7.5. A test case is conducted in order to demonstrate the feasibility of the proposed investment risk approach of cruise passenger ships. The test case is limited to one cruise company operating from Cyprus.

The company is listed in the Cyprus Stock Exchange and likes to keep its name anonymous. For this reason, two hypothetical cruise investment options are considered and the company has to decide the most appropriate and beneficial option. Several assumptions are made for the proper evaluation of the two options. These are explained in Chapter 7 in section 7.6.

1.10 Literature Review

The literature review was conducted using refereed journals, books, market surveys, electronic search, companies' promotional material and web sites, interviews, other PhD theses, and newspaper articles. The thesis provides a step-by-step introduction to my research. It was preferred to introduce key definitions in each individual chapter rather than in one particular chapter. The literature review for each topic is in applicable chapters. Due to the nature of the research, the completion of a separate chapter on the literature review is not appropriate because most of the literature review used in one chapter cannot be included in another chapter.

1.11 Contributions and Dissemination

The financial, economic and safety techniques developed in this thesis will facilitate cruise ship assessment in various situations. Although the methods developed were applied to cruise vessels, the results of the project can be tailored for analysis of ferries and high-speed ferries with domain-specific knowledge. These methods, which are subjective in nature, may prove useful for many cruise companies that lack quantitative data.

Investigation results and findings are made available by publications in books, journals, newspapers, presentations at international conferences and workshops.

CHAPTER 2

MARKET SEGMENTATION

Summary

This chapter examines the cruise market segmentation. It analyses the main sectors of cruise operation and the “Big Players”, particularly in the Mediterranean and Cyprus regions. The characteristics of the European cruise market, and the future prospects and limiting factors are studied. An analysis of the reasons why Europe is far behind USA in terms of passenger numbers is also carried out. The development of cruising in Cyprus is examined as a case study. Initially, the Cyprus market growth is analysed and it can be seen that the Cyprus cruise market (i.e. Cypriots-run cruise ships based in Cyprus) is currently in its infancy. Travel statistics and cruise market trends since 1994 are provided. In addition, the prospects of employment for Cypriot sea-going employees within the cruise industry are also considered and results obtained from the analysis suggest that it should be possible to increase the participation of Cypriots and other European seafarers within the cruise industry at all levels and in all departments. A group study discussion was carried out and the results are analysed. In the final section, the factors that can affect the growth of the Cyprus cruise market are described. It is concluded that the continued growth of the world cruise industry should be possible in the future and the Cyprus cruise market can benefit from it.

2.1 Introduction

At a glance, cruise ship deployment is extending year by year to reach some of the most remote and stunning places on the globe. It is true that the industry’s traditional source market in North America is now supplemented with significant contributions from other countries and continents. The different markets outside North America account for 30% of the total worldwide passenger/day demand [Mathisen O., 1999b]. This means that

approximately one passenger in three embarking on a cruise will be a citizen of a country outside North America.

The globalisation process has been assisted by the increase in the world fleet and operators [Cruise Industry News, 1999c], recognising the need to diversify beyond the Caribbean. Mega cruise ships were brought into the Caribbean predicting that the boom in the American market will continue. On the other hand, new markets have emerged (Europe and Far East), which, though in their infancy, seem willing to play an important role in the globalisation process and the growth of the industry.

Looking into Europe as a source market for tourism, a highly diversified market is “on-line” with a variety of customers, where cultures, languages and standards of living differ considerably. Political and economic development of the past years has created heterogeneous developments of demand, especially in the Eastern Mediterranean markets of origin. In 1997 more than 260 million Europeans took a holiday abroad, about 4% more than in 1995. Despite terrorism, wars and economic gloom, European tourism continued to grow. International tourist arrivals in Europe rose to 411 million in 2002, which is 58% of the world’s total [USA Today, 2003]. It is interesting to notice that the situation in the East European countries has changed recently. For example, the number of Russians travelling abroad on holiday is estimated to be 3.5 million each year [World Tourism Organisation, 2003]. Today cruise travel in Europe, especially in the Mediterranean, is characterised by the entry of new ships [Cruise Industry News, 1999b], market growth, and new product development, but above all by the entrance of the tour operators [Michaelides G., 1997b; Wild P., Dearing J., 2000a] in the cruise business. Another feature is the development of short cruises in the Eastern Mediterranean. Taking Greece and Cyprus as an example, this type of cruising attracts 500,000 passengers every year [Loizou C., 1997]. Comparing North Europe with the Mediterranean region, it can be seen that of the 17.9% share of the European market 13.8% goes to the Mediterranean region and only 4.1% to North Europe [Costa N., 1996]. Following the globalisation trend in Europe and considering that the Americans will change their attitude, it is clear that this movement will create a new situation in Europe.

2.2 Sector Overviews

2.2.1 Global Outlook

Tourism is the world's fastest growing and largest industry. The fastest growing sector of tourism, cruise shipping, is undergoing the most extensive period of development it has ever experienced. The industry is seeking to win a market share from land-based resorts, exploring more markets more extensively, to offer a younger clientele a greater choice of amenities aboard larger, more appealing ships than ever before [Lloyd's Shipping, 2001]. The world cruise industry is now valued at \$15 billion. At the start of 2003, over 30 new ships were on order for delivery over the next four years.

In 1999, the number of cruise passengers totaled 8.7 million, which represented 1.3% of total international tourists of 664.4 million in that year. In terms of accommodation capacity, cruise ships provide 0.6% of world total. During the last decade, cruise passengers have grown at a cumulative annual rate of 7.7% while the international arrivals of the world showed annual growth of 4.2% [Varma H., 2001]. Although the number is relatively small in the global holiday market, the industry has an enormous momentum [Varma H., 2001]. For total world cruise passenger volumes, after expanding from below 4.4 million to 5.9 million in 1995 and then to 10 million and 9.8 million passengers in 2000 and 2001 respectively, the aggregate is expected to approximate 11.9 million passengers by 2005, 16 million by 2009, 15.5 million by 2010, and almost 19 million by 2015 [Ocean Shipping Consultants, 2003; Peisley T., 2003]. This is shown in Table 2.1.

Cruise Regions	Number of passengers (million)				
	2001	2002	2005	2010	2015
North America	6.5	7	8.2	10.3	12.3
Europe	2	2	2.6	3.5	4.6
Rest of the world	1.3	1	1.1	1.2	2.1
Total	9.8	10	11.9	15.5	19

Table 2.1: Cruise market growth

Source: *Cruise Industry News (1999a)*, *Ocean Shipping Consultants (2003)*

Cruise Lines International Association (CLIA) reported some changes in ship deployment in 2002, as cruise lines have moved their vessels in response to world events, and to find attractive new destinations for their new builds [Cruise Lines International Association, 2002]. The most popular destinations continue to predominate. Table 2.1 shows that North America, the number one source market, has increased passenger numbers annually by 7% for the last 12 years and topped 7 million in 2002 [Peisley T., 2003]. Caribbean/Bahamas captured 46.6% of the total market in 2002, compared with 44.5% in 2001 [Cruise Lines International Association, 2002]. For the North American cruise market, the longer term trends are expected to reflect underlying growth, moderated by the recent economic slowdown and negative public feeling to air travel and the terrorist threat. The North America total is forecast to approximate 8.2 million by 2005, rising to 10 million by 2006 [Wild P., Dearing J., 2000a], 10.3 million in 2010 and 12.3 million in 2015 (Table 2.1).

For Europe, the second source market, the cruise passenger total is forecast to increase from the approximate 2 million in 2001 to almost 2.6 million in 2005, over 3.5 million in 2010 and 4.6 million in 2015 (Table 2.1). This translates to an overall forward growth of 133%, equivalent to around 6.25% per year [Ocean Shipping Consultants, 2003]. The largest individual cruise market in Europe is the UK, with passenger volumes approximating 0.78 million in 2001. The annual total is forecast to increase to over 1 million by 2005, almost 1.4 million by 2010, and over 1.7 million by 2015 [Ocean Shipping Consultants, 2003]. The Mediterranean ports are coming out of a decade of spectacular growth. They are expanding their traffic share by more than 1% per year [Capocaccia F., 2002]. Some other destinations are also seeing a dramatic jump in their cruise capacity. Table 2.1 shows the different cruise regions and their market growth.

2.2.2 Caribbean

The Caribbean comprises three main sub-areas, Eastern, Western and Southern Caribbean [Cartwright R., Baird C., 1999]. It is the most popular cruise destination with a 45% market share [Cruise Industry News, 2000b]. The Caribbean cruise ship fleet is getting bigger, better and more diversified every winter, because most of the new

megaships are deployed there. Cruise lines are looking at new itinerary options to keep the passenger satisfaction at the high levels they expect, and are also trying to find new destinations for their ever-growing number of repeat guests. The demand for change is certainly there. At least 11 ships of over 100,000 gross tons will ply their trade in the Caribbean by 2003 [Cruise Industry News, 1999b].

The Caribbean accounts for about 60% of all passengers in the North American cruise market. While the Caribbean still remains the premier cruise destination, there have been some major changes to the leader board. Most notable is the rise of Europe's market share from 4.1% to 13%, making it second only to the Caribbean. Alaska's much smaller increase from 6.7% to 10% places it third in the ranking, the Bahamas rank fourth, and finally the move by Western Mexico from the second largest region for cruising at 9.6% to a ranking of fifth at 5% [Paige M., 1998]. It is obvious that the biggest megaships are based in the most popular Caribbean trades, namely the Eastern, Western and Southern Caribbean. One reason may be the high demand for cruising in the region. The base ports are traditionally the Port of Miami, Port Everglades, Port Canaveral and San Juan. Carnival Cruise Lines, Holland America Line and Norwegian Cruise Line are the companies that have been most creative in this area, but it can be said that Royal Caribbean and Princess Cruises will follow the same path sooner or later [Wild G. P., 1995]. Another reason is that Caribbean islands continue to expand their portside infrastructure to accommodate the capacity expansion [Miller G., 1999].

The cruise industry predicted a record number of cruise vacationers in 1999, based on the booking activities experienced at several cruise lines that are members of Cruise Lines International Association (CLIA), as well as the arrival of new ships during the year. For example Carnival Cruise Lines announced that booking activities for the week commencing 18 January 1999 was up 17% over the same period in 1998. A total of 100,831 guests booked that week. Norwegian Cruise Line reported an all-time company record in revenues and new booking activities during the first week of January - reservation volume and transactions were up by 64%, new bookings increased by 44% and net ticket revenue was up by 37% over the same period last year. Royal Caribbean International and Celebrity Cruises reported that on 19 January 1999 an all-time record

was set with a combined total of 27,496 bookings, 253 more than the previous year's record-setting figure [Niemela T., 1999].

The 2003/2004 season in the Caribbean has been highlighted with brand-new ships being delivered to the major cruise lines. Carnival Cruise Lines, for example, introduced its new 2,974 passenger ship Carnival Glory, sailing 7-night cruises out of Port Canaveral. Carnival will also launch another new cruise ship, Carnival Miracle, in April 2004 with passenger capacity of 2,124 and will operate from Jacksonville [Carnival Corporation, 2003]. Royal Caribbean's new 3,114-passenger ship, Mariner of the Seas, will enter Caribbean service in January 2004 [Royal Caribbean Cruises, 2003]. Despite the competition, the future outlook for the industry is good.

The question is how this will affect the Caribbean. It is believed that if the new berths are deployed along the same lines as the industry's development over the last five years, it will mean that at least 60% of this new capacity will be deployed in the Caribbean. This will mean that the cruise industry will invest in incremental advertising and promotions in order to ensure that all of those new berths are filled every single week.

Given these growth projections for cruise tourism and the expected increase in passengers that they will bring to the Caribbean region, the industry remains even more committed to ensuring that the natural beauty of the islands is preserved, as this is the major reason why the Caribbean remains such a popular vacation choice.

2.2.3 Mediterranean

One method of securing the cruise line's earnings capability over a 12-month period is by positioning its vessels into areas of high demand at certain times of the year. A good example of this is how operators like Costa deploy their fleets in the Mediterranean during the summer months and in the Caribbean during the winter.

The Mediterranean may be defined as the classic venue for destination cruising. It is divided into three categories, namely western, eastern and central Mediterranean

[Bruton G., 2000]. Actually there is no other area in the world that can be equal to the Mediterranean for the number of cultures originating from the coasts of the countries washed by this sea. It is the region where three continents meet and it may be regarded as the transition zone between the temperate regions and the tropics.

Mediterranean cruise holidays are chosen for a variety of reasons, not least the weather and scenic considerations. A major selling point is that most of these places of interest are no more than about 12 hours' sailing distance apart, which takes care of the hours of darkness, leaving the daylight hours for sightseeing. This also gives the operator a wider choice when mapping out an itinerary, both in terms of the number of port calls and the duration of the cruise. Because of its length, the Mediterranean is roughly split between eastern and western destinations for cruising purposes. This multisided and multicultural market is expected to grow even further in view of its enormous potential in terms of natural resorts, artistic places, historical treasures and modern shore facilities [MedCruise, 2003].

By splitting the area up into two, a cruise vessel operator has a wider choice of five, six, or seven-day cruises in a relatively small area, but with enough ports of call in either sector to satisfy almost every taste and to counteract possible passenger boredom. Of course, there are those cruise passengers who relish the thought of long sea voyages. The Mediterranean is not really for them unless undertaking a voyage in a vessel crossing its entire length, which takes about five days.

People wishing to take a cruise within a shorter time span can take advantage of the many fly/cruises offered from most major cities in Europe and the USA. Both Airtours and Thomson Holidays have entered the cruise market [Wild P., Dearing J., 2000a], offering stay-and-cruise holidays, whereby a hotel is offered for a few nights followed by a cruise. This type of operation is usually to be found outside the Mediterranean, in the Atlantic Islands and Madeira, but sometimes the Balearic Islands are used as a base as they are close to Barcelona, Valencia and Alicante on the Spanish mainland.

Many European countries have tour operators specialising in fly/cruises, the leaders of which are the UK and Germany [Wild G. P., 1995]. Some operators cater for US passengers, who will combine a trip to Europe with a short cruise or opt for a longer sea time.

Another advantage is that most of the countries bordering the Mediterranean tend to have relatively cheap living standards and therefore passengers find shore excursions not prohibitive in terms of pricing. In the past, this area had been known as a haven for older cruise vessels. However, with the new SOLAS (Safety of Life at Sea) requirements [Schiferli W. J. R., 1999], some of the older cruise vessels will disappear, most notably P&O's popular Canberra. The Sea Princess has already been renamed Victoria and of course the new P&O Cruises flagship Oriana also operates in the Mediterranean during certain times of the year.

The fleet of cruise ships currently operating in the Mediterranean now covers all sizes and categories of ship. The size of the vessel is an important parameter for adapting to the market segment [Montero L., 1996]. Of particular interest is the introduction of the biggest cruise ship in the world, Grand Princess, into the Mediterranean in 1998. Another remarkable feature of the cruise market in the Mediterranean region is the changing nationality profile of the passengers. Europe is now the fastest growing source market for cruise passengers in the world. For example, the UK market alone grew by almost 25% in 1997, reaching 730,000 passengers in 1999 [Gibbons W., 2000] and 750,000 passengers in 2000 [Montero L., 1996]. The UK market grew by 2.4% in 2001 and 776,173 holidaymakers took an ocean cruise in 2002, an increase of 2.9%.

2.3 “Big Players” in the World Cruise Market

2.3.1 Carnival Corporation

Carnival Corporation is indisputably the largest cruise company in the world [Cruise Industry News, 2001] carrying approximately 2.6 million passengers [Wenger B., 2001]. Its brands include Carnival Cruises (primarily family Caribbean vacations),

Holland America (luxury cruises), and Cunard Line (ocean liner service). Carnival's Costa Crociere offers cruises to European destinations, while its Seabourn and Windstar lines serve the top of the luxury market. Carnival also operates Holland America Westours (sightseeing tours of Alaska and the Yukon) and owns a 25% stake in the UK tour operator Airtours [Wenger B., 2001]. Table 2.2 shows that the combined fleets counted 46 ships in 2001 and it is estimated that the company's fleet will increase to 60 ships by 2006. This estimate is based on the existing orders, options and letters of intent [Cruise Industry News, 2001]. The cruising areas in which the company operates its ships include the Bahamas, the Caribbean, the Mexican Riviera, Alaska, the Panama Canal, Canada, New England, Europe and Transatlantic. The guest profile of the company is that 30% of passengers are under 35, 40% are between 35 and 55 and 30% are over 55 [Carnival Corporation, 2003].

Company	2001			2006		
	Ships	Berths	Capacity	Ships	Berths	Capacity
<i>Carnival</i>						
Carnival Cruises	16	32,906	2,055,300	21	46,028	2,711,400
Holland America	10	13,352	590,830	15	21,598	992,030
Costa Crociere	8	10,262	412,215	12	19,296	913,833
Cunard/Seabourn	8	4,128	133,200	8	6,188	254,700
Windstar	4	756	37,800	4	756	37,800
Total	46	61,404	3,229,345	60	93,866	4,906,763
<i>Royal Caribbean</i>						
RCC	15	32,896	1,915,200	21	47,984	2,474,000
Celebrity	8	14,008	700,400	9	15,958	797,900
Total	23	46,904	2,615,600	30	63,938	3,271,900
<i>P & O Princess</i>						
Princess	10	18,020	864,850	12	24,590	1,193,350
P & O Cruises	4	5,817	124,849	5	6,906	356,740
P & O Holidays	1	1,200	36,000	5	9,621	343,545
Aida Cruises	1	1,816	59,300	1	1,200	36,000
Swan Hellenic	1	300	9,000	1	300	9,000
Total	17	26,523	1,093,999	24	42,617	1,938,635
<i>Star Group</i>						
Star Cruises	5	6,330	723,420	5	6,460	641,680
NCL	7	12,666	566,800	8	14,866	676,800
Orient Lines	2	1,852	64,750	3	3,502	81,000
Total	14	20,848	1,354,970	16	24,828	1,399,480
Summary						
Four companies	100	155,679	8,293,914	131	226,365	11,519,778
All companies	-	-	11,254,052	-	-	15,322,432

Table 2.2: The largest cruise companies worldwide

Source: Cruise Industry News (2001)

Carnival is a publicly traded company with annual revenues in excess of US\$4.5 billion [Carnival Corporation, 2003]. Cruise revenues for the first quarter of 2003 were up by 14% compared to the same quarter in 2002 due to an increase in capacity of 14.7%, partially offset by a decline in the number of guests purchasing air transportation from the company [Carnival Corporation, 2003]. Looking to the remainder of 2003, the factors that affected the first quarter are also impacting the rest of the year. The booking for the second quarter slowed as concerns over the war with Iraq heightened, causing a close-in booking curve and resulting in a reduction in cruise prices. Although in the short term bookings have been impacted by external factors (i.e. war), it is believed that the fundamental long-term drivers of the cruise industry's growth, such as favourable demographics and low penetration of the vacation market, remain intact [Carnival Corporation, 2003]. It may be because of these factors that Carnival has entered into the proposed combination with P & O Princess Cruises [Maritime Matters, 2003]. If the companies' shareholders approve the dual listed company proposal, Carnival will increase its fleet and remain the world's largest cruise company.

2.3.2 Royal Caribbean Cruises

This is the second largest cruise company in terms of ships and number of passengers (Table 2.2), and sales revenues [Mathisen O., 1999a]. Royal Caribbean operates Royal Caribbean International and Celebrity Cruises. The company will introduce 3 more ships by the end of 2004. The company's ships operate worldwide with a selection of itineraries that call on approximately 200 destinations. The destinations include the Caribbean, Alaska, the Bahamas, Europe, the Mediterranean and Transatlantic [Royal Caribbean Cruises, 2003]. Royal Caribbean acquired Celebrity in 1997 and has successfully managed to integrate the two operations while maintaining separate brand identities [Cruise Industry News, 1999c]. In 1999 the company introduced the largest cruise vessel ever built, namely Voyager of the Seas (142,000 tons, 3,100 passengers).

2.3.3 P & O Princess Cruises

This company is third in the international marketplace. It has a very international orientation, including Princess Cruises in North America, P & O Cruises and Swan Hellenic in England, Aida Cruises in Germany, and P & O Holidays in Australia [Cruise Industry News, 2000b]. Table 2.2 shows that the complement of 17 ships offering 26,523 berths in 2001 is set to grow in the next five years with 7 new cruise ships. In particular, by the year 2006, the company will own 24 ships offering 42,617 berths [Cruise Industry News, 2001]. P & O Princess Cruises has approximately 20,000 employees worldwide and carried over one million passengers in 2001 [P & O Princess Cruises, 2003], generating revenue of \$2.5 billion approximately.

2.3.4 Star Group

Star Cruises was incorporated in September 1993, representing a bold initiative to tap Asia-Pacific's potential as an international cruise destination. Today, Star Cruises epitomizes the fulfillment of regional aspirations to establish the cruise industry in the Asia-Pacific region, bringing tourism traffic into the countries around Asia-Pacific. Asian holiday makers now see cruising as an exciting and value-for-money vacation. Simultaneously, an influx of travelers who had started from North America, Europe and Australia, joined Star Cruises holidays for a glimpse of the various sights and sounds of Asia-Pacific [Star Cruises, 2003].

Star Group is the fourth largest cruise line in the world. The group operates Star Cruises, Norwegian Cruise Lines and Orient Lines. In 2001, the group operated 14 cruise ships with more than 20,000 berths [Cruise Industry News, 2001]. The company's ships operate world-wide with a selection of destinations and islands including Asia-Pacific, North and South America, the Caribbean, Alaska, Europe, the Mediterranean, Bermuda and Antarctica [Star Cruises, 2003].

In nine years from its inception, Star Group has achieved a global recognition. Today, it is the leading cruise line in Asia-Pacific and has quickly become one of the four largest

cruise lines in the world. It has played the leading role in shaping the cruise industry in Asia-Pacific by offering new and luxurious megaships and exciting itineraries. The company has also made important investments in marketing, operations, information technology, reservations systems, safety and infrastructure [Star Cruises, 2003]. Star Group also created history by becoming the first shipping company ever to be accredited by the Panama Maritime Authority to carry out its own STCW-95 training (Seafarer's Training, Certificate and Watchkeeping Code) without the involvement of any other external training institute. The STCW-95 training programmes are conducted on board Star Cruises' vessels and is fully endorsed by the International Maritime Organisation (IMO) and used to train captains, officers and crew [Star Cruises, 2003].

2.4 The Outlook for the European Cruise Market

2.4.1 Tourism Outlook

It is well known that tourism is the fastest growing market in the world. It enjoyed exceptional years in 2000 and 2001. Table 2.3 figures show that in 2000 international tourism reached 696.8 million arrivals and in 2001 international arrivals declined by 0.6% (i.e. 692.6 million), the first year of negative growth for international tourism since 1982 [World Tourism Organisation, 2002]. For the first time in history, international tourists exceeded 700 million in 2002, a 3.1% increase over 2001 [Travel News Europe, 2003; USA Today, 2003; World Tourism Organisation, 2002].

Region	Tourist Arrivals (million)					Market Share (%)
	2000	2001	2002	2010	2020	2020
Africa	27.2	28.4	29.7	47	77.3	5
Americas	128.5	120.8	120	190.4	282.3	18.1
East Asia/Pacific	109.2	115.2	124.4	195.2	397.2	25.4
Europe	402.5	399.7	411	527.3	717	45.9
Middle East	23.2	22.7	24	35.9	68.5	4.4
South Asia	6.1	5.8	5.9	10.6	18.8	1.2
Total	696.8	692.6	715	1,006.4	1,561.1	100

Table 2.3: International tourist arrivals by region (million)

Source: Travel News Europe (2003), World Tourism Organisation (2002)

Table 2.3 figures show that Europe remains firmly in the first place in the tourism map. All European sub-regions reported positive results. South Mediterranean Europe, with Spain, Italy and Greece, had the largest share of the world market at over 20%, slightly ahead of Western Europe by half a percentage point [Travel News Europe, 2003b]. Europe failed to repeat the record results posted in 2000. In relative terms, the decrease of 0.7% does not appear that bad. Northern Europe, however, especially the UK, suffered an average decline of 5.9%, while other sub-regions displayed a more favourable situation. Southern and Eastern Europe is growing steadily, with Yugoslavia, Croatia, Slovakia and Slovenia welcoming the return of market demand. The greatest decline was experienced by Israel, 50.5%, due to the flare-up of the conflict with Palestine [World Tourism Organisation, 2002].

World Tourism Organisation (WTO) forecasts that international tourists are expected to reach over 1 billion by the year 2010 and 1.56 by 2020. The total international tourists by region, as shown in Table 2.3, show that by 2020 the top three receiving regions will be Europe (717 million tourists), East Asia and the Pacific (397 million) and the Americas (282 million), followed by Africa, the Middle East and South Asia. Europe will maintain the highest share of world arrivals, although there will be a decline from 60% in 1995 to 46% in 2020 [World Tourism Organisation, 2002]. Comparing international tourists and cruise passengers can be a useful means of evaluating the importance of cruise tourism.

2.4.2 Characteristics of the European Tourism

The joys of sailing the ocean are as old as the sea itself. The first were the Phoenicians, the Assyrians, the Egyptians, the Greeks and the Romans. In modern times new shipping companies were formed exclusively for cruising. Today the call of the sea is as strong as it ever was. Cruising is a tourist phenomenon. During the last 50 years tourism has become for many European countries one of the most important factors in both areas of travel, inbound and outbound [Wenger B., 2001].

To many people from industrial countries, cruise shipping is a valuable alternative for traditional on-land holidays [De Wilde A., 1996]. For many years, the romantic white beaches and palm trees of the Caribbean region have been considered of prime importance for the promotion of cruise activities. Having witnessed those beaches and palm trees for a couple of times, many cruise passengers are looking for a worthy alternative where the atmosphere on board the vessel remains constant, but the destination is different.

The desire for new destinations led many cruise vessels to ports on the European Continent. The rich historical and cultural heritage of the cities of Europe forms a permanent magnet for cruise tourists. The author also believes that the experience of visiting these riches will last longer than the effect of the blazing sun over the Caribbean isles, as the healthy sun tan of the passengers disappears a few weeks after the end of the cruise. To inform as many operators as possible of the worthiness and lasting effect of a cruise destination in Europe may be the task of a promotional association. This might be an International Marketing Association that will promote the interests of its members and promote the cruise idea for the average European. In this way, people will become interested in what happens in the cruise world and they will be incited directly or indirectly to try this type of holiday.

European cruise shipping has taken on a new role, no longer playing second fiddle to the mighty Caribbean and US West Coast cruise sectors. European regional cruising is continuing to expand. Yet this industry cannot be restricted to vessel itineraries and destinations. This is a region in which cruise ships are conceived, designed, classed, supplied with equipment, constructed, operated, repaired, provisioned and brokered [Fairplay Publications Ltd, 2001].

As described previously, the European market is a highly diversified one with a variety of customers. It has witnessed a variety of different development profiles in recent years, in line with differing economic conditions and specific cruise factors. This disparate composition is set to continue to characterise the European aggregate in the period to come [Ocean Shipping Consultants, 2003]. The entry of Airtours and

Thomson in the UK [Wild P., Dearing J., 2000a] but also of Saga, Neckermann and Helvetic Tours and the introduction of Aida in Germany [Michaelides G., 1997a; Wenger B., 2001] have added a new dimension to the European cruise business.

All these factors enable the author to conclude that the European cruise market is growing faster than ever before. For example, the UK market is expected to increase to over 1 million by 2005, almost 1.4 million by 2010, and over 1.7 million by 2015 [Gibbons W., 2000; Ocean Shipping Consultants, 2003]. For the significant German market, one of the key features for the near-term will be the introduction of tonnage specifically targeted at German passengers. The overall passenger volumes are expected to climb from just under 0.4 million in 2001 to over 0.8 million by 2010 and over 1.2 million by 2015. It is also interesting to note that there is the potential to open up a new market for shorter cruises of 3-4 days in North West Europe [Costa N., 1996]. It is not surprising that the Eastern Mediterranean, as part of the European market, has its share of the fast growing European cruise market.

The main characteristics of cruise tourism in the Eastern Mediterranean are as follows:

1. The market is highly concentrated on a relatively small number of ports such as Piraeus, Limassol, Haifa, Port Said and Beirut.
2. The small ports of the Greek islands cannot handle megaships.
3. The area remains a highly diversified market depending on Europe with a wide variety of customers [Michaelides G., 1997b].
4. The concept of “Fly and Cruise” in the eastern Mediterranean has not been developed in the same way as in the western part.
5. Discounting is very common in the eastern Mediterranean. Cruise lines need to better appreciate the real value of the brochure prices. Short cruises from Cyprus to Israel

and Egypt are offered for virtually nothing. The passengers pay for two and the third and fourth persons travel free in the same cabin.

6. The area depends on the European tour operators who are very powerful and have their own travel agencies. In most cases, these travel agencies lack cruise specialists [Michaelides G., 1997b]. For a region that is offering traditional cruising and where shore excursions are important, the knowledge of the cruise product is essential.
7. The area is characterised by very small ships appealing to the budget and contemporary segments. The vast majority of cruises offered are 3 to 4 days and 7 days. Therefore, the cruise package is cheap and appeals to the mass market.

Looking at the scope of the European markets overall, including both European and North American players, the Northern/Western region accounts for 18.2% of all capacity placed in Europe, as against the Mediterranean's 76% share and the Canaries' 5.3% share [Cruise Industry News, 2000b]. As far as the Mediterranean is concerned, the competition is very aggressive as the North American cruise operators increased their capacity (i.e. 38% market share) and narrowed the gap with the European operators (i.e. 62% market share). North American operators are more experienced, have better vessels and can more easily attract US customers. Table 2.4 shows the five big companies that operate in the Mediterranean region.

Company	Market Share (%)	Number of Ships	Total Capacity
Louis Cruise Lines	18.6	10	285,000
Costa Crociere	12.9	7	196,000
Renaissance	10.2	7	155,000
Sun Cruises	6	4	91,000
Golden Sun	5.9	3	89,000
Total	53.6	31	816,000
Other	46.4	75	707,000
Total	100	106	1,523,000

Table 2.4: Big Mediterranean cruise operators

Source: Cruise Industry News (2002)

2.4.3 Future Prospects

In 2002 the European cruise market reached 2 million passengers [Ocean Shipping Consultants, 2003], which represents less than 1% of the tourist arrivals in Europe [World Tourism Organisation, 2002]. This means that there is room for expansion for the European cruise market. Looking into the future, there is great potential for Europe as a cruise destination but also as a source market for cruise business. The following are the conditions that would enable the European cruise market to grow:

1. Tour operators may extend the “fly-cruise and stay” concept of the Western Mediterranean to the Eastern region thus leading to further examples of industry commitment. Short and less expensive cruising in Northern Europe is expected to continue its upward trend. Fly/cruises are one of the most popular methods of gaining access to places of interest within the time frame of a normal holiday period. Using fly/cruises as a holiday method, holidaymakers can cut out several days at sea and concentrate on specific areas, such as the Mediterranean region [Republic of Cyprus, 2003].
2. The cruise companies may try to change peoples’ perception of cruising to realise that it is a desirable and affordable holiday alternative.
3. It may be necessary to introduce new, modern ships with all the amenities in order to make the cruise product desirable.
4. The introduction of an efficient distribution system may become a requirement to create a consistent volume of passengers to fill the ships.
5. It may be essential to create a product or brand with multinational appeal and the resources to create a multinational distribution system. This is because the world is becoming more global and people are becoming more international in their tastes [Conover P., 1996].

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Aldham Roberts L.R.C.
TEL. 0151 231 3701/3634

6. The companies may have to think locally in each different market and act accordingly in order to successfully attract customers from different markets.
7. If the countries in the Eastern Mediterranean region wish to benefit from cruising, they need to change the existing policy and offer local operators much more support in the field of marketing but especially in improving the infrastructure, as well as a number of incentives [Michaelides G., 1997b].
8. Some important ports may need further developments. For example, the port of Limassol in Cyprus, which is one of the busiest in the Mediterranean region, may need a new terminal building for cruise ships and a dynamic campaign to turn Cyprus into a cruise centre [Michaelides G., 1997b].

2.4.4 Limiting Factors

Although cruising is experiencing a market growth, there are some factors that are limiting its expansion. These include:

1. Future demand is expected to increase but not at the same high rate as the supply of berths.
2. Natural or manmade disasters, regional wars and political instability are permanently under the media spotlight and have a significant effect on bookings. Consumer confidence in the economy is also a major influence on leisure spending, and is always quoted by the media and in economic reports.
3. Whether the European popular tourist resorts can sustain consistent growth as cruise destinations, will depend very much on their ability to provide sufficient air capacity to bring the passengers to the ship. Tour operators entering the cruise market are using their own flying arrangements. The winners will be the destinations where airport facilities, road connections and handling at airports ensure a smooth and fast embarkation and disembarkation process.

4. Existing policy and mentality by governments at the national and regional levels limit the expansion of cruising. In many countries, tourist boards and port authorities do not provide the basic support to cruise operators in terms of facilities, nor do they market their destinations as cruise centres. The Cyprus government does not provide the necessary funds for the improvement of the ports and their facilities [Lois P., 1999]. It is suggested that the Mediterranean and Cyprus should follow the approach of the Tourist Board and Port Authority of Singapore who are spending heavily to advertise, “around Singapore there are 50 ports of call”.

The reasons why Europe, with a population close to that of USA, is so far behind the USA in terms of cruise passengers, can be summarised as follows [Costa N., 1996]:

1. Geopolitical factors

- i. Europe is a multilanguage, multicultural area with vacation habits that differ dramatically from one country to another.

2. Geographical factors

- i. Europe is, from a ship's deployment point of view, basically a seasonal market and the ships based in Europe need to be repositioned in winter.
- ii. The ferries and the short ferry-cruises play a much greater role than in USA.

3. Logistical factors

- i. The cost of air transportation on the scheduled flights is much higher than in USA.
- ii. Europe is a more developed tourist destination with shorter geographical distances between major cities or points of interest.

Despite these limiting factors cruise analysts still believe that by the year 2005 there will be 292 cruise ships [Cruise Industry News, 2000b] and also [Ocean Shipping Consultants, 2003]:

- 8.2 million passengers from North America,
- 2.6 million from Europe, and
- 1.1 million from Asia.

Comparing this with the expected number of 800 million tourists world-wide [World Tourism Organisation, 2002], the share of cruising is still only 1.4% of the overall tourist movement.

Considering that tourists are now more curious, eager to learn and make new discoveries, cruising will attract more enthusiasts. The classic beach holiday turns increasingly into an experience-oriented journey on the sea. The cruise is considered as a dream holiday, which attracts more and more young vacationers who are seeking freedom, independence as well as security and safety. This experience-oriented journey on a cruise ship guarantees higher vacation satisfaction. The new travelers hold out a wide variety of opportunities for cruise operators and cruise companies but also for destinations. It is up to the people involved in the cruise business and the tourist industry to make the most of it.

2.4.5 Costa Crociere: The Leading European Cruise Company

Costa Crociere entered the passenger field in 1948. It is an Italy-based company with international accent. In 1997, there were some major changes in the company. Costa became a jointly owned investment of Carnival Corporation and Airtours plc. As a direct consequence of the takeover, the top management was reshaped. In September 1997, the new proprietors appointed Pier Luigi Foschi, a new name to the cruise industry, as their Chief Executive Officer [Scorza A., 1998].

The company is the leading European cruise group and the market leader in Italy, Spain, Switzerland and South America. It boasts the most modern fleet of all European cruise companies (8 ships with a total tonnage of 414,000 tons capable of accommodating over 10,800 guests). Three new ships have been ordered that will increase the capacity of the fleet to approximately 19,000 guests by 2004. All the Costa Crociere ships fly the Italian flag and operate in the Mediterranean, Northern Europe, the Caribbean and South America [Costa Crociere, 2003]. Table 2.2 shows that the capacity of its ships was 412,215 in 2001 and by 2006 it is forecast that this will increase to 913,833 [Cruise Industry News, 2001].

According to company statistics, Costa Crociere claims to have a 24% share of the European market [Paniagua A., 2003; Scorza A., 1998]. This includes 79% of the Italian market, 59% of the Spanish market, 42% of the French market and 12% of the aggregated market of Germany and Austria.

The company's turnover for the 2000/2001 financial year was 706.8 million euro, with an increase of 23.4% on the previous year. During 2000/2001 the occupancy rate was 103.3%. In 2001 over 1,040,000 excursions were sold. The Costa fleet visits over 120 ports. The company works with 16,600 travel agents throughout Europe [Costa Crociere, 2003]. It has launched a programme to expand its fleet with investments of over 1.5 billion euro over a four-year period (2001-2004) [Costa Crociere, 2003]:

- i. The Costa Europa, a ship with a tonnage of 53,872 tons and a passenger capacity of 1,494 in berths, came into service at the end of April 2002.
- ii. In Summer 2003, it will be followed by the Costa Mediterranea with a tonnage of 86,000 tons and a passenger capacity of 2,114 in berths.
- iii. At the end of 2003, the Costa Crociere will be ready to operate the cruise ship Costa Fortuna, with a tonnage of 105,000 tons and a passenger capacity of 2,720.

- iv. At the end of 2004, the Costa Magica, the twin sister to Costa Fortuna, will come into service and the Costa fleet will reach a total capacity of approximately 19,000 passengers.

On the basis of the company's plans and ambitions, and due to the launch of new vessels, the increase in capacity and in the number of itineraries, the author believes that Costa Crociere may be ideally suited to embrace and lead the globalisation of the cruise industry. The company's continuing success is believed to be the result of Costa's ability to provide a global multi-national product combining hospitality with the sophisticated elegance of a European vacation. Other important factors for its success are the co-operation with 16,600 travel agents throughout Europe and the establishment of a number of offices in 23 cities of 14 different countries.

2.5 Case Study: Cyprus

2.5.1 General

Cyprus is an island situated in the Northeastern Mediterranean at the crossroads of Europe, Asia and Africa. It is the third largest island in the Mediterranean and it is considered to be one of the best places in the shipping industry.

The growth (of the Cyprus shipping industry) started with the Cypriot flag at the beginning of the 1970's and was accelerated for Cyprus shipping as a whole by the tragic events of the Turkish invasion in 1974, which led to the division of Cyprus. In an endeavour to revitalise the economy of the country, the idea came up to create a tax exempt offshore industry, which, through the importation of foreign currency and other invisible earnings, and by employing local labour and using the services of Cyprus banks, lawyers and accountants, could make a valuable contribution to the Cyprus economy. The relevant legislation was introduced in 1975, but the offshore industry was to enjoy the tax-free status only for two years, because already in 1977 the legislation was changed, and for the last 20 years ship managers and operators have been paying a tax of 4.25% on their profits [Central Bank of Cyprus, 1998]. The favourable conditions

in Cyprus formed the basis for the growth of the flag and the local shipping industry. It should be noted that tax advantages alone do not create a maritime centre. Otherwise the Cypriot flag would have just been a flag of convenience like Liberia's.

In continuation, it is not surprising that Cyprus, one of the most successful and popular tourist destinations, has its fair share of the fast-growing cruising industry with more than two million visitors per year. The island, rich in history, lavished by sun and surrounded by crystal waters, is often referred to as the gateway to the Eastern Mediterranean.

Affordable rates encourage a lot of the island's visitors to take a cruise trip for two, three or seven days to Egypt, Israel, Lebanon, or the Greek islands [Louis Cruise Lines, Paradise Cruises, Salamis Cruise Lines, 2003]. Although there was an encouraging improvement during August and September for the year 2000, the service is not yet of such standard that the Cyprus cruise industry can offer it to its international tourist clientele. The effort undertaken by the island's ship owners is of huge proportions, but unfortunately, up to now, they have not had government support, which ought to be granted to them in this particular field of the industry, which is vital for the island's economy. It is believed that those who are involved in the cruising industry cannot understand the value of the industry as a part of Cyprus' tourist industry. Limassol, the largest Cyprus port, could become the Eastern Mediterranean's cruise centre. Unfortunately, there has been a lack of proper marketing and, also, a lack of expertise in the cruise industry. What has been noted is that a new, modern and more ergonomic passenger terminal is needed to improve the picture of the cruise industry by offering a unique level of services [Lois P., 1999]. The responsible body is the Cyprus Port Authorities. This body has to make sure that the small improvements they make satisfy the interested parties, such as the cruise operators and the passengers. Cyprus cruising, at this moment, is surviving and growing through the efforts of the private sector, without government support.

2.5.2 Cyprus Cruise Companies and Competition

This section analyses the cruise industry's structure and the characteristics of the major competitors. The industry's structure analysis looks into the general competitive forces that affect the industry.

2.5.2.1 Industry Structure

The supply side in terms of cruise ships is divided into two groups. One belongs to Cypriots and serves the routes from Cyprus to Greece, Israel, Egypt and Lebanon [Louis Cruise Lines, Paradise Cruises, Salamis Cruise Lines, 2003]. The other belongs to third parties, is either chartered or represented by local tourists offices and serves the same routes as the one belonging to Cypriot ship owners.

The ships belonging to Cypriots are more or less on the said routes on a continuous basis year after year while the other ships serve these routes on an opportunistic basis, that is, they do not serve the routes throughout the year; they often show up for only one period, usually from June to September. In its totality, the cruise passenger ship sector in Cyprus is characterised by the following factors [Adamides S., 2000]:

- a. Cypriots have limited management experience of cruise ships compared to Americans or Europeans.
- b. Competing cruise ships are similar in size and features/facilities.
- c. Current cruise ship service lacks strong differentiation.
- d. Fixed costs are very high and this may lead to price cutting.
- e. The exit costs are high and thus companies stay on to compete even though they may be earning low or even negative returns. Excess capacity may remain functioning and the profitability of healthy competitors suffers as the sick ones hang on.

- f. There is need for good access to the distribution channels in Cyprus and abroad.
- g. Cyprus companies' cruise ship fleets are old. This may lead to safety problems and non-compliance with the international safety requirements.

2.5.2.2 Analysis of Competitors

The cruise sector in Cyprus is now fighting for its future [Michaelides G., 1997a]. It has undergone considerable changes with major exits and entries of passenger ships. At this moment, only Louis Cruise Lines, Paradise Cruises and Salamis Cruise Lines have ships offering cruises in the Mediterranean, especially the Eastern Mediterranean.

1. Louis Cruise Lines

The Louis organisation was founded in 1938 and in the early 1980's ventured into the cruise market. The Louis fleet includes ten ships offering cruises in the Eastern Mediterranean and also on charter in the Western Mediterranean and the Caribbean. Emerald has been chartered to Thomson tour operators in the Mediterranean and the Caribbean.

The mini cruises, with full day excursions to the Holy Land and Cairo, are considered by the holiday makers of Cyprus as a unique opportunity [Michaelides G., 1997a]. This adds a new dimension to their holiday on the island, by combining the experience of comfortable and entertaining cruising and sightseeing, with some of the most incredible sights on earth.

Louis Cruise Lines offers this unique experience all the year round, thus making the off-season tourist product of Cyprus more exciting. It is believed that the company will expand more dynamically towards Greece, when the situation permits, and specifically when cabotage is lifted. This expansion may be in co-operation with a Greek company or acting as an independent company.

In July 1999 Louis went public, offering 23,750,000 shares of 40 cents to the public through the Cyprus Stock Exchange [Cyprus Stock Exchange, 1998]. The purpose of the flotation was to strengthen the company's capital base and pay off some short-term debts, preparing the company for rapid decisions to replace some of the eight ships in its fleet or buy new vessels.

Louis Cruise Lines is the leading group in the Mediterranean and claims to have an 18.6% share of the Mediterranean cruise market (Table 2.4). With the global cruise market flourishing and the Cyprus Stock Exchange (CSE) booming in Summer 1999, it could not have been a better time for Louis to float. The investors welcomed in October 1999 the news of the company's move towards buying a controlling stake in Royal Olympic Cruise (ROC), an American Nasdaq-listed company. Louis paid about \$40m for a 70% share in the company, and considered this deal to be a great success [MedCruise, 2003]. However, within the cruise industry, there was negative criticism not of what the company paid, but of what it paid it for [MedCruise, 2003]. The \$40m paid is translated into some \$8 a share, while at the time of the negotiations the shares were trading on Nasdaq at an average price of \$4. However the share price has fallen so much since the summer when the amount paid was considered a bargain. The main interest of Louis at the moment is to gain as much as possible of the Greek market, since ROC is enjoying a 60% market share in the Greek cruise market.

2. New Paradise Cruises

New Paradise Cruises was founded in 1978. It remains one of the few family owned and run organisations of its size on the island. New Paradise Cruises, a well-established cruise company in operation since 1985, owns and operates the cruise liner Atalante [Louis Cruise Lines, Paradise Cruises, Salamis Cruise Lines, 2003]. The 13,652-ton cruise ship sails from Cyprus to Egypt and Israel. Today, the company is operating its ship in the Greek islands. Offices are maintained in all the towns of Cyprus, while sales and marketing offices are being established in the UK, Switzerland, Germany and Sweden. The company has established a long working relationship with many tour

operators worldwide and prides itself on giving a personal service to its clients and associates [Louis Cruise Lines, Paradise Cruises, Salamis Cruise Lines, 2003].

Although the company has operated in the Cyprus cruise market since 1985, it still remains in its infancy. The author believes that the company faces with a dilemma whether to operate in the ferry market, the cruise market or both. It is very easy to say “we operate in the Cruise Market”, but it is very difficult to live with it. Due to the rapid expansion of its main competitor, Louis Cruise Lines, the company will need to establish a new strategy in order to cope with the strong competition. The author considers that the decision to become a public company is a good idea, but it is not the solution to the problem of survival. The company needs to re-examine its general policy and philosophy, and establish a new brand name by buying or chartering a new cruise ship and entering the Western Mediterranean region. This might give a new dimension to the company’s cruises.

3. Salamis Cruise Lines

Salamis Tours was formed in 1959 [Salamis Tours Ltd, 2001]. The company is one of the largest tourist companies in Cyprus and has operated in the field of outgoing travelers since 1960 and with incoming travelers since 1970. It also acts as a representative of tour operators from Europe, especially the UK, Germany, Belgium and Holland. Due to the rapid expansion in the tourist industry and the strong competition, the company commenced its trading in the shipping industry by acquiring its first ship, Nissos Kypros, in 1993. The company currently owns and operates three ships [Salamis Tours Ltd, 2001].

In particular, Nissos Kypros operates in the Cyprus and Mediterranean regions by offering services from Cyprus to Greece and Israel. The second cruise ship, Salamis Glory, offers cruises to Israel, Egypt and the Greek islands. The ship has a capacity of 600 passengers and offers facilities such as bars, restaurants, casino, medical centre, duty free shops, sport centre and foreign exchange office. Salamis Star operates in the

same regions. In 2002, the company cancelled all cruises; they were resumed in Summer 2003 [Salamis Tours Ltd, 2001].

At the end of 1998, Salamis entered the Cyprus Stock Exchange [Cyprus Stock Exchange, 1998]. The issued share capital of the company at the time of the company's listing was CY£3,950,250, divided into 15,801,000 ordinary shares of 25 cents each. This new change has given the company the opportunity to strengthen its capital base and pay off some short-term debts. On the other hand, the company faced economic problems due to strong competition and the rapid expansion of its main competitor, Louis Cruise Lines. The company, therefore, needs to re-examine its policy and future plans in order to overcome its problems and to be able to compete in the market.

2.5.3 Cyprus Tourism and Cruise Market

It is interesting to notice the main developments that happened in the Cyprus tourist industry, and especially the cruise market. Cyprus has experienced an unprecedented rate of growth in travel and general tourist traffic over the last 17 years. The general travel traffic in 1985 reached 1,075,388 arrivals. This rapidly increased and the travel traffic growth, both in terms of arrivals and departures, has affected both the airports and the ports in the last decade. The airports on average account for 90% of the traffic and the remaining 10% is handled by sea ports. This mode of travel has not changed significantly since 1977. The growth in the industry has never stopped. In recent years and especially in 2000, the number of tourists reached 2,686,205. Table 2.5 shows that this number increased to 2,696,732 in 2001. For the period January to December 2002 arrivals of tourists reached 2,418,238 recording a decrease of 10.3% compared to the previous year [Republic of Cyprus, 2003]. Analysis by country of usual residence shows that 82.9% were residents of the European Union.

Countries	2000	2001	2002
European Union	2,141,441	2,222,703	1,976,659
Other Europeans	368,008	332,184	306,966
Africa	16,420	14,516	13,296
USA	38,738	30,186	26,734
Asia	106,772	86,996	85,235
Others	14,826	10,147	9,348
Total	2,686,205	2,696,732	2,418,238

Table 2.5: Tourist arrivals in Cyprus (2000-2002)

Source: Republic of Cyprus, Department of Statistics and Research (1998-2003)

Table 2.6 shows the respective percentages of the main countries. The movement of travelers in general is divided into two periods, the summer and the winter. The summer period runs from June to September and the winter period is from October to May. The summer period experiences the higher travel traffic accounting for about 70% of the total annual traffic. Sea travel is mainly carried out through the ports of Limassol and Larnaca. The port of Limassol has by far the biggest traffic volume.

Country of usual residence	%
United Kingdom	53.7
Greece	10.7
Germany	9.6
Russia	3.0
Netherlands	1.8
Sweden	1.5
USA	1.4
Others	1.3
Total	100

Table 2.6: Tourists by country of residence

Source: Republic of Cyprus, Department of Statistics and Research (1998-2003)

Table 2.7 shows that the number of people departing for cruises from Cyprus increased from 1994 to 2000, with certain fluctuations. This trend has not continued and in 2002 the number of passengers was 129,018 compared to 241,506 in 2000 representing a decrease of 46.6%. This is probably due to a number of factors including the relatively high levels of interest rates, combined with global uncertainty in financial markets,

continuing talk of recession and a perception of worsening employment prospects in Cyprus. Markets are usually subject to some fluctuation and the cruise market is no exception.

Year	Total	Foreign citizens	Cypriots
1994	264,000	217,000	47,000
1995	230,572	193,855	36,717
1996	189,756	166,117	23,639
1997	194,092	169,653	24,439
1998	187,155	151,743	35,412
1999	221,065	175,162	45,903
2000	241,506	198,894	42,612
2001	156,082	120,026	36,056
2002	129,018	80,067	48,951

Table 2.7: Persons departing for cruises starting from Cyprus (1994-2002)

Source: Republic of Cyprus, Department of Statistics and Research (1998-2003)

The figure of 129,018 in 2002 represents just over 5% of the total number of tourists visiting Cyprus. This rate indicates that there is a great potential for growth in the Cyprus cruise market. Although the number of the tourists is three times higher than the Cyprus population, the rate of 5% is very low and the parties involved in the Cyprus cruise market must take the necessary action to improve the situation. The government can give more incentives for investment in the market [Adamides S., 2000], and the cruise lines can introduce new modern ships, offer better quality services, introduce new attractive destinations and promote the cruise product locally and internationally in a more efficient and effective manner [Adamides S., 2000, Appendix 4].

Table 2.6 shows that 53.7% of the tourists come from the United Kingdom. The Mediterranean region is likely to remain the most popular destination of UK consumers in the long run [Wild P., Dearing J., 2000a], although events in the Middle East and the Gulf may affect prospects in the short run. The companies in Cyprus should take seriously into consideration such unexpected issues when planning their promotion and marketing strategies.

The number of Cypriot residents that travel to other countries by ship increased considerably during the 1976-85 period, moving from 19,432 departures in 1976 to 26,554 in 1985. The upward trend has continued and in 1994 the number reached 47,000 [Republic of Cyprus, 2003]. After 1994 there was a substantial decrease in the number of Cypriot passengers, but by the year 2002 there was a recovery, increasing the number to 48,951 passengers as shown in Table 2.7. The seasonality of Cypriot cruising indicates a very interesting phenomenon. During the months of July and August the number of cruisers is much higher than in other months and this mainly reflects the traffic generated by holidaymakers. These two months reach 35% to 40% of the total cruisers every year. August has the highest traffic and is followed by July. This is due to the fact that the majority of Cypriots take their holidays during these two months. The month of April has a fairly high traffic with a range of 5% to 10% due to the fact that many residents visit the Holy Land (i.e. Israel) during the Easter holidays. This does not happen now because of the political crisis in the Middle East. The months of May and June account for 20% to 25% per year [Republic of Cyprus, 2003]. It can be stated that the majority of people (i.e. 60%-75%) depart for cruises starting from Cyprus during the period April-August.

2.5.3.1 Cruisers' Attitudes

In order to investigate the Cypriot consumer attitudes to cruise tourism, a group discussion [Lois P., 2003] was carried out. A small group of people (i.e. 30) that have had a ship traveling experience in the last five years was asked to participate in a focus group discussion [Lois P., 2003]. The questions used in the questionnaires were influenced by the aim of the surveys. The aim was to identify the cruisers' attitudes and also the current status of the cruising market in Cyprus and Mediterranean regions. The discussion focused on their experiences and it has revealed a number of interesting observations and attitudes. These observations together with the consumer attitudes investigated during the survey (Appendix 5) carried out by the author in April 2000 [Lois P., Wang J., Wall A., Ruxton T., 2000] can be summarised as follows:

- a. Need for privacy and cabin security.

- b. Need for cleanliness on the ship.
- c. Common space is limited. This is highly needed by the passengers.
- d. The need for good quality of food is emphasised.
- e. Dissatisfaction with the embarkation and disembarkation procedures.
- f. There is a great need for animation and socializing on the ship. This means that cruise companies can provide more social events on-board and bring people together in order to create social relationships and friendships.
- g. Dissatisfaction due to delays in arrivals and departures.
- h. Common areas such as bars, restaurants, swimming pools are very important for the cruisers since they spend most of their time in these areas.
- i. The checking of passports is very inconvenient.
- j. All of the participants agreed that Cypriots like to travel by cruise ship. It is part of their holiday and it is perceived to be a mode of leisure or as “being on holiday” while traveling.

In addition to the above, a market survey was conducted by the author in conjunction with some tour operators in Cyprus. The survey was carried out using interviews (Appendix 6) in April 2003, and the purpose was to further investigate the cruisers' characteristics and preferences. The findings revealed can be described as follows:

- a. Cruising is more characteristic of higher income groups. Low and medium groups are price sensitive. They are not willing to pay for luxury and will always look for possible cheaper alternatives. Higher income cruisers are value sensitive, prepared to pay more in order to get ‘value for money’.

- b. Shorter cruises of two or three days are preferred to longer trips. This is partly because the tourists spend a lot of money on hotel accommodation and do not want to pay a large amount for cruising tickets, and partly due to the tourists' eagerness to continue their relaxing vacation in Cyprus.
- c. Tourists depend very much on their local representatives for information and advice on cruising/sightseeing.
- d. Cruisers demand comfortable accommodation, cleanliness, good food, quality service and satisfactory entertainment.
- e. Younger people mainly prefer to go on a cruise for entertainment purposes, while older people are interested in visiting places of historical significance.

2.5.3.2 Employment Prospects

Table 2.8 shows that the total employment on cruise vessels in Cyprus in 2001 was 3,475 compared to 1,787 in 1995, representing an increase of 96%. These figures do not provide a true picture of Cypriot employment prospects in the cruise market, as it is impossible to isolate Cypriot sea-going employees from other nationalities on some cruise ships, especially in relation to other ratings and hotel staff.

Years	Number of crew
1995	1,787
1996	1,984
1997	2,530
1998	2,691
1999	2,943
2000	3,265
2001	3,475

Table 2.8: Employment on Cyprus cruise vessels

Source: Republic of Cyprus, Department of Statistics and Research (1998-2003)

There is also a trend towards employing mixed officers and crew by the cruise operators, although this could change in the future. One of the concerns that have been expressed at the IMO level, which is especially applicable to cruise vessels, is that of communication [Wild P., Dearing J., 2000a]. This is relevant when crew of various nationalities need to communicate properly with the passengers of different cultures and nationalities in the case of an emergency. It is obvious that any move towards more homogeneous ships (i.e. crew and passengers should be homogeneous) would assist in this, although the cruise operators try to comply with the ISM code.

Description	Number	%
Deck		
Captain	1	0.47
Staff Captain	1	0.47
Safety officer	1	0.47
Deck officers	3	1.41
Bosun	1	0.47
Carpenters	2	0.94
Fire patrol	3	1.41
Deck utilities	11	5.16
Deck sub total	23	10.80
Engine		
Chief engineer	1	0.47
Staff engineer	1	0.47
Engineering officers	3	1.41
Chief electrician	1	0.47
Assistant electrician	1	0.47
A/C engineers	2	0.94
Plumbers	2	0.94
Oiler	6	2.82
Other engine staff	6	2.81
Engine sub total	23	10.80
Hotel		
Hotel manager	1	0.47
Bar manager	1	0.47
Maitre d'Hotel	1	0.47
Chef	1	0.47
Cooks	12	5.63
Crew cooks	3	1.41
Butcher	1	0.47
Bakers	2	0.94
Head waiter	1	0.47
Waiters Waitresses	24	11.27
Winekeeper	1	0.47
Bar keepers	4	1.88
Bar waiters	8	3.75
Bar utilities	4	1.88
Linenkeeper	1	0.47
Night stewards	2	0.94
Stewardesses	16	7.51
Sanitation staff	16	7.51
Housekeeper	1	0.47
Assistant housekeeper	1	0.47
Housekeeping piccolos	8	3.76
Utility staff	15	7.04
Hotel sub total	124	58.22
Administration & Finance		
Chief purser	1	0.47
Pursers	2	0.94
Casino observer	1	0.47
Typists	3	1.41
Receptionists	3	1.41
Store keepers	3	1.41
Administration & finance sub total	13	6.10
Medical		
Doctor	1	0.47
Medical sub total	1	0.47
Entertainment & service staff		
Cruise director	1	0.47
Dancers	4	1.88
Musicians	4	1.88
Singers	2	0.94
Photographers	5	2.35
Shop manager	1	0.47
Shop assistants	8	3.75
Casino staff	4	1.87
Entertainment & service staff sub total	29	13.61
Total	213	100

Table 2.9: Crew and staff breakdown of Princessa Marissa

Source: Louis Cruise Lines (2003)

It may be useful to gain some understanding of the types of employment offered by the cruise market using an example of the crew and staff breakdown on the cruise ship *Princesa Marissa* owned by Louis Cruise Lines. This is provided in Table 2.9. The analysis shows that the crew, officers and staff on-board the *Princesa Marissa* are Greeks, Egyptians, Filipinos, Ukrainians and Indonesians. Cypriots account for less than 10%. The main reason for this is that Cypriots are highly-paid employees. The great variety in nationalities among the crew and other staff may cause several problems in the operation of cruise ships. Such problems may include the following:

- i. Lack of communication.
- ii. Employment of unskilled crew and staff.
- iii. Ethnic conflicts.

The results from this analysis suggest that given the right framework and the necessary base of skills it should be possible to increase the participation of Cypriot staff within the Cyprus cruise market at all levels and in all departments. The best opportunities probably lie in those areas where Cypriot skills have been most appreciated, in the deck and engine departments. However, there would seem to be no reason why the Cypriot involvement could not be increased in other areas, such as hotel and entertainment, especially in managerial positions. Training programmes are likely to be needed if an expansion of Cypriot involvement in the cruise industry is to be achieved, particularly in relation to hotel staffing.

From the database held by the department of statistics and research of the Cyprus government [Republic of Cyprus, 2003], it can be calculated that the Cyprus cruise fleet employed, in 2001, 3,475 (Table 2.8) sea-going personnel, of which the majority were hotel staff. According to the author's database, over the last two years, the number of sea-going personnel decreased to 3,165 due to a little scrapping in the cruise ship fleet in the Cyprus region. The 3,165 seafaring positions identified in Table 2.10 indicate that

in employment terms Cypriot staff accounts for less than 10% of the current sea-going staff.

Vessel	Flag	Total number of crew and officers	Nationality of officers	Nationality of crew/staff
Princesa Marissa	Cyprus	213	Cypriots/Greeks	International
Princesa Cypria	Cyprus	180	Cypriots/Greeks	International
Princesa Victoria	Cyprus	230	Cypriots/Greeks	International
Ausonia	Cyprus	230	Cypriots/Greeks	International
Sapphire	Cyprus	250	Cypriots/Greeks	International
Serenade	Cyprus	320	Cypriots/Greeks	International
Calypso	Cyprus	220	Cypriots/Greeks	International
Emerald	Cyprus	412	Cypriots/Greeks	International
Spirit	Cyprus	520	Cypriots/Greeks	International
Salamis Glory	Cyprus	190	Cypriots/Greeks	International
Salamis Star	Cyprus	200	Cypriots/Greeks	International
Atalante	Cyprus	200	Cypriots/Greeks	International
Total		3,165		

Table 2.10: Crewing analysis of cruise ships serving the Cyprus market in 2003

Source: Louis Cruise Lines (2003), Salamis Cruises (2003), Paradise Cruises (2003)

2.5.4 Future Prospects

The cruise industry has experienced almost continuous growth worldwide since at least 1980. Although the balance between supply and demand varies, the fundamentals of the business appear to remain strong, and continued growth by the industry should be possible for the foreseeable future [Wild P., Dearing J., 2000a].

Although tourism is the most important sector of economic activity and the fastest growing sector in Cyprus, the Cyprus cruise industry is in its infancy. Taking the figures shown on Tables 2.5 and 2.7, it can be seen that market penetration in Cyprus is only 5%. The number of tourist arrivals is estimated to increase to 4 million in 2010 [Cyprus Tourism Organisation, 2000]. Based on this figure and provided that market penetration remains constant, the Cyprus cruise market can reach 200,000 passengers by the year 2010. In order to increase this rate and maintain it at higher levels, comprehensive

planning for cruise tourism is critically important. The small size of Cyprus and its limited resources leave no room for mistakes. The success and growth of the Cyprus cruise market depend on various factors. The typical ones are described below:

- a. The Cyprus Tourism Organisation (CTO) can develop a marketing strategy for the cruise market. The marketing effort must be directed to encourage year-round tourism in order to increase seasonality demand and enable Cyprus to become a cruise centre for Mediterranean and European destinations [Cyprus Tourism Organisation, 2000].
- b. The travel agents and tour operators can use new marketing strategies for the promotion of the Cyprus cruise product [Adamides S., 2000]. It is important that they should advertise on the TV and radio through local and international channels, on the internet, through direct marketing by the use of direct mail and so on. They can also give better prices, and try to increase the awareness of the tourists and Cyprus residents concerning the winter time opportunities.
- c. The industry must concentrate not only on the European countries, but also on other countries such as America, Japan, Hong Kong and Russia [Cyprus Tourism Organisation, 2000].
- d. The cruise liners must find and develop new cruise products and destinations in order to attract new customers [Loizou C., 1997].
- e. The cruise liners must introduce new modern ships with more facilities and improve their on-board services [Lois P., Wang J., Wall A., Ruxton T., 2000].
- f. A local cruise lines association can also be set up [Adamides S., 2000, 2002]. This will enable the cruise companies to exchange information, discuss and analyse recent and future developments of the cruise market and establish good relationships with the government and other bodies involved in the cruise market. The association can participate in cruise market fairs and exhibitions all over the

world, produce a cruise magazine for the information of tourists, and organise seminars and conferences for the better promotion of the Cyprus cruise product.

- g. The government [Adamides S., 2000] and the private educational sector [Adamides S., 2002] can give incentives for potential sea-going employees. This can be achieved by the introduction of new courses, seminars and conferences concerning cruise shipping. This will increase the students' awareness and also help the cruise industry in both the short and long term.
- h. Political instability can be a negative characteristic of the cruise product of Cyprus [Seddighi H. R., Theocharous A. L., 2002]. It may be overcome if the Cyprus government puts more effort into solving the political problem. This can be achieved through the European Union since Cyprus will become a full member of the Union in May 2004.

2.6 Conclusion

This chapter has analysed the different sectors of cruise operation and explains how the “Big Players” in the Mediterranean and Cyprus regions dominate the share of the cruise market. It also studies the characteristics of the European cruise market, giving emphasis to future prospects and limiting factors of the market.

Although there are some limiting factors, there are many reasons for optimism regarding the industry. Most important may be the fact that the ships only capture a small percentage of the travel and vacation market. Various statistics [Mathisen O., 1999b; Ocean Shipping Consultants, 2003; Peisley T., 2003] have shown that millions more would like to take a cruise. Another unique aspect of the cruise industry is that it has been able to fill its ships as the industry has grown over the last 18 years [Mathisen O., 1999a]. New ships have continuously generated more demand. Consequently, the new ships coming on line are also expected to generate more passengers because they offer more unique features, such as outside staterooms with balconies, ice-skating rinks and other amenities. The cruise product has consistently improved in terms of quality

and variety: better food, better service, a greater choice of onboard activities, more itineraries, and, of course, the novelty of the ships themselves.

The analysis of the different segments of the cruise industry, of the characteristics and the limiting factors of the market, and the interpretation of travel and cruise statistics can be a useful tool for the cruise companies to develop their own strategies for the achievement of their objectives. However, this may not be enough to help the companies in their successful operations. The characteristics of the cruisers, their attitudes to cruise tourism, the factors that they consider important for selecting a cruise, and the competition factors at sea need to be examined. The remainder of this thesis will investigate all such factors in an attempt to assist the companies in the decision-making process.

CHAPTER 3

CRUISE COMPETITION AND QUALITATIVE ANALYSIS OF PASSENGER ATTITUDES

Summary

Chapter 3 investigates an approach to cruising, including an explanation of the different segments of the cruise market and the typology (i.e. characteristics) of cruisers. It also examines how the participants within the cruise market try to find which type of cruise is more advantageous and beneficial with respect to the several different types of cruise defined. Consumer attitudes to cruise tourism and fundamental considerations of competition at sea, and the factors considered for choosing a destination in the Cyprus and Mediterranean regions are extensively examined by analysing the results of cruise passenger surveys (Appendices 4 & 5). A generic qualitative assessment methodology is proposed in order to synthesise the competition factors for decision-making purposes.

3.1 Introduction

Cruise lines who wish to succeed in the future will pay very close attention to the needs and desires of this generation. As the conspicuous consumption mentality of the 1980s gives way to the value conscious consumer of the 1990s, the cruise industry will do well to heed this trend. Not only are today's consumers more value conscious, but also their levels of expectations are higher and their desires for something different are all-important factors in the purchasing decision.

Due to the expansion of the cruise market and the development opportunities for new destinations, competition becomes very strong. The fundamental considerations of competition are of paramount importance and, therefore, the cruise lines will have to pay significant attention to these factors. This will enable them to overcome the problems of intensive competition.

The demand and supply issues are essential as the phenomenal growth of the industry over the last decade has fuelled many discussions and much hand-wringing over whether or not the continuous increase in berths can be absorbed. The question arises as to whether the industry will be required to absorb a large number of new buildings, over the next few years.

3.2 Recent Approach to Cruising

3.2.1 Cruises

The word “cruise” is difficult to define. This is because cruise liners use different routes and destinations with different types of passengers. The cruise market can be divided into the following segments [Cruise Industry News, 2000a]:

1. Contemporary market: It includes cruises offered on older ships with an average length of seven days or shorter and is value-priced.
2. Premium market: It includes cruises with a broader range of amenities and services, which often sail worldwide, and which appeal to more affluent passengers.
3. Budget market: It includes inexpensively priced cruises with fewer amenities.
4. Luxury market: It includes cruises with an average of 14 days or longer on medium- sized or smaller ships, which offer a full range of upscale services and amenities.
5. Niche market: It includes explorations, sail or other specialty ships.

Cruises can also be defined as travel accommodation on board ship between two or more destinations with the objective of leisure, where no passenger can embark or disembark before their final destination. These cruises can be classified into:

1. Mini cruises: cruises with the objective of leisure taken on an irregular basis all year round between two cities.
2. Overnight cruises: cruises with the objective of leisure sometimes combined with transportation, on a regular basis all year round between two cities.
3. Short cruises: cruises with the objective of leisure on an irregular basis from one city to a destination or to nowhere.
4. Long cruises: cruises of more than seven days with the objective of leisure and sightseeing.

The participants within the cruise industry need to find out what type of cruise is the most advantageous and beneficial. This depends on various factors, including the market within which the liners operate. For example, if a particular liner operates within the mass market (i.e. budget market), it would be suggested that such a liner offers short cruises. This is because the majority of people who love to go on a cruise are reasonably price conscious [Lois P., Wang J., Wall A. D., Ruxton T., 2000, 2001]. They also prefer to stay on board the ship no longer than three days in order not to spend too much money aboard. This is indicated in section 2.5.3.1 which shows the results of the survey carried out in conjunction with some tour operators in Cyprus (Appendix 6). The operators take into account the type of cruise, consumer attitudes and the market they choose. They may then decide what type of vessel will be introduced for the particular cruise.

3.2.2 Typology of Cruisers

The requirements of cruisers are derived from those generic to holidaymakers. Various authorities have considered models for describing tourists. Cohen (1972) provided four categories for describing tourists [Cohen E., 1972]:

1. The organised mass tourist: Tourists like to travel in a fairly large group of similarly minded companions and are happy to trade off individuality for safety.
2. The individual mass tourist: Tourists go to the same places as the organised mass tourists but gain some personal satisfaction in making some of their own arrangements.
3. The explorer: Explorers arrange their own travel. They want to visit less developed destinations but still wish to retain a level of comfort.
4. The drifter: Drifters do not see themselves as tourists and wish to get to know the host community.

Other researchers have looked at the importance of the psychological determinants in the tourist industry, such as escape, relaxation, play, education, social interaction, shopping and others [Crompton J., 1979; Mathieson A., Wall G., 1982; Ryan C., 1991].

Based on the above ideas, it is essential to describe the cruiser profile, that is, the tendency of any one person on a cruise to require certain ingredients to make that cruise a success. Two researchers, Cartwright and Baird [Cartwright R., Baird C., 1999], in developing the cruisers' profile, have used the development concepts of Belbin [Belbin M., 1981] and Honey and Mumford [Honey P., Mumford J., 1986]. The characteristics of the cruisers can be described as follows:

1. The partygoer

The partygoer is on a cruise for the activities and nightlife. They are likely to be happiest on a ship that has the latest in entertainment features, a lively casino and plenty of organised activities.

2. The relaxer

The relaxer will not object to days spent at sea and may well only venture ashore briefly on port days. The relaxer is on the cruise to unwind and whilst he or she may well take in a degree of the action at night, the daytime is likely to find them lying on deck chair and devouring the ship's library.

3. The enthusiast

The enthusiast is addicted to cruising. The itinerary is not important, the ship may not be a major priority but the cruise is.

4. The stroller

Strollers take the opportunity to escape from normality and to experience a perception of a glamorous yesteryear.

5. The seeker

The seeker is concerned with finding out a great deal about the area he visits and will wish to try to become a part of the culture.

6. The explorer

The explorer wishes to see those places few have seen before. Explorers do not need shopping malls but they seek different lifestyles.

7. The dipper

The dipper is truly the 'been there, seen that, experienced this and bought a T shirt' person. He is satisfied with an explanatory leaflet, a briefing from the port official and a tour of the highlights.

3.2.3 New Times, New Cruise Ships

The ship of tomorrow seems to be a very hot topic today. Everyone wants to know what the cruise ship is going to look like. Added to the increasing number of new buildings, there has also been an increase in the size of cruise passenger vessels being built in recent years [Cruise Industry News, 1999a; Shipping World and Shipbuilder, 1996]. Table 3.1 shows the number and capacity of vessels added to the fleet since 1995. In 2000, 13 new ships were introduced [Cruise Industry News, 2000a] and another 15 new ships in 2001 [Cruise Industry News, 2000a]. It is estimated that by the year 2006, 29 new ships will have been introduced into the cruise market [Cruise Industry News, 2000a].

Pax	Up to 500		500-999		1,000-1,499		1,500-1,999		2,000+		Total		Average Size
	No	Pax	No	Pax	No	Pax	No	Pax	No	Pax	No	Pax	
1985-9	19	3,358	2	1,330	8	10,510	1	1,526	1	2,282	31	19,006	613
1990-4	24	4,794	5	3,662	12	14,938	3	4,790	6	12,872	50	41,056	821
1995-9	6	1,684	6	4,236	6	7,962	13	24,008	13	28,419	44	66,309	1,507
Total	49	9,836	13	9,228	26	33,410	17	30,324	20	43,573	125	126,371	1,011

Table 3.1: Analysis of oceanic fleet additions from 1985 by size

Source: Cruise Industry News (1999a), Shipping World and Shipbuilder (1996)

The differentiation in geographical destination and product expectation may greatly influence the type of ship that is introduced not only now, but also in the coming decade. To satisfy a continuing strong demand in the established cruising areas, large mass market ships may continue to come in line [Paige M. M., 1994]. This results from the fact that demand grows through more first-time cruisers becoming aware of the many benefits of cruising, as the vacation alternative of choice. Through stricter safety rules and increased passenger expectations, many older ships may become obsolete, necessitating investment in new ships. However, not all the new ships will be mass-market ships catering to the established cruise areas. Other types of ships may be introduced.

Many of the world's most attractive and interesting ports and waterways are accessible only to ships of a smaller size. For example, the ships that dock in Limassol are small in both size and capacity. Limassol is an attractive port because tourist attractions and interesting places are located within a short distance from the port, but it is a small harbour that does not allow big ships to dock. Even if large ships could dock, it may simply not be appropriate to disembark thousands of passengers in many of these destinations. Certainly, judging from the rising popularity of small ship cruising and the generally very high passenger satisfaction being registered from cruise passengers on smaller ships, the trend towards more cruise passengers seeking upscale and adventure-oriented cruises offering fascinating and unusual destinations is more likely to continue. This is evidenced by the survey carried out in Cyprus cruise region and the results are shown in section 3.4.1. This high degree of satisfaction may result in a very high level of repeat business, and as a result, the small ship cruise market may continue to expand.

In addition, the ships may be expected to feature on-board amenities. This may ensure a level of comfort that encourages passengers to return frequently, rather than viewing a voyage as a one-time hardship for the sake of adventure. Comfortable cruising might become the means of choice for visiting many of the world's most remote destinations. The cruisers with the means to travel to these remote destinations will demand a high quality of service. Fine cuisine and wine, swimming pools, spacious staterooms, saunas and a well-trained staff will be the order of the day. In short, by combining a small hull size and luxurious features, a cruise line may be able to cater to the emerging class of adventurous "empty nest baby boomers".

3.2.4 Supply and Demand Balance

Passenger growth was continuous from 1995 to 2002. Demand-side growth for 1995, 1996 and 1997 was put at 6.0%, 6.5% and 8.0%, respectively [Wild G. P., 1995]. This took account of the continuing higher annual growth rates in Europe and the optimistic economic forecasts for both USA and Europe combined with a boom in the Asia market. The figures have never failed to increase year after year. For the years 1998 to 2000 it was assumed that whilst most countries had moved out of recession, the current

economic climate within the USA and Europe continued to the end of the century and that passenger growth remained below the historic average of 9%.

	1999	2000	2001	2002	2005
Ships	228	240	255	268	292
Berths	199,116	219,337	245,213	269,353	319,843
Market capacity	10,279,639	11,465,135	12,801,391	14,134,311	16,715,011
Passengers (million)	8.7	9	9.8	10	11.9
Utilisation (%)	84.6%	78.4%	76.5%	70.7%	71.1%

Table 3.2: Supply and demand scenario

Source: Cruise Industry News (2000a)

Table 3.2 shows that utilisation levels remain below 90% and decrease from year to year. The utilization level is measured by dividing the number of passengers by the market capacity in berths. The decrease in utilization level may be a result of the increase in new tonnage and of the fact that older tonnage discarded by the major operators is utilised by smaller ones. The industry's reaction to a surplus of supply over demand is to squeeze prices, together with yields, as discounting is employed to ensure that ships sail as close to full capacity as possible [Lloyd's Shipping, 2001]. The cruise industry does not appear to generally follow economic indicators and is normally regarded as supply-driven, with demand stimulated by effective marketing. However, when the market becomes saturated, it is likely to change, although there is no evidence that the market is currently saturated [Lloyd's Shipping, 2002].

The cruise market has been buoyed by unbroken expansion since 1990. The industry's total revenue increased from \$5.1 billion in 1990 to \$15 billion in 2000 [Lloyd's Shipping, 2002], carrying an increased total of 9 million passengers. In 2001, there were 255 ships offering a total capacity of 245,213 berths and in 2002, 268 ships offered 269,353 berths. It is estimated that in 2003, 271 ships will offer 297,169 berths and by the year 2005 the number of berths will increase to 319,843 [Cruise Industry News,

2000a]. Europe's capacity is set to receive an unprecedented supply boost due to the new ships already contracted and targeted at the European market. The European capacity is expected to pick up with 5-10% annual growth between 2001 and 2004 [Cruise Industry News, 2000a].

Figure 3.1 shows the market share of the world four big cruise companies in capacity terms. The capacity includes the fleet of the companies in service and their newbuildings. The big four cruise operating groups that make up 82% of projected world capacity [Lloyd's Shipping, 2001], are set to take over the next five years, as their new buildings come into service. Figure 3.2 shows an indication of the capacity share in the Mediterranean region, including Cyprus. Worldwide Carnival Corporation remains first in terms of capacity and the Cyprus-based Louis Cruise Lines holds the highest capacity share in the whole Mediterranean region.

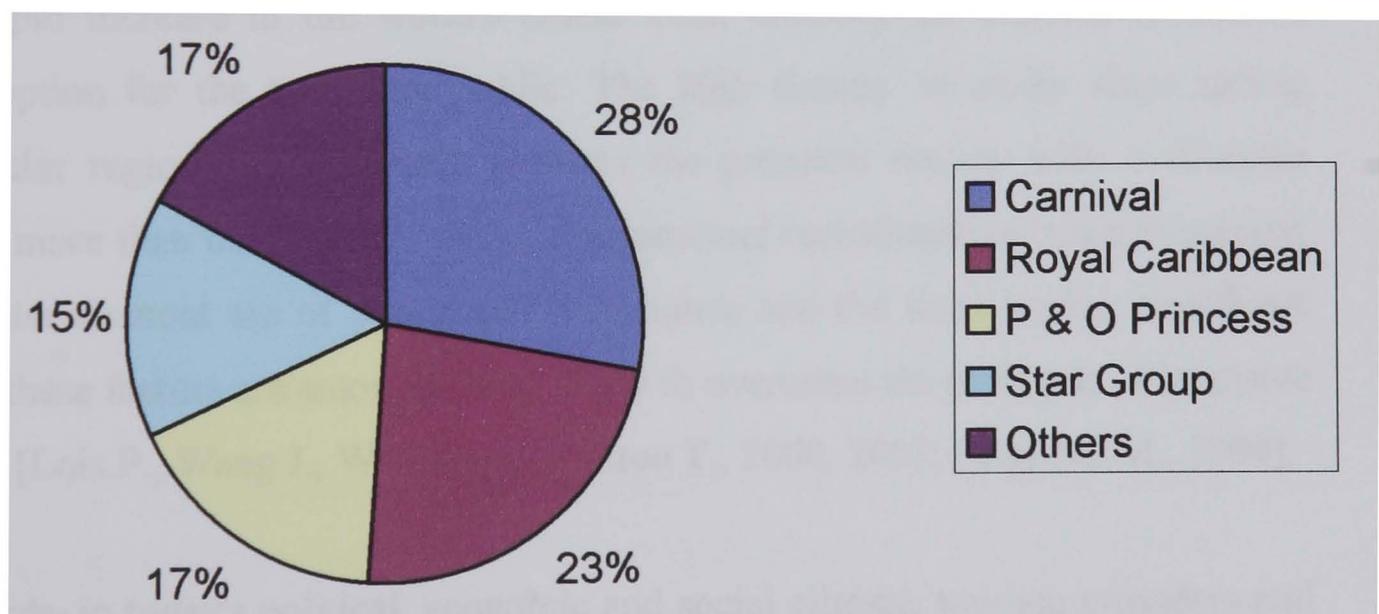


Figure 3.1: World projected berths capacity share (Fleet in service and newbuildings)

Source: Lloyd's Shipping (2001)

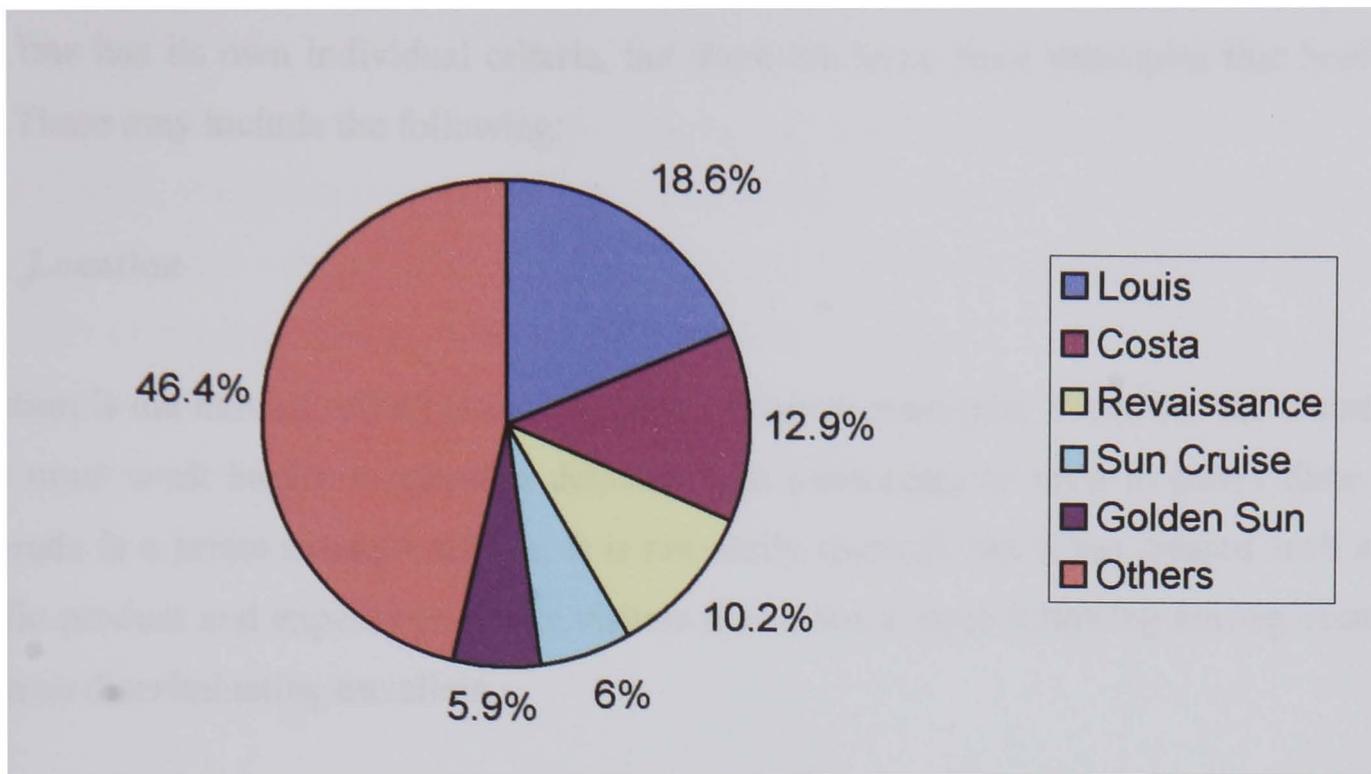


Figure 3.2: Mediterranean berths capacity share

Source: *Cruise Industry News (2001)*

3.3 Competition at Sea: Fundamental Considerations

With the rapid increase in the world's cruise fleet, cruising has become a realistic vacation option for the travelling public. The high density of cruise ships sailing certain popular regions of the world presents the potential cruiser with a dilemma resolved by more than the itinerary alone. Fundamental considerations such as service, food and entertainment are of paramount importance and the lines paying significant attention to these factors are amongst those likely to overcome the problems of intensive competition [Lois P., Wang J., Wall A. D., Ruxton T., 2000, 2001; Paige M. M., 1994].

In other words, in today's political, economic and social climate, tourism providers and destinations are faced with a growing concern for maintaining and developing their infrastructure to remain competitive. The cruise industry is faced with the same challenges. They must develop their onboard products including food, entertainment and sale destinations. Marketing a cruise package, particularly one that has already made its established mark in the industry, may seem simple. To those not involved with the behind-the-scenes work of ensuring passenger satisfaction through the right ports of call on an already crowded itinerary, such a task will probably appear trivial [Paige M.

M., 1994]. There are no set formulas that cruise lines use to choose destinations and each line has its own individual criteria, but there are some basic principles that hold true. These may include the following:

3.3.1 Location

Location is the hardest selling point for a destination to overcome. Therefore the cruise lines must work harder to create a demand from passengers to want to travel there. Bermuda is a prime example of this. It is not easily reached, but it has created such a terrific product and experience for its visitors that it has a loyal following among even the most discriminating travellers.

3.3.2 Attitude and Hospitality

No one enjoys going where they are not wanted, especially tourists who have paid a significant amount of money for a vacation. Cruise lines, never wanting to disappoint their passengers, are reluctant to take them where they will not be welcome. If they are disappointed, they are likely to blame this on the cruise line and tell their friends, families, co-workers and travel agents about their negative experiences. This negative response can be significant for cruise lines' destinations alike, since cruisers and their friends are frequent vacationers and look at a cruise as a good way to sample destinations they would consider for a long-stay vacation.

3.3.3 Political Stability

Cruise lines must be responsible for their passengers' safety. Therefore it is not surprising that they look for destinations with a stable political environment. Political stability also allows for a continuity of good relations between the cruise line and destination tourism partners. Since both have a lot to gain by maintaining a positive experience for visitors, cruise lines look for destinations where there is mutual respect and cooperation to develop long-term relationships.

3.3.4 Ship Support Facilities

This category is the one that most impacts upon the operations of a cruise ship and its ability to call at a given port. Before any other consideration can be made, cruise lines require decent and safe docking facilities and/or launch or tender services, water, food, suppliers and possible waste handling facilities, repair services and re-fuelling capacity.

Catering and entertainment are of great importance and the cruise liners must be ready to meet and satisfy the needs of their passengers.

3.3.5 Value and Cost

Overall cruise liners must determine the value of a destination related to the costs associated with calling there. The most visible of these costs is the passenger head tax, but other costs might include those relating to pilots, tenders and longshoremen. These costs are weighed in with the operational costs of cruising and provisioning a ship properly (e.g. with fuel) for that stop in the full itinerary. This cost is then evaluated with the overall passenger satisfaction with the destinations. Not all destinations are equivalent in what they offer, therefore not all carry the same value to passengers. The value to customers can be measured in quantitative terms by taking into the account the related costs associated with a particular voyage. It can also be measured in qualitative terms by evaluating the passengers' satisfaction of their expectations.

3.3.6 Shopping

One important aspect of tourism is that destinations enjoy the economic benefits that visitors bring. One of the largest benefits stems from tourist shopping. Cruise passengers like to be able to buy either a known product at a bargain price, or something unique to the destination visited.

3.3.7 Other Factors

The travel agency community is an important factor in recommending new destinations to cruise lines and in assessing existing destinations. Since the majority of cruises are sold through travel agents, as stated in Section 3.4.1, their attitudes and comments are respected. Marketing and research techniques are used to measure the advantages and disadvantages of different itineraries. The marketing and research department of cruise lines uses this information in order to improve the existing destinations or to recommend new attractive itineraries and destinations. Sometimes, selections are based upon reaction to competition, either to match what they are doing or to provide exclusivity in an itinerary. Destination marketing and advertisement can greatly enhance a destination's image in the minds of both decision-makers and prospective passengers.

Apart from the major factors mentioned above, there are several other principles that the cruise companies must take into account. Such principles may include sightseeing, infrastructure, attractions and historical interest, and cultural individuality. Since competition within the cruise market has grown dramatically, the cruise companies need to be genuinely aware of the importance of the above factors.

3.4 Survey Results

In order to consider the primary factors of competition at sea, investigate the consumer attitudes to cruise tourism in the Cyprus and Mediterranean region, and then apply cost-benefit analysis to these findings, two surveys were conducted during April 2000. The first survey (Appendix 4) was carried out on board the cruise ship *Atalante* and outside the Limassol port terminal in Cyprus. Three hundred respondents were asked to rate certain factors as being the most important in making a cruise holiday enjoyable. The respondents were also asked to consider the major factors in their choice of voyage, their impression of the ship, its activities and the shore excursions. Then, they were requested to mention how they had booked their cruise and whether they would like to take another cruise within the next three years.

In carrying out the first survey, a “quota sampling technique” was used, as indicated in Chapter 1 in section 11.9. Table 2.7 was used in order to select the number of respondents. The sample selected was 300 passengers. A number of 186 were foreigners since 62% of cruisers, as shown on Table 2.7, are overseas. A number of 100 passengers selected were British because Table 2.6 shows that 53.7% of tourists visiting Cyprus come from Great Britain.

The second survey (Appendix 5) was conducted with tourists who visited Cyprus during April 2000 and covered all the tourist areas in Cyprus. This was carried out by the method of personal interview and 300 respondents were asked to rate certain factors that make the cruise enjoyable, their expectation and satisfaction levels after having taken a cruise. Those who had never taken a cruise were requested to state whether they planned to take a cruise within the next three years.

The method of “quota sampling” was also used for the second survey. The survey covered the four major tourist areas in Cyprus. Table 2.6 was used for the selection of interviewees. This shows that 53.7% are British and 46.3% come from other countries. The percentages used to divide the sample size were collected from the Department of Statistics and Research of the Cyprus government [Republic of Cyprus, 2000].

3.4.1 Analysis of Consumer Attitudes to Cruise Tourism – Survey 1

Attitudes to cruising differ in many countries. For example, in the US and Canada cruising was not a traditional vacation option in the 19th century and many North Americans in the past were more interested in building infrastructure for internal tourism and vacationing at home than in looking outwards to the sea. To many in Europe, there has been a feeling that cruising was for the old and wealthy and the industry will have to continue to work hard for some years in order to make sure that these traditional attitudes are dropped [Wild G. P., 1995]. Table 3.3 sets out the attitudes of consumers in the Cyprus and Mediterranean regions to cruising, following a survey (Appendix 4).

Category	Have been on a cruise (%)	Would consider taking a cruise (%)	Would never take a cruise (%)
All	40	35	25
Men	36	38	26
Women	44	40	16
15-19	6	60	34
20-24	7	62	31
25-34	9	58	33
35-44	11	55	34
45-54	14	38	48
55-64	12	27	61
65+	16	20	64
Cyprus	5	70	25
Greece	6	65	29
England	55	38	7
Others	29	47	24
Working	10	50	40
Retired	10	42	48
Married	15	47	38
Single	8	45	47
Divorced	4	55	41
Children	3	52	45
No children	10	45	45

Table 3.3: Consumer attitudes towards cruising by demographics

Source: Survey 1 - Appendix 4 (2000)

Consumers who have already taken a cruise were most likely to be over 45 years of age, and particularly over 65 years. A large proportion of people of the latter age would not consider taking a cruise. A much larger proportion of younger people appear to be receptive to the idea of taking a cruise with around 58% to 62% of those interviewed between 15 and 34 years of age expressing interest in taking a cruise. This is a very encouraging result for cruise tourism. A large proportion of interviewees come from the UK, as most of the tourists who visit the Cyprus and Mediterranean regions are British citizens [Republic of Cyprus, 2000].

Despite the competition, the future outlook for the cruise industry is promising. More than 7.66 million North Americans are estimated to have cruised in 2002. Despite the challenges faced in 2002, the industry not only met but exceeded its projections and easily bettered the record number of 7.49 million passengers who had cruised in 2001

[Cruise Lines International Association, 2003a]. The industry has the opportunity to welcome 1 million more guests in 2003 compared to 2002 – a potential of 8.66 million passengers from North America and 9.66 million worldwide [Cruise Lines International Association, 2003a]. It is obvious that, since Europe is now the fastest growing source market for cruise passengers, the Mediterranean region tends to increase its market share and further tonnage will be deployed in the region. According to CLIA's survey [Cruise Lines International Association, 2003a], a large proportion of around 75% of the respondents said that they would consider taking a cruise and 56% of these people said that they are planning to go on a cruise within three years.

Category	First time cruisers (%)	Frequent cruisers (%)
Married	78	72
Single (including divorced)	22	28
Do vacation with children	20	17
Do not vacation with children	80	83
Males	52	49
Females	48	51
Age 25-40	29	24
Age 41-59	40	36
Age 60 or older	25	24

Table 3.4: Cruiser demographics

Source: Survey 1 - Appendix 4 (2000)

It is clear from Table 3.4 that most of the cruisers are married, and they do not prefer taking a cruise with children. In addition, the results of the author's first survey (Appendix 4) are analysed as follows:

1. Of those polled (300 passengers), 60% were first-time cruisers and 40% were frequent cruisers.
2. The passengers considered destination as the major factor in their choice of voyage. The destination rate came to 61%, followed by convenient dates and safety factors with 45% and 27%, respectively.

3. The overall impression of the ships was excellent. The passengers were happy about cleanliness of cabins and public areas, quality and quantity of food, service in the dining rooms, hospitality of staff and social programmes. On the other hand, adverse comments were expressed regarding the limitations in duty free shops and casino entertainment. As mentioned by the passengers, they wanted to buy things that they could not get at home at reasonable prices. The passengers also suggested that the cruise line companies must extend the casino area of the ships, as it does not accommodate those who like to make use of it.
4. The passengers considered the options “Go sightseeing” and “Visit tourist attractions” as the most important factors in their decision to go on a cruise in specific regions. In particular, the rate of these options came to 65%, followed by the options “Visit museums etc.”(55%) and “Go shopping”(25%). This means that the cruise operators, in choosing cruise destinations, will need to make sure that they find places where passengers can go sightseeing and buy things they cannot get at home.
5. The overall impression of the land tours was very good, but the main problem was the amount of time spent at each destination. Although passengers were happy about the tour service and sightseeing attractions, the limited time did not allow them to do their shopping and have lunch at a local restaurant.
6. The passengers also expressed their opinion on the abolition of duty free shops in ports by the European Union. 68% of those polled said that the abolition would have an adverse effect on the profits of the companies and not on the passengers’ spending. With the increase in prices, the passengers would save some money as they can get everything at home at the same price. Due to the fact that the profit of the companies will decrease, some of the “duty free shop” staff will become redundant. 32% of the passengers said that there would be little or no effect on their decision because duty free shopping is not an important factor in choosing a cruise destination.

7. Another point that is considered important for the passengers was the size of the ship. The majority of the passengers indicated that they prefer to go on a cruise on bigger cruise ships. For example, 28% of the passengers would prefer a 600 to 799-foot long cruise ship and 19% would prefer an even bigger cruise ship (i.e. more than 800 feet long).
8. 49% of the passengers booked their cruise through Tour Operators and 44% booked through Travel Agents.
9. Finally, 84% of the passengers said that they would like to take another cruise within three years. They said that the main reason luring them into taking another cruise is that a cruise vacation is an excellent combination between a land-based holiday and sea travel, where they can enjoy certain things like entertainment, quality service and hotel comfort.

3.4.1.1 Concluding Remarks – Survey 1

It was concluded that destination is the major factor in the passengers' choice of cruise. The cleanliness of cabins and public areas, the quality of food and service, the staff hospitality, and social and entertainment programmes are considered important.

The distribution system of the Tour Operators and Travel Agents plays a major role within the cruise industry as liners and agents become close partners.

A cruise vacation is an excellent combination between a land-based holiday and sea travel, where they can enjoy certain things like entertainment, quality service and hotel comfort. This shows that the Cyprus and Mediterranean cruise market will see continued growth, and the future of the international industry looks bright. This is indicated by the fact that most passengers expressed the desire to take a cruise in the international seas, such as Western Mediterranean and the Caribbean. It was also indicated that the future prospects of the companies offering cruises in the Cyprus and

Mediterranean regions is good. This is because 88% of the passengers would like to take a cruise on the same ship, sailing in the Eastern Mediterranean.

3.4.2 Analysis of Consumer Attitudes to Cruise Tourism – Survey 2

The questionnaire shown in Appendix 5 was used in order to carry out the second survey. Expectations regarding the cruise experience are high, and focus particularly on the freedom of cruisers to do as much or as little as they want, on getting good value for money, on having fun and relaxing. Table 3.5 sets out the importance of various aspects of cruising to first time cruisers and their satisfaction levels after having taken the cruise.

Item	Importance (%)	Satisfaction (%)	Gap (%)
Offers a variety of activities	70	80	+10
Allows you to relax	82	85	+3
Is a learning experience	48	76	+28
Is a way to meet interesting people	38	50	+12
Allows you to do as much or as little as you want	86	87	+1
Is a fun vacation	83	84	+1
Is a good value for money	84	82	-2
Gives you the chance to visit different places	74	80	+6
Offers comfortable accommodation	71	78	+7
Allows you to be pampered	49	69	+20

Table 3.5: Cruising attributes according to first-time cruisers

Source: Survey 2 - Appendix 5 (2000)

According to people who have taken both cruise and land-based vacations, cruise holidays seem to have certain significant differences. The people were asked to rate their satisfaction on some important items during their cruise and land-based vacations (Appendix 5). In the Cyprus and Mediterranean cruise region, when compared to land-based vacations by people who have taken both, cruise vacations rate exceptionally well over all key descriptive characteristics. Table 3.6 details all these items.

Item	Cruises %	Resorts %
Well organised	88	83
Relaxing	92	90
Good value for money	89	77
Pampered by staff	69	61
Active	58	51
Safe	78	75
Romantic	79	60
Good way to try out a vacation	80	56
Able to meet interesting people	58	55
Hassle-free	75	67

Table 3.6: Cruising versus resort vacations

Source: Survey 2 – Appendix 5 (2000)

The fact that people consider that a cruise vacation is a good “value for money” as opposed to a land-based vacation rates high among cruisers. The characteristic with the highest difference between cruise and land-based vacations is that of a “good way to try out a vacation”.

Other remarkable features were identified by the survey. Table 3.7 sets out the number of days that people prefer to spend on a cruise holiday. Clearly, most of the people (40%) prefer to spend 8-15 days on a cruise holiday. A large proportion of 38% said they prefer the option of 4-7 days and 12% prefer taking a mini cruise (i.e. less than 3 days).

Item (No of Days)	Cruise %
Less than 3 days	12
4-7 days	38
8-15 days	40
16-30 days	4
Others	6
Total	100

Table 3.7: Number of days preferred for a cruise holiday

Source: Survey 2 – Appendix 5 (2000)

Table 3.8 shows the places that people have been to, on a cruise. 33% said that they had visited other places not mentioned above, and in particular, 27% had been on a cruise in the Western Mediterranean and 6% in the Caribbean region. With respect to UK cruisers, Egypt was their first option, but Cypriots, Greeks, Russians, and Germans preferred Israel and the Greek islands, especially for historical and religious reasons.

Places	Cruisers %
Egypt	24
Israel	19
Greek islands	24
Others	33
Total	100

Table 3.8: Visiting places

Source: Survey 2 – Appendix 5 (2000)

3.4.2.1 Concluding Remarks – Survey 2

Clearly, in most areas satisfaction levels were in excess of expectations, particularly in the areas of learning experience, pampering, activities and meeting interesting people. Most also thought that cruising offered comfortable accommodation and was a good way to visit different places.

The fact that tourists consider that they are more attentively looked after on a cruise as opposed to a land-based holiday rates high among cruisers. This is a key aspect of ship life with staff to guest ratios being higher aboard ship than in a resort.

According to the survey, mini cruises are not preferable by the tourists. It was investigated that tourist attractions and sightseeing are the most important factors in their decision to go on a cruise. So, with the mini cruises they do not have enough time to go sightseeing and visit tourist attractions.

3.4.3 Qualitative Assessment of Passengers' Attitudes

It would be important to propose an approach in order to synthesise the above factors for making decisions qualitatively. With the continuous development of the social sciences, and especially through the introduction of new statistical and quantitative techniques which can be used in commerce and industry, an attempt needs to be made to 'measure the immeasurable' [Harvey M., 1982] before making decisions.

The development of a generic qualitative assessment model is proposed as an attempt to measure the cruise passengers' attitudes to cruise tourism. This model is used in order to help cruise companies operating in the Cyprus and Mediterranean cruise region to determine the factors in choosing a destination, analyse those factors in qualitative terms, and then make the most appropriate decisions that may be beneficial for them. A simple way to do this is to incorporate the factors and alternatives on a matrix. Then, a point measurement weighting system is used to assign relative values to the factors being considered. The matrix below shows the factors that might affect the decision to choose a destination, to any of the three possible options.

FACTORS	Destination Score			WEIGHTING	Weighted Destination Score		
	A	B	C		A	B	C
Location							
Attitude & Hospitality							
Political Stability							
Ship Support Facilities							
Value and Cost							
Shopping							
Others							
TOTAL							

The two stages in the completion of the matrix are:

- a. To use some point scale (1 to 10) to assign ratings to the various factors concerned.

- b. To assign weightings to the factors being considered based upon their importance to the organisation.

After this has been done, it is clear that a simple totting up of these factors will not provide a deterministic solution, although it may appear to do so. However, even if the actual figures finally obtained are not conclusive, at least the analysis of the factors and discussion of them will make the participants become more aware and consider the influences of all factors on the decision more carefully.

The approach described above can be demonstrated by an example, where “XYZ Cruises” will have to take a decision as to where to operate its first ship acquired recently. In particular, “XYZ Cruises” has three alternative itineraries that are shown below:

Itinerary A: Cyprus-Israel-Egypt-Cyprus (4 -day cruise)

Itinerary B: Cyprus- Lebanon- Rhodes-Cyprus (4-day cruise)

Itinerary C: Piraeus-Mykonos-Patmos-Crete-Santorini-Piraeus (4-day cruise)

The ratings and the weightings of the factors concerned can be described as follows:

Ratings of the various factors concerned:

1	2	3	4	5	6	7	8	9	10
Least important							Most important		

Weightings of the factors being considered based upon their importance to the organisation:

1	2	3	4	5	6
Least important				Most important	

The weights used to arrive at the final decision are based on the analysis of the survey’s results carried out by the author in the Cyprus and Mediterranean regions [Lois P.,

Wang J., Wall A. D., Ruxton T., 2000, 2001]. In particular, the passengers were asked to indicate the main factor(s) in choosing to travel on a cruise ship. The response to this question was as follows:

Factors	Location	Attitude & Hospitality	Political Stability	Ship Support Facilities	Value & Cost	Shopping	Others
%	65	50	60	58	27	25	62

The above results can then be used to find the weight of each factor. Using the weighting system, as shown in Table 3.9, each factor will correspond to a weight as presented in Table 3.10. Multiple expert judgements can also be incorporated into the above analysis.

Class intervals (%)	Weighting system
0-20	1
21-35	2
36-50	3
51-65	4
66-80	5
81-100	6

Table 3.9: Weighting system

Source: Survey 2 – Appendix 5 (2000)

Factors	%	Weights
Location	65	5
Attitude & Hospitality	50	3
Political Stability	60	4
Ship Support Facilities	58	4
Value & Cost	27	2
Shopping	25	2
Others	62	4

Table 3.10: Level of importance of travelling factors by cruise ship

Source: Survey 2 – Appendix 5 (2000)

The results of the qualitative assessment matrix, as shown in Table 3.11, show that Itinerary C is the best solution for the company.

It is clear that “Location” is the major factor in the choice of itinerary. Therefore, the company must work hard in order to create a demand from passengers who want to travel there. The factor “Others” ranks second and includes the travel agency community, the marketing and advertising techniques, sightseeing, attractions and historical interest. The importance of the above factors is well indicated in the results of the survey where 65% of the total passengers expressed the opinion that “Go sightseeing” and “Visit tourist attractions” are considered as the most important factors affecting their cruise vacation. In addition, 44% and 49% of the passengers booked their cruise through a travel agency and a tour operator respectively. “Ship support facilities” is also an important factor because it impacts upon the operations of a cruise ship.

FACTORS	Destination Score			WEIGHTING	Weighted Destination Score		
	A	B	C		A	B	C
Location	7	8	9	5	35	40	45
Attitude & Hospitality	6	6	8	3	18	18	24
Political Stability	9	7	4	4	36	28	16
Ship Support Facilities	8	8	8	4	32	32	32
Value and Cost	6	6	8	2	12	12	16
Shopping	4	5	7	2	8	10	14
Others	7	6	9	4	28	24	36
Total	47	46	53		175	170	191

Table 3.11: Qualitative assessment matrix

Source: Survey 2 – Appendix 5 (2000)

The cruise line must pay great attention to the passengers’ wants because the ‘word of mouth’ technique is an excellent advertising element for the company. The company must make sure that all the support facilities of its cruise ship can satisfy the needs of

the passengers. This factor is also important for both Itinerary A and Itinerary B. Then the factors “Attitude and hospitality” and “Value and cost” follow. The company must not ignore the importance of these factors. 50% of the passengers said that their impression of the staff hospitality was “Very Good” and 32% said that the impression was “Good”. “Value and cost” is an important element for both the passengers and the cruise line. The cost can be evaluated by the overall satisfaction of passengers with the destinations. It is obvious that not all itineraries carry the same value to passengers because not all destinations are equivalent in what they offer. The next factor that needs to be addressed is “Political stability”. This factor ranks first for Itinerary A. It is clear that passengers look for destinations with a safe political environment. The political environment in Israel is unstable compared to Egypt and Greece. Therefore, the company must be responsible for the passengers’ safety. “Shopping” ranks last in all Itineraries. This means that it is not very important in their choice of destination. 25% only expressed the opinion that shopping is a factor but not a major one during their cruise vacation.

Although passengers would like to buy something unique, this does not affect their decision regarding the cruise destination. The results obtained are a good indication for the cruise company to understand that they need to have good communication with the passengers. This may enable the company to discuss and evaluate the passengers’ expectations and wants, and also create a situation that will win back the repeating passengers.

3.5 Conclusion

According to various studies and surveys carried out throughout the decade [Loizou C., 1997; Peisley T., 2002; Wild P., Dearing J., 1999; Wild G. P., 1995], the cruise industry enjoyed growth despite continuing recession, and has been more successful than almost any other tourist industry. This is also proved by the author’s surveys [Lois P., Wang J., Wall A. D., Ruxton T., 2000, 2001]. The cruise industry has prospered in the current economic environment, and the major lines are increasing their market share, earning good profits, and signalling optimism for a bright future with orders for new ships. A

key reason of this prosperity is that a cruise provides greater value to the consumer compared to resorts and other types of vacation.

The cruise product and new ships will play a key role in the future of the cruise market. The cruise ships are becoming more innovative and, in many cases, larger to meet the needs of the changing cruise passenger. Destination development is also important. Another reason for the industry's success is the support of the travel agency community. Because a cruise sale offers one of the highest commission opportunities available and also provides a high level of customer satisfaction [Lois P., Wang J., Wall A. D., Ruxton T., 2000] hence generating repeat business, agents have aligned themselves with the cruise business to become close partners.

The continuing expansion of the cruise lines, the building of new ships and the new passengers' expectations may indicate that the competition will be strong. Therefore, the cruise lines need to take into account certain considerations. These may be beneficial for their customers, and the particular lines will be able to survive within the cruise market. The findings from the surveys [Lois P., Wang J., Wall A. D., Ruxton T., 2000, 2001] revealed that due to the expansion of the cruise market and the development opportunities for new destinations, the competition becomes very strong. The fundamental competition considerations are of paramount importance and therefore, the cruise lines will have to pay great attention to these factors. This will enable them to overcome the problems of intensive competition. The factor found as the most important for passengers in choosing to travel on a cruise ship is Location with 65.3%. Other factors of paramount importance include "Attitude and hospitality" with 50%, "Political stability" with 60% and "Ship support facilities" with 58%.

The proposed methodology was developed in order to synthesise competition factors and carry out a qualitative analysis on the consumers' attitudes to cruise tourism. This will enable the cruise companies to make proper decisions, and it can also be used to carry out a quantitative analysis of those factors and further analyse each factor separately. For example, an analysis may be carried out to investigate the main areas

and reasons why the passengers consider “Location” as the primary factor when choosing to travel on a cruise ship.

The factors that were examined in this chapter can be used by cruise companies operating in the Cyprus and Mediterranean regions to build up their marketing and pricing strategies. The price of the cruise product, the impact of discounting and the manner of distribution and promotion of the product play a vital role in the successful operation of cruise companies. The main objectives of such companies are to divert revenue opportunities into profits and increase their market share. In order for the companies to achieve these objectives, they will have to construct a business strategy.

CHAPTER 4

MARKETING, PRICE AND REVENUE STRATEGIES

Summary

This chapter describes the marketing and pricing strategies that can be used by a cruise liner. It examines the factors that affect the price of a cruise product and analyses the impact of discounting. It also investigates possible ways of distributing and promoting the cruise product. The chapter describes several ways of diverting revenue opportunities into profits. Finally, a case study of a new cruise company that is entering the cruise market is carried out. The study describes the different segments of the cruise industry and lays emphasis on the marketing strategies of the company, the SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis and the possible synergies with its holding company.

4.1 Introduction

Marketing is concerned with ensuring that there are business transactions, and that they benefit both the supplier and the user. It is a vital link between the two. The marketing department investigates and interprets the needs of potential customers so that they can be satisfied. At the same time, the effectiveness of a company's marketing determines its sales income and, ultimately, its success as a business enterprise [Harrison J., Holloway M., Jenkins T., Martin F., Mills G., 1995]. Marketing is sometimes defined as the art of creating loyal customers. A new project should identify its potential customers and justify why it can win them over from competitors [Savvides S., 2000].

As far as the cruise market is concerned, marketing involves the following four basic elements:

1. Pricing policy with regard to passenger fares and discounting.

2. Direct selling of the company's services by travel agents or by cruise company salesmen negotiating contracts with clients.
3. Publicity, embracing press releases and general relations with the press.
4. Advertising of the product or services.

The marketing policy pursued by any shipowner has a profound influence on the overall annual results of the company. Accordingly, a marketing plan is a key instrument in securing the traffic predicted in the budget itself. The objective of such a plan is to identify the products that the company wishes to promote and to win the maximum market share consistent with adequate profitability.

It should also be said that this profitability can be maximised in different ways on board the cruise ships and ashore. The passengers are all equal economic opportunities, which may be well used and converted into profits. In order for the lines to achieve this, firstly they need to understand the passenger's wants and secondly, they have to be able to provide them.

4.2 Market Pricing

An increasing number of shipowners in passenger shipping are using the techniques of market pricing which is essentially the practice of correlating passenger and freight tariffs to potential market demand and sensitivity. This will primarily maximise cash flows, attain high load factors, counter competition, stimulate market growth and improve profitability. The different fare charges on short sea passenger services at various times of the year are another application of market pricing [Branch E. A., 1989a].

In adopting a market pricing policy, care must be taken to ensure that a full-rate tariff is not diverted to the lower rate in endeavouring to generate a higher volume of business. Moreover, whereas the basic tariff can cover direct costs and make a major contribution

to indirect costs, the reduced tariff should at least cover direct costs, if possible. The formulation of graduated tariffs requires careful evaluation of existing tariff levels, costs, competition, agreements with other operators and, above all, market sensitivity. For example, there may be nothing to be gained by offering a 40% off-season discount for a particular tariff if the market is insensitive to price. If the discount results only in a slightly higher passenger demand, of say 5%, the total income is less. Therefore, in accordance with the principle of profit maximisation the tariff should remain unchanged.

4.2.1 Passengers' Fares

As today's cruisers are price-oriented, passengers' fares are of paramount importance for the cruise lines. The cruise lines will plan their marketing policy and set their fares in a careful and consistent manner in order to compete with other operators, utilise capacity and also maximise their profits.

The passengers' fares depend on many factors, including the following:

1. The length of voyage. This determines the costs of bunkers.
2. The port taxes for passengers. This varies according to the type of cruise. For example, the port taxes from Cyprus to Israel are UK£18 for adults and UK£12 for children. A combination cruise from Cyprus to Egypt and Israel will cost UK£21 for adults and UK£14 for children [New Paradise Cruises, 2000].
3. The class of travel and type of cabin. Table 4.1 indicates that the prices for adults are higher than those for children. Prices also depend on the description of each cabin: the facilities provided in the outside cabins with shower would cost more than cabins with wash basin only.

Category	#	Cabin description	3-day	4-day	7-day
SC	6	Deluxe Outside Suite 2 lower beds or large bed with private facilities	415	555	970
TA	14	Superior Outside 2 lower beds or large bed private facilities	390	520	910
TB	31	Superior Outside 2 lower beds or large bed with private facilities	365	490	855
A	20	Special Outside Cabin 2 lower beds or large bed with private facilities	330	455	800
AB	42	Classic Outside Cabin lower beds or large bed with private facilities	315	440	770
B	24	Standard Outside cabin lower beds or large with private facilities	310	425	740
C	25	Outside Cabin with Upper/Lower beds with private facilities	295	410	720
DA	12	Special Inside Cabin 2 lower beds or large bed with private facilities	290	405	715
D	35	Classic Inside Cabin 2 lower beds or large bed with private facilities	280	390	685
F	61	Standard Inside cabin 2 lower beds or large bed with private facilities	270	375	660
E	65	Inside cabin with Upper/Lower beds with private facilities	215	310	540
GOLDEN SAVER/E*		Run of the ship cabins with private facilities	205	295	530
TAXES			30	45	90

Table 4.1: Golden Sun cruise prices (Rates are in U.K Pounds Per Person in Twin Basis, 2001)

(Children: 0-2 years old sharing a cabin with 2 full paying adults pay only port charges

3-12 years old sharing a cabin with 2 full paying adults pay 50% of the published per person fare plus

port charges), *Source: Golden Sun Cruises (2001)*

4. The season, the day of the week and the time of travel (day or night). Concessionary fares may be available for mid-week travel or in the off-peak season. They may also be available to students, pensioners or for travel to special events, such as trade fairs.
5. The cost element is an important factor for the lines in setting their cruise prices. The costs may include crew costs such as wages, and other direct and indirect voyage expenses including meals and supplies. The company can change the prices if these costs change. This change may depend on currency fluctuations and inflation in the areas in which they operate or from which supplies are purchased, or the areas where labour earnings are relatively high.

For example, if the costs of a cruise ship operating from Cyprus for a quarter of June to August (peak period) are estimated to be £250,000, then on the basis of a 92

day-quarter, the daily costs will be £2,717. If the length of the cruise is seven days, then the costs will be £19,019. The price of passengers' fares will be partially based on that amount.

6. The competition with land-based vacations.

Cruise ships have the benefit of being moving objects and within limits they can shop around for consumables. In contrast, island destinations are obviously not in a position to do this and can pay the cost of remoteness or inaccessibility. Cruise operators can also choose appropriate base ports and this can ensure that their passengers benefit from cheaper fares and greater choices.

Table 4.2 compares the prices of 7-day beach-based holidays at a number of popular destinations in some major European countries. These packages include the flight prices and represent the nearest shore-based equivalent of the cruise vacation, and may be further compared with Table 4.3.

Destination	From UK	From Cyprus	From Italy	From USA
Italy	833	700	-	1,617
Spain	1,000	750	-	1,276
Corfu (Greece)	976	550	600	-
Rhodes (Greece)	747	500	520	-
Protaras (Cyprus)	850	-	-	-
Ayia Napa (Cyprus)	750	-	-	-
Santorini (Greece)	1,000	600	800	-

Table 4.2: Comparative costs for inclusive 7-day tour holidays (Rates are in UK£, 2001)

Source: Advertising Brochures from Travel Companies (2002)

Table 4.3 sets out a range of cruise prices for the Cyprus and Mediterranean regions. These represent minimum price levels for accommodation aboard the respective ships. For example, a minimum passenger price for a 7-day cruise from Cyprus to Greek islands is £217 (Table 4.3) as compared to 7-day land-based holiday package to Greek islands which cost minimum £500 (Table 4.2). All these prices are considerably cheaper than any of the land-based prices. Pressure has been maintained on cruise prices since

1993 with considerable discounting taking place. The foregoing clearly indicates the “value for money” cruising represents, and whilst it is not a substitute for a beach holiday, cruising offers access to beaches on a daily basis and numerous destinations at less than the cost of a single stop-over and land-based holiday.

Operator	Vessel	Category	Cruise	Minimum rate
Festival Cruises	Flamenco	A	Norwegian Fjords	700
Louis Cruise Lines	Princesa Cypria	A	Limassol-Kos-Lesvos-Tinos-Piraeus-Agina-Patmos-Lebanon	217
Golden Sun Cruises	Arcadia	A	Rhodes-Israel-Egypt-Crete-Santorini-Pierear	500
Royal Olympic Cruises	Stella Sollaris	A	Piraeus-Crete-Santorini-Rhodes-Patmos-Turkey-Mykonos	600
Poseidon Lines	Sea Harmony II	A	Greek islands	270
Costa Cruises	Costa Riviera	A	Italy-Tunisia-France-Spain	420
	Costa Victoria	A	Western-Mediterranean	800
	Aurora	A	Southampton-Spain-France	881

Table 4.3: Cyprus and Mediterranean cruise market – 7-day price guide (Rates are in UK£)

Source: Cruise Companies' Prices (2001)

Furthermore, a survey of prices across the cruise categories and companies revealed the price comparisons in Table 4.4 which are given as a per diem rate rather than for an actual cruise, as cruises ranged from seven to eighteen days. None of the prices have been discounted.

Area	Company	Standard (£)	Premium (£)	Luxury (£)
<i>Caribbean & Eastern USA</i>	Thomson	83-125		
	Costa	119-190		
<i>Europe & Mediterranean</i>	Princess		126-336	
	Cunard		160-351	386-871
	Airtours	88-153		
	NCL	118-253		
	P&O		153-363	
	Silversea			472-999
<i>Alaska</i>	NCL	185-326		
	Celebrity		285-627	
	Crystal			250-796

Table 4.4: Comparative per diem prices (UK£)

Source: Cartwright R., Baird C., (1999)

Table 4.4 shows that there is considerable overlap between the top end of the “Standard” category and the lower end of “Premium”. The products are likely to be very similar with the “Passenger Space Ratio” (PSR) becoming the differential factor. The PSR is a measure of the gross tons available per passenger. This can be calculated by dividing the gross registered tonnage (grt), which is a measure of volume of space on a ship, by the number of available berths [Cartwright R., Baird C., 1999]. For example, if a cruise ship with 18,800 gross tonnage has a maximum occupancy (i.e. berths) of 650, then the PSR is as follows:

$$PSR = \frac{18,800 \text{ grt}}{650 \text{ berths}} = 28.92$$

One of the problems that the cruise industry shares with airlines but less so with land-based hotels is that if a cabin is unsold at the start of a cruise, it remains unsold for the duration. An unsold hotel room is always available if it does not rely on charter flights and travel agents but once a ship has sailed with empty accommodation, there is no method of obtaining revenue from that accommodation until the start of the next cruise.

4.2.2 The Impact of Discounting

Discounting in the cruise industry is not a new phenomenon. Reflecting back, there was some discounting, usually employed to gain preferred supplier relationships or fill projected flexible sailings. The promotions used were relatively selective and discrete, coming in the form of negotiated middleman deals, past passenger coupons, and pre-planned early booking and stand-by fares. By 1990, discounting had become more rule-based, and since 1995 the discounting factor has begun growing.

Basically, the main reasons for large discounting since 1985 are as follows:

- a. Due to economic recession in the participating countries, people were not able to afford too much money to take a cruise of more than seven days. Therefore, the cruise operators were forced to operate mini cruises of two, three or seven days at cut prices. This can be confirmed by the fact that mini-cruises increased during the 1990s by 319% [Wild G. P., 1994b].
- b. Because of increased capacity, operators charged cruises at lower prices in order to fill this capacity. Competition was strong and the cruise liners found the way of discounting to compete and survive within the cruise industry.

The industry cannot cope with continued levels of discounting in the future, because such a policy will produce less revenue. In order for the liners to avoid low revenue, they can cut their costs, but this may have adverse effects [Branch E. A., 1989b]. For example, if they cut crew costs, then the work of the crew will be inefficient and the quality of services will fall to low levels. On the other hand, cruise operators and the industry can cope with these discounting levels, as long as the prices of new and second-hand ships remain stable [Adamides S., 2000].

In general, discounting may have a great impact on the cruise industry. Positive effects associated with the discounting practice may include the following:

- a. It has stimulated sufficient demand to fill the increase in supply.
- b. Beyond the immediate ticket, and on-board revenues gathered from passengers, heightened product awareness created by tactical advertising will provide a longer base of future cruisers.

On the other hand, some negative effects associated with the discounting environment may include the following:

- a. There will be an increase in travel agent rebating. The volume of shopping, multiple booking, and cancellations has resulted in mushrooming marketing and the increase of advertising costs due to discounting campaigns.
- b. The cruise lines may be suffering profit reduction as a result of discounting. This can be proved from the financial results of Carnival Cruise Lines and Royal Caribbean Cruises, after they imposed a discounting programme. These two lines carried 47.8% of all North American passengers, and offered savings of up to US\$1,000 on seven-day cruises, with the fares dropped to US\$699 per person [Wild G. P., 1994b]. The result was a squeeze in margins that reduced profitability. For example, the revenue per passenger for the two companies decreased from US\$1,152 in 1990 to US\$1,092 in 1991, while operating expenses per passenger increased slightly from US\$639 to US\$643. The average operating profit margin, therefore, declined from 44.4% to 41.0%.

Furthermore, it is believed that discounting will not go away but it will diminish. The reasons for his optimism regarding future industry pricing, may be the following:

- a. The cruise lines appreciate that they have to allocate more of their resources to brand identification and differentiation [Adamides S., 2000]. Brand identification can be achieved by the following:

- The company's logo. This means that the liner can highlight its "logo" within the market it operates.
 - The company's trade name. Every company can have an advertising campaign to identify itself within the cruise market. This can be done through television, newspapers, magazines, etc. The company can also offer gifts to their customers with its trade name on them.
- b. Many efficiencies of scale have already been realised by the large players, putting more pressure on the revenue side for bottom-line improvement.
- c. The rate of capacity growth will slow down.
- d. Travel agents would prefer a more stable pricing environment.

Although the above reasons may have a positive impact it is considered that there are some other factors that could burst this bubble of optimism. These may include:

- a. The cruise lines may continue to order new capacity.
- b. There may be economic recession or a catastrophic event, which seriously impacts demand. For example, the Gulf War period forced the Royal Cruise Line to announce a drastic discounting programme, particularly in the UK market where prices were cut by 50%. The war in Iraq in 2003 forced Louis Cruise Lines to offer discount prices until May and also 10% discount to passengers who paid for their summer cruises by the end of May 2003.

It is suggested that the consumer psychology is such that price reductions usually mean one or more of the following:

- The product is unattractive or not selling well.

Area	Nights	Category	Brochure Price (£)	Actual Price (£)	Saving (%)
Caribbean	13	Premium	1,595	1,248	22
Mediterranean	13	Premium	3,095	2,270	27
Atlantic Islands	12	Premium	2,130	1,534	28
Alaska	7	Premium	2,795	1,995	30
Caribbean	7	Standard	829	629	24
Atlantic Islands	13	Standard	1,300	695	47
Mediterranean	7	Standard	575	399	31

Table 4.5: Discounting (UK£)
Source: Cartwright R., Baird C., (1999)

It seems that discounts of up to 30% are fairly easily obtained. Indeed many of the brochures offer early booking discounts, so that the cruiser does not have to seek them out. They only need to see what extra discount their travel agent can give them.

4.3 Distribution and Promotion

Distribution of the travel product is primarily undertaken by the travel agent, a long established retailer who sells products largely on the high street. Tour operators, in contrast, are those who put together the all-important inclusive tours and sell them direct or through the travel agent. Only a few travel agents, such as Thomas Cook, operate internationally but a number of tour operators do [Wild G. P., 1995].

In order to attract new potential customers and succeed in the distribution and promotion campaign, a high-market profile and a good reputation must be sought, achieved and retained by the cruise liners. The achievement of this requires close attention to a variety of ways and means, such as the following:

4.3.1 Public Relations

It may be desirable for the cruise liner to appoint a public relations consultant to promote the company and its activities, unless the manager has a particular talent in this direction. The difficulty is that there are relatively few public relations organisations

- The party offering the deal is in financial trouble.
- The quality has been reduced.

It is almost clear that with more cruise tonnage coming on stream and near static economic conditions, supply is likely to stay ahead of demand for some time to come. In such conditions, in order to stay ahead, lines will have to be more innovative in their approach to marketing, passenger generation and retention. In a fickle cruise market, the different lines need to generate and retain their passengers. This can be done through brand differentiation. Personal experience has shown that this can be achieved by:

- Promoting special cruise and highlighting attractive destinations. For example, the Cyprus-based Louis Cruise Lines offer off-peak special cruises to the Greek islands in co-operation with a television channel, MEGA.
- Highlighting the strong points of the product. These may include low prices, size and speed of the ship, cabin facilities, entertainment, etc. For example, the Royal Olympic Cruises promotes its product by saying that its new building Olympic Voyager is the fastest cruise ship in the world [Efoplistis, 2000]. The author found that attractive destinations were a strong point for the companies, where 61.3% of the passengers considered it as the major factor in their decision [Lois P., Wang J., Wall A. D., Ruxton T., 2000].

In addition, there are times when the brochure fare seems to bear little relation to that actually paid by individual cruisers. As with airline fares, those for cruises are very dependent on the time of booking. Discounts are usually available for early bookings, and also for late bookings when the companies wish to sell unbooked accommodation.

Table 4.5 shows a sample of actual fares compared with brochure fares across a range of categories. The results of cruise lines discounts gave rise to considerable savings.

with shipping knowledge and it is possible that, without having a “feel” for the industry, the consultation might be ineffective or, even worse, might be overdone.

4.3.2 Advertising

Advertising comes directly from public relations. This can take the form of advertising directly in the shipping media, in trade magazines and newspapers, or by advertising indirectly but probably more effectively by the subtle release of news items to selected outlets [Packard V. W., 1995]. The advertising industry earns income from tourism particularly where tourist boards and the major players are concerned. Obviously, the media have an influence on the success of these campaigns and in the UK, of the £14 m spent by the travel trade on advertising, some 67% is accounted for by the press and 27% by TV [Wild G. P., 1995].

4.3.3 Brochures

An attractive, informative brochure is essential. This can be distributed to customers and to those visiting the cruise ships for any purpose. It can be used to support advertising material sent by post or made available at conferences and exhibitions. The design and production of a brochure will not be easy. It will take time and seemingly endless trouble. However, if the final result is an interesting, colourful and accurate reflection of the cruise liner, its aims and ambitions, then all will have been worthwhile.

4.3.4 Newspapers and Magazines

The management of many ship owning groups is seemingly paranoid about approaches from reporters and staff representing shipping newspapers and magazines. In a way, however, they should be flattered that their activities are of market importance [Packard V. W., 1995].

However, many prefer discreet anonymity in their business affairs and this may usually be respected by the media staff involved. A company’s management, though, should

encourage these approaches and be available to reporters for advice on general matters. It is also important that, from time to time, interviews from ship owners will be sought and these should be encouraged.

4.3.5 Conferences and Exhibitions

Occasionally, conferences and exhibitions are organised around the world and it may be felt prudent to be represented, as these are widely patronised by the market in which the liner is making every effort to succeed. A poor performance will be detrimental to the image that is desired. Consequently, although every opportunity should be taken to advertise the company, a good deal of thought, time and effort should go into preparing materials and data to support the cruise ships and their itineraries.

4.3.6 Marketing Trips

The managers of any cruise company should have the energy and commitment to go out into the world to seek to develop their business. On occasions, staff, travelling for other purposes, can be economically diverted to follow up business leads, but in general, specific marketing trips should be undertaken from time to time, and, normally, only good can come from these expeditions, the cost of which should be considered as an investment in the company's future.

4.3.7 Ships

Among the best publicity of all can be that which is obtained from the trouble-free operation of the cruise ships. In order to achieve this efficiency, the cruise ships will need to be well cared for and maintained. The aim should be that those observing the cruise ships from a distance or visiting in whatever capacity should retain a good impression of the experience. This can be aided by all officers wearing uniform in port when on duty and being conscious of their public relations role. When a vessel is in the vicinity of an important market region, group visits to the cruise ship should be organised where this will not interfere with the efficiency of the on-board operations. If

this can be arranged as a combination of education for the visitors, advertising the ship, and a pleasant social occasion for all concerned, then so much the better. Additionally, the painting of a company's name (and/or logo) on a ship's hull is sensible. It is virtually free marketing, provided that the ship is well maintained and presentable, failing which this form of advertising can, of course, be detrimental.

4.4 Revenue Opportunities and Passengers' Spending

Cruise passengers are obviously the major source of contribution for cruise liners. They may be considered as a significant and high value target market for additional spending. This may be done while passengers are in port and on return shore-based vacations. The amount of money that a cruise passenger spends at any given destination is dependent upon several factors, including the overall degree of satisfaction with the destination experience. In other words, happy passengers spend more than unhappy ones.

Because passengers are economic opportunities [LaCapra R. J., 1994], the cruise lines can find several ways to divert these opportunities into profits. Apart from the cruise fares, the lines can provide on-board services, which will be beneficial for both passengers and the company itself. These can be a source of revenue and may include the following:

4.4.1 Communications

A plethora of communications media is now available to the cruise ship industry. Each provides convenient, expeditious and effective service to the passengers and crew. Proper use of such equipment offers substantial profit-making opportunities for the ship owner [Wild G. P., 1995].

As cruise lines operators continue to bring multi-million dollar ships into operation, expand their itineraries and market to first-time passengers, new and improved maritime communication systems, such as "Inmarsat", will enable operators to offer the same services at sea that are available on land. According to the study carried out by "Cruise

Phone Incorporated” in 1994 [Kimbrough J., 1994], the Inmarsat system can reduce the passenger cost and the per-minute revenue to the ship, but it will actually increase the total ship profit. Table 4.6 uses actual data and illustrates the on-board revenue opportunity using the less-is-more pricing structure. Another benefit may be the greater passenger satisfaction, as more of them than ever before will make calls directly from the ship.

	Passenger call Cost (4 minutes)	Ship per call profit	Number of passenger calls	Ship profit
High Cost	£33	£16	775	£12,456
Low Cost	£21	£9	1700	£14,770
% + or <	<39>%	<45>%	+119%	+18%

Table 4.6: On-board revenue opportunity on a 2000 + passenger ship (UK£)

Source: Kimbrough J., (1994)

4.4.2 Interactive Television

One of the fundamental tenets of the cruise business is that people in cabins do not spend money. Passengers, however, actually spend a great deal of time in their staterooms to rest and relax before the next activity. With Interactive Television this down time can become more enjoyable for passengers and profitable for cruise lines [Gould D., 1995].

The passengers will have the option of playing cards, watching videos, ordering drinks from bars, shopping for last minute gifts and so on. These options can generate substantial streams of revenue even as they improve the overall cruise experience. A survey carried out by Sea Vision Incorporation in early 1995 in North America [Gould D., 1995] shows that Interactive Television can improve passenger service and hence increase on-board revenue. Of those polled (500 passengers), 86% of the passengers said that it would be a tool for service improvement, which can give passengers a high satisfaction. The author believes that there are reasons why it is important for passengers to have interactive television in their cabin. These are the following:

- It will allow passengers to order cabin service easily without speaking to a cabin steward.
- It will allow them to avoid the queue at the shore excursion desk and duty-free shops.
- It will allow them to gather useful information, such as itinerary details, safety information and the activities available on-board.

4.4.3 Duty Free Shopping

An added value to the cruising package that the cruise line offers its customers is the quality and excitement of the shopping experience on-board. It is suggested that in order for a cruise line to increase its revenue from shopping on-board, promotional tools must be used. These can include brochures distributed to the cabins, and advertisements shown on the ship's television channel. It is also considered that the sale of local merchandise products is the most profitable way of on-board shopping. According to the author's survey carried out in the Cyprus and Mediterranean regions [Lois P. Wang J., Wall A. D., Ruxton T., 2000], the passengers said that they would prefer to buy things that they could not find at home. This has also been mentioned in Section 3.4.1 of Chapter 3.

In addition, high concession fees for duty free stores provide a significant source of income. Such high fees force concessionaires to manage the mix of products sold with a view to maximise profit margins. Therefore, the profit opportunities of brands and products play a major role in the product selection process.

4.4.4 Casino and Other Gaming

Another important aspect of the on-board profit opportunity is that of the casino and other gaming. Contracts that attract casino or slot operators to cruise ship concessions are normally structured in one of the following four ways [Cain J., 1996]:

- a. A daily payment for each passenger to the shipping company.
- b. A percentage share of gross gaming profits is to be paid to the shipping company.
- c. A management contract by an independent casino operator.
- d. An in-house operation under the direct control and management of the shipping company, using experienced casino personnel.

With the cruise industry there are three styles of operation that offer gaming facilities on-board.

- a. The dedicated, floating casino ship: This type of vessel is targeted primarily at an identifiable gaming market, and apart from the casino area, the alternative facilities are low-profile and designed to ensure that the prime motivation for taking such a cruise is to attract the passengers to the gaming tables and slot machines.
- b. The cruise and casino ship: This tries to cater for both sectors, hoping for additional revenue to be generated by the casino in order to supplement any discounted travel or shortfall in volume traffic.
- c. The cruise ship with gaming facilities: This type of vessel represents the cruise ship with a variety of alternative activities, each having relatively equal profiles.

The author believes that an important factor in the success of on-board gaming operations is the correct combination of concession contract and style of cruise operation. A wrong marriage between the two may have disastrous effects on the profitability of one or the other of the contracting partners.

There is also the case where the majority of passengers are not tempted to play at the casino. Are there any alternative gaming revenue sources? It is suggested that the cruise lines form an agreement with a manufacturer of a unique electronic gaming device that

delivers lottery products in electronic form, through interactive video touch screens. These devices are environmentally friendly (no waste paper) and easily adaptable for customizing games, and can be coupled with familiar instant scratch, pull-tab and bingo products.

4.4.5 Internet Facilities

Computer technology has had an enormous impact on cruise ship design, engineering and performance. It is set to become a dominant force in passenger entertainment, particularly as Internet facilities are tailored to meet the needs of cruise lines [Bussey J., 1998]. These systems take a number of forms and can be used to provide information and entertainment services in public areas and cabins. The Internet is a new challenge for the cruise lines and is considered a good way of increasing on-board revenue. However, this idea cannot be fully implemented until the company is assured that certain security and integrity standards are met. The author believes that the idea of an Internet Cafe gives the opportunity for the company to increase its revenue. The passengers may sit in a coffee shop, access the Internet and e-mail their friends and families.

4.4.6 Shopping at Ports of Call

Apart from on-board revenues generated from duty free shops, interactive television, bar sales, photography and other revenue centers, more cruise lines are taking advantage of shoreside revenue opportunities. One way of maximising shoreside revenues can be a shoreside programme, which will enable passengers to do their shopping. “Panoff Publishing Incorporated” (PPI) is one such multifaceted company, specializing in maximizing shoreside revenues [Panoff B., 1994].

These revenues are generated in a number of ways, whereby cruise lines can benefit financially. Passengers are given accurate port information through on-board presentations given by a port. This includes recommending shopping establishments in each port of call. Recommended stores may be carefully screened for quality,

satisfaction and competitive prices. PPI arranges for compensation on behalf of the cruise lines for all purchases generated in the recommended store, by setting up contractual agreements with local merchants in each port of call. This compensation generally is equivalent to a percentage of total sales generated from passengers that day in port.

For example, on a seven-day cruise to the Mediterranean, on a vessel which calls upon three shopping ports with an average capacity of 1,000 passengers, each passenger will spend a total of £50 ashore for every cruise. With PPI's programme, a minimum of 60% of passengers will shop at the stores recommended on board. The total shoreside shopping revenues spent would equal £30,000. With PPI's programme, a total of £3,000 would be generated in profit for that particular cruise [Panoff B., 1994]. This programme does not affect the cruise line's costs, since all costs relative to maintaining the programme such as shore excursion brochures, tour tickets, and other necessary promotional materials are provided entirely at the expense of the company that is specializing in maximising shoreside revenues.

4.4 A Proposed Business Strategy for a Cruising Company

After consideration of the marketing and pricing strategies that can be used by a cruise company, of the factors that can affect the price of a cruise product, and of the ways of distributing and promoting the product, a proposed business strategy is developed. The proposed strategy, as shown in Figure 4.1, can be used by a cruise company so that a decision on putting a cruise ship into service can be made. It can also be used as an established mechanism to achieve its goals and objectives.

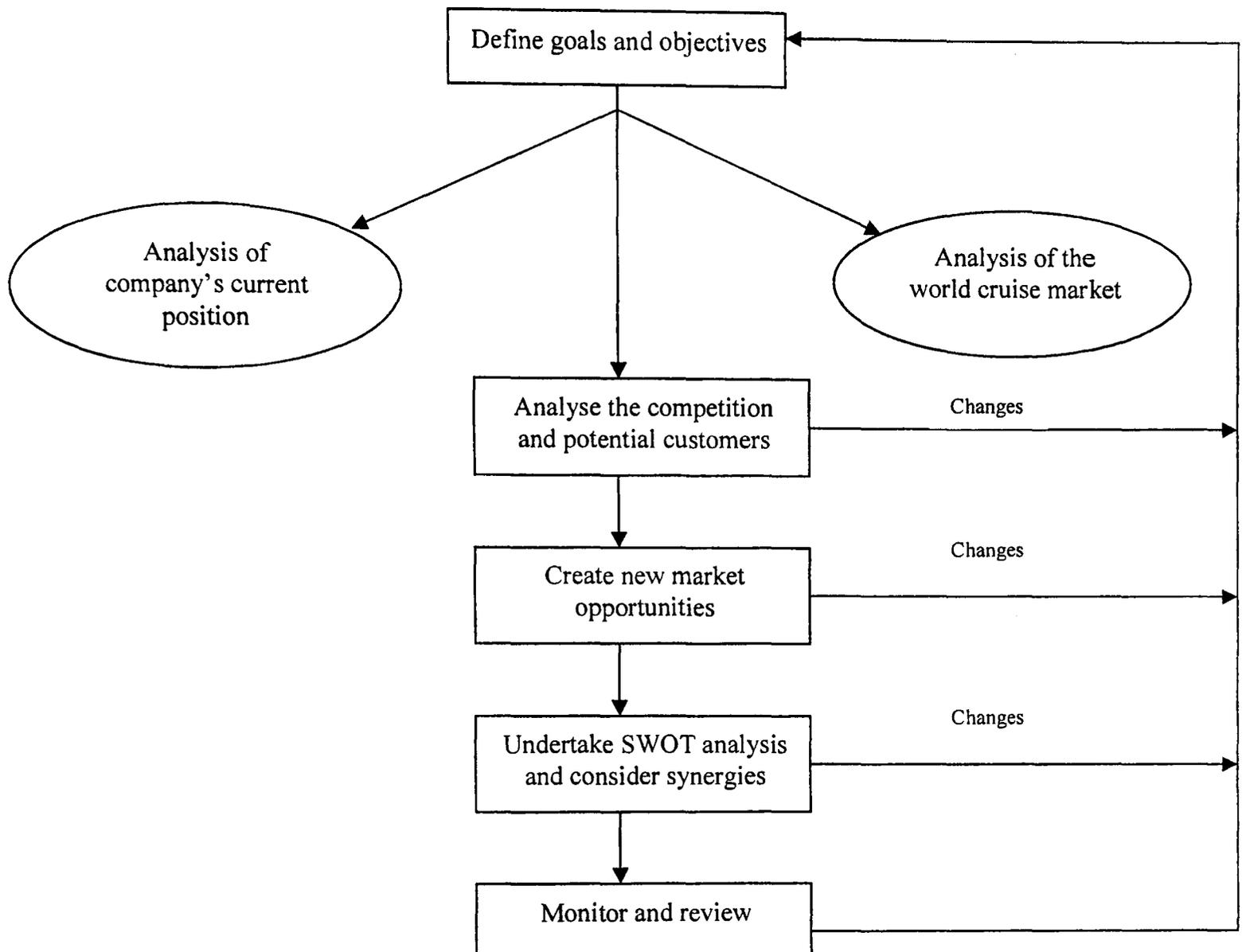


Figure 4.1: Proposed business strategy

The proposed business strategy shown in Figure 4.1 consists of the following steps:

4.5.1 Define Goals and Objectives

The first step is to define the goals and objectives of the company. The business strategy cannot be meaningful or useful to the company unless the objectives are clearly defined.

The key element in the process of objectives definition is corporate (or strategic) planning. The corporate planning process comprises the identification and analysis of the following:

- a. The current market position of the cruise company.

- b. Analysis of the world cruise market, with particular attention on the Cyprus and Mediterranean regions.

4.5.2 Analyse the Competition and Potential Customers

This step analyses the cruise industry structure including the market share of the main competitors and the main factors that characterise the particular market. The potential customers of the company can be identified, and the ways in promoting the cruise product and attracting new customers can also be examined.

4.5.3 Create New Market Opportunities

One important area of marketing is that of the creation of new market opportunities. To improve or even to maintain business profitability, a company usually has two options: to reduce costs and increase revenues, which means identifying and taking advantage of the new market opportunities, whether from product and service innovation, developing brands, using new distribution channels or even making acquisitions and strategic alliances [LaCapra R. J., 1994]. Table 4.7 (adapted from Ansoff, 1965) [Garavan T., Fitzgerald G., Morley M., 1995] provides a useful way of identifying a number of product/market combinations. This outlines four strategies, which appear independent of one another but in reality are closely linked.

Existing markets	Market Penetration	Product Development
New markets	Market Development	Diversification

Table 4.7: The product/market expansion grid

Source: Harrison J., Holloway M., Jenkins T., Martin F., (1995)

The four strategies are described below:

- a. Market penetration: existing products to existing markets

This has the following specific characteristics:

- i. Growth is an important objective.
- ii. Emphasis is laid on using a single product and trying to achieve a greater share of the existing market.
- iii. Advertising is used to attract new consumers and increase the consumption rates of existing consumers.
- iv. Efforts are made to take consumers and market share from competitors.

b. Market development: existing products to new markets

This strategy involves the company moving into new market areas using existing products. It can take a number of forms. A company may decide to modify its product in some minor way to make it more attractive to a certain market. Alternatively, the expansion can take place across national frontiers.

c. Product development: new products for existing markets

This is an option for existing markets and may involve new product types derived from technical developments or improvements. There may be a number of reasons for pursuing this option:

- i. It is designed to improve the competitive position of the company by attracting customers.
- ii. It can be used to enhance product differentiation.
- iii. It may simply be necessary for the company to survive.

- iv. It can help the company to serve new needs in the market place or deal with possible substitution issues.

d. Diversification: new products for new markets

A company can diversify by internal means, either by creating products/services similar to the ones it has in terms of their technology and/or markets, or by creating products/services, which are totally different from its existing profile, but which may appeal to existing customers on new markets.

4.5.4 Undertake a SWOT Analysis and Consider Synergies

In view of the company's particulars, the characteristics of the market and the competition, an initial analysis of the strengths, weaknesses, opportunities and threats can be undertaken. The SWOT analysis is the process of analysing internal strengths and weaknesses and relating them to external opportunities and threats [Mainwaring M., 1995]. The major conclusions of a SWOT analysis are usually summarised and presented in the form of a cruciform chart [Mainwaring M., 1995] as shown in Table 4.8. In addition, considerable synergies that may arise from the close co-operation between the cruise company and its holding company will be examined.

4.5.5 Monitor and Review

Having gathered and analysed all the information described in Sections 4.5.1 to 4.5.4, the cruise company will make its decision. It is noted that changes to such information can be made at any time, and monitoring and review are essential for managing possible changes. A cruise company can continually monitor changes and the effectiveness of the business strategy that has been established. Changes need to be monitored and reviewed periodically to ensure that changing circumstances do not alter the company's priorities.

<p>Strengths</p> <ul style="list-style-type: none"> i. Anonymous Cruises predecessor ranks among the five largest companies in Eastern Mediterranean and is second largest cruise company in Greece. ii. Experienced and knowledgeable management. iii. Considered as a niche operator in the Aegean region. iv. Experienced in destination cruises. v. Performs cyclical voyages from Greek ports complying with Greek maritime regulation. vi. Greek crew with knowledge of local culture and history. vii. General sales agents worldwide. viii. Experienced and qualified personnel. ix. Considerable synergies with the Anonymus Holidays group such as: <ul style="list-style-type: none"> (a) The group owns a specialised centre for selling cruises (b) The group has a customer database so it can immediately inform customers with the new product offered. ix. In-house expertise in catering and accommodation. 	<p>Weaknesses</p> <ul style="list-style-type: none"> i. Aging fleet. ii. The capacity of the ships is moderate. iii. Crew costs are higher than some other nationalities.
<p>Opportunities</p> <ul style="list-style-type: none"> i. The cruise industry is the most rapidly expanding segment of the tourism industry. ii. High demand for Mediterranean cruises. iii. Europeans have a positive attitude to cruising and they consider it as an affordable all-inclusive program. iv. The Greek tourism market is growing and the Olympic Games in 2004 that will take place in Athens will further accelerate the rate of growth. v. Ability to charter the ships to other companies for leisure and entertainment purposes, especially during the non-peak season. vi. It is expected to enter the Cyprus Stock Exchange and raise funds. 	<p>Threats</p> <ul style="list-style-type: none"> i. There is a trend by the major cruise companies to build cruise ships with large capacity (1,500-2,000 passengers). ii. Intense competition in the industry and considerable interest in Mediterranean by the big cruise companies. iii. Abolition of cabotage laws may result in more intensive competition. iv. Political instability in the region, especially in the Middle East, will lead to an adverse situation.

Table 4.8: SWOT analysis

4.6 Case Study: An Anonymous Cruise Company

4.6.1 Define Goals and Objectives

The company (Anonymous Cruises) was established in June 2000 with the aim of acquiring and managing a cruise liner fleet. It is the cruising division of an anonymous

holiday group, a UK-based vertically integrated tour operator. From its incorporation the company has acquired two other cruise companies that own two cruise ships.

The group (Anonymous Holidays) is the leading independent tour operator from the UK to Cyprus and the second from the UK to Greece. It has experienced rapid expansion over the last two years and is in line with its vision to become one of the top 20 vertically integrated tour operators in Europe. The group has strengthened its position further in the UK by offering additional destinations, such as Egypt, Spain, the Far East and USA. At the same time it is securing the seat and hotel capacity by acquiring two aviation companies (Excel Aviation, Sabre Airways Limited), forming Sky Airways Limited, and ten hotels in Cyprus, Greece and the UK.

The group has decided to enter the cruise market for the following main reasons:

- a. Expand the range of its services and offer full customer service.
- b. Exploit the opportunities that appear in the cruise market.

With the formation of Anonymous Cruises, the group is strengthening its position in the tourist field further. By becoming a cruise operator it will offer more travelling options to its customers. At the same time it will secure important synergies, such as selling cruising packages through the existing selling channels, better utilisation of the aircraft, and better utilisation of the tour representatives who will be able to sell cruises.

Anonymous Cruises aims to become one of the top three leading cruise lines in the Mediterranean region (in terms of the number of ships). It also aims at providing quality cruises predominantly in the wider Mediterranean region (including the Canary islands), therefore offering a unique leisure and educational experience to the company's customers and at the same time increasing the wealth of their shareholders.

In continuation, the objectives of the company are the following:

- a. Increase the number of ships to five by year 2004.
- b. Introduce new itineraries to the Canary Islands, Venice and the Caribbean in 2005.
- c. Acquire an 8% market share of the Mediterranean cruise market by the end of the year 2004, producing over 105,000 passengers all year around with an estimated 600,000 passenger-days.
- d. Differentiate the company's offer of services from its competitors through emphasis on a Greek crew and quality service.
- e. Decrease costs due to several synergies, which lead to economies of scale (administration costs, purchasing power, storage, etc.).
- f. Offer a range of features and amenities of a quality unparalleled by any other cruise ship.

As a first step, the company may also identify and analyse the world cruise market.

a. The International Cruise Market

Cruises can be characterised as one of the most augmented tourist products in the world as they offer a nearly all-inclusive vacation. According to several studies [Ocean Shipping Consultants, 2003; Peisley T., 2003] there is great potential in the industry. The trend in the international cruise market is described in Section 2.2.1. Table 1.1 in Chapter 1 shows the world cruise fleet until the year 2006 [Mathisen O., 2000b] and Table 2.1 in Chapter 2 shows the cruise market growth.

The trend is to build larger ships that can accommodate 1,500 to 2,000 passengers. As described previously, larger ships can exploit economies of scale, decreasing the operating costs and at the same time increasing the revenue on board due to additional amenities that can be accommodated. The industry moved to consolidation in recent

years and there are four large companies that dominate the market with a market share of 75% as shown in Table 4.9.

Company Name	Market Share	Number of Ships	Total Capacity
Carnival Corporation	28.6%	49	3,289,480
Royal Caribbean	18.9%	19	2,167,300
Star Cruises	18.7%	16	2,144,904
P & O	8.7%	18	996,500
Total	75%	102	8,598,184

Table 4.9: Market capacity

Source: Mathisen O., (2000a)

Most of the world's cruise line capacity is located in North America (70%), and the rest is divided between Europe (17%) and the Far East (13%) [Mathisen O., 1999b]. The cruise market can be divided into (i) *Contemporary segment*, (ii) *Premium segment*, (iii) *Budget segment*, (iv) *Luxury segment*, and (v) *Niche segment* [Miller G., 1999]. The cruise market segments are described in Section 3.2.1 in Chapter 3.

b. The European Market

According to the surveys [Miller G., 1999] this market has high potential, as there is considerable interest in cruises. It is believed that the European market will follow the growth of USA. The key national markets are the UK, Germany, France and Italy. Furthermore, the ex-Eastern Block countries experience high growth in demand [World Tourism Organisation, 2003]. It is believed that the European Union integration, the EURO and the Internet revolution, will benefit the cruise industry soon. The cruise companies adapt to the changes and create a pan-European product/image that will be

able to acquire a high market share. Detailed description of the European market is given in Section 2.4.2.

c. The UK Market

The UK cruise market is young and growing rapidly. The number of people going on cruises was 250,000 in 1993 and increased to 730,000 in 1999. This increase has been achieved due to the introduction of new specialised tour operators and the increase in new ships built with UK standards. My Travel and First Choice have added extra vessels to their fleets, and therefore increased their capacity [Parker S., 2000]. The average age of a British cruise passenger in 1997 was 55 but this decreases every year [Parker S., 2000]. The seven-night cruise is the most popular one and the most favourable destinations are the Mediterranean and the Caribbean [Parker S., 2000].

d. The Mediterranean

Anonymous Cruises will mainly operate in the Mediterranean. This area has many ports and many points of interest such as historical and religious monuments [Wild P., Dearing J., 2000b]. In 2000, a strong interest by North American cruise operators was seen, leading to an increase in capacity by 4%. European operators still dominate the region and they have 64% of the total capacity. Louis Cruise Lines retains the high volume short cruise capacity and ranks first with a total capacity of 285,000 passenger days (including Royal Olympic Cruises) and an 18.6% market share. Golden Sun Cruises, the predecessor of Libra Cruises, is considered an important player in the region. It has a capacity of 89,000 passenger days and a market share of 6% [Miller G., 2003]. The characteristics of Mediterranean cruise market are described in Section 2.4.2 in Chapter 2.

4.6.2 Analyse the Competition and Potential Customers

The competition in the Mediterranean is very aggressive as the North American cruise operators increased their capacity and therefore narrowed the gap with the European

operators (64%-36%) [Miller G., 2003]. North American operators are more experienced, have better vessels and can more easily attract US customers. Table 4.10 shows the five major companies that operate in the Mediterranean region.

Company Name	Market Share	Number of Ships	Total Capacity
Louis Cruise Lines (Including ROC)	18.6%	10	285,000
Costa	12.9%	7	196,000
Renaissance	10.2%	7	155,000
Sun Cruises	6%	4	91,000
Golden Sun	5.9%	3	89,000
Total	53.6	31	816,000
Other	46.4	75	707,000
Total	100%	106	1,523,00

Table 4.10: Cruise companies in the Mediterranean region

Source: Demetriou D., (2000)

The market is characterised by very small ships appealing to the budget and contemporary segments. The vast majority of cruises offered are 3 to 4 and 7-day cruises. Therefore, the price of the package is cheap and appeals to the mass market.

Customers' country of origin	Share (%)
USA	44
Europe (including UK)	25
Spain/Latin	23
Greece	8
Total	100

Table 4.11: Customer segments

Source: Anonymous Cruises Ltd (2000)

Anonymous Cruises' customer segments are mainly those of the cruise companies acquired whose origin is shown in Table 4.11. The percentage of repeat business of the

companies acquired is 18% [Demetriou D., 2000] with customers from USA ranking first and the Spanish-speaking customers following closely behind. In addition, new customers may be as follows:

- i. Special interest groups: Companies for incentive tourism and universities for educational tourism. The company can offer group prices.
- ii. Conference organisers: An important role will be played by the strategic alliance with the associated group company, an international conference, incentive schemes organizer and publishing company.
- iii. Anonymous' customers from the UK.
- iv. New customers from the UK, Greece, Spain and Cyprus.

The company may use various ways in order to promote its new product and attract new customers, including the following:

1. Selling

- a. In the UK, Spain, Greece, Cyprus and Egypt selling will take place through the company's selling network (own and associate).
- b. In other parts of the world selling will take place through the existing general sales agents' network.
- c. Contracts exist with many tour operators worldwide.
- d. Train the company's personnel to the new service offered.
- e. Develop the latest technology in order to become capable of offering on-line bookings (e-business).

2. Sales Promotion

- a. Take advantage of the group's passenger database by offering special discounts and offers to repeaters.
- c. Mailing lists of past passengers and direct mail offering them cruise holidays.

3. Public Relations

- a. Public Relations trips offered to local and foreign journalists.
- b. Cultural and historical events on the ships.
- c. Educational trips offered to the largest general sales agents.

4. Advertising

- a. Upgrade the brochure to become a more efficient selling tool.
- b. Special advertising in conferences and incentives schemes.
- c. Participation in trade shows and exhibitions.

4.6.3 Create New Market Opportunities

The matrix shown in Table 4.7 can be used to identify and classify market opportunities.

Market penetration: existing products to existing markets

In this option the company seeks to achieve a higher market share, by increasing sales of current products to its current target buyers in the USA, the UK and Greece. This can be done by:

- i. Reducing prices.
- ii. Improving sales productivity.
- iii. Increasing advertising and public relations expenditure as well as the number of travel agencies that will offer Anonymus Cruises products.

Market development: existing products to new markets

The company seeks new markets for existing cruise products. This means new demographic markets. Anonymus Cruises will develop a new market each year. For the year 2004, the company will enter the German market through a local branch.

Product development: new products for existing markets

This is to provide new, additional or modified products to existing customers. For example, the company will increase capacity and introduce new itineraries each year. For the year 2004, these will be achieved through the two new vessels that will be acquired soon and the introduction of itineraries to the Grand Canaries and the Bahamas or the Dominican Republic. In addition, the company can extend its range of services to include other products specifically tailored for its customers. The additional products might include car and household insurance made available at special rates. The company can also offer a discount to its customers that will choose the company's ships again within one year.

Diversification: new products for new markets

This is very risky. It may be a result of a longer-term strategy. Anonymous Cruises does not intend to do anything.

4.6.4 Undertake SWOT Analysis and Consider Synergies

In view of the company's particulars, the characteristics of the market and the competition, an initial analysis of the strengths, weaknesses, opportunities and threats has been undertaken; this is provided here below. In light of the above analysis, the objectives as well as an initial strategic approach have been developed.

The SWOT Analysis is the process of analysing internal strengths and weaknesses and relating them to external opportunities and threats [Mainwaring M., 1995]. From the marketing point of view, Anonymous Cruises has a number of strengths and weaknesses and faces a number of opportunities and threats. These are summarised in Table 4.8.

Considerable synergies will arise from the close co-operation between Anonymous Cruises and Anonymus Holidays. The main ones are as follows:

- i. Development of new packages in the UK focusing on cruising holidays in Greece, Cyprus and Spain.
- ii. Utilisation of the UK travel agency of Anonymous Holidays specialising in cruises to promote Anonymus Cruises.
- iii. Sale of 3 and 4-day cruises to the existing customers in Greece and Cyprus through the local company's representatives.
- iv. Promotion of Anonymous Cruises in the UK through the existing sales channels of Anonymus Holidays, such as its own travel agencies, associated travel agencies and the group's web sites.
- v. Utilisation of the existing client database in the UK to promote the company's cruises.
- vi. Promotion of the company's cruises in Cyprus through the network of its own and associated travel agencies.
- vii. Addition of Cyprus as a stop in the 7-day cruises.
- viii. Anonymous Holiday's offices to be set up in key ports such as Crete, Corfu, and Rhodes to serve customers as well as promote cruises.
- ix. Alliance with 'XYZ' (a conference organiser, incentive schemes company and publishing house), an affiliated company of the group.
- x. Printing and other advertising cost savings.

4.6.5 Monitor and Review

The company should periodically review possible changes and monitor the effectiveness of its plan and strategies to ensure that changing circumstances do not alter the company's policy and priorities. Functions and processes change, so do the political, social and legal environment and goals of a company. Accordingly, the company should re-examine the changes context to ensure that the way in which changes are managed remains valid.

4.7 Conclusion

This chapter described existing marketing and pricing strategies that can be used by cruise companies, the ways in which companies can maximise their profits, the ways of promoting and distributing the cruise product, and the impact of discounting. As a result of the discounting to compensate for lower ticket revenues, the cruise lines can look to deriving more profit from on-board revenues. Above all, with parity products and services offered on board the ships for overall profit maximisation, each line will also have the greatest opportunity to create highly distinguishable product personalities within the cruise industry.

No discussions of product differentiation would be complete without mentioning price [Nierenberg B., 1999]. Actually, the point is the ability to have a competitive price and acceptable profit margins at the same time. The secret to making profits, while offering competitive prices is trimming cost. There is a belief that as ships grow larger, they become more efficient as a result of economies of scale, the idea of spreading fixed cost over a large base (such as the number of passengers). While this is true in theory, the real issue is the magnitude of the savings as a result of size. As regards the mega-ships, the savings are not as great as one might believe [Nierenberg B., 1999].

In this chapter an operation strategy is proposed and can be used by cruise companies operating in the Cyprus and Mediterranean regions so that a decision on entering a cruise ship into service can be made.

One important factor that is not examined in this chapter and is of paramount importance in the decision-making process is that of safety. As public concern regarding maritime safety increases, more serious consideration of this matter must be given by the companies operating from Cyprus. Another reason for such necessity is that the cruise companies in Cyprus own and operate fleets of old cruise ships. Safety is an essential factor for the passengers in choosing a cruise ship and destination for their cruise holidays [Lois P., Wang J. Wall A. D., Ruxton T., 2000]. It is necessary and obligatory for the Cyprus cruise companies to comply with the international safety regulations and deal with all safety issues in an effective manner. For this reason, safety associated with cruise ships will be investigated in the next chapter.

CHAPTER 5

FORMAL SAFETY ASSESSMENT OF CRUISE SHIPS

Summary

This chapter examines the applicability of formal safety assessment to the cruise industry. Formal safety assessment and its development in the cruise shipping industry are described. Cruise ship accident statistics are studied and discussed. This is followed by an analysis of cruise ship characteristics and a proposed formal safety assessment methodology for cruise ships operating in the Cyprus and Mediterranean regions. Formal safety assessment is a new approach in such regions and will attract great attention over the next years. A case study is carried out in order to demonstrate the proposed methodology. Further development in formal safety assessment in the context of cruise ships is finally discussed in detail.

5.1 Introduction

Although most critics acknowledge that the cruise industry in general has an excellent safety record, serious losses can and do occur. Fire may be the biggest danger to a cruise ship but collision and grounding may also have serious consequences. In most instances, the ship's crew have responded professionally to the situations and have often prevented loss of the ship and loss of lives [Gossard H. W., 1995].

At the 1994 Safety of Life at Sea (SOLAS) Conference, the IMO General Assembly adopted a resolution entitled "The International Management Code for the Safe Operation of Ships and for Pollution Prevention", known, in brief, as the ISM Code, to encourage the continuous improvement of safety management skills in the maritime industry [National Transportation Safety Board Washington D. C., 1998]. The ISM Code became effective in July 1998 for all passenger ships and also for the following vessel types of 500 gross tonnage and over: oil tankers, chemical tankers, gas carriers,

bulk carriers and high speed cargo ships [National Transportation Safety Board Washington D. C., 1998]. The ISM Code requires a company to establish and maintain a documented Safety Management System (SMS) that, among other things, meets the following safety management objectives [National Transportation Safety Board Washington D. C., 1998]:

- i. Provide for safe practices in ship operation and a safe working environment.
- ii. Establish safeguards against all identifiable hazards.
- iii. Continuously improve safety management skills of personnel ashore and aboard vessels, including preparing for emergencies related both to safety and environmental protection.

The ISM Code establishes the following six functional requirements for an SMS:

- i. Policies for ensuring safety and protection of the environment.
- ii. Instructions and procedures for ensuring safe vessel operation and environmental protection in compliance with international and domestic laws.
- iii. Defined levels of authority and lines of communications between and among shipboard and shoreside personnel.
- iv. Procedures for reporting accidents and non-conformities.
- v. Procedures for preparing for and responding to emergency situations.
- vi. Internal audits and management reviews.

The procedures required by the ISM Code must be documented and compiled in a Safety Management Manual (SMM), which must be maintained on board a company's

ships. The ISM Code requires that a company provide necessary resources and shore-based support to achieve SMS objectives. A designated person or persons ashore having direct access to the highest level of management must be appointed. The flag state government is responsible for enforcing the ISM Code and for issuing documentation attesting that the companies are in compliance with it. A company complying with the ISM Code is issued a Document of Compliance, a copy of which must be kept on board the ship. Ships in compliance with the ISM Code are issued a SMS document [National Transportation Safety Board Washington D. C., 1998].

For the international shipping community, the safety of ships has always been a priority. Disasters such as the Titanic sinking in 1912 caused international concern. Over the last ten years, more serious attention has been focused on marine safety on board cruise ships. This was due to serious cruise ship accidents taking place during this period as described in Table 5.1 where some major accidents are listed. Table 5.1 is formulated based on the author's investigation. Two major disasters that led to the major changes in existing regulations were the fires on board the Scandinavian Star and Moby Prince [Boisson P., 1999]. In particular, the requirements for fire protection have been extensively revised (Appendix 2) for new and existing passenger ships (ships built after or before 1 October 1994) under the pressure of two different necessities:

- a. To take into account the deficiencies highlighted by serious accidents.
- b. To cope with the new solutions brought in by designers, which were not considered at the time the SOLAS Convention was drafted.

The revisions are aimed at improving structural fire protection, protection of escape routes and the prompt detection and extinguishing of fires. They were contained in Resolution of the Marine Safety Committee (MSC) 24 (60) and 27 (61) adopted in April and December 1992 respectively, for existing and new ships [Abbate C. Fanciulli F., 1999]. The SOLAS regulations on fire protection contained in Chapter II-2 (Appendix 2) have been amended several times. In order to refine, simplify and modernise fire safety requirements, a comprehensive revision of SOLAS Chapter II-2 was carried out,

and the new revised chapter came into force in 2002 for new ships (ships constructed on or after 1 July 2002) [Abbate C. Fanciulli F., 1999].

Year	Operator	Vessel	Location	Accident	Damage	Casualties
1992						
1	Starlite	Royal Pacific	Malacca Strait	Collision	Holed & Sunk	3 dead, 6 missing
2	Clipper	Nantucket	New England	Grounding	Hull	3 injured
1993						
1	Ocean	Ocean Princess	Amazon	Hit submerged barge	Flooding	None
2	HAL	Noordam	Louisiana	Collision with bulk carrier	Hull damage	None
1994						
1	Lauro	Achille Lauro	Indian Ocean	Fire	Engine room	None
2	William Lines	CebuCity	Manilla Bay	Collision with containership	Sunk	100 dead
3	Cunard	QE 2	New York	Bungled refit	Public areas damage	None
1995						
1	Majesty	Royal Majesty	Massachusetts	Grounding	Hull	None
1996						
1	Royal Caribbean	Legend of the seas	Dominican Republic	Grounding	Hull	None
1998						
1	Royal Caribbean	Monarch of the Seas	Caribbean	Holed on a shoal	Hull	None
1999						
1	Norwegian Lines	Norwegian Sky	Tadoussac	Grounding	Hull	None
2000						
1	Carnival Corporation	Carnival Victory	Monfalcone	Fire	Electrical cables and some cabins destroyed	None
2	Royal Caribbean	Grandeur of the Seas	Curacao	Electrical power damage	Lost electrical power	None
3	Carnival Corporation	Carnival Destiny	Monfalcone	Fire	Electrical cables and some cabins destroyed	None
2001						
1	Royal Caribbean	Nordic Empress	Bermuda	Fire	Engine room	None
2	Festival	Mistral	Nevis	Grounding	Hull	None

Table 5.1: Serious cruise ship accidents

Source: Author's Investigation (1999-2002), Cartwright R., Baird C. (1999), Internet Site (2002), Marine Accident Investigation Board (2002)

5.1.1 The General Concept of Formal Safety Assessment (FSA)

In general, Formal Safety Assessment (FSA) is a new approach to the regulation of shipping safety, stemming from recommendations in Lord Carver's report [House of Lords, 1992]. The Carver Report gave the initial idea of formal ship safety assessment [Wang J., 1999]. It is based on the principles of identifying hazards, evaluating risks and cost benefit assessment, and has as its objective the development of a framework of safety requirements for shipping in which risks are addressed in a comprehensive and cost effective manner [Marine Safety Agency, 1993; Maritime and Coastguard Agency, 1999].

Following the Carver Report published in 1992, the UK Maritime & Coastguard Agency (MCA) (previously known as Marine Safety Agency) quickly responded and in 1993 proposed to the International Maritime Organisation (IMO) that formal safety assessment should be applied to ships to ensure a strategic oversight of safety and pollution prevention [Wang J., 1999]. The adoption of FSA for shipping represents a fundamental cultural change, from a largely reactive and piecemeal approach, to one which is integrated, proactive and soundly based upon the evaluation of risk [Maritime and Coastguard Agency, 1999].

The MSC at its 68th session (1997) approved the Interim Guidelines for FSA application to the IMO rule-making process. Particular emphasis had been placed on the necessity of getting used to the FSA methodology before deciding in detail how to use the new approach properly. That is why the Guidelines had been approved as "interim" ones. Therefore, in order to facilitate their early application, a Standard Reporting Format for presenting the results of trial applications should provide appropriate experience to develop the Guidelines further and enable proper decisions to be made with regard to their applicability to the IMO decision-making process [Abbate C., Fanciulli F., 1999]. Since 1997, the MSC has agreed to establish a correspondence group to work on issues related to large passenger ship safety (72nd session in May 2000, 73rd session in December 2000 and 74th session in June 2001) concerning the ship, people and environment.

According to the IMO Secretary-General, Capt. William O’Neil, the IMO should consider undertaking a global consideration of safety issues pertaining to passenger ships, with particular emphasis on large cruise ships [O’Neil W., 2000].

The general concept, however, of FSA has entered the wider maritime sector, with classification societies like Lloyds Register (LR), DNV and Germanischer Lloyd (GL), proceeding to individual research and providing services [Wang J., Foinikis P., 2001]. In addition, the “Risk Based Decision-Making Guidelines” have been applied by the US Coast Guard (USCG) in order to improve its management system [Passenger Vessel Association & USCG, 1997]. Indicative of the above is the methodology developed by the USCG and the Passenger Vessel Association (PVA), and was followed in a test case produced on risk assessment on passenger vessels [Passenger Vessel Association & USCG, 1997].

5.2 Cruise Ship Accident Statistics

In order to carry out any kind of safety analysis, either qualitative or quantitative, it is essential to obtain reliable failure data. It is noted that qualitative risk analysis requires less detailed statistical failure data, compared to Quantitative Risk Assessment (QRA) [Spouse J., 1997]. The existence of relative data is considered to be necessary in order to determine the probability of, and the extent of the consequences, of a hazardous event occurrence [Wang J., Foinikis P., 2001].

Statistical data for accidents on a generic vessel type can be obtained from primary or secondary sources. With respect to ship accidents, primary data can be collected from the following sources:

- i. Personal investigation (e.g. interviewing people).
- ii. Teams of investigators.
- iii. Questionnaires.

Secondary data can be obtained from historical records, including:

- i. Data collection programmes by classification societies.
- ii. Data collection programmes by P&I (Protection & Indemnity) Clubs.
- iii. Data collection programmes by government agencies.
- iv. Statistical data by shipping companies.
- v. Statistics from national or international shipping related journals and conferences.

Classification societies and P&I Clubs can be a very useful source of failure data mainly because of the large number of vessels each one represents. Classification societies tend to look into safety, mainly from the viewpoint of compliance with the various sets of rules in force. On the other hand, P&I Clubs tend to deal with the matters from the viewpoint of financial losses due to lack of safety and are not immediately interested in the regulatory aspect of loss prevention [Wang J., Foinikis P., 2001]. A recent research programme carried out by the UK P&I Club [UK P&I Club, 1999], shows that for the ten year period from 1989 to 1999 incidents involving passenger ships (including ferries) account for up to 7% of the total as shown in Figure 5.1.

The graph shown in Figure 5.1 was set out in the fourth Major Claim Analysis published by the UK P&I Club. They were based on 3,719 large marine claims, worth around US\$1,765 million. Since the Club has had over 5,000 of the world's merchant ships and 20% of the tonnage on its books, the analysis is widely regarded as representative of the large claims picture for merchant shipping as a whole.

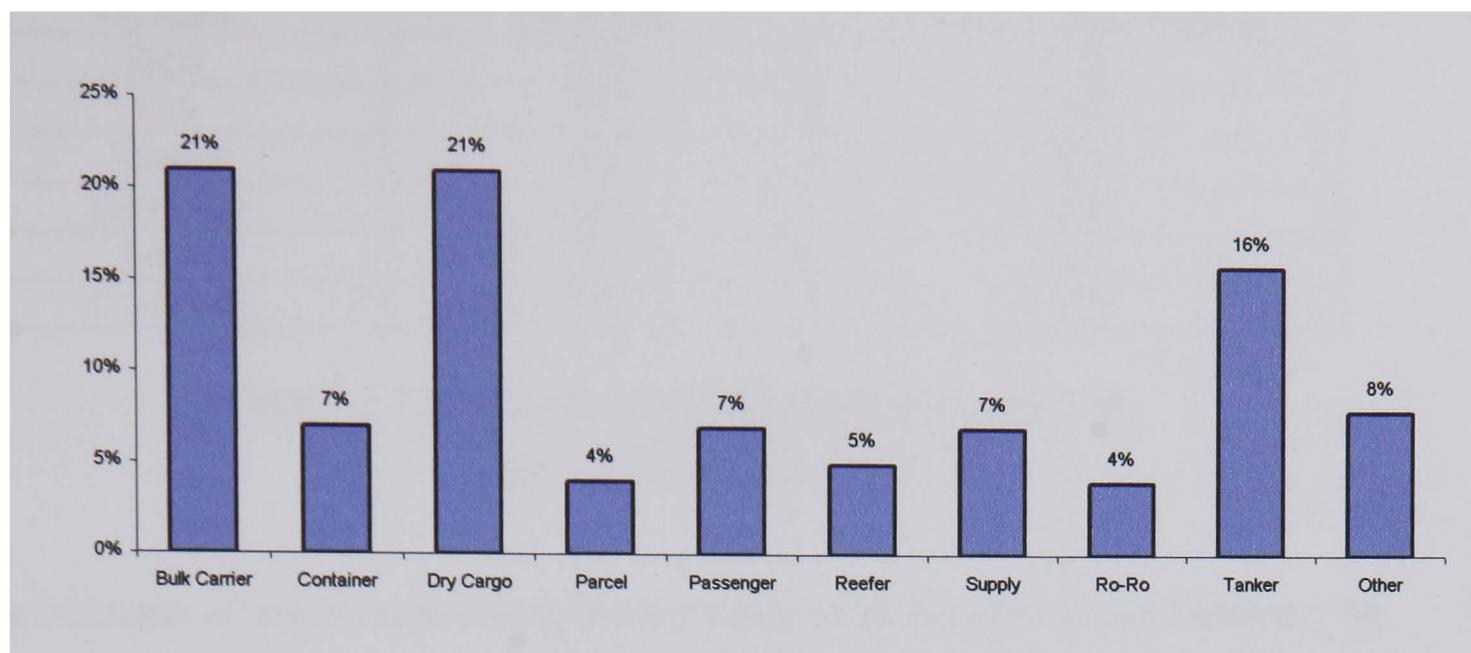


Figure 5.1: Distribution of incidents per ship type

Source: UK P&I Club (1999)

In terms of incident categories, Figure 5.2 shows the five principal risk areas for large claims. It examines these variously in respect of bulk carriers, dry cargo vessels, tankers, containerships, passenger ships, reefers, rig and supply boats and other vessels, as shown in Table 5.2.

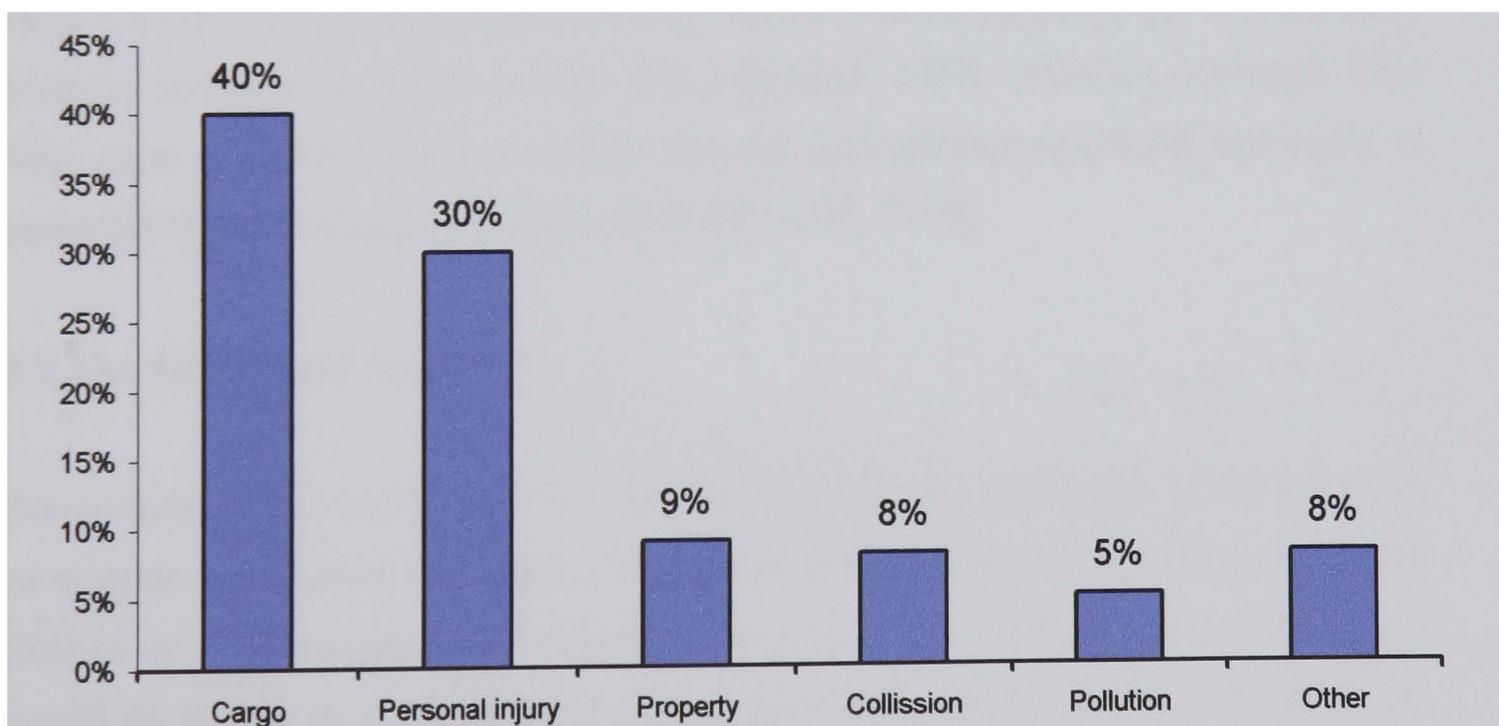


Figure 5.2: Risk areas

Source: UK P&I Club (1999)

VESSEL	CLAIMS	VALUE (US\$ Million)
Bulk	779	290
Dry	787	258
Tanker	582	596
Passenger	266	120
Reefer	193	64
Container	273	110

Table 5.2: Claims and value (US\$ million) per ship type

Source: UK P&I Club (1999)

The incidence of major cargo claims became lower as the period wore on. However, the improvement was not as marked as for major claims in general. Further, values have been getting higher, particularly since 1995. After cargo, personal injury was the second most frequent source of major claims. No less than 45% resulted from crewmen injuring themselves or fellow workers. Property claims also have been reducing more slowly than the general trend. The number of collisions has reduced markedly since peaking in 1990 while values showed a slight increase at the end of the period. In 1994, pollution claims from all ships increased quite sharply and have since remained above the general frequency trend [UK P&I Club, 1999].

Most claims were personal injury-related with 50% being for passenger or third party property and 27% for injury to crew [UK P&I Club, 1999]. However, passenger ships were eight times less likely to collide than the club average and much less likely to cause third-party damage or pollution [UK P&I Club, 1999].

5.3 The Safety Case Approach

The concept of the ‘safety case’ has been derived from the application of the principles of systems engineering for dealing with the safety of systems or installations for which little or no previous operational experience exists [Kuo C., 1999]. In such a situation it would be logical to systematically seek answers to a number of questions about the system or installation. The five most relevant questions are [Kuo C., 1999]:

- a. What aspects can go wrong?
- b. What are the chances and effects?
- c. How can they be reduced?
- d. What to do if an accident occurs?
- e. How can safety be managed?

The tasks that need to be done in order to answer the above questions are:

1. Hazard Identification

Identify the likely hazards of the system.

2. Risk Estimation

Estimate the risk level of each hazard in order to determine whether it is in the intolerable, tolerable or negligible region.

3. Risk Reduction

Reduce the hazards of an intolerable risk level and, if it can be done cost-effectively, also lower the hazards of a tolerable risk level.

4. Emergency Preparedness

Prepare for emergencies that could occur in the event of a potential hazard becoming a reality, even when all precautions against it have been taken.

5. Safety Management System (SMS)

Organise resources and the communication of the relevant information, implement the agreed policies and actions, see that the required standards are being met, review performance and make relevant refinements.

There are many people associated with maritime activities who believe that formal safety assessment is just another name for the safety assessment method adopted by the nuclear, chemical and offshore industries [Kuo C., 1999]. It is easy to confuse a safety case regime with FSA, as both employ risk assessment techniques. However, FSA applies these tools in a radically different way. Whereas a safety case could be applied to a particular ship and the detail of its design and systems, FSA is designed to be applied to shipping as a whole, or to safety issues common to a ship type, such as tankers, bulkers or high-speed passenger vessels [Riding J. F., 1997]. In achieving this, FSA takes a true top down approach to risk assessment, at the level of interest required by the IMO or any marine organisation with regulatory responsibility. This can be directly contrasted with the bottom up approach employed by the safety case, where each system is analysed from component level upwards to demonstrate a specified level of safety [Riding J. F., 1997]. Generally, the confusion arises because FSA is based on the prescriptive principle while the safety case approach uses the goal setting principle [Kuo C., 1998].

5.4 A Proposed Formal Safety Assessment (FSA) Framework

FSA is a rational and systematic process for assessing risks and for evaluating the costs and benefits of different options for reducing those risks [Peachey J. H., 1999]. The benefits of adopting FSA as a regulatory tool were very accurately pointed out by the UK MCA and can be summarised as follows [Marine Safety Agency, 1993]:

- i. A consistent regulatory regime, which addresses all aspects of safety in an integrated way.
- ii. Cost effectiveness, whereby safety investment is targeted where it will achieve the greatest benefit.
- iii. A proactive approach, enabling hazards that have not yet given rise to accidents to be properly considered.

- iv. Confidence that regulatory requirements are in proportion to the severity of the risks.
- v. A rational basis for addressing new risks posed by ever changing technology.

The FSA framework consists of five steps which are described in Chapter 1 in section 1.9.

5.4.1 The Generic Cruise Passenger Ship

The generic model of cruise passenger ship needs to be developed according to the IMO's Interim Guidelines [IMO, 1997], taking into consideration the particular systems and characteristics required for the transportation of people. The study carried out by the UK MCA on High Speed Passenger Craft [Maritime and Coastguard Agency, 1999] and the study carried out on Containerships [Wang J., Foinikis P., 2001] offer a useful guide for formulating a generic cruise passenger model.

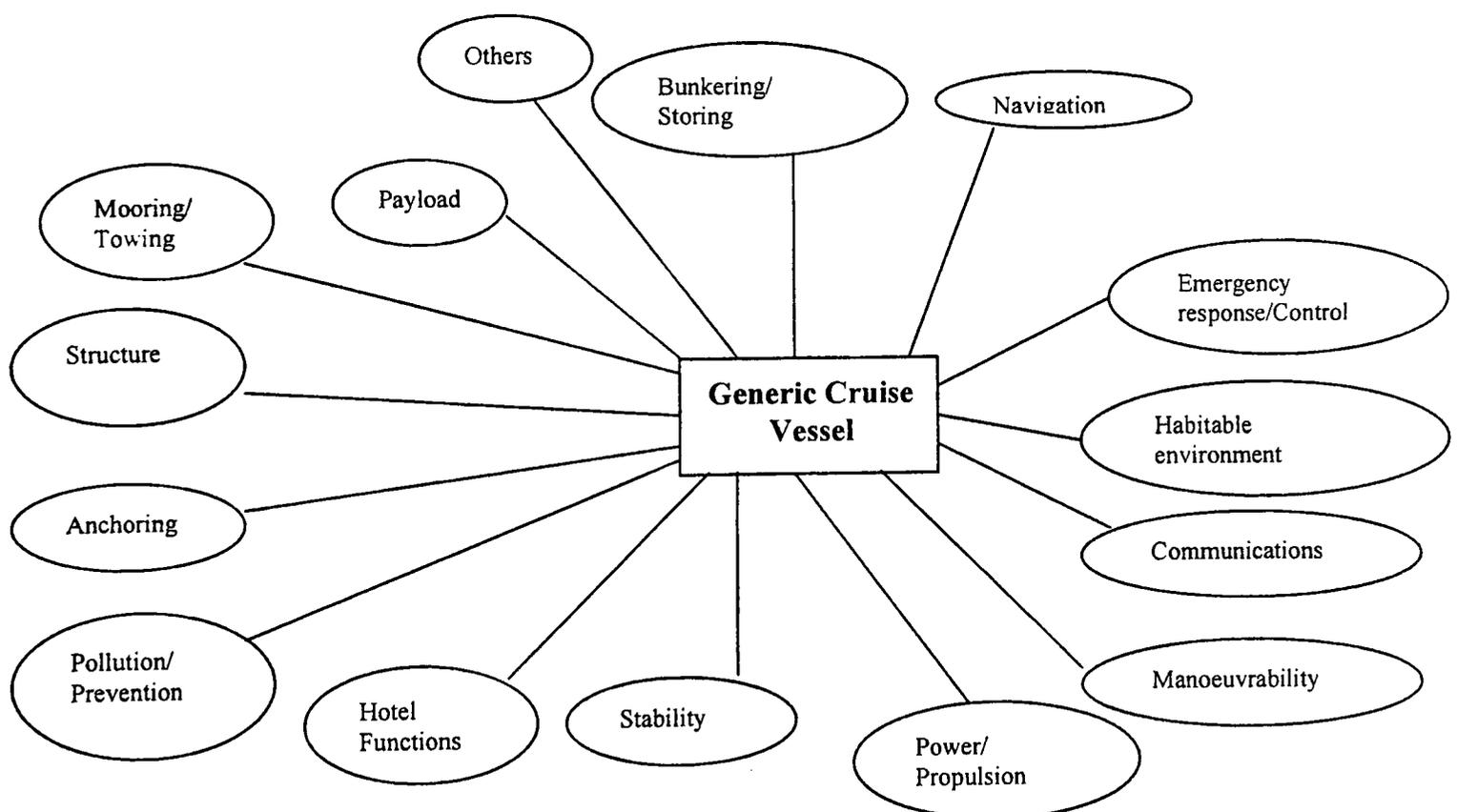


Figure 5.3: Generic cruise passenger ship

The generic cruise passenger ship consists of all technical, engineering, operational and environmental networks that interact during the transportation of cruise passengers. This generic model can be broken down to its component levels. Thus the generic cruise passenger ship can be taken the form shown in Figure 5.3. For a generic cruise passenger ship operating in the Cyprus and Mediterranean regions, the following assumptions are applied:

- The passenger ship's average lifetime: 30 years
- The average number of operational days per year: 330
- Operational hours per day: 24
- Average maintenance frequency per year: 1

Breaking down the model to the basic level of the cruise ship operation produces the “Generic Hotel Functions” and “Generic Ship Functions” (Figure 5.4). The “Hotel Functions” consist of the categories shown in Table 5.3, and the “Ship Functions” include the categories shown in Table 5.4.

Cruise passenger ships follow the general legal pattern that all internationally trading ships do, but they differentiate in various aspects. The primary differences are the following:

- i. Structure
- ii. Ship Support Facilities
- iii. The Passengers and the Selling Point
- iv. Ports and Terminals
- v. Transport Links

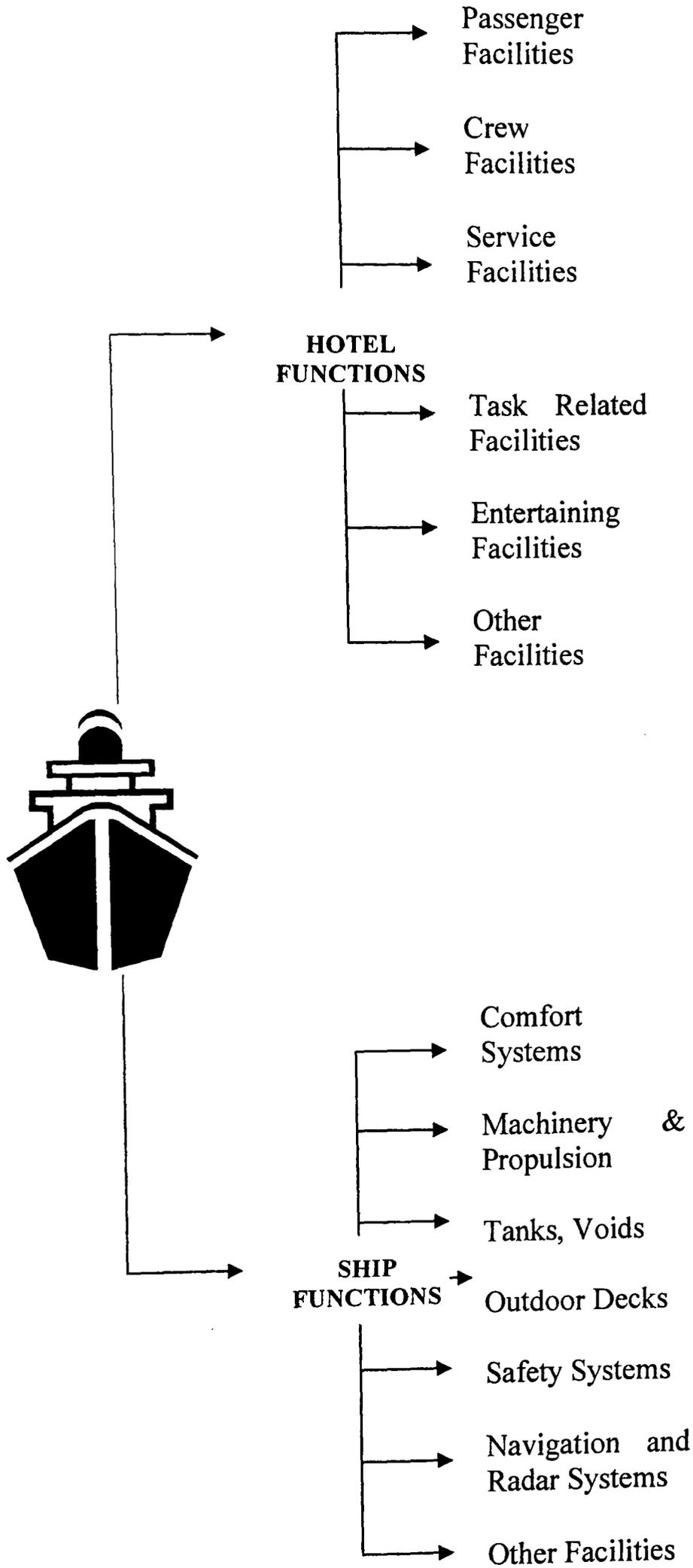


Figure 5.4: Generic cruise ship functions

Facilities					
<i>Passenger</i>	<i>Crew</i>	<i>Service</i>	<i>Task Related</i>	<i>Entertaining</i>	<i>Others</i>
<ul style="list-style-type: none"> • Passenger cabins • Public spaces • Stairways and halls • Outdoor spaces 	<ul style="list-style-type: none"> • Crew cabins • Common spaces • Service • Stairs and corridors 	<ul style="list-style-type: none"> • Passenger service • Catering facility • Hotel services 	<ul style="list-style-type: none"> • Car decks • Tender boats • Stern marina • Special attractions 	<ul style="list-style-type: none"> • Casino • Swimming pools • Cabaret shows • Game room • Disco • Shore-excursion office 	<ul style="list-style-type: none"> • Shops • Beauty saloon • Internet • Self-service laundrettes • Medical center • Photo shop • Sporting club

Table 5.3: Hotel facilities

Facilities						
<i>Comfort Systems</i>	<i>Machinery</i>	<i>Tanks, Voids</i>	<i>Outdoor Decks</i>	<i>Safety Systems</i>	<i>Navigation and Radar Systems</i>	<i>Other Facilities</i>
<ul style="list-style-type: none"> • Air conditioning • Water and sewage • Stores 	<ul style="list-style-type: none"> • Engine room • Pump room • Steering and thrusters 	<ul style="list-style-type: none"> • Fuel and lubricated oil • Water and sewage • Ballast and voids 	<ul style="list-style-type: none"> • Mooring • Crew 	<ul style="list-style-type: none"> • Life boat • Life raft • Sprinkler system and fire fighting equipment • Detectors and alarms • Low level lighting • Life jackets 	<ul style="list-style-type: none"> • Bridge navigation equipment • Bridge radio /satellite equipment • Passenger radio/satellite equipment 	<ul style="list-style-type: none"> • Car decks • Tender boats • Stern marina • Special attractions

Table 5.4: Ship facilities

i. Structure

The structure of a cruise ship is divided into two main categories, hotel operation related and ship operation related functions. Hotel functions consist of passenger cabins, restaurants, lounges, bars and shops. Adequate 'traffic lanes' have to be provided between these spaces such as corridors, halls, stairways and lifts. Outdoor spaces must also be provided. The service personnel have separate corridors and stairways, because only crew members in uniform are allowed in passenger spaces.

The ship functions are related to carrying the hotel part safely from port to port. The propulsion machinery and different storage tanks are vital systems. The ship produces electricity, conditioned air, cold and hot water and has sewage treatment and waste handling for the hotel part.

ii. Ship Support Facilities

This category is the one that most impacts upon the operations of a cruise ship and its ability to call at a given port. Before any other consideration can be made, cruise lines require decent and safe docking facilities, and/or launch or tender services, water, food, suppliers and possible waste handling facilities, repair services and refueling capacity. Catering and entertainment are of great importance and the cruise liners must be ready to meet and satisfy the needs of their passengers.

iii. The Passengers and the Selling Point

Cruises are sold largely on the basis of media advertising and brochures, which generally promote a product or lifestyle experience, of which the ship and interiors are a part. These are chosen by prospective passengers for various reasons. Some passengers may wish to visit certain parts of the world. The choice may be made on the recommendations of others or as a result of the passenger's wish to return to a favoured line, ship or destination. Design and the atmosphere may have the power to hold the passenger's interest and to sustain his continuing patronage on later cruises.

iv. Ports and Terminals

Cruise ports and terminals follow a different path compared to container and bulk carrier terminals, as far as their general layout and organisation are concerned. Container terminals have the ability to concurrently carry out loading and discharging operations, while terminals handling bulk cargoes tend to be specialised loading/discharging ones [Wang J., Foinikis P., 2001]. Cruise terminals have the ability to accommodate a large number of passengers, enabling the ship's staff to embark the passengers and providing them with ashore facilities such as shops, foreign exchange bureaus and tourism information offices.

v. Transport Links

Another different aspect is that of transport links to and from the cruise ship. Passengers have to travel from home to their cruise ship and return home after their cruise. The majority of passengers will be making an air journey. Travel to and from the ship is arranged by the cruise companies. The vast majority of the ports of call worldwide offer transport links. Buses, taxis and trains are accessible to the passengers. They enable passengers, who do not buy a shore excursion, to use the links for their transport to the city or place of their interest. Information on transport links is given to passengers by the staff of the cruise ship.

5.4.2 Formal Safety Assessment of Cruise Ships

By considering the main characteristics of cruise ships, an FSA framework is proposed in detail in the context of cruise passenger ships.

5.4.2.1 Hazard Identification (HAZID)

The term ‘hazard’ is defined as “an undesirable outcome in the process of meeting an objective, performing a task or engaging in an activity” [Kuo C., 1998]. The objective of this step is to derive a list of all relevant accident scenarios (Appendix 3), together with their potential causes and outcomes. To achieve this, many typical techniques are employed to identify the hazards which might contribute to the occurrence or escalation of each accident scenario. These techniques include [Kuo C., 1998]:

- i. Brainstorming.
- ii. Hazard and Operability Studies (HAZOP).
- iii. Failure Mode and Effects Analysis (FMEA).

One way to identify hazards is to develop a flowchart of the operations which it is decided to assess. To develop a flowchart, it is necessary to list each overall function or activity being performed [Tzifas N., 1997]. This flowchart will give a broad picture of

the operation. Suppose it is decided to examine only the situation from the time the passengers embark aboard to when they last depart. The flowchart is described in Figure 5.5. Figure 5.5 shows the five phases of the operation of the cruise ship.

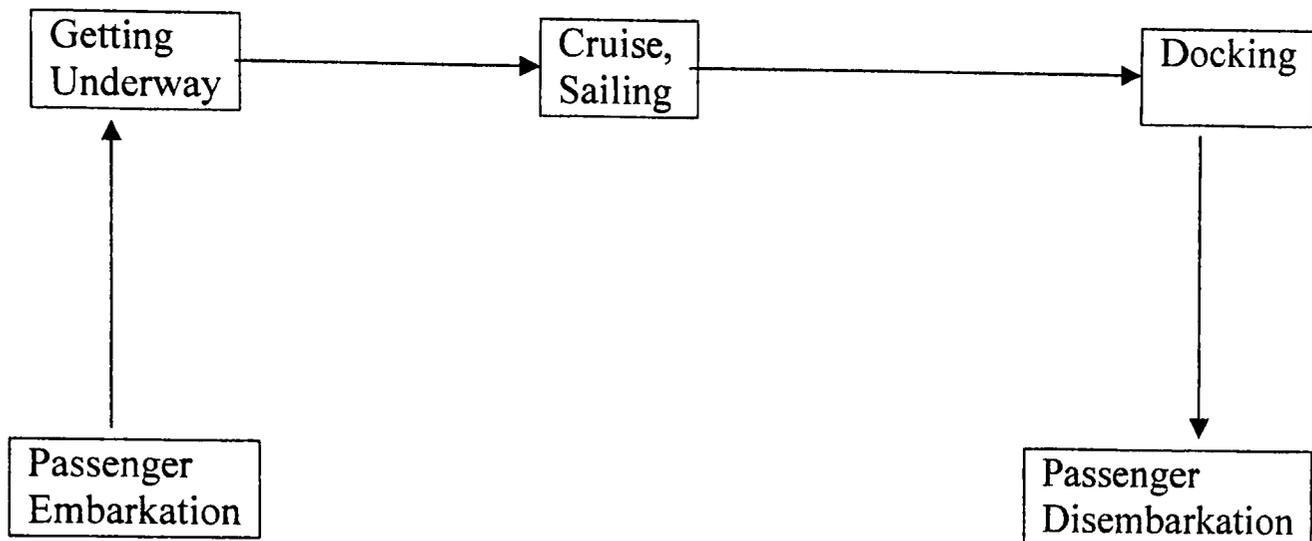


Figure 5.5: Operation schedule

Each phase includes the following activities:

a. Passenger Embarkation

- i. Passengers arrive at the base port.
- ii. Passenger tickets are checked.
- iii. An account for passengers' expenses on-board the ship is opened.
- iv. Passengers are given their cabin keys and any other necessary information.
- v. Passengers have the opportunity to have their photo taken.

b. Getting Under Way

- i. The staff on the gangway welcome passengers.
- ii. Cruise staff direct passengers to their cabins.
- iii. Luggage is sent on for delivery to the cruiser's accommodation.
- iv. Passengers are given safety information and a life jacket drill.

c. Cruise

While the ship sails, the passengers are free to visit all the public areas of the ship. It is necessary to make sure that they are aware of the daily programme and follow the safety instructions of the ship.

d. Docking

- i. Passengers who choose a shore excursion are required to disembark first.
- ii. Luggage will have been packed the night before the final disembarkation.
- iii. During the packing process, the passenger will have been asked to place tags on their luggage indicating the time and method of the onward journey.
- iv. Passengers are required to wait in the public areas until the port authorities allow them to disembark.
- v. Passengers are also required to settle their accounts before disembarkation.

e. Disembarkation

- i. Passengers with the longest daytime journey are disembarked first and those whose onward journey requires a night flight or stay are disembarked last.
- ii. Passengers will collect their luggage in the port's terminal.
- iii. Ship staff is usually present at the main doors to say goodbye, and porters and assistance are provided on the quayside, where necessary.
- iv. Transport to the airport or package hotel will be provided for all those not making independent arrangements.

The potential hazards (Appendix 3) identified with regard to the above operation include:

1. Personnel Casualties

- i. Crew injury involving machinery.

- ii. Crew injury while alongside or getting under way.
- iii. Man overboard.
- iv. Medical emergency.
- v. Passenger injury during embarkation and disembarkation.
- vi. Passenger violence.
- vii. Slips and falls while under way.

2. Material Casualties – Ship

- i. Galley fire.
- ii. Fire/explosion on board.
- iii. Collision/grounding due to human error.
- iv. Collision/grounding due to mechanical/navigational failure.
- v. Engine room/machinery space fire.
- vi. Collision due to other ship's fault.
- vii. Flooding and/or sinking due to hull failure.

3. Material Casualties – Shore

- i. Fire in terminal.
- ii. Explosion in terminal.
- iii. Structural damage to terminal due to ship collision.

4. Environmental Impacts

- i. Exhaust emissions.
- ii. Noise.
- iii. Oil pollution due to vessel accident.
- iv. Pollution due to oil discharge.

Once the hazards are identified with respect to each of the above categories, it is essential to carry out a "Probability Assignment" [Passenger Vessel Association &

USCG, 1997] in order to rate the likelihood or frequency of that hazard occurring. After the examination of the frequency of each hazard occurring, it is also essential to carry out a “Consequence Assignment” [Passenger Vessel Association & USCG, 1997] in order to rate the impact of that hazard occurring. Five scales are used for the “Probability and Consequence Assignments” and are shown in Tables 5.5 and 5.6.

Assign a rating of:	If the frequency is:
1	REMOTE = Might occur once in a life time
2	OCCASSIONAL = Might occur every five years
3	LIKELY = Might occur every season
4	PROBABLE = Might occur monthly
5	FREQUENT = Might occur weekly or daily

Table 5.5: Frequency assignment

Assign a rating of:	If the impact could be:
1	NEGLIGIBLE = Injury not requiring first aid, no cosmetic vessel damage, no environmental impact, no missed voyages.
2	MINOR = Injury requiring first aid, cosmetic vessel damage, no environmental impact, no missed voyages.
3	SIGNIFICANT = Injury requiring more than first aid, vessel damage, some environmental damage, a few missed voyages or financial loss.
4	CRITICAL = Severe injury, major vessel damage, major environmental damage, missed voyages.
5	CATASTROPHIC = Loss of life, loss of vessel, extreme environmental impact.

Table 5.6: Consequence assignment

In Table 5.5, Rating 1 represents “remote”, which means that the hazard might occur once in the life time of a passenger ships. Rating 2 represents “occasional” meaning that the hazard might occur every five years, and Rating 3 represents “likely”, which means that the hazard might occur every season. Rating 4 represents “probable” meaning that the hazard might occur monthly. Rating 5 represents “frequent”, which means that the hazard might occur weekly (Rating 4) or daily (Rating 5).

Using the “Risk Matrix Approach” [Wang J., Foinikis P., 2001], the combination of frequency and consequence rankings is used in order to estimate the “Risk Ranking Number” (RRN), which is used to categorise risks according to their importance. An example of the “Risk Matrix Table” and its associated explanatory notes, as they can be applied to cruise ships, can be seen in Table 5.7.

		Consequence (S)				
		NEGLIGIBLE S1	MINOR S2	SIGNIFICANT S3	CRITICAL S4	CATASTROPHIC S5
Frequency (F)	REMOTE F1	1	2	3	4	5
	OCCASSIONAL F2	2	3	4	5	6
	LIKELY F3	3	4	5	6	7
	PROBABLE F4	4	5	6	7	8
	FREQUENT F5	5	6	7	8	9

Table 5.7: Risk matrix approach

The Risk Matrix approach employs a matrix to assess risk levels. RRN ranges from 1 (least frequent and least severe consequence - the lowest risk level) to 9 (most frequent and most severe consequence - the highest risk level).

5.4.2.2 Risk Estimation

The objective of the second step is to evaluate the factors contributing to the risk associated with each hazard on the prioritised list. This step includes consideration of the various factors (such as training, design, communication, maintenance), which influence the level of risk. In determining the relative risk, it is essential to construct an “influence diagram” (Risk Contribution Tree, Figure 5.6) in order to study how the regulatory, commercial, technical and political/social environments influence each accident category and eventually quantify these influences with regard to human and hardware failures as well as external events [Wang J., Foinikis P., 2001]. An “influence diagram” is a combination of fault trees and event trees. “Fault Tree Modelling” looks at the combinations of circumstances and failures that can lead to an accidental event, and “Event Tree Modelling” is a means of exploring the escalation potential of such an accidental event to establish all possible outcomes and their severity [Tzifas N., 1997].

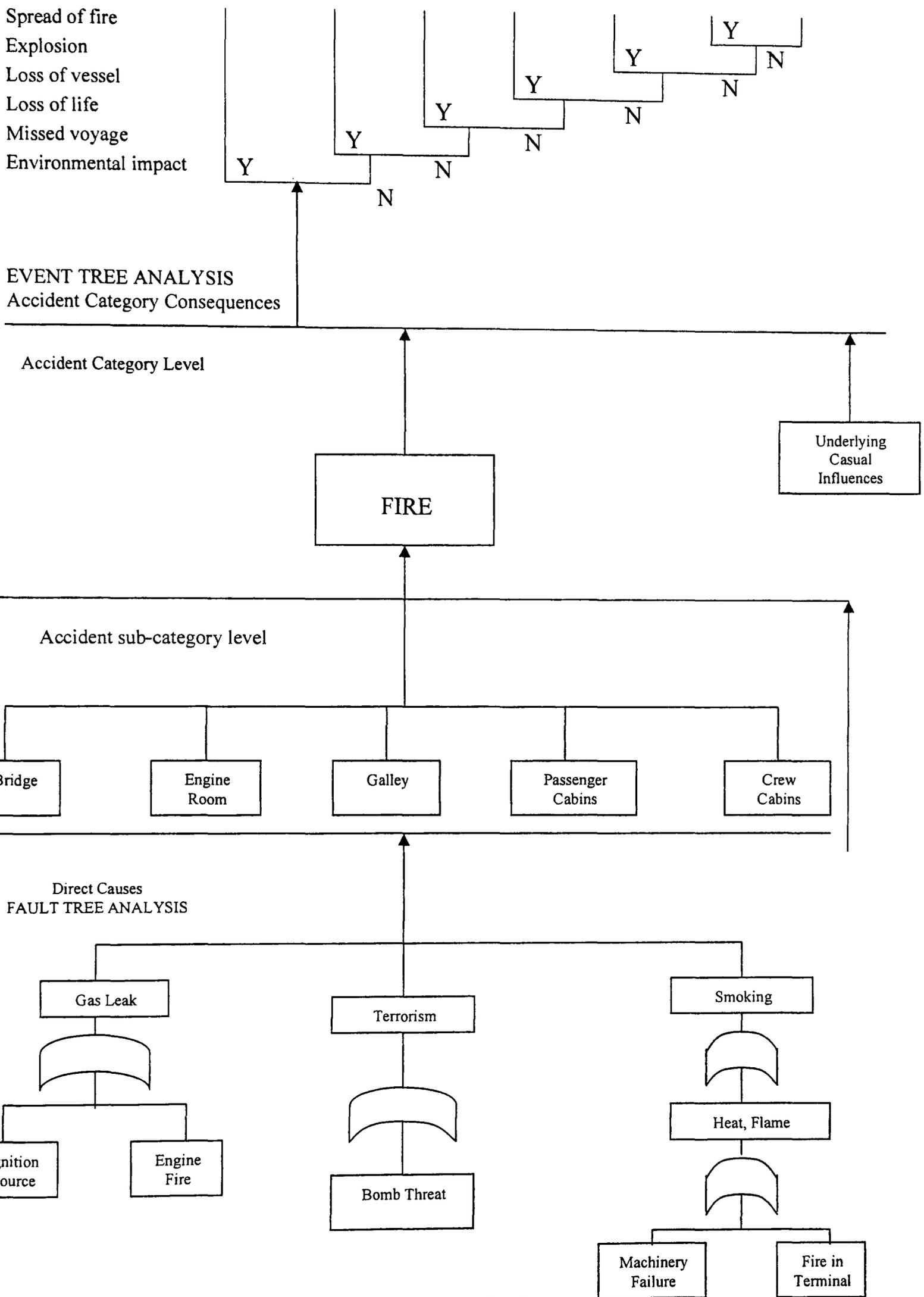


Figure 5.6: Risk contribution tree

5.4.2.3 Risk Control Options

The purpose of this step is to derive measures to control and reduce the risks estimated in Step 2. Attention is focused initially on the highest risk areas [The Nautical Institute, 1999]. In order to address these risks, a list of countermeasures can be used to avoid or lessen the impact of the potential hazards. These countermeasures will be based on people, procedures, or equipment solutions. One way to do this is by breaking the potential hazard down into a chain of events. This is referred to as the “Causal Chain” [Passenger Vessel Association & USCG, 1997] and takes the form shown in Figure 5.7. This chain of events captures what may have led up to a casualty or hazard occurrence. A distinction between the words incident and accident needs to be made because these two words are sometimes used interchangeably by some people. An incident is defined here as an unpleasant and/or undesirable event that may be caused by human error, equipment failure or procedural gap, whereas accident may be defined as a reportable marine casualty in which serious damage to property and/or life has occurred.

Generally, there are three main risk control options. They can be summarised as follows [Wang J., Foinikis P., 2001]:

- i. Those relating to the fundamental type of risk reduction such as preventative and mitigating measures.
- ii. Those relating to the type of action required (i.e. engineering or procedural).
- iii. Those relating to the confidence that can be placed in the measure (active, passive, redundant, auditable).

Figure 5.7 is used as a guide for applying different countermeasures.

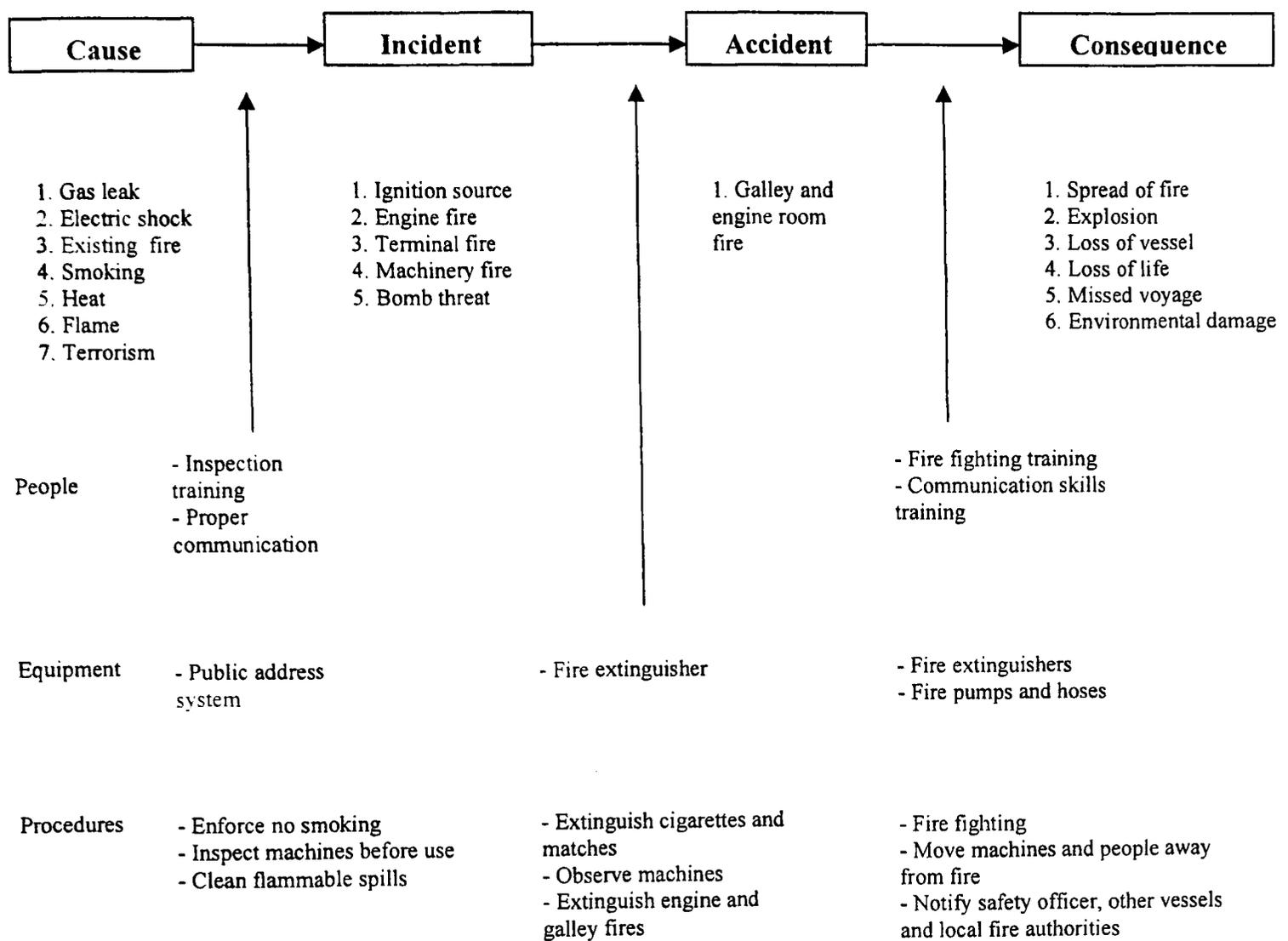


Figure 5.7: Causal chain (fire in galley and engine room)

A portion of potential countermeasures is well described in Table 5.8 and refers to the following interventions:

a. Intervention to remove **Cause**

- Prevent conditions that can lead to lapses.

b. Intervention before the **Incident**

c. Intervention before the **Accident**

- Prevent or avoid high risk situations where a small lapse can lead to an accident.

d. Intervention before the **Consequence**

- Reduce the harm caused by the accident.

Intervention to remove Cause	Intervention before the Incident	Intervention before the Accident	Intervention before the Consequence
<ul style="list-style-type: none"> • Proper equipment • Training • Detailed procedures • Preventative maintenance 	<ul style="list-style-type: none"> • Enhanced surveys • Communications equipment • Alarms • Remote sensors • Check-off lists for routine evolutions 	<ul style="list-style-type: none"> • Drills to respond to common incidents • Special procedures for higher risk evolutions (vessel traffic and bad weather) 	<ul style="list-style-type: none"> • Response plans • Emergency drills • Lifesaving equipment • Emergency instructions • Crew training

Table 5.8: Potential countermeasures

5.4.2.4 Cost-Benefit Assessment

The costs of implementing each risk control option and the benefits from reduced risks can be determined, using established cost-benefit assessment techniques. All cost categories are covered in the assessment including capital, operating, maintenance, training, etc. The cost-effectiveness of the risk control options is compared with that of each of the other options, and the options are then ranked in terms of their cost to achieve a unit reduction of risk [The Nautical Institute, 1999]. It must be pointed out that cost-benefit analysis, as suggested for use in FSA is not a precise science, but it is only a way of evaluation. Thus it cannot be used mechanistically, but only as a consulting instrument in decision-making [Wang J., Foinikis P., 2001].

The cost-benefit assessment technique used in the case of North Ferry Company [Passenger Vessel Association & USCG, 1997] offers a useful tool for the development of our generic cost-benefit analysis. This technique consists of the following three stages:

1. Estimate of Benefit [Table 5.9].
2. Estimate of Cost [Table 5.10].
3. Combination of the above [Table 5.11].

After completing the cost benefit assessment, the measures with the highest overall score are chosen. These are the measures that reduce risks in a most cost-effective way.

After the development of a list of potential countermeasures for addressing each specific hazard, Table 5.9 gives guidance to estimating the benefit rating of these measures. The benefit rating scale ranges from 1 (no benefit from reduced risks) to 5 (very high benefit from reduced risks).

Estimation of benefit	Description
1	VERY LOW = No benefit from reduced risks
2	LOW = Small benefit from reduced risks
3	MEDIUM = Medium benefit from reduced risks
4	HIGH = High benefit from reduced risks
5	VERY HIGH = Very high benefit from reduced risks

Table 5.9: Estimate of benefit

Table 5.10 can be used as a tool to assess the cost of putting the countermeasures into operation. The cost of each countermeasure is estimated, whether it is rearranging work schedules/procedures, installing new equipment or providing additional training for the crew. The cost rating scale ranges from 1 (no cost for implementing countermeasure) to 5 (very high cost for implementing countermeasure).

Cost estimate	Description
1	VERY LOW = No cost for implementing countermeasure
2	LOW = Small cost for implementing countermeasure
3	MEDIUM = Medium cost for implementing countermeasure
4	HIGH = High cost for implementing countermeasure
5	VERY HIGH = Very high cost for implementing countermeasure

Table 5.10: Estimate of cost

Table 5.11 is used to combine the results arrived from Table 5.9 and Table 5.10. This will give an idea of which countermeasure is the best solution for the company. In order to obtain the most out of the company's safety investment, the measures with the highest overall score are chosen.

Countermeasures	Estimate of Benefit	÷	Cost Estimate	=	Overall Score
Causal chain- Figure 5.7	Table 5.9	÷	Table 5.10	=	Result

Table 5.11: Cost-benefit analysis

5.4.2.5 Decision Making

From the preceding steps of the methodology, information about the hazards, their associated risks, and the cost effectiveness of alternative risk control options is provided to the decision maker. It is suggested that in considering which risk control option to select, the decision maker should ensure that the choice is equitable and fair to all stakeholders [The Nautical Institute, 1999].

This final step of the FSA process aims at making decisions and giving recommendations for safety improvement. The information generated can be used to assist in the choice of cost-effective and equitable changes in design and operations and to select the best risk control option.

5.4.3 Brief Discussion of Risk Reduction Measures

Having considered the relevant accident scenarios and their potential causes and outcomes of a cruise ship operation, it would be essential to specify all possible hazardous events at each of the five operation phases, as shown in Figure 5.5. Typical hazardous events for each phase of operation are presented in Table 5.12.

Risk control options need to be identified for significant hazardous events. Take the event “violence between passengers and/or staff” as an example. The analysis of this hazardous event can be conducted using a Causal Chain, as described in Figure 5.6.

Operation Phases	Possible Hazardous Events
<i>Passenger embarkation</i>	<ul style="list-style-type: none"> • Passenger and crew injuries while alongside. • Passenger violence. • Fire/explosion in terminal. • Noise. • Overloaded gangway/collapse. • Injuries to unattended children. • Lifting injuries while loading wheelchairs.
<i>Getting underway</i>	<ul style="list-style-type: none"> • Fall in water/man overboard. • Collision with another vessel. • Loss of control (ice, wind, restricted visibility). • Slips, falls at gangway.
<i>Cruise</i>	<ul style="list-style-type: none"> • Injuries due to machinery failure. • High speed collision, grounding. • Situational management (loss of awareness, distraction, etc). • Electric shock. • Exposure to electric elements. • Medical emergency/evacuation. • Vessel fire. • Engine failure. • Noise due to conflicting groups.
<i>Docking</i>	<ul style="list-style-type: none"> • Squash injury. • Dock fire. • Contact with unknown/hidden objects. • Sudden docking.
<i>Disembarkation</i>	<ul style="list-style-type: none"> • Sewage spills. • Injuries due to overloaded gangway. • Slips and falls while disembarkation. • Careless attendance to handicapped passengers.

Table 5.12: Hazardous events during operation phases

The major causes, incidents, accidents and possible consequences related to this hazardous event are shown on Table 5.13.

	Cause	Incident	Accident	Consequence
a.	Presence of weapons	Argument between passengers	Gunshot stab	- Major injuries - Death
b.	Excessive drinking	Intoxication	Man overboard	- Drowning
c.	Passenger dissatisfaction	Passenger arguing with staff	- Choking - Punching	- Minor/major injuries - Death

Table 5.13: Causal chain (violence between passengers and/or staff)

Potential forms of intervention for the hazards previously described can be summarised as follows:

1. Intervention before cause

- i. Metal detectors.
- ii. Screening drunks.
- iii. Visible security.
- iv. Alcohol awareness training.

2. Intervention before incident

- i. Visible security.
- ii. Change music/lighting.
- iii. Management intervention for passengers' dissatisfaction, excessive drinking (e.g. isolate passenger).

3. Intervention before accident

- i. Security personnel.
- ii. Train staff in security.
- iii. Physical security.

4. Intervention before consequence

- i. First aid.
- ii. Recover man overboard.

5.5 A Test Case Study

A test case study is conducted in order to demonstrate the feasibility of the proposed FSA methodology of cruise passenger ships. The test case is limited to one accident category only, namely 'fire'.

5.5.1 Step 1: Hazard Identification

Having identified the accidents, the causes are then grouped in terms of human error, hardware failure, etc. The 'fire' accident sub-categories are listed as follows:

- i. Navigation Bridge.
- ii. Engine Room.
- iii. Public Areas.
- iv. Galley.
- v. Provisions Storage Spaces.
- vi. Passengers' Cabins.
- vii. Crew Accommodation.

The examination of the occurrence frequency of a hazard and its possible consequence is carried out using the "Probability and Consequence Scales" described in the previous section. The final ranking for the accident category of 'fire', takes the form as presented in Table 5.14.

ACCIDENT: FIRE					
Operation Accident Subcategory	Passenger Embarkation	Getting Underway	Cruise, Sailing	Docking	Passenger Disembarkation
Navigation Bridge	F1/S1=1	F1/S1=1	F1/S1=1	F1/S1=1	F1/S1=1
Engine Room	F2/S2=3	F3/S3=5	F4/S4=7	F2/S2=3	F2/S2=3
Public Areas	F1/S2=2	F2/S3=4	F3/S3=5	F1/S2=2	F1/S2=2
Galley	F2/S3=4	F3/S3=5	F5/S4=8	F2/S3=4	F2/S3=4
Provision Storage Spaces	F2/S3=4	F2/S3=4	F3/S4=6	F1/S3=3	F1/S3=3
Passenger Cabins	F2/S2=3	F3/S3=5	F4/S3=6	F2/S2=3	F2/S2=3
Crew Accommodation	F2/S2=3	F4/S3=6	F4/S3=6	F2/S2=3	F2/S2=3

Table 5.14: Fire rankings, using the “risk matrix approach” - expert judgement

An RRN is assigned for each accident subcategory at different phases of the vessel operation. This figure is generated by analysing the incident/accident data in terms of its occurrence and severity of consequences. Each accident category can be analysed and handled in a similar way to produce a ranking number for each accident sub-category.

RRN	No. of occurrence for accident sub-category
5	4
6	4
7	1
8	1

Table 5.15: Number of occurrences of risk ranking scores

Table 5.15 shows the number of times each RRN appears within an accident sub-category. For example, RRN 5 appears 4 times (as shown in Table 5.14). Sub-categories with RRN values smaller than 4 are not investigated further since their level is considered to be acceptably low.

5.5.2 Step 2: Risk Estimation

For all the sub-categories with RRN values larger than 4, the risk will be studied in more detail. This can be achieved using an influence diagram. An illustration of the influence diagram for the accident category of “fire” can be seen in Figure 5.6. The top half above “fire” of Figure 5.6 is a graphical representation of the accident sub-category, including all the combinations of relevant contributing factors for each accident sub-category. The bottom half below “fire” is an event tree representation of the development of the accident category to its final outcome.

5.5.3 Step 3: Risk Control Options

From Table 5.14, it can be seen that the area requiring less consideration is clearly identifiable, and appears to be the “Navigation Bridge Area” (all RRN values are smaller than 4). For each of the remaining areas (sub-categories with RRN values equal to or larger than 4) causal chains need to be constructed and risk control options to be identified at the nodes of each chain. The areas requiring more consideration appear to be the “Galley” and “Engine Room Areas”, especially during the operation phase of cruising. For demonstration purposes, only these two areas are considered for risk reduction and causal chain analysis.

Figure 5.7 shows the countermeasures that can be used to reduce failure likelihood and/or mitigate possible consequences. The analysis has come up with a list of interventions that can be used to avoid or lessen the impact of the potential hazards. These countermeasures will help to make the operation of a cruise vessel safer.

The causal chain shown in Figure 5.7 came up with the following interventions:

1. After “Cause” and before “Incident”

- i. Inspection training.
- ii. Proper communication.

- iii. Public address system.
- iv. Enforcing no-smoking regulations.
- v. Inspecting machines before use.
- vi. Cleaning flammable spills.

2. After “Incident” and before “Accident”

- i. Fire extinguisher.
- ii. Extinguishing cigarettes and matches.
- iii. Observing machines.
- iv. Extinguishing engine and galley fires.

3. After “Accident” and before “Consequence”

- i. Fire fighting training.
- ii. Communication skills training.
- iii. Fire extinguishers.
- iv. Fire pumps and hoses.
- v. Sprinklers.
- vi. Fire fighting.
- vii. Moving machines and people away from fire.
- viii. Notifying safety officer, other vessels and local fire authorities.

5.5.4 Step 4: Cost-Benefit Analysis

The countermeasures with the highest overall score show the best place for implementing risk reduction measures. Table 5.16 provides the cruise operator with the information necessary for obtaining the most out of their safety investment, hence reducing the high risks cost-effectively.

Countermeasures		Estimate of Benefit	÷	Cost Estimate	=	Overall Score
People	Inspection training	4	÷	4	=	1
	Proper communication	3	÷	3	=	1
	Fire fighting training	5	÷	3	=	1.67
	Communication skills training	3	÷	3	=	1
Equipment	Public address system	4	÷	2	=	2
	Fire extinguisher	5	÷	4	=	1.25
	Fire pumps and hoses	4	÷	4	=	1
	Sprinklers	3	÷	4	=	0.75
Procedure	Enforce no-smoking	2	÷	2	=	1
	Extinguish cigarettes and matches	3	÷	1	=	3
	Fire fighting	4	÷	3	=	1.33
	Inspect machines before use	4	÷	2	=	2
	Observe machines	3	÷	1	=	3
	Move machines and people away from fire	3	÷	1	=	3
	Clean flammable spills	3	÷	2	=	1.5
	Extinguish engine and galley fires	4	÷	2	=	2
	Notify safety officer, other vessels and local fire authorities	4	÷	1	=	4

Table 5.16: Results of cost-benefit analysis

The most important countermeasures that will be taken into consideration for this purpose are shown in Table 5.16 and include the following:

- a. Extinguishing cigarettes and matches.

This can be achieved by installing high technology equipment for fire fighting. It would also be necessary to carry out inspections of fire-fighting machines and train people in the procedures and equipment used for such a purpose. Another policy might be to restrict the smoking areas on the cruise ship.

b. Inspecting machines.

The machines may be inspected on a frequent basis in order to make sure that they work properly. The safety team may ensure that the crew are familiar with the use of such machines and impose strict procedures for those who will be authorised to use them.

c. Moving machines and people away from fire.

The importance of this countermeasure is that machines, crew and passengers might be moved away from fire quickly and safely. This can be achieved by training the crew in a systematic way, and informing passengers, before and during the cruise, of the procedures to be followed in that particular situation.

d. Notifying safety officer, other vessels and local fire authorities.

A safety officer, with the appropriate knowledge and experience, needs to be employed in order to deal with safety and fire matters. The cruise ship may also be provided with the most necessary technical equipment in order to notify promptly other vessels and local authorities in case of emergency.

Another important countermeasure is to strictly enforce the no-smoking policy. The operators might also install a public address system to use for reminding passengers of the company's and ship's policies. The operators might heighten safety awareness among the crew and staff to make them more vigilant in detecting causes of fires.

5.5.5 Step 5: Decision Making

In the decision-making process, the information about risk levels before and after implementation of risk control measures would be recorded alongside justification in order to iterate any part of the process. Decision-making seeks to enhance the quality of information by considering the following:

- a. The cost-effectiveness of the proposed option, as shown in Step 4.
- b. The examination of whether the effect on all interests involved is equitable.

This process can then proceed, by taking into consideration all the political, cultural and social influences that are necessary to obtain consensus on an international basis.

5.5.6 Brief Further Analysis

The formal safety assessment approach proposed considers the characteristics of cruise vessels. Figure 5.8 outlines the proposed approach by means of a flowchart. Information produced from the hazard identification phase will be processed to rate the occurrence likelihood of each hazard and its possible consequences. In the risk estimation phase, the relative risk will be determined. This can be done by constructing a Risk Contribution Tree (Figure 5.6), and potential consequences may be quantified in terms of regulatory, commercial, technical and social factors. The results produced from the risk assessment phase may be used to assist cruise operators in deriving measures and policies to reduce the occurrence likelihood of potential hazards and/or avoid or lessen their impact. In the cost-benefit assessment phase, the costs of implementing each risk control option and the benefits received from reduced risks can be determined. The information/results produced from the cost benefit assessment phase may be used by operators to make decisions.

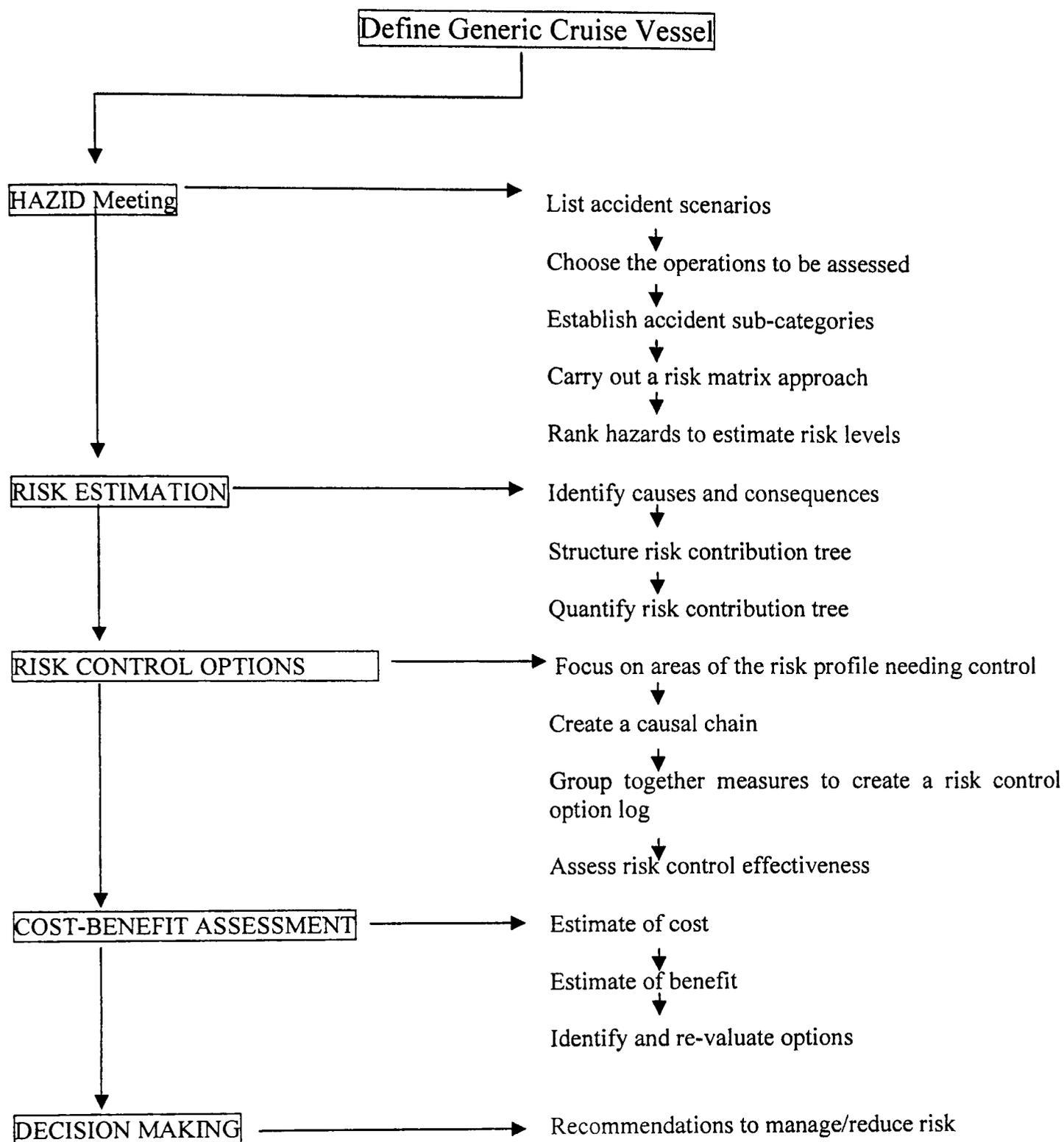


Figure 5.8: Proposed approach

5.6 Discussion for Improvements

This chapter has attempted a critical evaluation of the FSA framework as it applies to cruise passenger vessels, especially in the Cyprus and Mediterranean regions. A test case study was conducted in order to demonstrate the feasibility of the described approach.

It becomes apparent that, although the cruise market has an excellent safety record, there is still room for improvement. Areas where such improvement can be achieved include human reliability, fire-fighting, and communication. Such areas are described as follows:

5.6.1 Human Element

The fact that cruise ships carry large and diverse groups of people means that their officers, staff and crew need a clear understanding of human responses in emergencies and an ability to deal with crowds. The areas directly related to human behaviour and crowd control might include the ability of giving clear and reassuring instructions, dealing with passengers' special needs and keeping order, reducing or avoiding panic. In emergency situations, the key personnel (i.e. the safety officer) who has responsibility for the safety of passengers might lead and direct other people, assess the situation, provide an effective response and recognise specific behaviours of passengers and other personnel. The success of the above can be achieved with adequate training, specialising on proper communication with the passengers and the use of fire fighting equipment. Confusion is often caused by poor or ineffective communication between the various parties involved, such as the misunderstanding arising from a range of native languages among the crew. To a large extent, this type of error can be overcome by careful selection and adequate training of crew.

5.6.2 Industry's Action

It is obvious that the human element plays an important role, either negative or positive, in the safety of cruise ships. It would certainly appear that over the next few years, with the expansion of interest in cruise ships, new builds on order and new regulations to be issued, there will be two principal areas which need to be investigated, namely shortage of skilled crew and crew training. The cruise industry might explore new recruitment and training opportunities in order to enhance the passengers' and cruise vessels' safety, including the following:

- a. Visiting colleges of further education and research groups.
- b. Producing better illustrated promotional materials including videos.
- c. Increasing training opportunities for the acquisition of new skills, which will allow crew to promote their careers with the cruise company.
- d. Providing more onboard training resources, including a specialist trainer to meet arising needs.
- e. Exploring new and innovative training techniques.
- f. Liaising with universities and other professional establishments in order to develop training programmes for those wishing to work in the cruise industry.
- g. Providing management training, which introduces new values of leadership, motivation and team building.

5.6.3 Information Availability, Reliability and Interchange

Many of the weaknesses existing today in the shipping industry in general and the cruise market in particular, are due to inadequate flow of information amongst the parties concerned. This may cause several problems in the course of operating a cruise ship, such as a lack of either knowledge or technology, or a combination of the two. An example in the cruise market would be that an officer might take incorrect decisions because he is not familiar with the ship or new technologies. Errors can also occur when there is too much conflicting information poorly presented. Information on safety should be given to the passengers during the embarkation time. It would also be important to provide the information during the cruise ship's sailing and train the passengers on a personal basis. For example, the cabin stewards can provide safety information while cleaning passengers' cabins and explain to the passengers all the safety documentation and equipment located in the cabins.

5.7 Conclusion

One of the major goals of many international or national bodies which deal with marine regulations, is the reduction of the total number of accidents. This is often felt to be imperative, regardless of the extent of the costs incurred due to of the accidents. It is hoped that acceptable ways can be found for estimating the cost, and also reducing the cost, of operating a cruise ship. This might enable the decision maker to choose the most cost-effective method that will improve ship safety, environmental protection and, profitability, and to cope with the strong competition within the cruise industry.

Some important procedures and inputs/outputs of FSA application to cruise ship operations have been presented in this chapter. It is believed that more detailed descriptions and discussions are necessary on several aspects in the FSA processes, including Causal Chains and risk control options. Causal Chains were developed to show the entire sequence from cause to the fatality under consideration. Specific types of intervention can then be used to control risks. Developing risk control options can eventually be translated into the creation of strategic alternatives for probable reductions in risk.

As the public concern regarding maritime safety has been increasing, more and more attention has been directed to the application of formal safety assessment of ships as a regulatory tool [Wang J., 2001]. It is believed that the adoption of such a tool in cruise ship operation will reduce risks to a minimum level. More scientific research is required in the area of formal safety assessment of cruise ships in the Cyprus and Mediterranean regions. An effective way of assessing risks in cruise shipping may be a detailed study of potential hazardous events that could occur during each phase of cruise operation.

The cost of safety is an important element that the cruise companies may have to take into account when making decisions. Apart from this, there are some other cost elements that may need to be considered in an attempt to estimate the overall costs of a particular voyage at a given time and evaluate the benefits associated with each cost element. Risk analysis may also be necessary in order to rank the cost elements in a

hierarchy to determine the impact on the whole operation process. Cost issues, benefits associated with each cost element, and risk analysis are dealt with in Chapter 6.

CHAPTER 6

COST, BENEFIT AND RISK ASSESSMENT METHODOLOGY FOR CRUISE SHIP OPERATIONS

Summary

This chapter examines the different categories of a ship's costs. Ship cost is a complex subject [Drewry Shipping Consultants Limited, 1999]. On the surface, matters may seem straightforward as most of the cost heads encountered are similar to those seen in many other industries. However, for cruise ships, there are two distinctive characteristics:

- a. There is an international (or multinational) aspect.
- b. The determinants of cost arise from a number of independent, highly competitive market sectors, each of which faces cost pressures of its own which may run contrary to what can be accepted by the cruise industry.

Accordingly, attention will be focused upon capital, running and voyage costs. A method is proposed in order to study the costs of a particular voyage at a given time. This chapter further examines the cost elements of a cruise ship that are classified into the categories of ship, crew, passenger-related costs, and administration and general costs.

Risk assessment is another issue that needs to be examined. In this chapter, appropriate steps are proposed to assess and manage risks. Finally, a cost, benefit and risk assessment methodology is proposed, and a test case is used to demonstrate its application.

6.1 Introduction

The cruise ship and the associated items bought for its future operations are generally capitalised, that is, they are considered to be a long-term acquisition and therefore not something consumable. The initial outfit of a new ship may include some items which are normally considered to be consumables but are included initially as capital costs, such as the chart outfit and the original lubricating oil charge [Downard J. M., 1997].

However, once one considers the capital costs and setting up of departments on the ship and ashore, it remains for the total costs of running the ship, i.e. the “Running Costs”, to be estimated. They can then be presented to senior management and operators for inclusion in their voyage costs calculations. According to John M. Downard [Downard J. M., 1997], it is at this stage that an allowance for the ship’s depreciation and any interest charges are often added to the running costs, although these are outside the control of the ship manager. Capital items, shown as assets in the Balance Sheet, can be reduced by the cost of depreciation at each accounting period until paid for and considered fully used, but will be shown as an asset at a nominal or resale value. The interest charges, which influence the cost of bank loans, are paid on an annual basis and in accordance with the agreement made between the owner of the company and the banks or financial institutions.

The economics of ship operation today warrant close attention by management to ensure that the service provided is viable, competitive and best suited to the market requirements, having regard to safety, statutory obligations and service standards. It is necessary for each cruise line to ascertain the steps that can be taken in order to enhance quality when it is associated with high cost. Cruise lines can consider the valuation of quality in the market for cruising services and analyse the way that demand and supply factors interact to determine the equilibrium level of quality.

The ability to make wise decisions is critical to a successful business enterprise. In today’s complex world, business decisions are seldom simple or straightforward.

Components of a good decision-making process include [American Bureau of Shipping, 2000]:

i. Identification of a wide range of potential options.

In the cruise shipping industry, the companies may identify a wide range of potential options. Examples may include the options to buy new or second-hand ships, merge with another company, charter part or all of their fleet to another company et.

ii. Evaluation of each option's relative merits.

Having identified the different options, the companies may evaluate the relative merits of each option and carry out a comparison between those options, using a cost-benefit analysis.

iii. Determination of appropriate levels of input (i.e. risk).

As options are valuated, it may be critical to determine and analyse the appropriate levels of input (i.e. risk) introduced with each option. The analysis can address financial risks, health risks, safety risks, environmental risks and other types of business risks.

iv. Timely and fair decision-making methods.

The companies may use fair decision-making methods at the most appropriate time. An appropriate analysis method (i.e. cost, benefit and risk assessment) will provide information which may be critical to good decision-making, and may often clarify the decision to be made.

v. Effective communication and implementation of the decision which is made.

The results from the cost, benefit and risk assessment can be effectively communicated to a company, and once the decision has been made as to which of the options will be

implemented, responsibility for the option should be assigned to a responsible person. The required resources will need to be made available to the responsible person who should be given specific targets to achieve.

Risk assessment is typically applied as an aid to the decision-making process. As options are evaluated, it is critical to analyse the level of risk introduced with each option. The information generated through risk assessment can often be communicated to the organisation to help affected parties understand the factors which influence the decision. Risk assessment is not a new field. Formal risk assessment techniques have their origins in the insurance industry [American Bureau of Shipping, 2000]. Since the 1980's, more and more governmental agencies have required the industry to apply risk assessment techniques. For instance, the U.S. Environmental Protection Agency requires new facilities to describe "worst case" and "expected" environmental release scenarios as part of the permitting process [American Bureau of Shipping, 2000]. Also, other industries such as Maritime, Offshore Oil and Gas Sectors, and many researchers have applied risk assessment techniques in their fields [Arnold K., 1997; Henley E. J., 1992; Sohal B., 1999; Wang J., 1999; Wang J., 1994].

6.2 The Generic Cruise Ship Cost Categories

A cost is the value of the economic resources used as a result of producing or doing something [Harper W. M., 1995]. Cost, therefore, can be mathematically stated as:

$$\text{Cost} = \text{Usage} \times \text{Price}$$

This means that costing involves ascertaining both a usage figure and a price figure. Costs can relate to things other than cost units. They can refer to individual parts of the organisation. Any part of an organisation to which costs can be charged is called here a cost category.

The relevant studies carried out on containerships [Wang J., Foinikis P., 2001] and on formal safety assessment of cruise ships [Lois P., Wang J., Wall A. D., Ruxton T., 2004] offer a useful guide to developing a generic cruise ship cost category model.

The generic cruise passenger ship, described in the previous chapter, consists of all technical, engineering, operational and environmental networks that interact during the transportation of passengers. This model has been broken into two basic levels of the cruise ship operations, which are shown in Figure 5.4 and further described in Tables 5.3 and 5.4 in Chapter 5.

One way to identify the cost elements charged to different cost categories aboard the cruise ship is to combine the two generic functions mentioned previously in the different phases of cruise operations. Figure 6.1 shows the five phases of operation of a cruise ship that will be assessed.

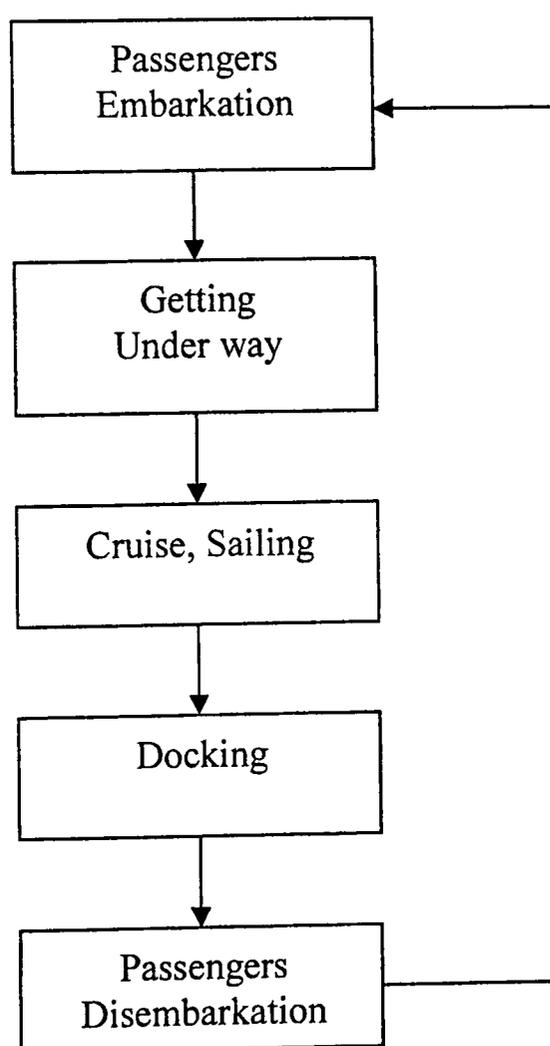


Figure 6.1: Operation schedule

It is also important to classify the ship and hotel generic functions described in Section 5.4.2.1 into different cost categories, and describe the services or facilities offered to the passengers and crew during the five operation phases.

The total costs of the ship's cruise are derived from all the departments which are involved in the cruise operation phase. Some costs incurred during the cruise may belong to an individual cost category, and, in some cases, there are costs that belong to more than one cost category. To combine the costs of the different departments, the cost for a hypothetical cruise ship may be classified as shown in Table 6.1.

Cost categories	Cost elements
Ship related costs	Port costs
	Bunkers
	Insurance
	Repairs and maintenance
	Stores – deck and engine
Crew related costs	Crew wages, overtime, vacation, sickness
	Social security
	Insurance
	Training
Passenger related costs	Food and hotel
	Entertainment
	Security
	Insurance
Administration and general costs	Communication
	Medical
	General

Table 6.1: Classification of costs

6.3 Analysis of Costs and Benefits

Taking into consideration the cruise operation phases and the classification of cost categories, it is essential to identify the cost elements of the different cost categories, carry out an analysis of them, and study the benefits associated with each cost element. It would be important to propose an approach in order to synthesise the above factors for better decision-making. Probably a classical example is the development of cost-benefit analysis. This model can be applied in the cruise market as a tool to synthesise the competition factors quantitatively and qualitatively [Lois P., Wang J., Wall A. D., Ruxton T., 2001]. Cost-Benefit Analysis (CBA) is an economic evaluation tool used to

compare the total costs against the total benefits of different activities. Within the context of policy development, CBA attempts to quantify the total costs and total benefits of a given policy option in order to determine whether the policy is worth pursuing.

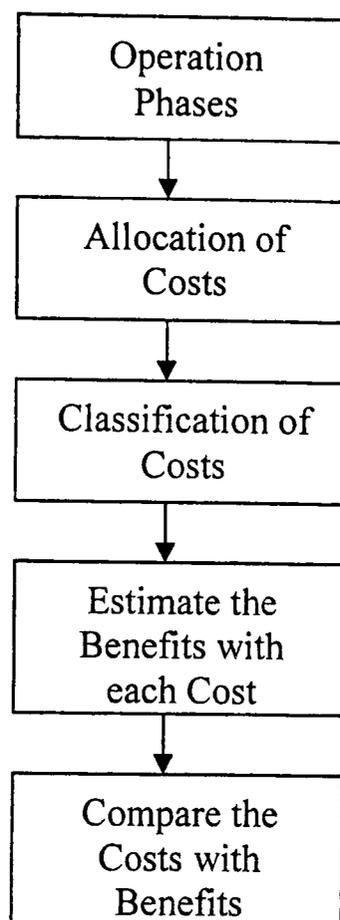


Figure 6.2: Cost and benefit model

The steps of the proposed cost and benefit model are shown in Figure 6.2 and are described as follows:

6.3.1 Operation Phases

This step will identify and assess the different phases of the cruise ship operations. The assessment can either be conducted for all the operation phases or on particular phases individually. For example, the assessment will be carried out only during the sailing phase of the ship's operation.

6.3.2 Allocation of Costs

The next step is to allocate the cost elements to:

- a. Different operation phases.
- b. Different cost categories.

Allocation means allotting to a cost category those overheads that result solely from the existence of that cost category [Harper W. M., 1995]. The information with regard to different cost categories and the services or facilities provided by each department on-board a cruise ship can be based on expert judgement deriving from the experience in the cruise market if other alternative methods do not produce satisfactory results.

6.3.3 Classification of Costs

The elements assigned on each cost category will then be classified into the following categories:

- a. Capital Costs.
- b. Running Costs.
- c. Voyage Costs.

These three categories of costs will also be sub-divided into Fixed and Variable. Fixed Costs remain constant at all levels of operation, while Variable Costs vary with operation levels.

The subject of costs is an important element of the economic analysis. Despite some differences in definition, costs are seen as expenditure by the producers to generate goods or services. In general, there are numerous criteria of cost classification. The most important is the division of costs into “Fixed” and “Variable” costs. Fixed costs, which are sometimes called fixed overheads or indirect costs, are the costs, which do not

increase or decrease when a different number of units is produced. Variable costs increase when more units are produced and decrease when fewer units are produced [BPP Publishing, 1997].

a. Capital Costs

Capital costs are the actual costs of the ship. They are a sunk cost in the short term and, at least, they must be regarded as a fixed cost. The annual capital cost may be considered to include depreciation and interest on capital. It may be modified by including the effects of loans, interest, tax and capital allowances (i.e. depreciation for tax purposes). A capital cost may be turned into a variable cost by means of a short term “lease” or “bareboat charter” [Evans J. J., Marlow P. B., 1997].

For the purposes of voyage estimating, annual capital cost may be considered as equivalent to “depreciation”. This is commonly calculated by the “straight line” method where annual depreciation is simply the capital cost of the ship divided by the projected economic life. For example, if the cost of capital of a cruise ship is £3 million and the projected economic life is 20 years, then the “Depreciation” is as follows:

$$\text{Depreciation} = \frac{\text{£3million}}{20\text{years}} = \text{£150,000 per year}$$

Depreciation does not include return on capital or profit, so that Net Profit = Gross Profit (i.e. Revenue – Operating Costs) – Depreciation. Depreciation is a non-cash flow item and is, therefore, not included in the calculation of present values. This is because it does not reflect additional cash spent, and so is not a relevant cost. Depreciation is only deducted from Gross Profit in order to arrive at Net Profit. The non-inclusion of depreciation in the calculation of present values is clearly demonstrated in Section 7.3.2 in Chapter 7.

b. Running Costs

These comprise certain costs that are incurred, provided that the vessel is in service. Essentially, they do not vary with the specific voyage and are time-related. Although these costs are in some sense fixed, they are predominantly variable with output [Evans J. J., Marlow P. B., 1997]. For example, the running costs in port are related to the time taken in loading and discharging (output), while at sea they are related to the number of miles steamed (output). Running costs, in broad terms, are considered to comprise the following [Chrzanowski I., 1999]:

- (a) Crew's salaries and leave allowances.
- (b) Training and travelling expenses.
- (c) Insurance (hull and machinery): This covers total loss as well as damage to hull from collision and it also covers certain third party claims.
- (d) Maintenance of hull and equipment including painting and cleaning.
- (e) The supply of consumable stores, paints and cleaning materials for deck, cabin, galley and engine room.
- (f) Food and beverage for crew.
- (g) Administration expenses.
- (h) Protection and Indemnity (i.e. P & I Clubs).
- (i) Surveys and dry-docking expenses.

The running costs are calculated on an annual basis and then divided by the number of days to establish cost per day for each ship. This can be used to make comparisons between the cruise ships and also with previous years.

c. Voyage Costs

These are costs connected with running the ship under normal operating conditions [Chrzanowski I., 1999], and include the following:

- (a) Fuel costs: in transit and in port in tons per day and per hour.

- (b) Port dues and charges: pilotage, port authority dues, etc.
- (c) Agency expenses: all costs connected with the services rendered to the ship by the ship's agents.

The costs normally borne by the shipowner under different types of charter party are shown in Figure 6.3. Other costs are normally borne by the charterer.

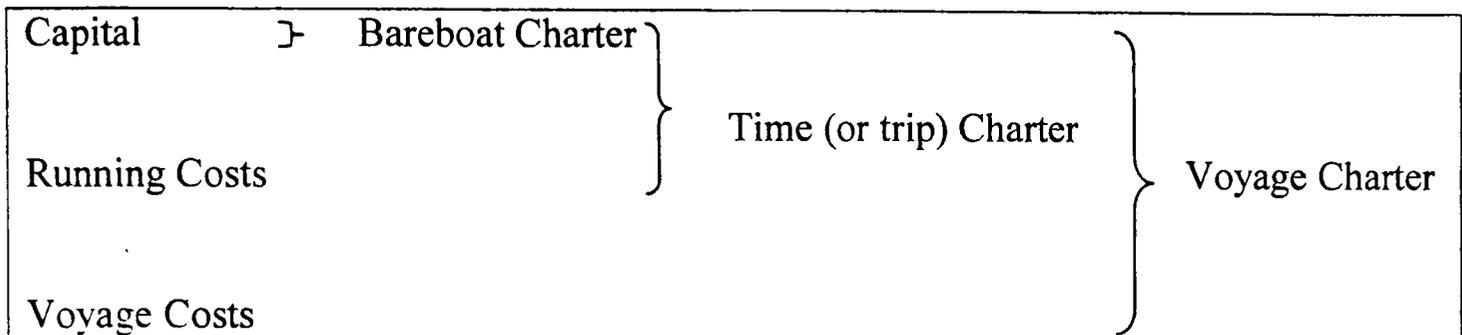


Figure 6.3: Costs to the operator associated with a ship

Source: Chrzanowski I., (1999)

6.3.4 Estimate of Benefits with each Cost Element

This step will examine the possible benefits (from taking cost reduction and control measures) that can be estimated with each element of costs. In particular, the cost elements arising from each cost category involved in the examined phase of operation, i.e. cruising, will be identified and then, the possible benefits will be estimated for each cost element. The estimate of the possible benefits will be obtained based on Table 6.2.

6.3.5 Comparison of Costs with Benefits

The final step is to compare the sum of the costs with the sum of the benefits. This comparison will enable the analyst to carry out an investigation of the possible areas of cost reduction and control.

6.4 Risk Assessment and Management

Risk analysis is a decision-making tool. It is the cornerstone for decision-making under uncertainty [Yoe C., 2001]. The model of risk analysis comprises risk assessment and risk management.

Cost categories	Cost elements	Benefits
Ship-related costs	a. Port costs	1. Reduced pilotage, tug and berthing fees.
		2. Fewer unnecessary costs.
		3. More efficient ship documentation.
		4. More efficient passenger documentation and handling.
		5. More efficient use of money.
	b. Bunkers	1. More efficient bunkering policy.
		2. More efficient routing and speed.
		3. More efficient itinerary planning.
		4. More efficient machinery.
	c. Insurance	1. Fines for stowaways and breaches of immigration laws, drug related offences and personal injury claims are covered by the insurance company.
	d. Repairs and maintenance	1. Effective use of capital and operational funds through tight budgetary control.
		2. Greater availability of machinery and equipment.
		3. Less expensive emergency repairs.
		4. Effective use of labour, time and maintenance equipment.
		5. Higher staff morale.
		6. Increased forecasting ability and highlighting of weaknesses.
e. Stores	1. Cruise company may make significant cost savings in the purchase of stores for ship and passenger use through bulk purchasing contracts, by tightening inventory control and the use of computerised systems.	
Crew-related costs	a. Crew wages, vacation, sickness and overtime	1. Reduction in crew costs through choice of flag and nationality of crew.
		2. Reduction in number of crew by installing automated machines, which may lead to improved productivity.
	b. Social security	1. Employ crew who are subject to less overheads in the form of social security payments or leave benefits.
	c. Insurance	1. Increased level of comfort and satisfaction of crew.
	d. Training	1. Avoid training through the employment of crew with technical knowledge and experience.
Passenger-related costs	a. Food and hotel	1. Increased sales revenue.
		2. Improved quality service.
	b. Entertainment	1. Provision of quality products.
		2. Increased level of satisfaction of passengers.
	c. Security	1. Increased passenger safety.
d. Insurance	1. Increased level of comfort and satisfaction of passengers.	
Administration and general costs	a. Communication	1. Effective communication.
	b. Medical	1. Effective handling of injured and sick passengers.
	c. General	1. Provision of quality products.

Table 6.2: Cost and benefit estimates

Risk assessment is the process of gathering data and synthesising information to develop an understanding of the risk of a particular enterprise [American Bureau of Shipping, 2000]. To gain an understanding of the risk of an operation, the following three questions must be answered [Farqharon J., 2003]:

- a. What can go wrong?
- b. How likely is it?
- c. What are the impacts?

Qualitative answers to one or more of these three questions are often sufficient for making good decisions. However, as managers seek more detailed cost/benefit information upon which to base their decisions, Quantitative Risk Assessment (QRA) methods may be used [American Bureau of Shipping, 2000; Kuo C., 1998]. QRA is the use of numerical estimates of hazards so as to make a calculated evaluation of the risks [Parker C. J., 1999]. Figure 6.4 illustrates the elements of risk assessment.

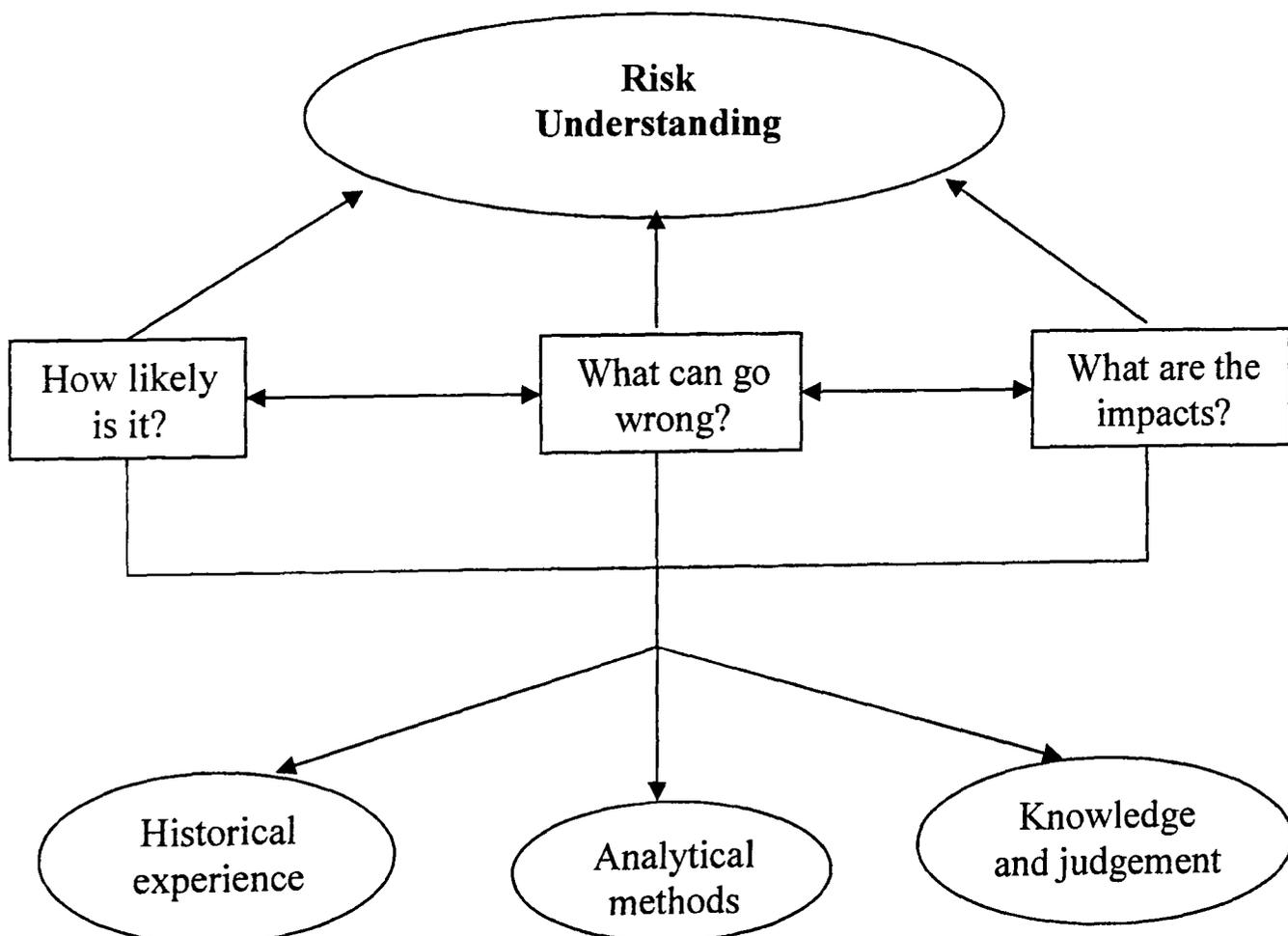


Figure 6.4: Elements of risk assessment
Source: American Bureau of Shipping (2000)

Risk management is defined as a systematic approach of studying policies, procedures and practices to the tasks of identifying possible hazards as well as analysing, evaluating, treating, and monitoring the associated risks. This can be applied to any stage in the life of a policy, programme, project, activity or asset. It can also be applied at all levels of the organisation [State Records New South Wales, 2000]. Risk management does not mean that risks can be prevented or avoided completely. Rather it enables the organisation to reduce the impact of the risks to an acceptable level and to make contingency arrangements. The level of risk relates to the likelihood of something happening (i.e. frequency or probability) and the potential consequences (i.e. magnitude of possible effects).

The level of risk is influenced by any controls, or measures to minimise the likelihood of the occurrence of each significant hazard and/or its consequences. The main economic reason for introducing risk management is the savings in costs by reducing risks [Toft B., 1999]. There are six steps to assessing and managing risks, and an effective risk management requires all six of them [Microsoft Project Plan, 2002; Plan B Systems Incorporation, 2001]. These are:

1. Establish the context.
2. Identify hazards.
3. Analyse the risks associated with the hazards.
4. Evaluate and prioritise the risks.
5. Treat the risks.
6. Monitor and review.

The level of information needed to make a decision varies widely. In some cases, after identifying the hazards, qualitative methods of assessing frequencies and consequences are satisfactory to enable risk evaluation. In other cases, a more detailed quantitative analysis is required [American Bureau of Shipping, 2000].

The generic process shown in Figure 6.5 can be applied at any stage in the life of a cruise ship.

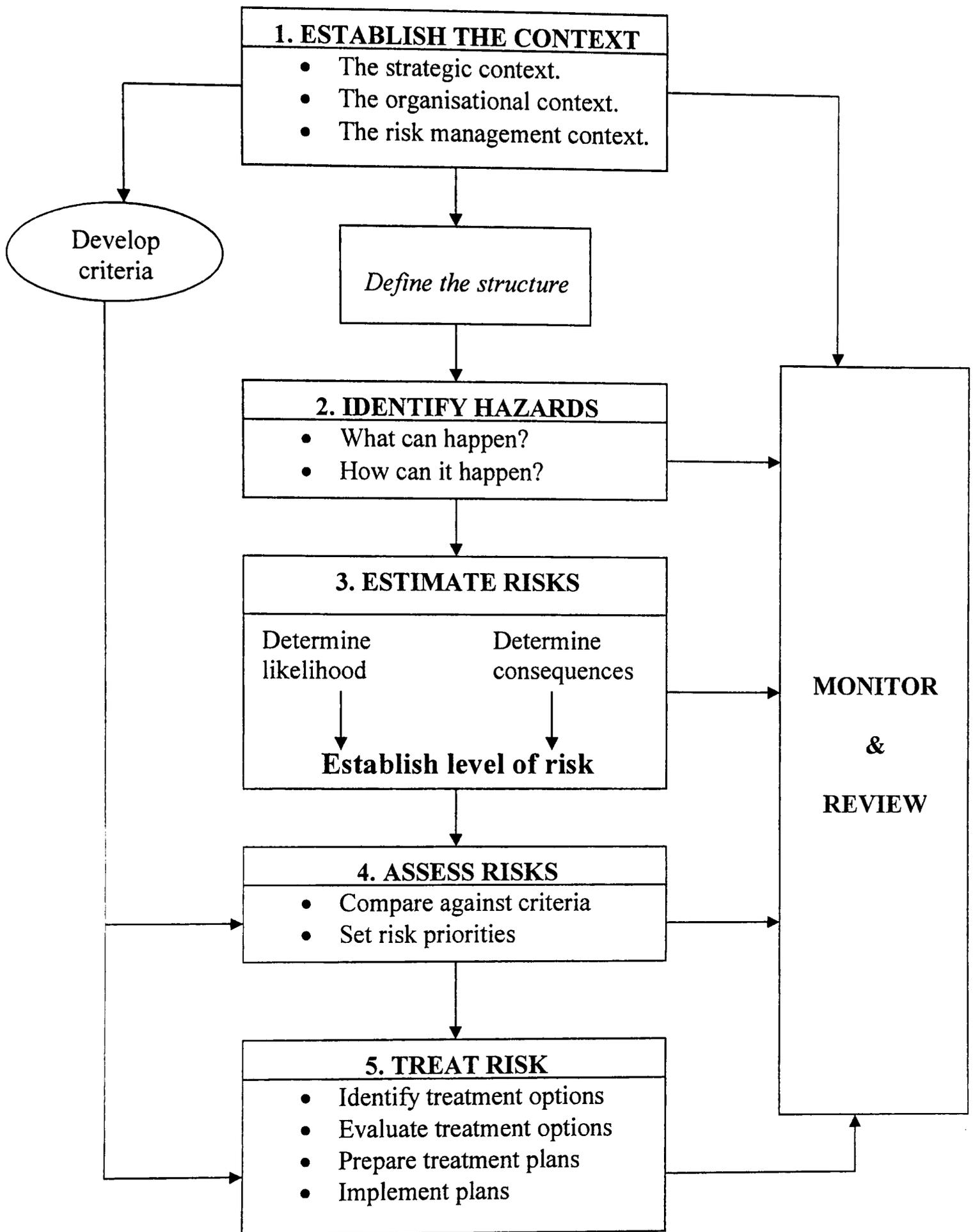


Figure 6.5: Structure of risk assessment and management
 Source: American Bureau of Shipping (2000)

6.4.1 Establish the Context

This step should:

- a. Identify relevant stakeholders, including passengers and resource providers.
- b. Define the scope and depth of the risk management process. It is necessary to consider whether the risk management process is to cover the company's wide issues, or be limited to a specific function.
- c. Establish risk criteria. The risk criteria are used to decide whether risks are acceptable in Step 4 in Figure 6.5.

6.4.2 Identify Hazards

This step requires identification of hazards, which arise not only from the external environment but also from internal sources. Unidentified hazards can pose a major threat to the cruise company. It is therefore important to ensure that the full range of hazards is identified. Key strategies for effective hazard identification are as follows:

- a. Examine all sources of hazards from the perspective of all stakeholders, both external and internal. By identifying each source, the company can consider the contribution each makes to the likelihood and the consequences of the hazard.
- b. Access good quality information to identify hazards and understand the likelihood and consequences. The information should be as relevant, comprehensive, accurate and timely as resources will permit. Existing information resources should be accessed and, where necessary, new information developed.
- c. Ensure that managers, staff and passengers identifying the hazards are knowledgeable with regard to the company's operation policy.

The most possible methods that can be used in order to identify hazards include:

- i. Interview [Plan B Systems Incorporation, 2001].
- ii. Survey and questionnaire [Plan B Systems Incorporation, 2001].
- ii. Brainstorming [Kuo C., 1998; Microsoft Project Plan, 2002].
- iii. Working experience [Parker C. J., 1999].
- iv. Expert knowledge [Microsoft Project Plan, 2002; Parker C. J., 1999].
- v. History, failure analysis [Kuo C., 1998].
- vi. Incident, accident and injury investigation [American Bureau of Shipping, 2000].
- vii. Decision Trees [American Bureau of Shipping, 2000].
- viii. SWOT (Strengths, weaknesses, opportunities, threats) analysis.
- ix. HAZOP analysis [Kuo C., 1998].

In addition, the possible sources of hazards may be the following:

- i. New activities and services.
- ii. Economic activities.
- iii. Socio-political activities.
- iv. Personnel/human behaviour.
- v. Misinformation.
- vi. Technological activities.
- vii. Operation (the activity itself).
- viii. Health and safety.
- ix. Natural events.
- x. Security (including theft, fraud and terrorism).

A risk assessment should concentrate on all significant possible areas of impact relevant to the ship or activity. These may include:

- a. Assets and resources, including human, physical, financial, technical and information.
- b. Cost, both direct and indirect.
- c. Passengers.
- d. Government/port authorities.

- e. Environment.
- f. Timeliness of activities, including start-time, downstream or follow-up impacts.

6.4.3 Analyse the Risks Associated with the Hazards

In this step, the level of risk is established by analysing the likelihood (i.e. frequency or probability) and consequences (i.e. magnitude of the possible effects). Likelihood and consequences should be viewed not only within the context of current controls, which may detect hazards or prevent undesirable risks but also in the absence of such controls. This will serve either to demonstrate the importance of existing controls and thus justify their continuation, or to identify those controls which are no longer necessary or cost-effective.

A preliminary screening of the identified hazards can be done to exclude the extremely low risks from the review. There are three methods used to determine the level of risk: qualitative, semi-quantitative and quantitative [American Bureau of Shipping, 2000]. In this chapter, due to the high level of uncertainty, a qualitative method is used where scales are employed to assess the consequence and likelihood of events occurring.

Likelihood	F	Description
Almost Certain	1	The event is expected to occur in most circumstances
Likely	2	The event may occur monthly
Moderate	3	The event may occur every season
Unlikely	4	The event may occur every five years
Rare	5	The event may occur only in exceptional circumstances

Table 6.3: Likelihood (i.e. frequency)

Table 6.3 shows the five parameters that should be considered when determining the likelihood of an event occurring. In determining the consequences of a particular hazard, both the number of people involved and the possible cost to the ship need to be considered (both in terms of financial liability and damage to reputation). The scales used for this purpose are clearly shown and described in Table 6.4.

Consequences	S	Description
Extreme	1	Loss of lives, loss of vessel, extreme environmental impact, huge financial loss.
Very High	2	Extensive injuries, serious vessel damage, major financial loss, major environmental damage, missed voyages.
Medium	3	Medical treatment required, medium vessel damage, some environmental damage, high financial loss.
Low	4	First aid required, cosmetic vessel damage, no environmental damage, medium financial loss.
Negligible	5	No injuries, low financial loss.

Table 6.4: Consequences

6.4.4 Evaluate and Prioritise the Risks

Acceptance of risk is basically a problem of decision-making and is inevitably influenced by many factors such as type of activity, level of loss, economic, political and social factors, confidence in risk estimation, etc. The HSE (Health and Safety Executive) framework for decisions on the tolerability of risk is shown in Figure 6.6 where there are three regions: intolerable, ALARP (As Low As Reasonably Practicable) and broadly acceptable.

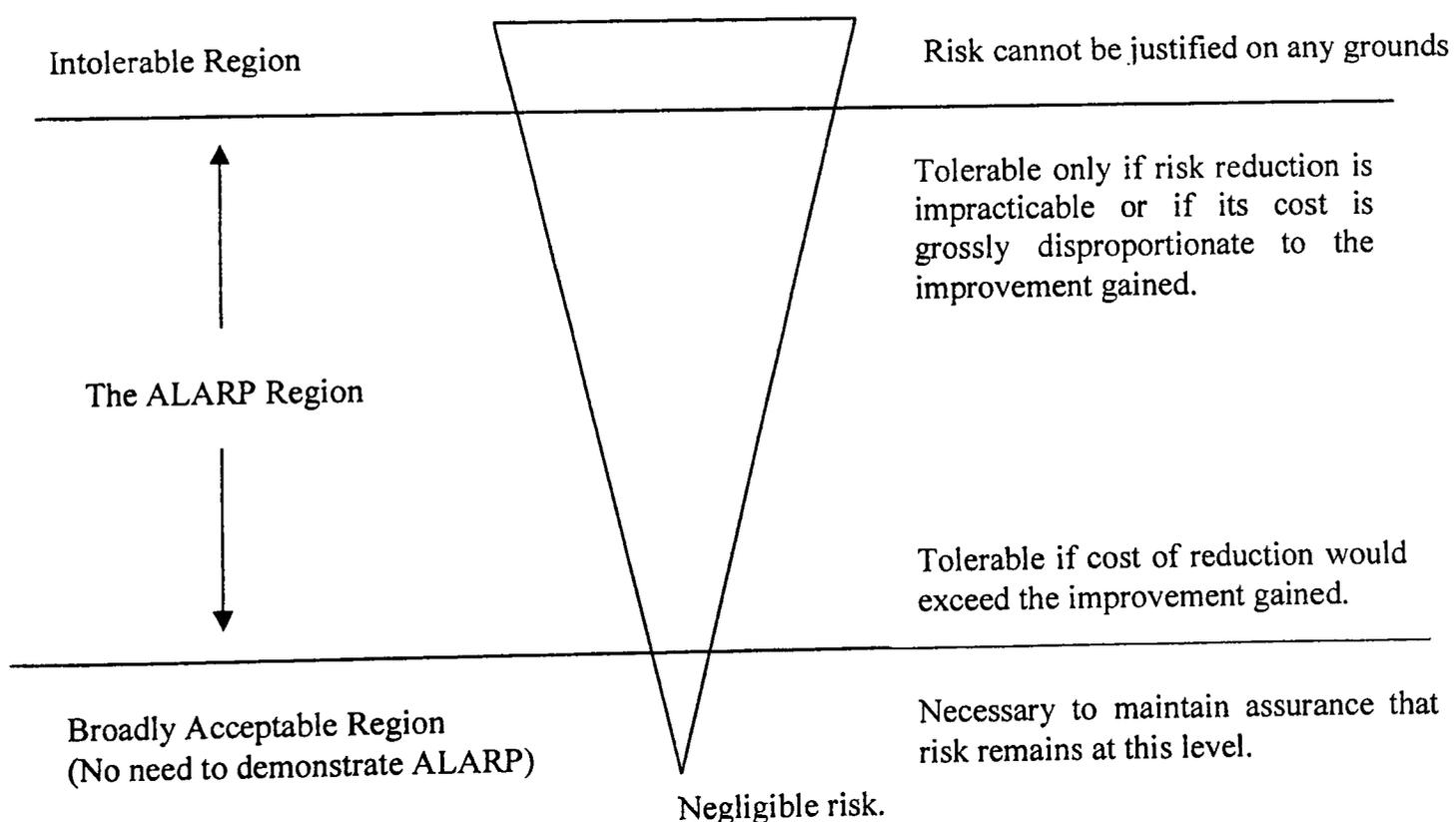


Figure 6.6: The HSE framework for decisions on the tolerability of risk

Source: Kuo C., (1998), Wang J., (2002)

Tolerability criteria are based on the principle that above a certain level, a risk is regarded as intolerable and cannot be justified in any ordinary circumstance. Below a certain level, the risk is considered as “broadly acceptable”, but it is necessary to maintain assurance that risk remains below this level. Between these two levels is the so called “tolerable region” within which an activity is allowed to take place provided that the associated risks have been made ALARP.

Having considered the likelihood and consequences of individual hazards, the importance of risks can be determined using Table 6.5.

Likelihood	Consequences				
	<i>Extreme</i>	<i>High</i>	<i>Medium</i>	<i>Low</i>	<i>Negligible</i>
<i>Almost certain</i>	Severe	Severe	High	Major	Trivial
<i>Likely</i>	Severe	High	Major	Significant	Trivial
<i>Moderate</i>	High	Major	Significant	Moderate	Trivial
<i>Unlikely</i>	Major	Significant	Moderate	Low	Trivial
<i>Rare</i>	Significant	Moderate	Low	Trivial	Trivial

Table 6.5: Risk matrix (to determine risk level)

The following guide can be used to describe the level of risk:

Severe: Must be managed by senior management with a detailed plan.

High: Requires detailed research and management planning at a senior level.

Major: Requires senior management attention.

Significant: Requires specific allocation of management responsibility.

Moderate: Must be managed by specific monitoring or response procedures.

Low: Must be managed by routine procedures.

Trivial: Unlikely to need specific application of resources, or can be managed through cheap and immediate solution.

It would also be useful to link up the risk matrix shown in Table 6.5 with the HSE risk criteria. This link can be shown in Table 6.6. The three risk regions shown in Table 6.6 can be briefly described as follows:

I = Intolerable, T = Tolerable, N = Negligible

Likelihood	Consequences				
	<i>Extreme</i>	<i>High</i>	<i>Medium</i>	<i>Low</i>	<i>Negligible</i>
<i>Almost certain</i>	I	I	I	T	N
<i>Likely</i>	I	I	T	T	N
<i>Moderate</i>	I	T	T	T	N
<i>Unlikely</i>	T	T	T	N	N
<i>Rare</i>	T	T	N	N	N

Table 6.6: HSE risk criteria

6.4.5 Treat the Risks

A combination of options may be appropriate in treating risks. Such options include [Queensland University of Technology, 2001]:

- a. Avoiding the risk.
- b. Reducing the level of risk.
- c. Transferring the risk.
- d. Ignoring the risk.

Avoiding the risk involves the decision not to proceed with the policy, project, function or activity that would incur the risk, or to choose an alternative means of action that achieves the same outcome without such risk.

Reducing the level of risk involves the reduction of the likelihood or consequences of hazardous events, or both. The likelihood of possible hazardous events may be reduced

through management controls, organisational arrangements or influence over external environment.

Transferring the risk involves shifting responsibility for a risk to another party. Risks may be transferred by contract, legislation, administrative processes and insurance. Risks may be transferred in full or they may be shared with another party. As a general principle, risks should be allocated to a party, which can exercise the most effective control over them.

Ignoring the risk involves the ignorance of events where they are assessed to have minimal consequences and little likelihood of occurring.

Risk treatment options should be evaluated on the basis of the extent of risk reduction, and the extent of benefits or opportunities created. A number of options may be considered and applied either individually or in combination. Selection of the most appropriate option involves balancing the cost of implementing each option against the benefits derived from it. The cost of treating risks needs to be commensurate with the benefits obtained. The cost-benefit analysis should determine the total cost impact of the hazardous events, and the cost of options for managing those risks. Other factors, such as political or social costs and benefits, should also be taken into account.

Level of risk	<i>Ignorance</i>	<i>Transfer</i>	<i>Reduction</i>	<i>Avoid</i>
<i>Severe</i>	1	1	2	3
<i>High</i>	1	2	3	3
<i>Major</i>	1	2	3	3
<i>Significant</i>	1	2	3	3
<i>Moderate</i>	1	3	3	3
<i>Low</i>	2	3	3	3
<i>Trivial</i>	3	3	2	1

Table 6.7: Treatment plans

The main purpose of this step is to determine the appropriate control strategy for the hazardous events that have been identified. Table 6.7 shows how the different levels of risk can be controlled. The numerical notations in Table 6.7 can be found in Table 6.8.

In Table 6.8, rating 1 represents “not possible”, which means that the risk cannot be controlled by the particular action or treatment plan. Rating 2 represents “possible” meaning that the risk may possibly be controlled in some circumstances, and rating 3 represents “probable”, which means that the risk can be controlled by the particular actions or treatment plans.

Assign a rating of:	If the action to be taken is:
1	Not possible
2	Possible
3	Probable

Table 6.8: Action assignment

6.4.6 Monitor and Review

Monitoring and review are essential for managing risk. Cruise companies should continually monitor risks and the effectiveness of the plan, strategies and management systems that have been established to control implementation of the risk treatments. Risk needs to be monitored and reviewed periodically to ensure that changing circumstances do not alter risk priorities. Few risks remain static. Functions and processes change, as can the political, social and legal environment and goals of a company. Accordingly, cruise companies should re-examine the risk context to ensure that the way in which risks are managed remains valid.

6.5 A Proposed Cost-Benefit Risk Assessment Methodology and a Case Study

Having analysed the cost, benefit, and risk assessment models, a cost-benefit risk assessment will be carried out. The proposed methodology may be an important tool for cruise companies in studying their ships’ costs, estimating the benefits associated with each cost element, investigating the possible areas of cost reduction and control, and assessing the ways in which hazardous events may influence costs. The procedures involved in the process are described in Chapter 1 in section 1.9.

A test case is conducted in order to demonstrate its feasibility and is limited to one phase of operation only, namely ‘cruising’. This is because a full-scale trial application would be too large in volume.

The test case is based on a hypothetical cruise company, namely “Byzantium Cruise Lines”. The company has acquired a passenger cruise vessel from “Ex Builders”. The ship will be used to perform seven-day cruises in the Eastern Mediterranean. Its main technical characteristics are as follows:

Overall Length: 175 m
Gross Tonnage: 17,000 tons
Net Tonnage: 12,000 tons
Cabin Capacity: 462
Berth Capacity: 1,200

6.5.1 Step 1: Define the Plan/Process

The first step will break down the process into certain elements by drawing a list of associated activities/systems (Section 5.4.2.1) during the phase of cruising, and also the cost categories that can exist. Table 6.1 shows the cost categories that exist on a generic cruise ship and all the possible associated cost elements during a cruise operation.

6.5.2 Step 2: Study the Costs and Benefits

The purpose of the second step is to study the cost and benefit associated with each element identified in Step 1. The total costs of the ship’s cruising include capital, running and voyage costs as shown in Figure 6.3. The costs of cruising can then be divided into four cost categories. These are:

- a. Ship-related costs.
- b. Crew-related costs.
- c. Passenger-related costs.

d. Administration and general costs.

Table 6.2 shows an analysis of the costs incurred under each category, and also the possible benefits associated with each cost element.

6.5.3 Step 3: Model Cost Elements

The third step is to model cost elements, and to investigate the possible areas of cost reduction and control.

Table 6.9 identifies the cost elements of a cruise ship and also attempts to forecast their annual rise over the five-year period 2003-2007 in percentage terms. The table is subjective, depending upon an assessment of recent movements of the individual cost elements involved. In the third column, an estimate of the possible average annual control (i.e. controllability factor), which might be exercised over the cost element, is given. For example, Table 6.9 shows that the cruise company can expect to control 10% of port costs. Control can take a year or more to implement and may not be realised in direct savings. The last column of the table identifies some of the possible areas where control might be exercised. The forecasts were obtained from the financial statements and cash budgets of the Cyprus cruise companies. The controllability factors were obtained by calculating the fluctuations in cost elements and by comparing the financial results from year to year.

Cost elements	Forecast annual rise (%)	Controllability factor-% (Possible Average Annual Control)	Areas of possible control
<i>Ship-related costs</i>			
a. Port costs	10	2-10	Adjusting cruise itinerary, agency costs, lobbying authorities for reduction of taxes.
b. Bunkers	5	5-10	Improving machinery efficiency, adjusting grade of oil, adjusting cruise itinerary.
c. Insurance	10-30	5-10	Accident/casualty avoidance, extent of cover.
d. Repairs & maintenance	5-15	5-10	Improved crew productivity, budgeting and inventory control of spares.
e. Stores	5	5-10	Inventory control, computerisation, re-use of lube oil.
<i>Crew-related costs</i>			
a. Crew wages, overtime, vacation and sickness	5-15	2-10	Selection of crew with low pay, reduction in crew with more efficient use, renegotiated contracts.
b. Social security	5	2-7	Extension of offshore terms of employment
c. Insurance	5-15	5-10	Effective work, safety and healthy organisation.
d. Training	7-10	5-10	Use of on-board training systems and use of staff with experience.
<i>Passenger-related costs</i>			
a. Food and hotel	3	3-8	The standard of service provided on-board.
b. Entertainment	5	4-10	The cruise product offered.
c. Security	10-25	5-15	Involvement of all company personnel, efficient use of surveillance equipment.
d. Insurance	5-15	5-10	Passenger comfort and satisfaction.
<i>Administration and general costs</i>			
a. Communication	5-20	5-10	Efficient use of communication systems, data exchange by electronic equipments.
b. Medical	5-10	5-10	Increasing prices charged to passengers, more effective use of medical equipment.
c. General	10-20	5-15	Documentation control, budget monitoring, project planning scheduling, reassessment of company's goals.

Table 6.9: Control areas with controllability factor

6.5.4 Step 4: Ranking the Cost Elements

The purpose of this step is to rank the elements into the hierarchy that reflects the impact of their potential success on the whole process. Table 6.9 can be used to rank the cost elements starting with those having the highest controllability factor. Then, a measurement weighting system can be used to assign relative values to the cost elements being considered. Before the weighting values can be used, it would be necessary to estimate the average controllability factor. It is assumed that the largest average controllability factor is 10%. This is shown in Table 6.10.

Cost elements	Controllability factor (%)	Average (%)
<i>Ship related costs</i>		
Port costs	2-10	6
Bunkers	5-10	7.5
Insurance	5-10	7.5
Repairs & maintenance	5-10	7.5
Stores	5-10	7.5
<i>Crew related costs</i>		
Wages, vacation, sickness and overtime	2-10	6
Social security	2-7	4.5
Insurance	5-10	7.5
Training	5-10	7.5
<i>Passenger related costs</i>		
Food and hotel	3-8	5.5
Entertainment	4-10	7
Security	5-15	10
Insurance	5-10	7.5
<i>Administration & general costs</i>		
Communications	5-10	7.5
Medical	5-10	7.5
General	5-15	10

Table 6.10: Average controllability factor (%)

The following are the weighting values to the cost elements being considered, based upon their importance to the cost control policy of the cruise company:

1	2	3	4	5
Least important				Most important

The weighting system is used in order to help cruise companies, especially in the Cyprus cruise region, to make costing performance reviews more meaningful. This system can also be used by cruise companies with different controllability factors.

The above results can then be used to find the weights to each cost element.

<u>Class intervals (%) - Average controllability</u>	<u>Weighting system</u>
0-2	1
2.1-4	2
4.1-6	3
6.1-8	4
8.1-10	5

Using the above weighting system, the cost elements will correspond to the weights shown in Table 6.11. Multiple expert judgements can also be incorporated into the above analysis.

Cost element	Average controllability (%)	Weights
<i>Ship related costs</i>		
Port costs	6	3
Bunkers	7.5	4
Insurance	7.5	4
Repairs & maintenance	7.5	4
Stores	7.5	4
<i>Crew related costs</i>		
Wages, vacation, sickness and overtime	6	3
Social security	4.5	3
Insurance	7.5	4
Training	7.5	4
<i>Passenger related costs</i>		
Food and hotel	5.5	3
Entertainment	7	4
Security	10	5
Insurance	7.5	4
<i>Administration & general costs</i>		
Communications	7.5	4
Medical	7.5	4
General	10	5

Table 6.11: Weighting factors

It is obvious that all costs involved in the operation of the cruise ship are important. Table 6.11 shows that, according to the case examined, the most important cost elements are “Security” of passengers from passenger-related costs and “General” from administration and general costs. There is a growing cost element in ensuring passenger security against unlawful acts and terrorism. Some of this cost falls directly upon the shipowner in taking security measures on his ship, some arises ashore and must be met through port dues and other means. International Maritime Organisation (IMO) has produced a resolution recommending that ship companies, port authorities, cruise operators, governments and crew should take measures in order to prevent unauthorised acts against passengers, and this is being put into law around the world. “General” includes shore operating expenses for offices, subscriptions, seminars, media costs, advertising, brochures, public materials and other marketing material. “General” expenses are of great importance because they are spent for the smooth and efficient operation of the cruise company and its ship. Marketing costs depend on the structure of the market within which the cruise company is operating. Success in marketing is dependent upon weighting forecast returns against the cost of advertising and promotion. “Communication” costs are also important. The introduction of satellite communications has led to a revolution in the manner in which information may be transferred to and from cruise ships. These costs can be controlled by an efficient use of communication systems installed ashore and on-board cruise ships. Another area that needs attention is that of medical services. Cruise ships must necessarily provide medical services because passengers, crew and staff may suffer illness or injury during a cruise operation. Therefore, the cruise company will have to cope with medical costs since medical supplies and equipment must be provided aboard at all times. These medical costs can be controlled by the effective use of medical equipment and increasing prices charged to passengers for providing such services.

From Table 6.11, it can be seen that “Insurance” as a passenger-related cost is also important. This may be because there is an increasing concern in passenger safety because of unlawful acts and terrorism.

Ship-related costs are also of great importance. The “Stores” depend upon the size, type, area of operation and the company’s purchasing and accounting policies. The cruise company may make significant cost savings in the purchase of stores for its cruise ship through bulk purchasing contracts, by tightening inventory control and the use of computerised systems. “Bunker costs” depend on various factors including the amount of time spent at sea, the speed adopted, the efficiency of the main machinery, and the grade and cost of fuel used. Reliability will be a great consideration in the choice of engine design, rather than economy and flexibility. The cost of “Repairs and maintenance” depends on the age of the cruise ship and machinery, and the repair and maintenance policy followed by the cruise company. The company can make sure that all the national and international rules and regulations are obeyed. The legislative obligations of maintaining a cruise ship to a certain standard of safety may lead to a minimum cost requirement. “Insurance” is also of paramount importance. It includes hull and machinery cover, P&I cover, passenger claims deductible, war risk, crime and loss of earnings cover. Insurance cover is largely provided on the basis of the ship owner’s past record. However, underwriters are seeking to limit their risk by ensuring the quality of the items they are insuring. Age and condition of the owners’ existing fleet are important to the hull and machinery underwriter for the purpose of determining a premium. In P&I insurance, emphasis is placed on the actual condition and operational standard of the cruise ship. Other areas that need to be considered include fines for stowaways, drug-related offences and personal injury claims.

Of the crew-related costs, “Training” and “Insurance” are the most important. Although officers are required to hold certificates to fill certain positions in the cruise ship, some companies require them to undergo additional training. Such training may include shipboard management, ship handling simulation, safety and survival courses. The costs of these courses can be high but the benefits to the company are considered to be worthwhile. Crew can also be required to undergo training courses. This would enable them to carry out their duties in an effective and efficient manner and also help passengers in serious accidents. Training of crew and officers is necessary because, in some instances, crew have not responded professionally to accidents and could not prevent loss of the ship and lives. “Insurance” is also necessary for a cruise company to

insure its crew and staff. Insurance costs can be high, but a healthy cruise company can reduce or control such costs by providing efficient and effective work safety training to its crew and staff.

6.5.5 Step 5: Estimate the Likelihood and Consequences of Possible Hazards

The purpose of this step is to establish a risk assessment by analysing the likelihood and consequences of possible hazards. The events that will be examined are chosen in the way described in Section 6.4.2, and include the following:

- a. Machinery defects.
- b. Poor maintenance.
- c. Poor operation.
- d. Poor housekeeping.
- e. Inadequate training.
- f. Delays in activities.
- g. Crew and passenger casualties.
- h. Material casualties.
- i. Environmental impact.

The examination of the frequencies and the consequences of the events occurring is carried out using the “Likelihood and Consequences Scales” as explained in Section 6.4.3 and Tables 6.3 and 6.4. Having considered the likelihood and consequences of individual hazardous events, the importance of risks to the cruise company can be determined. This is clearly shown in Table 6.12.

Having investigated the hazardous events, as shown in Table 6.13, the company can decide whether the associated risks are acceptable. This can be done by connecting the risk matrix in Table 6.12 with the HSE risk criteria (i.e. intolerable, tolerable, negligible) as shown in Table 6.6.

Events	Frequency (F)	Consequence (S)	Level of risk
Machinery defects	F2	S2	High
Poor maintenance	F3	S3	Significant
Poor operation	F1	S4	Major
Poor housekeeping	F1	S5	Trivial
Inadequate training	F4	S2	Significant
Delays in activities	F1	S5	Trivial
Crew & passenger casualties	F3	S4	Moderate
Material casualties	F3	S3	Significant
Environmental impact	F5	S1	Significant

Table 6.12: Risk matrix results

Table 6.13 shows that poor housekeeping and delays in activities are in the “Negligible” region. Poor maintenance, poor operation, inadequate training, crew and passenger casualties, material casualties, and environmental impact are included in the “Tolerable” region, while machinery defects are in the “Intolerable” region.

Events	Level of risk	Region
Machinery defects	High	Intolerable
Poor maintenance	Significant	Tolerable
Poor operation	Major	Tolerable
Poor housekeeping	Trivial	Negligible
Inadequate training	Significant	Tolerable
Delays in activities	Trivial	Negligible
Crew & passenger casualties	Moderate	Tolerable
Material casualties	Significant	Tolerable
Environmental impact	Significant	Tolerable

Table 6.13: Qualitative risk matrix

It is stated that risks, which fall within the ALARP region, will require a cost-benefit analysis. Even if risks fall within the ALARP region, they may still be acceptable if risk reduction measures are proven to be not cost-effective.

It is important, after the decision on the acceptability of risks and before the proposal of possible control measures, to determine the appropriate control strategy for the hazardous events that have been identified and shown in Table 6.13. For this purpose, it is necessary to combine Tables 6.7 and 6.8 with Table 6.13. The results of this

combination analysis show the most probable control strategies that may be followed for each hazardous event. These are shown in Table 6.14.

Events	Level of risk	Probable control strategy
Machinery defects	High	Reduction or Avoid
Poor maintenance	Significant	Reduction or Avoid
Poor operation	Major	Reduction or Avoid
Poor housekeeping	Trivial	Ignorance or Transfer
Inadequate training	Significant	Reduction or Avoid
Delays in activities	Trivial	Ignorance or Transfer
Crew & passenger casualties	Moderate	Transfer, Reduction or Avoid
Material casualties	Significant	Reduction or Avoid
Environmental impact	Significant	Reduction or Avoid

Table 6.14: Probable control strategies

6.5.6 Step 6: Propose Control Measures to Reduce the Risks Associated with Significant Hazards

Having considered the risk levels and the appropriate control strategy for the hazards shown in Table 6.13, it is important to propose control measures to reduce the risks associated with the intolerable hazards. An attempt will also be made to suggest control measures for the reduction of the hazards that fall within the tolerable region.

The methods and measures that will be considered are partly based on the analysis carried out in Section 6.5.3 and shown in Table 6.9, partly on expert judgement, and partly on the author's experience. The proposed methods and measures have been effectively used by a cruise company in Cyprus. They can also be used by any Cyprus cruise company, since cruise ships operating from Cyprus have similar features. The list of the proposed methods and measures is not exhaustive. The measures were proposed by considering the current status of the Cyprus and Mediterranean cruise market.

A. Machinery defects

This hazard is in the intolerable region (Table 6.13) and the methods suggested are outlined under the following three headings:

Management:

- a. Ensure that the machinery of the ship is subject to the rules of classification societies, who also widely act on behalf of “Flag States” in the survey and certification of equipment required under the relevant conventions.
- b. Ensure that all crew members involved take special training on the proper use of the machinery.
- c. Devise a policy on systematic repairs and maintenance of the machinery and make sure that it is communicated to all concerned.

Engineering:

- a. Adopt a computerised engineering system for preventive maintenance.
- b. Install a machinery monitoring system to provide data when the vessel is in service.

Operation:

- a. Implement a procedure for inspecting hull and machinery before departure and have alternative ways of verifying that this has been effectively done.

The following control measures refer to the hazardous events that fall in the tolerable region (Table 6.13):

B. Poor maintenance*Management:*

- a. Devise a policy on systematic maintenance of machinery and other equipment used for the operation.
- b. Ensure that all crew members concerned are familiar with the company’s policy and regulations.

Engineering:

- a. Install a system for measuring the performance of active machine equipment objectively.

- b. Perform analyses to identify potential areas of machinery failure and modify the design accordingly.

Operation:

- a. Implement audit procedures to ensure that maintenance is effectively done.
- b. Update maintenance-related documentation on a regular basis.

C. Poor operation

Management:

- a. Ensure that all staff and crew members are provided and are familiar with the ship's operation rules and regulations.
- b. Ensure segregation of duties (i.e. proper division of duties and responsibilities) to crew and staff members.
- c. Adjust cruise itinerary and destinations.
- d. Devise a policy for evaluating the employees' work.

Engineering:

- a. Install a computerised system to ensure proper and efficient use of operation equipment.
- b. Provide the crew with special training and use simulator systems for practising navigation in difficult situations.

Operation:

- a. Implement procedures for supervising the work of on-board personnel.
- b. Deal with passengers' comments and complaints arising from questionnaires.
- c. Carry out surveys of critical operation areas to identify possible failures.
- d. Try to improve the standard of service provided on-board.

D. Inadequate training

Management:

- a. Ensure that all crew members take special training in the operation of a cruise ship and its activities.
- b. Ensure that training is done regularly in an effective and efficient manner.
- c. Establish a set of procedures or standard methods to be used in training courses.

Engineering:

- a. Introduce new technology techniques in training crew members.
- b. Install fire fighting, safety and survival equipment to prevent serious accidents and damage.
- c. Install a continuous monitoring system to ensure efficiency and effectiveness in training methods and equipment.

Operation:

- a. Install language teaching equipment to assist in overcoming the language barrier between officers and crew of different nationalities.
- b. Implement a procedure for inspecting training equipment before use and keep spare parts in case of breakdown.
- c. Ensure that specified training requirements are followed so as to avoid inadequate training.

E. Crew and passenger casualties

Management:

- a. Devise a policy on safe loading and training of crew members and passengers.
- b. Install a public address system to use for reminding crew and passengers of the company's and ship's policies, especially in emergency situations.
- c. Employ a safety officer with the appropriate knowledge and experience to deal with safety and fire matters.
- d. Ensure that the ship operates in accordance with the international safety regulations.

Engineering:

- a. Install appropriate equipment for fire fighting.
- b. Maintain a medical centre in order to avoid undesired situations.
- c. Install security systems to avoid violence and bomb threats.

Operation:

- a. Perform inspections and train people in the ship's procedures and in the use of equipment.
- b. Implement a system to ensure that procedures are followed by crew and passengers during the cruise.
- c. Observe the machines on a regular basis to ensure that they work properly.

F. Material casualties

Management:

- a. Devise a policy on safe loading of materials and supplies and ensure that it is communicated to all concerned.
- b. Adopt a policy of limiting the quantity of items to be taken onto the gangways.
- c. Ensure that materials are kept safely aboard while the ship sails.

Engineering:

- a. Install a continuous monitoring system to provide data on loading levels and distribution.
- b. Install high technology equipment to prevent fire and flooding situations.

Operation:

- a. Ensure that all the procedures for loading materials are properly followed.
- b. Enforce no-smoking policy to prevent material casualties.
- c. Ensure that the safety officer, other vessels and local port authorities are promptly notified in cases of material casualties.

G. Environmental impact

Management:

- a. Set up an environmental policy, which will be in compliance with the international regulations on environmental issues.
- b. Establish on-board anti-pollution measures and make sure that crew and passengers are fully aware of them.

Engineering:

- a. Use cleaning materials on-board and inspect public areas on a regular basis.
- b. Maintain a system of providing health and sanitation facilities.

Operation:

- a. Ensure that the ship operates according to the international environmental regulations (ISM Code).
- b. Ensure that the anti-pollution measures are used in an effective and efficient manner.
- c. Implement a system to check any changes or additions made in the ISM Code on environmental issues.

6.6 Conclusion

This chapter has attempted a critical assessment of cost and risk levels as it applies to cruise passenger ships. Cost assessment has covered the possible elements in the cost categories of a generic cruise passenger vessel. A cost-benefit analysis is also carried out in order to study costs and the possible benefits. Risk assessment techniques are studied and the risk criteria to decide whether a risk is acceptable or not, are established. A test case study is used in order to demonstrate the feasibility of the proposed approach.

This chapter has also attempted to portray the current status of cost and risk assessment in the Cyprus and Mediterranean cruise shipping industry and to provide some information to guide those who would like to apply cost and risk assessment techniques.

According to the analysis carried out earlier in this chapter, the cruise companies operating in the Cyprus and Mediterranean cruise regions classify their costs into four categories. These are shown in Table 6.9. In the ship-related cost category, 'insurance' has the higher annual percentage increase followed by 'repairs and maintenance'. Insurance cost is very high for cruise ships operating in the Cyprus and Mediterranean regions because it is placed on the actual condition and operational standard of the fleet which is very old. Since the cruise ship fleet is old, the cruise companies are enforced to repair and maintain their ships more frequently, and so the cost element of repairs and maintenance increases from year to year. Of the crew-related costs, 'Insurance' and 'Training' are the most important. The training is necessary for companies in the examined cruise regions because most of the crew and staff are not skilled and they have communication problems. Although the training costs are high, the benefits obtained from training are considered to be worthwhile. Insurance costs are also high, but a cruise company can control those costs by providing efficient work safety training to its crew and staff. 'Security' is the most important cost element in the category of passenger-related costs. This is because the cruise companies invest large amounts in this field due to the phenomenon of terrorism and unlawful acts. Of the administration and general cost category, 'general' costs have the higher annual increase. The companies pay attention to this element, and ensure smooth and efficient operation of their ships.

The possible areas of controlling costs are shown in Table 6.9, and the possible events (i.e. hazards) that may give rise to cost elements are explained in section 6.5.5. This chapter has also attempted to propose control measures for the reduction of hazards, which may help cruise companies operating in the Cyprus and Mediterranean regions to reduce or control the cost elements described earlier. These measures are described in section 6.5.6.

The thoughtful application of cost and risk assessment techniques can improve the decisions made by a cruise company and result in improved performance in a number of areas by reducing cost and risk exposure. As awareness of cost and risk assessment increases, the benefits, which can be realised through its application, will continue to increase.

Cost and risk assessment can be a useful tool to help cruise companies in the Cyprus and Mediterranean cruise region to make good decisions about the safe, economic, efficient and effective operation of their cruise ships. The decisions need to be considered in the light of the company's strategic investment. This should be consistent with the company's long term objectives, which can usually be the maximisation of profits for the shareholders, and the welfare of its passengers and personnel. Since there may be a high degree of risk and uncertainty in the cruise industry, a detailed evaluation of future benefits will need to be examined. It is therefore essential to carry out an investigation and evaluation of the principal methods to decide if a capital investment project is of value to a cruise company.

CHAPTER 7

RISK ANALYSIS IN INVESTMENT APPRAISAL METHODOLOGY

Summary

As indicated in the previous chapter, cost and risk assessment can be a useful tool for cruise companies in their decision-making process about the safe, economic, efficient and effective operation of their cruise ships. The decisions made by the companies can also be considered in the light of strategic investment. Since there may be a high degree of uncertainty in the cruise industry a methodology needs to be developed in order to assess whether an investment project is beneficial.

In this chapter, the applicability of risk analysis to the investment of capital projects in the cruise industry is examined. Investment appraisal techniques and their importance in investment decisions are described in Section 7.3. A proposed investment methodology for cruise ships is developed and risk factors are also incorporated into the analysis. In Section 7.6, a test case study is finally carried out in order to demonstrate the proposed methodology.

7.1 Introduction

Appraisal techniques have been developed over a number of years to assist organisations in both the public and private sectors with decision making on capital spending [Education and Learning Wales, 2001]. The purpose of investment appraisal is to assess the economic prospects of a proposed investment project. It is a methodology for calculating the expected return based on cash flow forecasts of many, often inter-related, project variables [Savvides S., 1994]. An investment appraisal answers the question as to whether a project is worth undertaking or not [Verma U., Singh N. P., tuteja R. K., 2002].

Proper appraisal of projects involving capital expenditure is important for the following reasons [Certified Accounting Technician, 2002]:

- a. A relatively significant amount of the resources of the business will be involved.
- b. A capital investment decision may be difficult to reverse and, with any reversal considerable costs may have been incurred for little benefit.
- c. Investment decisions need to be considered in the light of strategic and tactical decisions of the company. The decision made should be consistent with the company's long term objective.
- d. Future benefits need detailed evaluation since they are often difficult to predict. Consequently, there may be a high degree of risk and uncertainty.

The decision making and control cycle in appraisal or evaluation of a capital project has the following key stages [Certified Accounting Technician, 2002]:

- a. Initial investigation of the proposal

In the initial investigation the following questions should be asked:

- i. Is it feasible, technically and commercially?
- ii. What are its main risks?
- iii. Does it match the firm's long term strategic objectives?

b. Detailed evaluation

Once the feasibility of the project has been established, a detailed investigation will examine expected cash flows arising from the project. The effects of risk may be analysed and the sources of the necessary finance will need to be considered.

c. Authorisation

For capital projects that are significantly related to the size of the company, authorisation rules will require that the decision to go ahead be made by senior management or by the board of directors. Those making the decision must be satisfied that an appropriately detailed evaluation has been carried out, that the proposal meets the necessary criteria to contribute to profitability, and that it is consistent with the overall strategy of the company.

d. Implementation

Once the decision has been made that the project will be undertaken, responsibility for the project should be assigned to a project manager or a responsible person. The required resources will need to be made available to this person, who should be given specific targets to achieve.

e. Project monitoring

After the start of the project, the progress should be monitored and senior management should be informed of the progress of the project regularly. The project can be monitored more effectively if the costs and benefits originally expected are reassessed in the light of unforeseen events happening in the course of the project.

f. Post completion audit

At the end of the project, a post completion audit should be carried out in order to make use of what can be learned from the experience in the planning of future projects.

Investment decision-making is primarily concerned with the following three types of process [NSW Treasury, 1997]:

1. The screening process, whereby the decision-maker, faced with a range of independent projects and adequate resources, must accept or reject the individual projects.
2. The choice between mutually exclusive projects, whereby the decision-maker must choose from a range of mutually exclusive projects (commonly directed at similar objectives).
3. The ranking process, whereby the decision-maker is faced with resource constraints, which prevent all acceptable projects from being taken up. Hence the projects must be ranked in an objective manner.

Various investment criteria are available to assist in reaching decisions in each of these circumstances [Branch A. E., 1998]. The most commonly used criteria or methods that will be used in this chapter are the payback period, the accounting rate of return, and the discounted cash flow, which is divided into the net present value and the internal rate of return. Moreover, a decision-maker should always bear in mind non-financial factors that affect a decision. The possible non-financial factors include [Certified Accounting Technician, 2002]:

- a. Legal issues: Possible legal actions should be considered.
- b. Ethical issues: Unethical actions by a company could be damaging even if not illegal.

- c. Changes to regulations: Many governments have regulations designed to promote competition, for example.
- d. Political issues: A future change of government in a country could affect plans.
- e. Quality implications: Poorer quality materials or equipment may be cheaper but may lead to problems later on, for example problems relating to breakdowns and warranty claims by customers.
- f. Personnel issues: Personnel may be affected significantly by decisions, and the impact on personal relations, motivation and working culture may need to be considered.

In addition, risk analysis is an important tool in investment appraisal. It is not a substitute for normal investment appraisal methodology but a tool enhancing its results. Risk analysis supports the investment decision by giving the investor a measure of the variance associated with a project appraisal return estimate [Savvides S., 1994].

Project risk analysis and management is a process which enables the analysis and management of the risks associated with a project. Properly undertaking it will increase the likelihood of successful completion of a project to cost, time and performance objectives [Norris C., Perry J., Simon P., 2000].

Having considered the importance of risk analysis in the investment appraisal process, it will be important to make a distinction between 'risk' and 'uncertainty'. Risk is the product of probability and consequence [HEFCE, 1999]. It refers to situations with known probabilities, that is, the number and size of each possible outcome is known and the chance of each outcome occurring can be determined [NSW Treasury, 1997]. Uncertainty, on the other hand, refers to situations with unknown probabilities, that is, the number and size of each outcome may or may not be known, but the chance of any single outcome occurring cannot be objectively determined [NSW Treasury, 1997]. For example, the passengers' demand is dependent on many factors and therefore the size of

outcome (i.e. demand) is uncertain. In terms of risk, the factors upon which demand is dependent are known and the relative influence of these factors may vary over time in an unpredictable manner.

The risk analysis process is generally split into two stages. The first stage is a qualitative analysis that focuses on identification of hazards and subjective assessment of the associated risks. The second one is a quantitative analysis that focuses on an objective assessment of the risks [Norris C., Perry J., Simon P., 2000]. The identification of hazards can be achieved by [Kuo C., 1998; Norris C., Perry J., Simon P., 2000]:

- Interviewing key members of the project team.
- Organising brainstorming meetings with all interested parties.
- Using the personal experience of the risk analyst.
- Reviewing past corporate experience if previous appraisal records are kept.

The associated risks are then subjected to an initial assessment that categorises the risks into high/low probability of occurrence and major/minor impact on the project should the risk materialise. Eventually, it may be appropriate to enter into a detailed quantitative analysis. This will enable the impacts of the risks to be quantified against the three basic project success criteria: cost, time and performance [Norris C., Perry J., Simon P., 2000]. Several techniques have been developed for analyzing the effect of risks on the final cost, timescale and performance, including sensitivity analysis [NSW Treasury, 1997; Savvides S., 1994], risk simulation (Monte Carlo simulation) [Noor I., Rye T., 2000; Savvides S., 1994; Smith D. J., 2000], probability distributions and expected values [Benjamin D., Keer F., 1999; Drury C., 1992; Lumby S., 1995], and decision trees [Association of Chartered Certified Accountants, 2001; Benjamin D., Keer F., 1994].

7.2 Investment Decisions

Capital investment decisions are those that involve current outlays in return for a stream of benefits in the future years. It is true to say that all the firm's expenditures are made in expectation of realizing future benefits. The distinguishing feature between short-term decisions and capital (long term) decisions is time. Short-term decisions can be classified as those that involve a relatively short time horizon, for example, one year, from the commitment of funds to the receipt of the benefits. On the other hand, capital investment decisions are those where a significant period of time elapses between the outlay and the recoupment of the investment. They normally represent the most important decisions that an organisation makes, since they commit a substantial proportion of a firm's resources to actions that are likely to be irreversible [Drury C., 1992].

The application of investment opportunities, that is, capital investment appraisal, involves a complex process of strategic planning on decision-making [Association of Chartered Certified Accountants, 2001]. The strategic planning process for a business begins with trying to obtain answers to the following three simple questions (in the order stated) [Lumby S., 1995]:

1. Where are we now?
2. Where do we want to be?
3. How are we going to get there?

7.2.1 SWOT (Strengths, Weaknesses, Opportunities, Threats) Analysis

The first question, "Where are we now", is normally answered through the use of SWOT analysis. Identification of strengths, weaknesses, opportunities and threats requires knowledge and understanding of both the external environment and the internal operations of the organisation [Ezzamel M., Hart H., 1994]. It provides a useful framework for analyzing a company's existing situation, both in terms of its own strengths and weaknesses and in terms of the opportunities and threats posed by the

external environment within which it operates. To undertake SWOT analysis, the company first undergoes a self-critical review of its existing strengths and weaknesses. In doing so it looks at its existing product range, its fixed asset base, its human resources and its managerial capability. In looking at both the opportunities and threats that it may face, the company would examine such issues as changes in consumer demand for the company's products and services, the range of competitors that the company faces in the market place and the way in which technological change is affecting the company and its products [Lumby S., 1995].

The major conclusions of a SWOT analysis shown in Table 7.1 are usually summarised and presented in the form of a cruciform chart.

STRENGTHS	WEAKNESSES
THREATS	OPPORTUNITIES

Table 7.1: SWOT analysis

Source: Association of Chartered Certified Accountants (2001)

7.2.2 Matrix Analysis

Once the company feels that it has a clear response to the first question, it can then turn to the second one, "Where do we want to be"?. Attempts to answer this question may cause the greatest controversy amongst management theorists [Lumby S., 1995].

In the 1970s and early 1980s the 'portfolio grid matrix' approach was fashionable. This is, essentially, a very simplistic approach to try and attempt to identify those business areas, which hold the greatest promise [Lumby S., 1995]. Several different matrices were also used in the past in an attempt to give an answer to the second question [Ansoff H. I., Leontiades J. C., 1976; Barksdale H. C., Harris C. E., 1982; Patel P., Younger M., 1978]. The most famous, and original matrix was the Boston Consultancy Group's so called "Boston Box" [Lumby S., 1995]. This model was developed in the

1960s in order to examine the portfolio of products for a company [Cartwright R., Baird C., 1999]. The “Boston Box” looks at the position of products against the two factors of market share and market growth [Ashton D., Hopper T., Scapens R., 1991; Cartwright R., Baird C., 1999]. This theory is, basically, based on empirical research, and classifies a company’s products in terms of potential cash generation and cash expenditure requirements [Association of Chartered Certified Accountants, 2001]. Figure 7.1 shows the “Boston Matrix” model consisting of a two-dimensional grid. Out of this came four different types of business definition: Stars, Dogs, Cash cows and Question marks (?).

		Market share	
		<i>High</i>	<i>Low</i>
Market growth	<i>High</i>	STARS	?
	<i>Low</i>	CASH COWS	DOGS

Figure 7.1: The Boston matrix

Source: Ashton D., Hopper T., Scapens R., (1991), Lumby S., (1995)

The four cells shown in Figure 7.1 are described as follows:

a. High market share, high market growth

This cell contains potential cash cows, at present termed ‘stars’. ‘Stars’ require high capital expenditure in the short run, but promise high returns in the future.

b. High market share, low market growth

This is a position of strengths as the high market share should facilitate economies of scale, low unit costs and so on, and give market dominance. Because market growth is low, the need for new investment will be minimal, with the result that products in this cell will tend to be large generators of cash (i.e. cash cows). A reasonable aim might be

to maintain market share to enable the generation of cash to continue, rather than seek to increase market penetration.

c. Low market share, high market growth

These products require considerable expenditure and have an uncertain value. If an aggressive attempt is made to move a ‘question mark’ product into a high market share position, then it may become, eventually, a cash cow. However, if resources are not available to pursue this strategy, it may be advisable to withdraw.

d. Low market share, low market growth

Within this cell are the ‘dogs’ that produce very little cash. It would be prohibitively expensive to seek market dominance from this position. Therefore, the best strategy may be to delete dogs from the range.

7.2.3 Investment Strategy

Having answered the second question, the company is then faced with the third question “How are we going to get there”. This stage will consider how the investment strategy can fit into the overall framework for decision-making. Figure 7.2 shows the stages of a decision-making model, which has been adapted to incorporate capital investment decisions.

Stage 1 indicates that the objectives or goals of the organisation must be determined, and the targets, which the company wishes to achieve, must be established.

Stage 2 involves a search for investment opportunities. Potential investment projects are not just born, someone has to suggest them. Without a creative search for new investment opportunities, even the most sophisticated evaluation techniques are worthless. Several writers have suggested that too little attention is given to the search process [King P., 1975; McIntryve A. D., Conlthurst N. J., 1986].

Stage 3 is to gather data about the possible uncontrollable factors that may affect the outcomes of the project. Examples of possible states of nature include economic boom, high inflation and recession.

After the states of nature have been identified, stages 4 and 5 list the possible outcomes for each of them, and measure the payoff of each possible outcome in terms of the objectives of the organisation.

Stage 6 in the process is to select the investment projects that will give the maximum payoff and to include them in the organisation's long-term plan.

Stage 7 is to obtain authorization and implement projects. It is essential to implement a sound system for approving investment proposals. Final approval may be obtained from the top management, depending on the cost and the importance of the project.

The final stage is to review the investment decisions. When the capital investment decision has been made, it is important to implement a system for reviewing and controlling capital expenditure. The review can consist of the following:

- Control over the amount of expenditure before the project is operational.
- A post completion audit of the operating cash inflows and outflows.

The arrowed lines in Figure 7.2 linking the various stages represent "feedback loops". They signify that the process is continuous and dynamic. In other words, capital investment decisions should be continually reviewed to see if the actual results conform with the expected results.

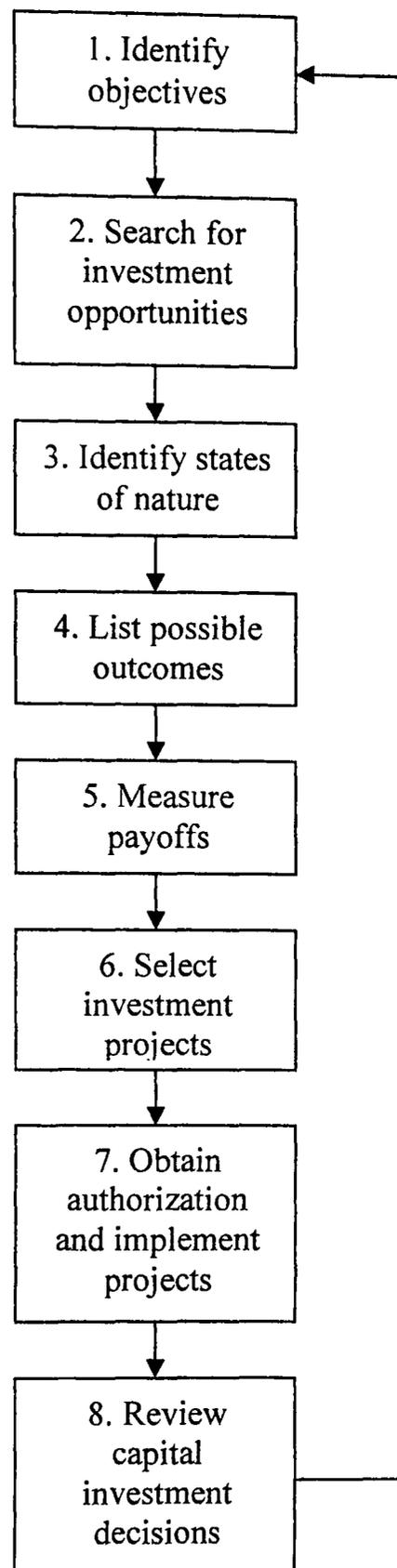


Figure 7.2: A decision-making model for capital investment decisions

Once the company's investment strategy is formulated, management then needs to choose investment appraisal techniques in order to evaluate the project options before making any decision. There is a wide range of methods of appraisal in use [Sloggett J.

E., 1984]. The main methods of capital investment appraisal are [Cox D., Fardon M., 1997]:

- a. Payback period.
- b. Accounting rate of return (ARR).
- c. Discounted cash flows (DCF).

7.3 Investment Appraisal Methods and Criteria

All the methods that will be examined have one thing in common. They are based on the 'net cash flows' generated by the project. Such cash flows represent the change in the company's cash receipts and expenditures over a given period arising as a consequence of the implementation of a project [Sloggett J. E., 1984].

7.3.1 Payback Period

The payback period method is one of the simplest and most frequently used methods of capital investment appraisal [Pike R. H., Wolfe M. B., 1988]. This method is one which gives equal weight to cash flows generated in earlier years. It calculates the length of time required before the total cash inflow received from the project is equal to the original cash outlay. In other words, it produces the length of time the investment takes to pay itself back [Certified Accounting Technician, 2002].

If the stream of cash flows from the investment is constant each year, the payback period can be calculated by dividing the total initial cash outlay by the amount of the expected annual cash receipts [Drury C., 1992]. Therefore, if an investment requires an initial outlay of £60,000 and is expected to produce annual cash inflows of £20,000 per year for five years, the payback period will be £60,000 divided by £20,000, or three years. If the stream of expected proceeds is not constant from year to year, the payback period is determined by adding up the cash inflows expected in successive years until the total is equal to the original outlay.

7.3.2 Accounting Rate of Return (ARR)

The accounting rate of return method produces the ratio of the average annual income to the total investment [Sloggett J. E., 1984]. It uses the profit over the life of the project to calculate the percentage rate of return, based on the cost of the project. Such a rate is calculated as follows [Cox D., Fardon M., 1997]:

$$ARR = \frac{\text{Estimated average profits}}{\text{Estimated initial investment}} \times 100\%$$

The preferred project will be the one that has the highest percentage accounting rate of return.

7.3.3 Discounted Cash Flows (DCF)

A more scientific method of investment appraisal is the use of discounted cash flow (DCF) techniques [Certified Accounting Technician, 2002]. This is a capital investment appraisal method, which recognizes that money has a time value [Cox D., Fardon M., 1997]. This means that the money received today by an investor (individual or company) is worth more than the same sum of money received at some time in the future [Sloggett J. E., 1984]. It is therefore recognised that if a capital investment is to be worthwhile, it must earn at least a minimum return so that the size of the return will compensate the investor for the length of time he/she must wait before the profits are made.

Before making any calculations for decision-making, the company can distinguish between relevant and non-relevant costs. Relevant costs are future cash flows arising as a direct consequence of a decision. On the other hand, non-relevant costs are used to describe costs that are irrelevant for decision-making because either they are not future cash flows or they are costs which will be incurred anyway, regardless of the decision that is taken [Certified Accounting Technician, 2002]. There are two typical approaches for calculating DCF [Certified Accounting Technician, 2002; Sloggett J. E., 1984]:

- a. Net Present Value (NPV).
- b. Internal Rate of Return (IRR).

7.3.3.1 Net Present Value (NPV)

The net present value method calculates the present value of all cash flows, and sums them to give the net present value. This method can be expressed as follows [Drury C., 1992]:

$$NPV = \frac{FV1}{1+r} + \frac{FV2}{(1+r)^2} + \frac{FV3}{(1+r)^3} + \dots + \frac{FVn}{(1+r)^n} - I_0$$

where I_0 represents the investment outlay (i.e. initial cost), FV_k represents the future values received in year k ($k = 1, 2, \dots, n$), and r is discount rate in the financial market.

In the decision-making process, if the NPV is positive, the present value of benefits exceeds the present value of costs. This means that the project will earn a return in excess of the cost of capital, and therefore the project should be accepted. If the NPV is negative, the project would earn a return lower than the cost of capital and would not be worth investing.

7.3.3.2 Internal Rate of Return (IRR)

The principles of discounted cash flow can be developed further in order to calculate the internal rate of return (IRR).

The internal rate of return is the rate of the cost of capital at which the present value of the cash inflows exactly balances the initial investment. In other words, it shows the cost of capital percentage at which the investment 'breaks-even', that is, income equals expenditure [Cox D., Fardon M., 1997]. Alternatively, this method can be used to find the maximum cost of capital that can be applied to finance a project without causing harm to the shareholders [Drury C., 1992].

IRR can be calculated in one of the following three ways [Cox D., Fardon M., 1997; Drury C., 1992; Lumby S., 1995]:

1. Trial and error
2. Graphically
3. Interpolation

For further explanation and analysis of the investment appraisal techniques described in section 7.3 (i.e. payback, ARR, NPV, IRR), the reader can refer to suggested reading described in the section of “References”. The suggested further reading includes books [Association of Chartered Certified Accountants, 2001; Benjamin D., Keer F., 1994; Certified Accounting Technician, 2002; Cox D., Fardon M., 1997; Drury C., 1992; Gitman L., 1997; Lumby S., 1995], articles [Ansoff H. I., Leontiades J. C., 1976; Barksdale H. C., Harris C. E., 1982; Savvides S., 1994; Smith D. J., 2000; Verma U., Singh N. P., Tuteja R. K., 2002], study guides and guidelines papers [HEFCE, 1999; NSW Treasury, 1997].

Up to this stage, it was assumed that prices have been stable. Apart from the numerical techniques that can be used for capital investment appraisal, an organisation can consider another important factor before making the final decision. This includes inflation considerations.

7.3.4 Inflation

The effect of inflation on the appraisal investment projects needs to be considered. Inflation can be simply defined as a situation where prices in an economy are, in general, rising over time. Its expected (or unexpected) presence is likely to cause problems for the appraisal of investment opportunities in two main ways [Lumby S., 1995].

- a. It will make the estimation of a project’s expected cash flow more difficult. When a project is being appraised, management will have to provide estimates of its inputs

and outputs. With inflation, the prices of these inputs and outputs are likely to change. In other words, management will have to estimate the expected future rates of inflation.

- b. Market interest rates, or rates of return, can be viewed as representing the price of money. Therefore, interest rates, like other prices, can be expected to rise when there is general inflation within the economy. Management has the additional task of estimating the effects of inflation on the project appraisal.

Under inflationary conditions, it can be seen that there are two possible interest rates that can be used. These are the market interest rate and the real interest rate [Drury C., 1992; Lumby S., 1995]. The question that immediately arises is “which one should be used in an NPV investment appraisal analysis?”. The answer to this question is that either rate can be used, but they must each only be applied to an appropriate definition of the project cash flow. Specifically, it is stated that either [Certified Accounting Technician, 2002; Drury C., 1992; Lumby S., 1995]:

1. Money cash flows of the project can be discounted by the market interest rate (i.e. nominal interest rate) to present value cash flows, or
2. Money cash flows of the project can be discounted by the rate of general inflation to current general purchasing power cash flows, and these can be discounted by the real interest rate to present value cash flows.

Inflation affects future cash flows and the return that shareholders require on the investment (i.e. the discount rate). The discount rate consists of the required rate of return on a riskless investment plus a risk premium that is related to a project’s risk. Inflation affects both the risk-free interest rate and the risk premium [Drury C., 1992]. According to the American economist, Fisher, the two rates of return and the inflation rate are linked by the following equation [Fisher I., 1930]:

$$(1 + \text{money rate}) = (1 + \text{real rate}) \times (1 + \text{inflation rate})$$

The 'money' rate is the interest rate, which is normally quoted and contains an allowance for inflation (for example, a 20% discount rate may contain an allowance for a 5% expected inflation). A 'real' rate is the real required rate of return after adjusting the money rate for the inflation allowance. For example, inflation is at 8% per annum. An investor can earn 12% per annum on a bank deposit. Using the above equation, the real interest rate is 3.7% and calculated as follows:

$$\frac{1 + 0.12}{1 + 0.08} - 1 = 3.7\%$$

7.4 Risk Analysis

Uncertainty about a situation can often indicate risk [Decisioneering Inc., 2001]. It is the probability of occurrence and the severity or consequences that are of interest [Kuo C., 1998]. To enable decisions to be taken about the resources to be allocated to risk management, it is important to assess the probability and the consequences of a hazard occurring. This is what is meant by risk analysis [Department of Trade and Industry, 2002].

In the analysis of risks it is necessary to differentiate between the qualitative and the quantitative approaches to the evaluation of project risk. Figure 7.3 shows a distinction between quantitative and qualitative methods. It is clear that if risks cannot be reduced to an acceptable level, then the project should be rejected. After the risk reduction measures are implemented, risk assessment should be repeated to see if the project could proceed. The reader can refer to books, guidance notes, journal articles, and web sites [American Bureau of Shipping, 2000; CGSS Consultants, 2002; Decisioneering Inc., 2001; Department of Trade and Industry, 2002; Eschenbach T., Smith A., 1992; Hertz D., 1964; Kelliher C., Mahoney L., 2000; Noor I., Rye T., 2000; NSW Treasury, 1997; Oakshott L., 1997; Rozanova L. F., Shagaliev R. D., Maximenko Z. V., 2000; Sartori D., Smith A., 1997; Savvides S., 1994; Smith D. J., 2000] for further reading.

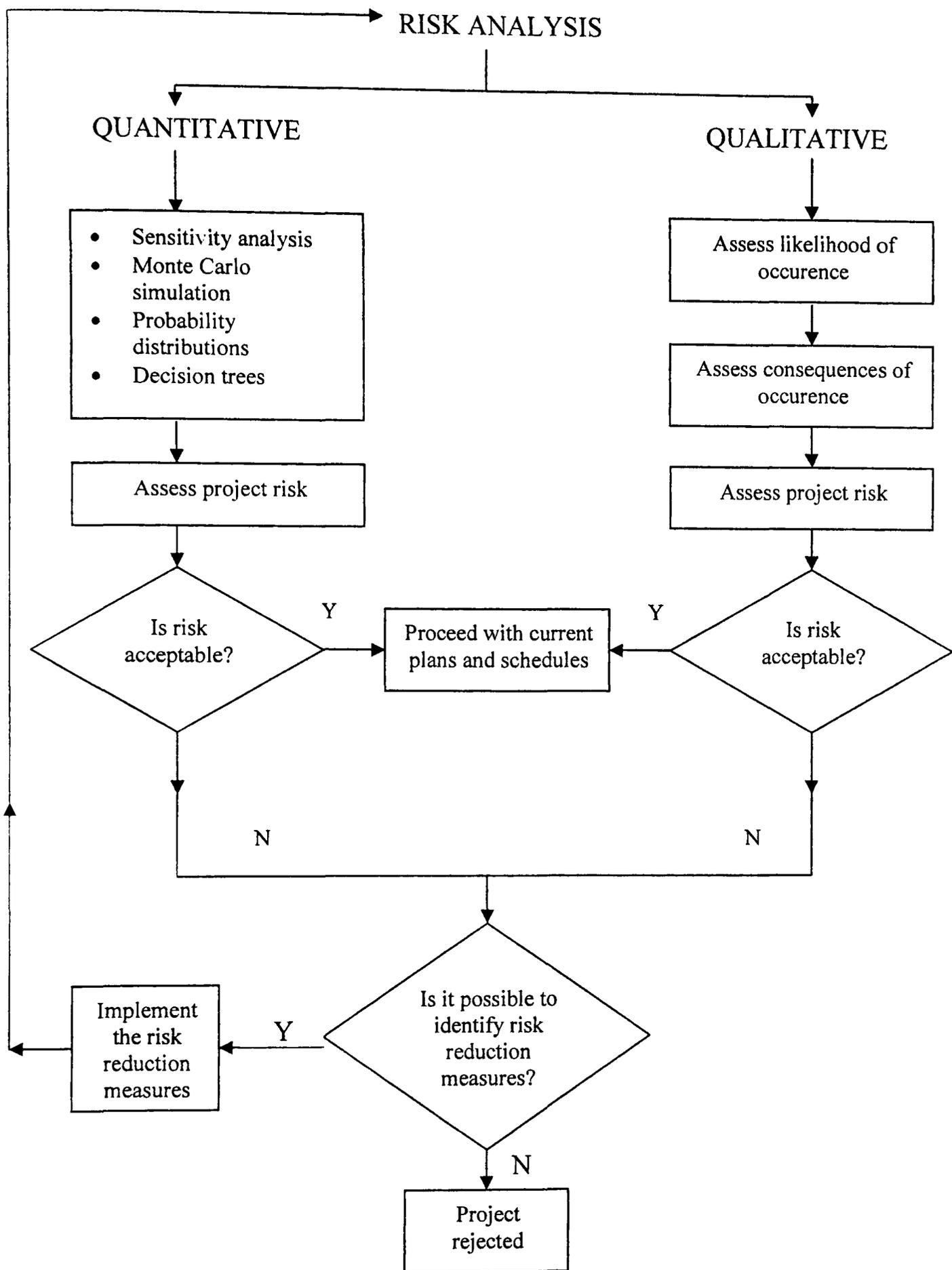


Figure 7.3: Stages of risk analysis

Source: American Bureau of Shipping (2000)

7.4.1 Quantitative Risk Analysis

The quantitative risk analysis implies numerical determination of individual risks and of project risk as a whole [Rozanova L. F., Shagaliev R. D., Maximenko Z. V., 2000]. In cases of straightforward risk, where all the possible outcomes and the probability of each outcome are known, the extent of risk is clearly apparent [Rozanova L. F., Shagaliev R. D., Maximenko Z. V., 2000]. A number of quantitative techniques exist to incorporate risk in an investment project appraisal. These may include the techniques mentioned in Section 7.1.

7.4.2 Qualitative Risk Analysis

The qualitative project risk analysis consists of revealing and identifying possible undesirable events of the project under expert study, definition and description of reasons and factors that can influence the level of the given kind of risk. Besides, it is necessary to describe and to give a cost evaluation to all possible consequences of the hypothetical realisation of the revealed risks, to offer measures of minimisation and/or compensation of these consequences and to calculate a cost evaluation of these measures [Rozanova L. F., Shagaliev R. D., Maximenko Z. V., 2000].

Qualitative risk analysis is concerned with the assessment of likelihood and consequences of possible undesirable events according to a classification scheme specific to the project [CGSS Consultants, 2002]. It allows the main risk sources or factors to be identified. This can be done, for example, with the aid of check lists, interviews or brainstorming sessions.

7.4.2.1 Assessment of Occurrence Likelihood of Unexpected Events and their Possible Consequences

A risk assessment is established by analysing the occurrence likelihood of unexpected events (i.e. hazardous events) and possible consequences. There are many different risks

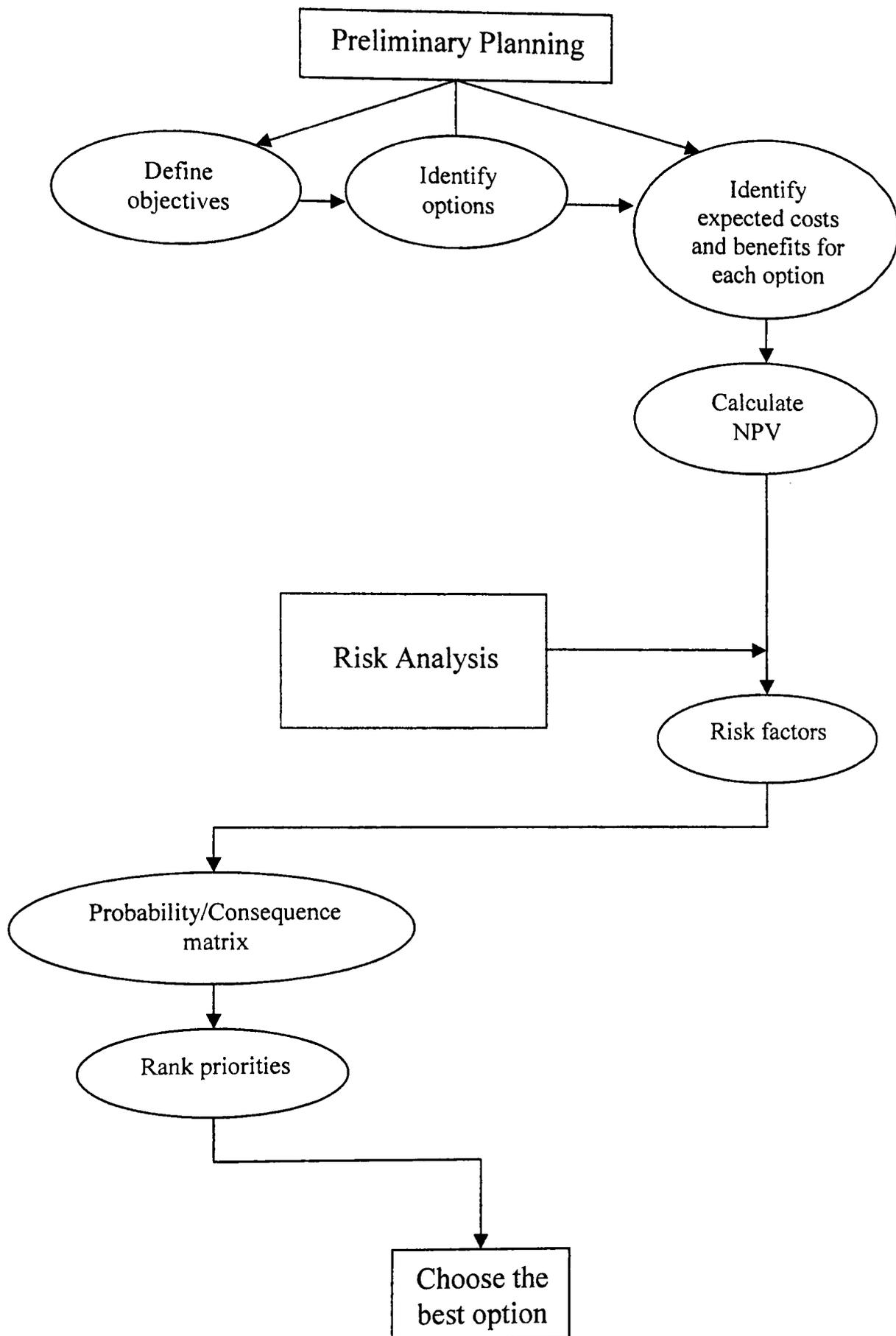


Figure 7.4: Proposed approach

7.5.1 Preliminary Planning

The first stage of the proposed approach is divided into three sub-stages, which are the following:

- a. Define objectives.
- b. Identify options.
- c. Identify costs and benefits for each option.

7.5.1.1 Define Objectives

The starting point, and in many ways the most crucial aspect, for the evaluation of an investment proposal is the specification of the objectives of the proposal and their relation to the overall objectives of the organisation. No appraisal of the project can be meaningful unless the objectives are clearly defined [NSW Treasury, 1997].

The key element in the process of objectives definition is corporate (or strategic) planning. The strategic planning process begins with trying to identify and analyse the following:

- The current market position of the cruise company.
- The strengths, weaknesses, opportunities and threats of the company.
- Analysis of the world cruise market, with particular attention to the Mediterranean region.

7.5.1.2 Identify Options

The second phase of the first stage is to identify the widest possible range of realistic options. Investment decisions where there are no realistic choices are rare. The challenge is to generate and specify a realistic set of alternatives. The following list of questions may be useful in generating such options:

- a. Could the operation be scaled down or closed? This option could be particularly important in cases where the replacement of an existing ship is under consideration.
- b. Could the operation be contracted out?
- c. What is the sensitivity of demand to the level and structure of pricing? Is it a realistic alternative to capital expenditure to vary the pricing structure?
- d. What alternative destinations are possible?
- e. Is there any political crisis in the region?
- f. Are there any competitors operating in the same region?

7.5.1.3 Identify Costs and Benefits for Each Option

The cost evaluation for each option should be based on relevant costs, which can be identified and quantified. The stream of costs should cover the full project period (i.e. the period of operating the ship in a particular region). The costs that can be incurred during the operation of a cruise ship include the following [Chrzanowski I., 1985; Downard J. M., 1981; Drewry H. P., 1993]:

- Bunkers.
- Food and beverages.
- Port charges.
- Crew salaries.
- Hotel consumables.
- Insurance.
- Maintenance expenses.
- Administration expenses.

In addition, there are the following types of benefits (i.e. income/savings), which may be relevant to the evaluation:

- Sales revenue from passengers' tickets.
- Sales revenue from tour package excursions.
- Income from sale of goods and services on-board.
- Chartering revenue (if any).
- Avoided costs: Incremental costs that are unavoidable if nothing is done to solve a particular problem, may be avoided if appropriate action is taken.

Once all costs and benefits over the life of the project have been identified and quantified, they can be expressed in present value terms. The stream of costs and benefits should be discounted by a particular discount rate. Using the discounted stream of costs and benefits, the decision measure of the NPV should be estimated.

7.5.2 Identify Risk Factors

The second stage will focus on the risk factor identification, which can adversely affect the investment decisions. In doing so, the risk factors should be viewed as risk considerations and may include those shown in Section 7.4.2.1.

7.5.3 Probability and Consequence Matrix

In this stage, the level of risk is established by analysing the probability (i.e. frequency or likelihood) and consequences (i.e. impact or magnitude of the possible effects). A preliminary screening of the identified risk factors can be carried out to exclude the extremely low risks from the analysis. There are two methods used to determine the level of risk [American Bureau of Shipping, 2000]. These are the qualitative and quantitative methods. Due to the high level of uncertainty, a qualitative method will be used.

Table 7.2 shows the parameters for describing the probability of an event occurring. In determining the consequences of risk factors, the possible cost to the ship and the company, and damage to reputation need to be considered. The scales used for this purpose are clearly shown and described in Table 7.3.

Probability range (F)	Interpretation
(1)	Very unlikely to occur
(2)	Unlikely to occur
(3)	Least likely to occur
(4)	Likely to occur
(5)	Very likely to occur

Table 7.2: Likelihood (i.e. probability)

Consequences (S)	Interpretation
Critical (1)	An event that can cause cancellation of cruise operation and/or huge financial loss.
Serious (2)	An event that can cause serious delay in operation and/or major financial loss.
Moderate (3)	An event that can cause moderate delay in operation and/or cost increases.
Minor (4)	An event that can cause minor delay in operation and/or small cost increases.
Negligible (5)	An event that cannot affect the operation of a cruise.

Table 7.3: Consequences

7.5.4 Prioritise the Risks

The company should decide whether a risk is acceptable, unacceptable or needs further attention. Having considered the likelihood and consequences of events, the importance of risks can be determined using Table 7.4. This is a matrix linking Tables 7.2 and 7.3, and is used to determine the level of risk. The three risk regions shown in Table 7.4 can be briefly described as follows:

L = Low, M = Medium, H = High

Likelihood	Consequences				
	Critical	Serious	Moderate	Minor	Negligible
(1)	M	M	L	L	L
(2)	H	M	M	L	L
(3)	H	M	M	M	L
(4)	H	M	M	M	M
(5)	H	H	H	H	M

Table 7.4: Risk matrix (to determine risk level)

7.5.5 Choose the Best Option

The final stage of the proposed approach is to make the right choice. This will be based on the analysis carried out above. Risks need to be monitored and reviewed periodically. Few risks remain static. Accordingly, cruise companies should re-examine the risk context to ensure that the way in which risks are managed remains valid.

7.6 A Test Case Study

Certain details of the test case study are explained in Chapter 1 in section 1.9. Several assumptions can be made for the proper calculations of the company's budgets and better evaluation of the two cruise options. The assumptions are based on information obtained from the company, the port authorities and the statistical department of the Cyprus government. The assumptions include the following:

1. Net income from fares

The average fare price for option 1 is estimated to be £500 and for option 2 £600. The average number of passengers is estimated to be 650 per cruise. The estimated annual passengers for 1994 are 19,500 with an annual growth of 5%, for both options.

2. Net income from taxes

This represents a fixed charge of £25 charged extra for each passenger boarding the ship from Cyprus.

3. Income from bars and restaurants

It is assumed that each passenger spends on average a total of £20 for food and drinks daily. It is also assumed that sales from bars and restaurants carry a minimum profit margin of about 30%. Therefore, the net income per passenger is £6.

4. Income from gift shops

This is based on the assumption that the shops will be rented out. This is assumed to be £50,000 for the first year with a 5% annual increase.

5. Income from casino

This is based on the assumption that the rights to install and run slot machines, etc. will be sub-contracted. The amount estimated for such a service will be £40,000 for a 7-month period each year.

6. Income from excursions

The average income per passenger is estimated to be £260 for option 1 and £275 for option 2. The cost of excursions (including rent of buses, tour operators) is estimated to be 65%. Therefore, the net average income from excursions will be £91 per passenger for option 1 and £96.25 per passenger for option 2.

7. Capital expenditure

This is the purchase price of the cruise ship (£15 million), which is due to be paid before the first year of operation. This is the initial cost of investment.

8. Salaries and benefits

These are based on the different nationalities of crew and officers. It is estimated that the average salaries per crew member (250) will be £600 per month.

9. Bunkers

Bunker costs include fuel oil, gas oil and lubricants.

10. Administration costs

These include consultancy fees, telephone and fax charges, stationery and office expenses, traveling, etc., and are estimated to be £100,000 for a 7-month period.

11. Insurance

This is based on the purchase price, that is, £15 million, and the age of the vessel. The total insurance cost for 7 months per year is estimated to be £1 million.

12. Port dues

These are based on taxes charged by each different port of call.

13. Maintenance costs

These include the maintenance costs associated with main engines, auxiliaries, deck repairs and spare parts, and are estimated to be £150,000 for 7 months.

14. Hotel consumables

These include cleaning material and all supplies consumed in the bars, restaurants and cabins. They are estimated to be £90,000 for 7 months.

15. Estimated market potential

The estimated average number of passengers for both cruise options is 650 passengers per weekly cruise, that is, 19,500 for the first year of operation. There will be an annual growth of 5%.

16. Cruise operation

This covers a period of 7 months, from April to October, per year (i.e. 30 weekly cruises).

7.6.1 Preliminary Planning

The first step is sub-divided into three stages as follows:

a. Define objectives

The main aim of the company is to provide quality services predominantly in the Mediterranean region by introducing new itineraries in order to fill the cruise gap that exists. The objectives of the company are as follows:

- i. Introduce new itineraries to Croatia, Turkey and Italy.
- ii. Offer service quality and efficiency in line with the company's tradition.
- iii. Offer a range of features and amenities of a quality unparalleled by any other ship.
- iv. Decrease costs due to several synergies, which will lead to economies of scale.

The anonymous company that is under examination retains a high volume capacity and ranks first in the Mediterranean region with an 18.6% market share. From the marketing

point of view, the cruise ship has a number of strengths and weaknesses and faces a number of opportunities and threats. These are summarised as follows:

Strengths

- i. Good image in the market.
- ii. Experienced and knowledgeable management.
- iii. Ability to offer better service, food and entertainment on board.
- iv. Experienced in destination cruises.
- v. Experienced and qualified personnel.
- vi. General sales agents worldwide.
- vii. Considerable synergies with the holding company.
 - The holding company owns a specialized center for selling cruises.
 - The holding company has a customer database so that it can immediately inform customers about new products offered.

Weaknesses

- i. Not modern cruise ship.
- ii. The capacity of the ship is moderate.

Opportunities

- i. The cruise industry is the most rapidly expanding segment of the tourist industry.

- ii. High demand for Mediterranean cruises.
- iii. Europeans have a positive attitude to cruising and they consider it an affordable all-inclusive programme.
- iv. New destinations (i.e. Turkey) can be considered since Cyprus will become a full member of the European Union in May 2004.
- v. The Eastern and Western Mediterranean countries, such as Egypt, Turkey, Italy, Greece and Cyprus are reporting considerable annual growth in tourism.

Threats

- i. There is a trend among the major cruise companies to build cruise ships with a large capacity (1,500 to 2,000 passengers).
- ii. Intense competition in the industry and considerable interest in the Mediterranean region by the large cruise companies.
- iii. Abolition of cabotage laws may result in more intensive competition.

b. Identify options

In Cyprus, there are three cruise ship companies (Louis Cruise Lines, Salamis Cruise Lines, Paradise Cruises) operating their ships on the routes between Cyprus, Greece, Egypt and Lebanon [Louis Cruise Lines, Salamis Cruise Lines, Paradise Cruises, 2003]. The author perceives the market for sea travel in the area as being in urgent need for product upgrading. All the companies servicing the routes from Cyprus failed to supply a product that meets the requirements and expectations of the market. It is this particular performance gap that the author is expecting to fill through the introduction of a new more luxurious ship and provision of new destinations. For these reasons, two hypothetical cruise investment options are proposed and assessed.

These two options are described as follows:

Cruise Options	Itineraries (7-day cruises)
1	Limassol-Rhodes-Ephesus(Turkey)-Constantinople(Turkey)-Piraeus-Santorini-Limassol
2	Limassol-Piraeus-Corfu-Venice(Italy)-Dubrovnik(Croatia)-Alexandria(Egypt)-Limassol

The common reason of choosing the above two options is that these destinations are not covered by the operations of the cruise companies in Cyprus. An additional reason for choosing option 1 is that, after the decision of the European Union (EU) [European Union, 2002] to accept Cyprus as a full member of the European family, the cruise companies will be allowed to operate in the area covered in option 1. Nowadays, Turkey does not recognise Cyprus as an independent country, and it does not allow Cyprus companies to operate in this area. Once Cyprus becomes a full member of the European Union in May 2004 [European Union, 2002], however, Cyprus cruise companies can start offering cruises in the area.

c. Identify costs and benefits for each cruise option

The evaluation of costs and benefits for each option is based on the current market values. The data are gathered from the primary source (i.e. interview) and secondary sources [Certified Accounting Technician, 2000]. It is essential, at this stage, to undertake a cash flow analysis on the proposed project. The analysis of cash inflows (i.e. expected receipts) and cash outflows (i.e. expected payments) over a five-year period is shown in Tables 7.5 and 7.6.

Receipts	Assumptions	2004	2005	2006	2007	2008
Net income from fares	1	9,750,000	10,237,500	10,749,500	11,287,000	11,851,500
Net income from taxes	2	487,500	511,875	537,475	564,350	592,575
Income-Bars and restaurants	3	117,000	122,850	128,994	135,444	142,218
Income-Gift shops	4	50,000	52,500	55,125	57,881	60,775
Income-Casino	5	40,000	40,000	40,000	40,000	40,000
Income from excursions	6	1,774,500	1,863,225	1,956,409	2,054,234	2,156,973
Total Receipts		12,219,000	12,827,950	13,467,503	14,138,909	14,844,041
Payments						
Capital expenditure	7	-	-	-	-	-
Salaries and benefits	8	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000
Bunkers	9	700,000	700,000	700,000	700,000	700,000
Administration	10	100,000	100,000	100,000	100,000	100,000
Insurance	11	800,000	800,000	800,000	800,000	800,000
Port dues	12	250,000	255,000	260,000	265,000	270,000
Maintenance	13	150,000	150,000	150,000	150,000	150,000
Hotel consumables	14	90,000	90,000	90,000	90,000	90,000
Total Payments		3,140,000	3,145,000	3,150,000	3,155,000	3,160,000
Net cash flows		9,079,000	9,682,950	10,317,503	10,983,909	11,684,041
No of passengers	15	19,500	20,475	21,499	22,574	23,703

Table 7.5: Cash flow analysis (cruise option 1)

Receipts	Assumptions	2004	2005	2006	2007	2008
Net income from fares	1	11,700,000	12,285,000	12,899,400	13,544,400	14,221,800
Net income from taxes	2	487,500	511,875	537,475	564,350	592,575
Income-Bars and restaurants	3	117,000	122,850	128,994	135,444	142,218
Income-Gift shops	4	50,000	52,500	55,125	57,881	60,775
Income-Casino	5	40,000	40,000	40,000	40,000	40,000
Income from excursions	6	1,876,875	1,970,719	2,069,279	2,172,747	2,281,414
Total Receipts		14,271,375	14,982,944	15,730,273	16,514,822	17,338,782
Payments						
Capital expenditure	7	-	-	-	-	-
Salaries and benefits	8	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000
Bunkers	9	750,000	750,000	750,000	750,000	750,000
Administration	10	100,000	100,000	100,000	100,000	100,000
Insurance	11	800,000	800,000	800,000	800,000	800,000
Port dues	12	275,000	280,000	285,000	290,000	295,000
Maintenance	13	150,000	150,000	150,000	150,000	150,000
Hotel consumables	14	90,000	90,000	90,000	90,000	90,000
Total Payments		3,215,000	3,220,000	3,225,000	3,230,000	3,235,000
Net cash flows		11,056,375	11,762,944	12,505,273	13,284,822	14,103,782
No of passengers	15	19,500	20,475	21,499	22,574	23,703

Table 7.6: Cash flow analysis (cruise option 2)

Once the cash flow analysis has been carried out, the expected receipts and payments can then be expressed in present value terms. Using a normal discount rate of 12% and the formula described in Section 7.3.3.1, the NPV was calculated, for both options, as follows:

Cruise option 1

$$NPV = \frac{£9,079,000}{1+0.12} + \frac{£9,682,950}{(1+0.12)^2} + \frac{£10,317,503}{(1+0.12)^3} + \frac{£10,983,909}{(1+0.12)^4} + \frac{£11,684,041}{(1+0.12)^5} - £15,000,000$$

$$NPV = £18,960,289$$

Cruise option 2

$$NPV = \frac{£11,056,375}{1+0.12} + \frac{£11,762,944}{(1+0.12)^2} + \frac{£12,505,273}{(1+0.12)^3} + \frac{£13,284,822}{(1+0.12)^4} + \frac{£14,103,782}{(1+0.12)^5} - £15,000,000$$

$$NPV = £29,596,196$$

The cash flow analysis undertaken on the proposed project has revealed some important aspects of this venture. Even after making some rather conservative assumptions, the analysis yields a positive return. Using a discount rate of 12%, the project shows a Net Present Value of £18,960,289 and £29,596,196 for options 1 and 2, respectively. The initial capital investment, although substantial, is not relatively speaking the most significant negative outflow of cash in comparison with the total operating expenses for running the ship. The ship's operating expenses are slightly more than £3 million per year. The corollary of this for the receipts side is that the ship's operation can easily achieve quite considerable cash inflows. The annual income from fares alone is not expected to fall under £9.75 million.

The most significant expenses in the analysis for both options are salaries, bunkers and insurance costs. Although some small degree of uncertainty may be inherent in these costs (especially with regard to bunker costs), in general one may reasonably assume that it cannot severely alter the results of the project. The main difference in the receipts side between the two options is the net income from fares. This is due to the higher

fares charged by the company in option 2. The income from excursions in option 2 is also higher because it offers more shore excursions than option 1 does. On the other hand, the main differences in the payments side are the bunker costs and port dues. In option 2, bunker costs are higher because the ship is expected to sail more hours, and the port dues are also higher because Turkey's ports charge less than those in the itinerary described in option 2.

The results calculated and described are based on financial factors (expected receipts and payments) and can be used by the company to make decisions. In order to test the robustness of the results obtained and make a more rational decision, a risk analysis can be applied on the appraisal of the proposed project.

7.6.2 Identify Risk Factors

This stage will focus on the undesirable event identification. The risk factors identified in Section 7.4.2.1 can be further described as follows:

Economic risk	This is related to the project's future operation. It can be associated with changes in the relevant prices for inputs and outputs or developments in relevant markets.
Demand risk	Movements in the market mean that the number of passengers can go down, as well as up.
Political risk	This is related to undesirable political situations, such as war.
Approvals and regulatory risk	Necessary permits cannot be obtained in time, or relevant regulations might change during the operation of the ship.
Inflation risk	The purchasing power of the company's money may not keep pace with inflation.
Sales risk	This is when the envisaged sales figures may not be achieved and capacity utilization remains at a low level.
Pre-cruise risk	This is due to technical problems with the technology or due to problems in operating the ship. This leads to cost overruns.

7.6.3 Probability and Consequence Matrix

The main objective of this stage is to establish the level of risk by analysing the probability and consequences. Generic data, the author's experience and expert judgements were used in risk assessment. The results of the assessment for cruise options 1 and 2 are clearly shown in Tables 7.7 and 7.8.

Risk Factors	Probability (%)		Consequences	
	<i>Option 1</i>	<i>Option 2</i>	<i>Option 1</i>	<i>Option 2</i>
Economic	1	1	Moderate	Moderate
Demand	3	2	Serious	Moderate
Political	3	2	Serious	Moderate
Approvals and regulatory	3	3	Minor	Minor
Inflation	4	2	Moderate	Minor
Sales	3	2	Serious	Moderate
Pre-cruise	3	3	Critical	Critical

Table 7.7: Probability and consequence scales – expert judgement

Risk Factors	Risk Level	
	<i>Cruise option 1</i>	<i>Cruise option 2</i>
Economic	LOW	LOW
Demand	MEDIUM	MEDIUM
Political	MEDIUM	MEDIUM
Approvals and regulatory	MEDIUM	MEDIUM
Inflation	MEDIUM	LOW
Sales	MEDIUM	MEDIUM
Pre-cruise	HIGH	HIGH

Table 7.8: Risk matrix results (to determine risk level) – expert judgement

The analysis of the results shows that the probability range of F3 occurred five times in option 1, and in option 2 the probability range that occurred mostly is F2. Another important aspect of the analysis is that the probability range of F4 does occur once in option 1, but it does not occur in option 2. This means that there is a higher probability that the events (i.e. risk factors) described in Section 7.6.2 occur in option 1 than in option 2. According to the experts' judgement, these may be due to the following reasons:

- i. There is a political instability in Turkey.
- ii. Inflation rate is very high in Turkey.
- iii. The expected sales figures may not be achieved in the case of option 1 because Cypriot passengers may choose different destinations. This is due to the fact that they do not yet feel confident and secure to travel there.
- iv. The demand in option 1 may be negatively influenced by the existence of political crisis in the region.

7.6.4 Prioritise the Risks

Once the likelihood and consequences of the undesirable events have been considered, the company has to decide whether the identified risk factors are acceptable, unacceptable or need further attention.

Table 7.8 shows the importance of the identified risk factors for each cruise option. It is obvious that the most important factor that needs to be considered in both options is the pre-cruise factor. This means that an undesirable event in the pre-cruise phase can cause cancellation of cruise operation, which will result in a huge financial loss. The reason of the event occurring may be that the company purchases and operates a second-hand cruise ship.

Serious consequences may be caused by the occurrence of political, demand and sales problems in option 1. The author believes that these problems may be overcome when Turkey becomes more democratic and tries to harmonise its economy with the European Union's decisions.

7.6.5 Choose the Best Option

The company has to arrive at its final investment decision, which will be essential for its future operation. It will have to choose one of the two cruise options that are described in Section 7.6.1 (b). The decision is based on the analysis carried out above, taking into consideration the estimated financial results and the risk factors (both internal and external) that were incorporated into the investment appraisal of the proposed project.

According to the analysis of the results, the cruise company can choose cruise option 2 because of the following reasons:

- i. Cruise option 2 is more beneficial on financial grounds.
- ii. Although cruise option 1 is also profitable, the political situation in Turkey and its economy may cause serious problems in the operation of the company's ship.
- iii. By choosing option 2, the company will offer their passengers more shore excursions and they will have the opportunity to visit more countries.
- iv. The passengers may lose money by conversion into Turkish lira. This can be avoided in option 2, where Alexandria is included in the itinerary, because all the foreign currencies including the Cyprus pounds are accepted by the Egyptians.

The major economic benefits of the project are described as follows:

- i. A positive economic impact due to the establishment of regular and frequent sea links of Cyprus with other countries as an alternative to air transport.
- ii. Saving of foreign exchange since a lot of passengers will be overseas.
- iii. The project will satisfy an increase in demand.

- iv. The project will offer a higher quality product compared to that of other companies by filling the performance gap described in Section 7.6.1.
- v. There will be employment opportunities for seamen.
- vi. The project will result in the enrichment of the tourist product of the island by offering specialist cruises to foreign visitors.

7.7 Conclusion

This chapter has attempted an investment risk assessment as it can be applied to the operation of cruise ships. It has covered the most common methods of measuring capital projects and their significance. This was followed by a description of the major factors that need to be considered in determining the investment criteria. In examining the depth of investment project appraisal and enhancing the investment decision, risk assessment techniques are also studied. This study screens new project ideas and aids the identification of investment opportunities. It also highlights project areas that need further investigation and can be used to bridge the communication gap between the cruise analyst and the decision maker. A test case study was used in order to demonstrate the feasibility of the proposed approach. This was limited to the case where a cruise company operating from Cyprus has to decide the best possible cruise option, by appraising the economic prospects of the two alternatives and incorporating risk factors in the analysis.

This chapter does not deal with how the quantitative risk assessment techniques are to be added to the methodology to help cruise companies in the decision-making process. This could be a subject of further research. In addition, the following areas are also considered worthy for further research:

- i. The extension of the investment risk methodology to deal with more risk factors which may be involved in the decision-making process.

- ii. The modification of the proposed methodology to examine the case where a long term charter may be on offer.

- iii. The application and integration of simulation techniques to the developed investment risk methodology may need to be examined in detail.

CHAPTER 8

SUMMARY AND DISCUSSION

Summary

This chapter discusses the main aim of the research, explains how the specific objectives contributed to that aim, and also discusses how well the main aim was met. The areas where further effort is required to improve the developed approaches are outlined, as those areas are considered suitable for possible further study. Finally, several other important topics relating to the developed methodologies are discussed with reference to further development.

8.1 Discussion of the Main Aim

The main aim of this research was to analyse economic and financial issues concerning the Cyprus and Mediterranean cruise sector of the shipping industry and propose a detailed appraisal of the current and future prospects within the cruise market. Cruise ships and cruise companies that operate in the Cyprus and Mediterranean regions were chosen as test cases. Most companies are family owned and it has proven difficult to obtain much useful information partially due to lack of access and the confidentiality policy of such organisations. The economic and financial methods used by large companies by larger US/UK/Scandinavia cruise companies could not be applied to the Cyprus and Mediterranean regions since the Cyprus and Mediterranean cruise markets are such a unique one with their own characteristics such as family owned, business decisions are based on experience, lack of safety culture, etc. The available techniques require a certain amount of data in order to make a reasonable analysis of the economic and financial issues, and a detailed appraisal of the current and future prospects of the cruise market. Actual data from existing cruise companies operating in the regions of interest and market surveys carried out were used as part of the research in order to achieve the main aim and make the implementation of the developed methodologies

effective. The methods developed in this research will provide a reference that can be practically used by cruise operators of the regions. These methods integrated cruising, shipping, marketing, cost and benefit, risk assessment, and investment issues so that reasonable analysis and appraisal of the particular cruise regions are effective and justified.

8.1.1 Contribution of Objectives to the Main Aim

The specific objectives described in Chapter 1 were used as aids in order to achieve the main aim of this research. However, it is essential to summarise in general terms the extent that the academic objectives contributed to the main aim.

The first objective was to investigate the characteristics of the cruise market with particular reference to the Cyprus and Mediterranean regions. Information investigated will enable cruise companies in the examined regions to make comparisons with other cruise markets. They can also be used as aids to improve the current operation culture of the Cyprus and Mediterranean cruise markets, and overcome the negative limitations of the market growth described in Chapter 2.

The second objective was to investigate the major factors that influence the development of the Cyprus and Mediterranean cruise market. New cruise products and destinations must be developed in order to attract new customers. Those involved in the Cyprus and Mediterranean cruise market must try to increase the awareness of tourists concerning cruise opportunities during winter times. In the case of Cyprus cruise market, the government and the educational sector can give incentives for potential seafarers. The analysis of the factors influencing the development of the Cyprus and Mediterranean cruise market has some added advantages compared to the factors for the development of the industry as a whole. For example, the solution of the political problem in Cyprus may be a positive factor and contribute to the Cyprus economy. The development factors found can provide a basis for those involved in the cruise market to develop a strategy for future market growth and increase the awareness of tourists

visiting Cyprus. Data gathered can also be integrated in the overall tourism strategy of Cyprus.

The third objective was to identify cruisers' attitudes and also the current status of the cruising market with particular attention to the Cyprus and Mediterranean cruise regions. For this reason, two market surveys (see Chapter 3) were carried out, and interviews and study group (see Chapter 2) were conducted. Data that is gathered from this work will provide a basis and critical information to carry out an in-depth survey and to identify a more complete picture of the cruise market in the regions of interest. This work may also provide the basis to compare cruising with hotel industry, and any other type of land-based vacations. Qualitative data were derived from the analysis and can be used by cruise operators in the regions for competition and decision making purposes.

The fourth objective was to develop an operation strategy that can be used by a cruise company operating in the Cyprus and Mediterranean cruise regions so that a decision on commissioning a cruise ship can be made. Such a strategy has been developed and presented in Chapter 4. Actual data was used and a test case study was conducted. The implementation of a marketing strategy is just the first but very vital step in developing a profitable operation strategy for cruise vessels. Data that is gathered will provide a basis to develop an effective operation strategy.

The fifth objective was to examine the applicability of formal safety assessment to the cruise industry, and investigate how the Cyprus and Mediterranean cruise industry could benefit from formal safety analysis and cost-benefit analysis. The cruise industry is already fully regulated [Abbate C., Fanciulli F., 1999; House of Lords, 1992; IMO, 1997; Lois P., Wang. J., Wall A. D., Ruxton T., 2000; Marine Safety Agency, 1993] by the International Maritime Organisation (IMO), which continues to put into place strict laws to make the industry one of the safest and most environmentally friendly. In particular, the Cyprus cruise market faces some safety problems. Some Cyprus cruise ships do not comply with IMO safety regulations and consequently cannot compete internationally [Euroship, 2003; Republic of Cyprus, 2004]. A study (see Chapter 5)

was conducted to investigate how the Cyprus and Mediterranean cruise industry could benefit from the application of FSA approach. It can be suggested that the FSA approach is an essential safety mechanism for the cruise companies in the regions examined in order to examine possible accident categories and assess their risk levels.

The sixth objective was to develop practical methodologies and test cases in the areas of cost, risk and investment appraisal that can be used by cruise companies in the Cyprus and Mediterranean cruise regions. The methodology developed in Chapter 6 can be a useful guide for the cruise companies operating in the Cyprus and Mediterranean regions to make decisions about the safe, economic, efficient and effective operation of their cruise ships. The application of this method was carried out using actual data of a cruise ship. The data obtained from the proposed cost, benefit and risk method for cruise ships can be used by other cruise companies in the region and incorporate risk factors into the cost and benefit process with respect to each phase of cruise ship operation.

The “investment risk” methodology proposed in Chapter 7 provides guidance in appraising capital projects within the cruise industry. Such a methodology can be used to enable cruise companies to incorporate risk into an investment appraisal of capital projects, and to evaluate project alternatives in order to make decisions that will be beneficial to them. The “investment risk” modelling has been developed to take into account the costs that can be incurred during the operation of a cruise ship, particularly operating from Cyprus, and also the risk factors that can affect investment decisions. Two investment options were chosen in order to demonstrate the proposed model. The options chosen are two itineraries that are not covered (i.e. operation gap) by the operations of the Cyprus cruise companies. This ‘operation gap’ described in Chapter 7 was found by analyzing the cruises offered by cruise companies in Cyprus, and also by considering the Cyprus accession into the European Union. The developed methods differ from that of other industries (shipping, ports, offshore, hotels) in the sense that there are different risk factors that may be assessed, the costs may be classified into different categories due to difference in the nature of business, and also the external

factors that may influence the company's decision to invest further in those areas may be different.

8.1.2 Discussion on Effectiveness of this Project

The resources and information available from the Cyprus and Mediterranean regions, and the limited information from other cruise markets in the literature partly restricted the effective achievement of the main aim. The main aim was generally achieved but not to the extent that it was expected. This was due to some difficulties. It was difficult to compare the examined regions with the mature cruise markets (i.e. UK and USA) due to the lack of access and confidentiality policy of the companies in such markets. Another negative aspect is that the information gathered from cruise companies in Cyprus and used in the development of an operation strategy (see Chapter 4) and investment appraisal (see Chapter 7) was limited due to the fact that the companies wanted to keep the confidentiality of important information, including acquisition deals, financial projections and operational plans. In an attempt to identify cruisers' attitudes and also the current status of the cruising market in the regions of interest, market surveys were carried out and simple questionnaires were used. The results obtained were reasonably clear probably without needing to carry out formal statistical analysis. However, if more resources were available, an in-depth survey could be carried out with detailed statistical analysis techniques employed. Then the results should be more convincing and a more complete picture of the Cyprus and Mediterranean cruising should be identified. Despite the limitations described in achieving part of the main aim, the thesis is an applied research project addressing economic, financial and safety issues, and can provide a basis for developing an advanced methodology for guiding the development of the Cyprus and Mediterranean cruise market.

It is believed that the methodologies developed in this thesis possess enormous potential as valuable aids and effective alternatives in the area of cruising in the Cyprus and Mediterranean regions. It is also believed that practical applications of these methodologies will result from utilisation by organisations that deal with operational and safety problems with high uncertainty and insufficient data. In such cases, the

implementation of the developed methodologies could have a high beneficial effect. This has already been proved. Cruise companies in Cyprus which lack quantitative and qualitative data have practically used the developed methods and benefited from them.

8.2 Further Work

8.2.1 Further Work Required to Improve the Developed Financial, Economic and Safety Methodologies

It may be worthwhile to exploring and exploiting further the following areas on the basis of the methodologies developed in this thesis:

- The developed methodologies need a sufficiently large and realistic test-bed for detailed evaluation. A missing cruise product in the Cyprus and Mediterranean regions may be taken as a test case to modify and validate the proposed methodologies.
- The financial and economic implications of the Cyprus and Mediterranean cruise tourism outlined in Chapter 3 need to be studied in more detail regarding the fundamental considerations of competition at sea and consumer attitudes to cruise tourism. The company can make maximum use of passenger attitudes about its profitability and address factors that will be advantageous to it in such a changing cruise environment.
- Further studies in the development of the Cyprus and Mediterranean cruise market should be carried out. This development cannot be studied and analysed outside the context of the demand-supply balance, since the viability of cruise shipping is exclusively dependent on the correlation between passenger figures and existing/new tonnage.
- A combination of marketing, pricing and revenue policies could be used by companies to investigate and interpret the needs of potential customers within

safety and economic constraints. An information-based system may utilise the results produced using the methodologies developed in this thesis, to arrive at strategies that provide guidance on cruise product changes that can be made to attract more passengers and increase the companies' market share. Such a system can be used in combination with the advances in technology.

- Regarding the FSA methodology for cruise lines, further studies are required in the following areas:
 - i. More detailed descriptions and discussions are necessary on several aspects in the FSA process, including Causal Chains and Risk Control Options (RCOs).
 - ii. As public concern regarding maritime safety increases, more attention should be focused on the application of FSA of cruise ships as a regulatory tool.
 - iii. It may be desirable to construct a model to study more potential hazardous events that could occur during each phase of cruise operation.
- It is believed that the application and integration of more techno-economic safety aspects to the established safety analysis methodology described in this thesis will need to be developed further.
- The cost and risk assessment methodology developed in Chapter 6 may be further investigated to take into account all the operation phases. A full-scale trial application may be carried out in order to provide safe practices in cruise ship operation and establish appropriate safeguards against significant risks associated with the identified hazards.
- Regarding the investment risk methodology developed in Chapter 7, further studies may beneficially be carried out in the following areas:

- i. The proposed methodology may be further investigated to incorporate quantitative risk analysis where techniques such as Monte Carlo simulation, sensitivity analysis and probability distributions are used.
- ii. More risk factors may be incorporated in the investment appraisal methodology where an integrated quantitative and qualitative risk analysis is developed.
- iii. Other possible ways of investment in the cruise industry within the Cyprus and Mediterranean regions may need to be examined, including the case where a long term charter may be on offer. Under this circumstance, the net cash flows throughout the ship's life can be calculated with some degree of confidence. Another area that needs to be investigated is situations where the directors are confident that there will be a requirement for a vessel but may be unable to predict the earnings year by year. This type of situation exists when vessels are ordered on spec. In this case the analyst may have to compare different offers from shipyards, perhaps including second hand options.
- iv. It is believed that the application and integration of simulation techniques to the established investment risk methodology described in this thesis may need to be examined in more detail. Simulation is usual when an examined situation embodies elements of uncertainty. A particular area of such application is the capital investment decision, where the uncertainty of cash flows and discount factors is at stake. In this regard, the method can assist to evaluate the feasibility of the project before the actual operation begins. It can also indicate how sensitive a project is and can prevent the acceptance of a project based on constant value assumptions over its life span.

8.2.2 Other Further Work

The areas which are related to the financial, economic and safety analysis methodologies in this thesis may require further work in the following aspects:

- **Availability and Reliability of Data**

Many of the weaknesses existing today in the Cyprus and Mediterranean cruise regions are due to inadequate flow of information amongst the parties concerned. This may cause several problems in the course of operating safely and economically a cruise ship, such as lack of either experience or knowledge, or a combination of the two. It has been realised that the collection of data, already practised in various industries, needs to be more widespread in the cruise industry. Individual companies should be persuaded to release their data to a general pool and this larger volume of data should be available for the benefit to all industries. As cruise safety is a prime concern in the cruise industry, more effort should be devoted to the collection of failure and repair data in an attempt to estimate and evaluate the associated risks more reliably and effectively.

- **Employment Prospects**

The employment prospects for Cypriot sea-going employees outlined in Chapter 2 may be studied in more detail. The information obtained from the Department of Statistics and Research of the Cyprus government was limited due to its inadequate database. For this reason, the author gathered information from Louis Cruise Lines although the company would like to keep most of its employment information confidential. Therefore, cruise employment agencies may need to be established in Cyprus either by government or private organisations. This new establishment can create a database for Cypriots interested in working in the cruise market. This can help cruise companies to make a selection of crew and staff from a list of potential sea-going employees. The impact would be felt both by the existing sea-going employees who will be able to transfer to alternative job positions, but, more importantly, it would create a more dynamic market place for new sea-going employees. The new database can also be used

by cruise analysts and researchers in order to study further employment issues in the Cyprus cruise market. Academic value can be emphasized by noting the significance of this data in the creation and development of various graduate level programmes, and even as the basis for continuous academic development of cruise professionals. Moreover, such a database can serve as a sound basis for appropriate reference manuals in this area.

- **Education**

It has been established that for the Cyprus cruise companies the main concern in operating a cruise ship is the cost. For this reason, they may employ crew and staff with improper education and experience. However, it is believed that the shift to experienced and well-educated personnel will overcome several problems such as the lack of communication, and will also result in a safer and more profitable cruise operation in the long term.

In addition, the Cyprus government and the private educational sector may set up professional courses specialising in the shipping industry, with emphasis on the cruise market. This will help interested people to have a clear understanding of the international shipping regulations and principles, and the cruise companies will be able to employ crew with appropriate knowledge and maritime skills.

- **Safety culture**

The cruise companies should work with the aim of improving the safety culture in and around cruise ships. The human element can be addressed in a holistic manner and not just by addressing a few areas that fall within the competence of the IMO, such as training, prevention of pollution and ship management [IMO, 1994]. If the human element is to be properly dealt with there is a need for co-operation between a company and sea-going employees and the establishment of innovative mechanisms to ensure that all aspects are adequately addressed. For the establishment of an effective safety culture it is fundamental that there should be an adequate number of suitably qualified and

medically fit sea-going employees, who will be familiar with their duties and the layout of the particular cruise vessel and who will share a common working language. They should be able to communicate effectively with the passengers and be able to assist them in emergency situations.

- **Possible benefits to Cyprus tourism**

The tourist industry is the biggest industry in Cyprus and makes a valuable contribution to the country's economy. Cyprus has gone through a rapid and meaningful economic metamorphosis in recent years [Webster G., 2001] due to the developments in the tourist industry. The cruise industry has played a significant role in these developments with the introduction of new ships and destinations, and the involvement of travel agents in the industry.

More research is required to examine the possible benefits that the cruise industry in Cyprus may contribute to the country's tourism, in terms of:

- i. Increase in tourist numbers.
- ii. An addition of an attractive product.
- iii. An extra hand in the promotion of the country.
- iv. Increase in international awareness towards Cyprus.

- **Cruise ports**

Another area that needs research in depth is that of home cruise ports. Making the decision on where to homeport presupposes a plan with a precise strategy [Sbarsky S. L., 1999]. The cruise companies should pay particular attention to the ideal requirements that characterise a port as a suitable homeport to cruise ships. In the case of Cyprus, the port of Limassol, which together with Piraeus (Greece) is the busiest in the Mediterranean region, needs a new terminal building for cruise ships [Abbate C., Fanciulli F., 1999]. The studies on the development of a new dynamic cruise terminal may be based on the following factors:

- i. Repair facilities.
- ii. Spares and stores suppliers.
- iii. Operating costs.
- iv. Airport and seaport access.
- v. Co-operation with port officials and government bodies.
- vi. Co-operation with tourism boards.
- vii. A 'Welcome' atmosphere for cruise ships.
- viii. Availability of baggage and passenger handling facilities.
- ix. Availability of shops and restaurants in the port terminal.

CHAPTER 9

CONCLUSION

9.1 Contribution to the Cruising Environment

This research has focused on the development of the cruise market, especially in the Cyprus and Mediterranean regions, examining economic, financial and safety issues concerning cruise ships and cruise companies. This research provides a convenient practical guide to the working environment of the cruise companies and to different aspects of cruise operation, and can, additionally, provide a foundation for further studies in the Cyprus and Mediterranean cruise market. More specifically, the contribution to the cruising environment was to:

- Carry out relevant literature survey on the current status of the Cyprus and Mediterranean cruise regions.
- Carry out market surveys as an attempt to identify the cruisers' attitudes to cruise tourism in the regions of interest.
- Develop an operation strategy and decision-making approach that can be used by cruise companies in the Cyprus region when entering the cruise market or launching a new cruise ship.
- Review the current safety practices. This involved the study of the existing FSA approach with respect to the integration of safety aspects into the operation process of cruise ships in the Cyprus and Mediterranean cruise regions.
- Develop a practical guide on cost, benefit, risk and investment issues in terms of application in the areas examined.
- Demonstrate the applicability of the above methodologies developed.

The methodologies proposed have been developed in a generic sense to be practically applicable to cruise companies and cruise ships operating in Cyprus and Mediterranean regions. Such methodologies can be used as a basis for developing an advanced methodology for guiding the development of the Cyprus and Mediterranean cruise market.

9.2 Definitive Conclusions

Having summarized the results of the thesis, discussed possible areas that need further work, and described the contribution to the cruising environment, it may be worthwhile to briefly summarise the definitive conclusions of the work.

- A brief review of the historical developments of the cruise industry (see Chapter 1) shows that the large cruise passenger ships allow the companies to offer more choices of activities onboard for passengers, and also offer better economies of scale (i.e. lower operating costs) to operating companies, which may result in higher profit margins. The prediction of the domination of the Mediterranean cruise market by a few large companies is coming true. The cruise product and new ships will play a key role in the future of the Cyprus and Mediterranean cruise market. But, it may take time for the Cyprus and Mediterranean markets to improve their operation culture. Only a step-by-step approach can help such markets improve their operations.
- It was found that the consolidation (see Chapter 1) of the cruise industry is not yet complete. This means that competitive pressures and structural changes will force the disappearance of some companies and cause further mergers and strategic alliances to take shape.
- It was found that the Cyprus cruise market is characterised by the lack of management experience on cruise ships, competing cruise ships are similar in size and features, cruise ship fleet is old, and lack of safety culture. Mediterranean cruise market is characterised by cruise ships appealing to the budget and contemporary

segments. It remains a highly diversified market with a wide variety of customers, discounting is very common, and it is highly concentrated on a relatively small number of ports. Both cruising areas are also characterised by the entrance of tour operators into the cruise market.

- The results of the first survey revealed that the cleanliness of cabins and public areas, the quality of food and service, the staff hospitality, and social and entertainment programmes are considered important in deciding their cruise vacation. The distribution system of the Tour Operators and Travel Agents plays a major role within the cruise industry as liners and agents become close partners.
- The findings of the second survey showed that in most areas satisfaction levels were in excess of expectations, particularly in the areas of learning experience, pampering, activities and meeting interesting people. The fact that tourists consider that they are more attentively looked after on a cruise as opposed to a land-based holiday rates high among cruisers. It was also investigated that tourist attractions and sightseeing are the most important factors in their decision to go on a cruise.
- Following the examination and analysis of the results of the two market surveys (see Chapter 3, see also Appendices 4 and 5) carried out, the competition factors were discussed. It was found that “Location” is the most important factor for passengers in choosing to travel on a cruise ship. It can be noted that “Location” together with other factors such as “Attitude and hospitality”, “Political stability” and “Ship support facilities” are of paramount importance for the cruise companies in making good decisions.
- Conducting a test case study on deciding the commissioning of a cruise ship using actual data (see Chapters 4 and 8), it would be a good starting point in developing a profitable and effective operation strategy. The findings from the development of an operation strategy and test case study suggest that a successful strategy may be achieved in various ways, such as public relations, advertising, brochures, conferences and exhibitions, and new modern ships. In an attempt to generate more

revenue, the cruise companies can try to satisfy passengers and provide revenue sources aboard and ashore, such as interactive television, gaming, internet facilities, and shops.

- A systematic and structured approach (i.e. FSA) to assessing cruise ships was described in Chapter 5. A test case study was conducted for a generic cruise ship. The experience gained from this case study suggests that, although the cruise market has an excellent safety record (see Chapter 5), certain areas within this framework need improvement. Areas where such improvement can be achieved include human reliability, industry's action, communication, and information availability and reliability. Since some Cyprus cruise companies do not comply with IMO regulations (see Chapter 8), there is a need for the companies to change their safety policy in order to be able to compete internationally. More awareness of the FSA approach from Cyprus cruise companies is also needed and the possible benefits from its application.
- The results revealed from Chapter 6 are that security and crew costs are of paramount importance. There is a growing cost element in ensuring passenger and crew security. This is because there is an increasing concern in safety due to unlawful acts and terrorism. The proposed methodology provides a practical guide in terms of application in the Cyprus and Mediterranean regions. The methodology was already used by a cruise company in Cyprus. It does reflect the current status of Cyprus and Mediterranean cruise operations.
- By examining the "operation gap" (see Chapter 7), it was found that, with the new status, Cyprus cruise companies could start offering cruises to Turkey. The new itineraries may enable companies to attract more passengers, increase their demand, generate more revenue, and create more employment opportunities for seafarers. On the other hand, cruise companies must take into account some negative factors when choosing the particular itineraries, such as the economic and political stability in the new areas covered by the two itineraries. It is concluded that the available investment appraisal techniques, when employed in isolation, have limited practical

value for exploring investment opportunities. It is suggested that there is a need to obtain a better understanding of the investment environment to improve the effect of current and future investment techniques.

This study strengthens the current belief that the future of the cruise industry is promising, and the Cyprus and Mediterranean cruise market can benefit from it. The future environment of the Cyprus and Mediterranean cruise industry can be both hospitable and hostile. The industry can look forward to tremendous and exciting growth, new vessels and increased passengers and traffic to different and attractive destinations. Yet this increased visibility also means that the industry needs to cultivate new friends and communicate to legislators and the regulators the contribution and positive economic impact that the cruise industry gives.

Cruise ships are slowly gaining "popularity" in the eyes of people, the governing bodies and private organisations, such as the Coast Guard Agencies, classification societies, marine insurers, charters and the International Maritime Organisation. Consequently, there is a need to develop economic, financial and safety techniques for this industry. The work presented in this thesis can provide a foundation for further study into cruise market in the Cyprus and Mediterranean regions.

APPENDIX 1

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APPENDIX 2

International Safety Legislation and Its Demands of the Cruise Ships

SOLAS amendments have introduced more stringent safety measures for cruise passenger vessels. These have been applied as a basic standard by upgrading existing passenger vessels and by building in these regulations to new construction. The amendments are ongoing and the following gives some indication of the action required by operators in the near and distant future.

Sprinkler system

SOLAS II-2/41-2.5

- Accommodation and service spaces, stairway enclosures and corridors shall be fitted with an automatic sprinkler, fire detection and fire alarm system.
- Applicable from 1 October 1997 for pre 1974 ships and on 1 October 2005 for 1974 ships (or 15 years from date of build whichever is the greater).

Stairways

SOLAS II-2/41-2.6.1

- All stairways in accommodation and service spaces shall be of steel frame construction or equivalent and shall be within enclosures formed of 'A' class divisions.
- Applicable from 1 October 2000.

Machinery space fixed fire extinguishing

SOLAS II-2/41-2.6.2

- Machinery spaces of category 'A' shall be fitted with a fixed fire extinguishing system.
- Applicable from 1 October 2000.

Ventilation

SOLAS II-2/41-2.6.3

- Ventilation ducts passing through divisions between main vertical zones shall be equipped with fail-safe automatic closing fire dampers.
- Applicable from 1 October 2000.

Special category spaces

SOLAS II-2/41-2.6.4

- Special category spaces shall comply with the requirements of regulation 37.
- Applicable from 1 October 2000.

Fire doors other than hinged types

SOLAS II-2/41-2.6.5

- All fire doors in stairway enclosures, main vertical zone bulkheads and galley boundaries, which are normally kept open, shall be capable of release from a central control station and from a position at the door.
- Applicable from 1 October 2000.

Life saving launching appliances

SOLAS III/20.11

- Periodic servicing of launching appliances and on load release gear to be examined and tested at intervals not exceeding 5 years.
- Applicable not later than 1 July 2003 for the first interval.

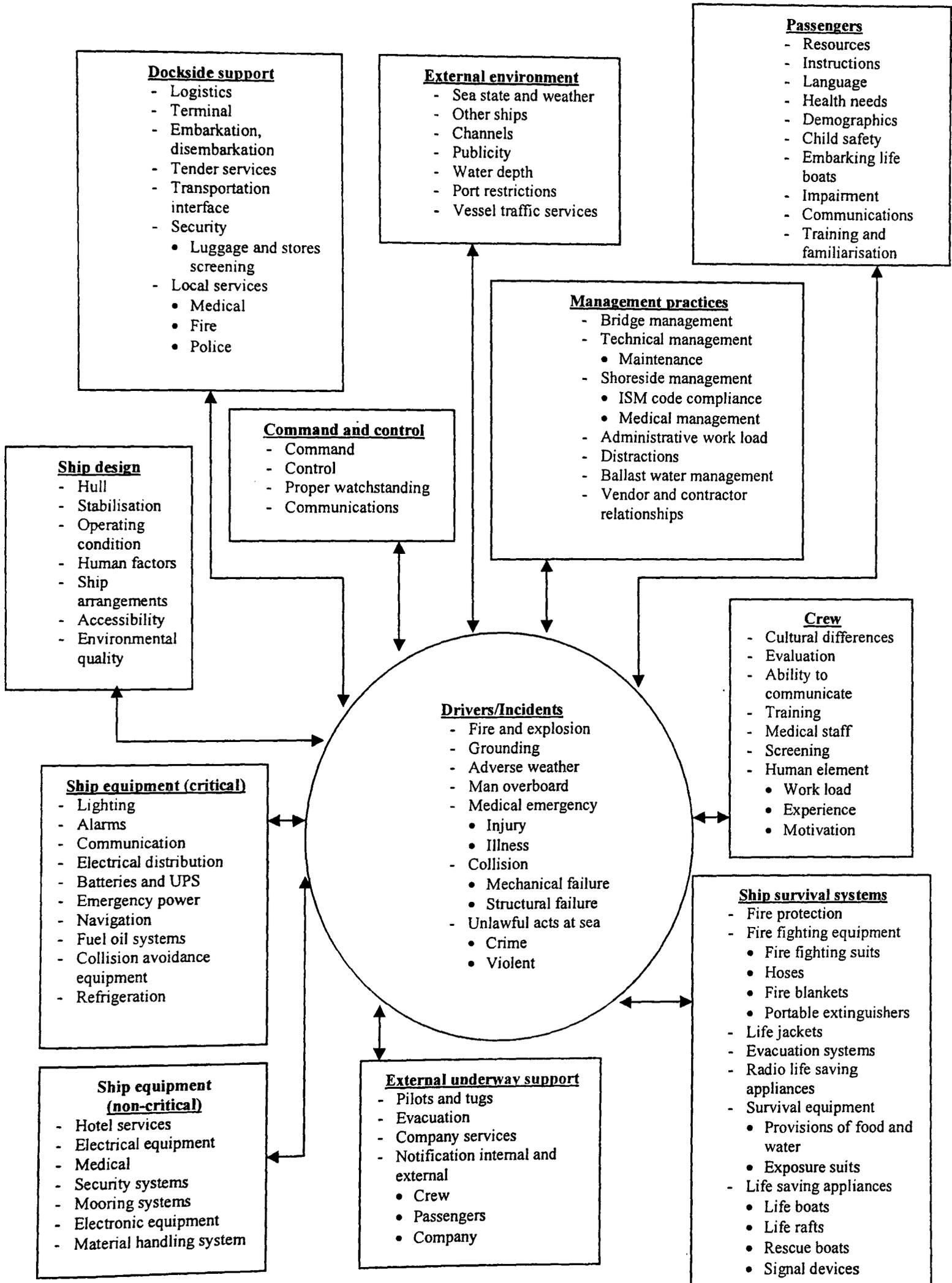
Future workplan of the IMO Maritime Safety Committee concerning passenger vessels

- Fire fighting systems in machinery and other spaces.

- Development of recommendations for the evacuation analysis (SOLAS II-2/28.1.3).
- Fire detection and fire alarm systems.
- Prohibition of the use of asbestos on board new ships.
- Ventilation requirements for packaged dangerous goods.
- International approval procedures for life saving appliances.
- Standard and requirements for thermal protective life jackets.

APPENDIX 3

Cruise Ship Safety Influences



APPENDIX 4**Cruise Ship Passenger Survey I**

Conducted with Cruise Ship Passengers (Cyprus and Mediterranean regions)

Please, help me to learn more about the cruise industry by finding out answers to the following questions and returning the survey to Mr. Petros Lois (MSc, PhD Cand.), P.O.Box 28116, Strovolos, Nicosia, Cyprus, Tel. 00357-99-407577.

SURNAME:

FIRST NAME:

AGE:

COUNTRY OF ORIGIN:

GENDER: MALE FEMALE

DATE:

CABIN NO:

CRUISE TO:

SHIP NAME:

FLAG STATE OF SHIP:

1. Is this your first time with this ship?

YES NO

If NO, how many cruises have you taken? -----

2. Is this your first cruise in your life?

YES NO

3. Please indicate your preference on the size of a cruise ship when taking a cruise.

Less than 200 feet long 200 – 349 feet long
 350 – 599 feet long 600 – 799 feet long More than 800 feet long

4. What is the main factor(s) in choosing to travel with this ship?

Better ship Safer ship Good price
 Convenient dates Attractive destinations
 Other (Please specify)

5. Please indicate your preference of the following options considering the most important during your cruise vacation.

Go sightseeing Go shopping
 Visit tourist attractions Visit museums, churches or other cultural sights
 Go to the beach Eat at a local restaurant

Comments:

.....

6. What are your impressions of the ship (Tick the appropriate boxes)?

	Very good	Good	Medium	Poor	Very poor
CABINS					
Cleanliness					
Size					
Facilities					
DINING					
Food-quality					
Food-quantity					
Service					
LOUNGES & BARS					
Comfort					
Service					
Entertainment					
Show/Music					

DUTY FREE					
Prices					
Variety					
Service					
CASINO					
Comfort					
Service					
OTHERS					
Service-in general					
Social programmes					
Cleanliness (public areas)					
Hospitality of staff					

7. What are your impressions of the land tour (Tick the appropriate boxes)?

Tour to ----- Bus No. -----

	Very good	Good	Medium	Poor	Very poor
Sightseeing					
The bus					
The guide					
The driver					
The lunch					
Shopping					

Additional Comments: -----

8. The European Union announced the abolition of Duty Free in the Ports. What will the effect of this possible abolition of Duty Free services be?

9. Where did you book your cruise from:

Company's offices

Travel Agency

Internet

Tour Operator

10. Would you like to take another cruise with the company's ship?

YES NO

If NO, why? -----

11. Would you like to take another cruise within three years?

YES NO

If NO, why? -----

12. Any other comments: -----

APPENDIX 5

Cruise Ship Passenger Survey II

Conducted with Tourists (Cyprus and Greek regions)

Please, help me to learn more about the cruise industry and their safety efforts by finding out answers to the following questions and returning the survey to Mr. Petros Lois (MSc, PhD Cand.); P.O.Box 28116, Strovolos, Nicosia, Cyprus, Tel. 00357-99-407577.

SURNAME:

FIRST NAME:

AGE:

GENDER: MALE FEMALE

COUNTRY OF ORIGIN:

MARRIAGE STATUS: SINGLE MARRIED DIVORCED

EMPLOYMENT STATUS: WORKING RETIRED UNEMPLOYED

1. Have you ever been on a cruise?

YES NO

If YES, how many times -----, where -----and how often-----?

If NO, would you consider taking a cruise?

YES NO

If YES, would you consider taking a cruise within 3 years?

YES NO

2. How many days do you prefer to spend in a cruise holiday?

Less than 3 days 4 – 7 days 8 – 15 days 16 – 30 days

6. For first-time cruisers only

1 = Less satisfied 10 = Most satisfied

Please indicate the **satisfaction** of the following various aspects of cruising:

Various aspects	1	2	3	4	5	6	7	8	9	10
Offers a variety of activities										
Allows you to relax and get away from it all										
Is a learning experience										
Is a way to meet interesting people										
Allows you to do as much or as little as you want										
Is a fun vacation										
Is a good value for money										
Gives you the chance to visit different places										
Offers comfortable accommodation										
Allows you to be pampered										

7. For people who have taken both **land-based** and **cruise** vacations.

Please tick the appropriate boxes.

Item	Cruise		Resort	
	YES	NO	YES	NO
Well organised				
Relaxing				
Good value for money				
Pampered by staff				
Active				
Safe				
Romantic				
Good way to try out a vacation				
Able to meet interesting people				
Hassle-free				

APPENDIX 6

Interview Questions

Name: _____ **Gender :** _____

Age : _____ **Nationality:** _____

1. Have you ever been on a cruise?

YES NO

If YES, would you consider taking a cruise within 3 years?

YES NO

If NO, would you consider taking a cruise?

YES NO

2. How many days do you prefer to spend in a cruise holiday?

Less than 3 days 4-7 days

8-15 days Over 15 days

3. Indicate the reason(s) for choosing your answer in question 2.

4. Indicate your annual income.

Less than £5,000 £5,000-£9,999 £10,000-£19,999

£20,000-£29,000 £30,000-£39,999 Over £40,000

5. Indicate your preference of the following options considering the most important during your cruise vacation.

Go sightseeing Go shopping

Entertainment Visit places of historical significance

6. Where did you get cruise information and book your cruise?

Internet

Local representatives

Friends

Company's offices

7. What are the factors that satisfy you on-board a cruise ship?

Comfortable accommodation

Quality service

Cleanliness

Entertainment

Others please specify.....

related to an investment decision, but most can be classified into the following categories:

- Economic risk.
- Demand risk.
- Approvals and regulatory risk.
- Inflation risk.
- Sales risk.
- Pre-cruise risk.

The examination of the frequency and consequences of the event occurring and the scales used for the acceptability of risk factors will be explained in Sections 7.5.3 and 7.5.4, respectively.

7.5 Proposed Methodology

Having considered the investment appraisal methods and the techniques used in risk analysis, an investment risk methodology is proposed. The proposed approach will enable the management of cruise companies to incorporate risk into an investment appraisal of capital projects, and evaluate project alternatives in order to make decisions that will be beneficial for them. The proposed methodology, as shown in Figure 7.4, consists of five stages.