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ΔΗΛΩΣΗ ΕΚΠΟΝΗΣΗΣ ΜΕΤΑΠΤΥΧΙΑΚΗΣ ΕΡΓΑΣΙΑΣ

«Δηλώνω υπεύθυνα ότι η συγκεκριμένη μεταπτυχιακή εργασία για τη λήψη του Μεταπτυχιακού Διπλώματος Ειδίκευσης στη Διοίκηση Επιχειρήσεων, έχει συγγραφεί από εμένα προσωπικά και δεν έχει υποβληθεί ούτε έχει εγκριθεί στο πλαίσιο κάποιου άλλου μεταπτυχιακού ή προπτυχιακού τίτλου σπουδών, στην Ελλάδα ή στο εξωτερικό.

Η εργασία αυτή έχοντας εκπονηθεί από εμένα, αντιπροσωπεύει τις προσωπικές μου απόψεις επί του θέματος. Οι πηγές στις οποίες ανέτρεξα για την εκπόνηση της συγκεκριμένης μεταπτυχιακής αναφέρονται στο σύνολό τους, δίνοντας πλήρεις αναφορές στους συγγραφείς, συμπεριλαμβανομένων και των πηγών που ενδεχομένως χρησιμοποιήθηκαν από το διαδίκτυο».

Όνοματεπώνυμο

Κωνσταντίνος Κύρου

Υπογραφή



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GLOSSARY

B2B	Business to Business
BCG	Boston Consulting Group
BIMCO	Baltic and International Maritime Council
CEO	Chief Executive Officer
CPP	Company policy and procedure
CSR	Corporate Social Responsibility
GSP	Green Shipping Practices
IPO	Initial Public Offer
ISM	International Safety Management
ISMA	International Ship Managers Association
ISPS	International Ship and Port Facility Security
KPI	Key Performance Indicator
M&A	Mergers and Acquisitions
MLC	Maritime Labour Convention
PMS	Planned Maintenance System
R&D	Research and Development
S&Q	Safety & Quality
SC	Shipper cooperation
SD	Shipping documentation
SDC	Shipping design and compliance
SE	Shipping equipment
SEEMP	Ship Energy Efficiency Management Plan
SM	Shipping materials
SPSS	Statistical Package for the Social Sciences
STCW 95	Seafarer's Training, Certification and Watchkeeping
SWOT	Strengths, Weaknesses, Opportunities and Threats
TEU	Twenty-foot Equivalent Unit

ΠΕΡΙΛΗΨΗ

Η διαχείριση πλοίων εξελίχθηκε από μια εσωτερική λειτουργία των πλοιοκτητών σε μια επίσημη οργάνωση για τη διαχείριση των πλοίων τους, εκτελώντας τις πιο βασικές λειτουργίες της επάνδρωσης πλοίων, της τεχνικής διαχείρισης, της τροφοδοσίας και της συμμόρφωσης με τους διεθνείς κανονισμούς και τις βέλτιστες πρακτικές του κλάδου της ναυτιλίας. Η στρατηγική που ακολουθείται από μια ναυτιλιακή εταιρεία σε περιόδους ύφεσης αποτελεί βασικό παράγοντα για την απόκτηση ανταγωνιστικού πλεονεκτήματος, βελτιώνοντας τη θέση της έναντι των ανταγωνιστών και γενικότερα αυξάνοντας τα κέρδη της.

Είναι γεγονός πως η πρόσφατη οικονομική κρίση επηρέασε την παγκόσμια ναυτιλία, η οποία πρέπει να αντιμετωπίσει προβλήματα άρρηκτα συνδεδεμένα με το οικονομικό κλίμα. Η ανάπτυξη της βιομηχανικής παραγωγής είναι περιορισμένη, ενώ η ζήτηση για βιομηχανικά και καταναλωτικά προϊόντα υποχώρησε, επηρεάζοντας τις ανάγκες για θαλάσσιες μεταφορές. Ωστόσο, παρά την πτωτική αγορά των μεταφορών, οι εφοπλιστές συνέχισαν τις παραγγελίες νέων πλοίων, προκειμένου να εκμεταλλευτούν το χαμηλότερο κόστος παραγωγής και να μπορέσουν να χειριστούν τη δυνητικά μεγαλύτερη ζήτηση στο μέλλον. Η αύξηση των παραγγελιών βελτίωσε όχι μόνο τη διαθέσιμη χωρητικότητα συνολικά, αλλά και τον μέσο όρο ηλικίας του παγκόσμιου στόλου, η οποία συνδέεται με πλεονεκτήματα για τις διαχειρίστριες εταιρείες (νέες τεχνολογίες, αποδοτικές μεταφορές φορτίου, χαμηλότερο λειτουργικό κόστος) αλλά και το περιβάλλον.

Το ερευνητικό ζήτημα της παρούσας εργασίας είναι η διερεύνηση των στρατηγικών που ακολουθούν οι ναυτιλιακές εταιρείες σε περιόδους ύφεσης και των πρακτικών που χρησιμοποιούν για να διατηρήσουν την καλή τους απόδοση. Ως εκ τούτου, ο σκοπός της παρούσας έρευνας είναι η επανεξέταση των υφιστάμενων επιχειρηματικών στρατηγικών και πρακτικών σε περιόδους ύφεσης και ο εντοπισμός εκείνων που βελτιώνουν τις επιδόσεις των ναυτιλιακών εταιρειών. Η υφιστάμενη εμπειρία βασίζεται στη βιβλιογραφία και τις αντιλήψεις ναυτιλιακών στελεχών, σχετικά με τις στρατηγικές που ακολουθούν οι ναυτιλιακές εταιρείες, την τρέχουσα κατάσταση του κλάδου και την αναγκαιότητα ανάπτυξης νέων πρακτικών.

Σε πρώτο στάδιο, η εργασία αναλύει το επιχειρηματικό περιβάλλον της ναυτιλίας και προσδιορίζει τις στρατηγικές που ακολουθούν οι ναυτιλιακές εταιρείες σε περιόδους ύφεσης, αναλύοντας τις στρατηγικές επιβίωσης, την καινοτομία, το μάρκετινγκ και την αειφορία. Η στρατηγική αναμονή, δηλαδή η ικανότητα να καθορίσει και να εφαρμόσει μια στρατηγική που να ανταποκρίνεται άμεσα σ' ένα απρόβλεπτο και δυνητικά ευμετάβλητο περιβάλλον, θεωρείται μέρος της επιχειρηματικής στρατηγικής σ' ένα

περιβάλλον αβεβαιότητας, όπως είναι ο κλάδος της ναυτιλίας. Ακολουθεί σύντομη περιγραφή των πτυχών της αβεβαιότητας, η οποία έχει από καιρό θεωρηθεί ως κεντρικό πρόβλημα και καθιστά δύσκολο για τις επιχειρήσεις να κάνουν μελλοντικά σχέδια, να λαμβάνουν αποφάσεις, και να ενεργήσουν. Σε περιόδους ύφεσης, οι παραδοσιακές προσεγγίσεις για τη στρατηγική, το ρίσκο και την αλλαγή δεν είναι πλέον κατάλληλες. Μεταξύ των προκλήσεων που αντιμετωπίζουν τα ανώτερα στελέχη είναι ο καθορισμός της στρατηγικής, η εκτέλεσή της, η διαχείριση των κινδύνων και η διαχείριση της αλλαγής. Οι βέλτιστες πρακτικές περιλαμβάνουν ευέλικτο σχεδιασμό, ανάπτυξη ελαστικότητας και συνεργασία με άλλους φορείς.

Στη συνέχεια, σε δεύτερο στάδιο, η εργασία εντοπίζει τις πιο κατάλληλες στρατηγικές και πρακτικές που ακολουθούνται από ναυτιλιακές εταιρείες σε περιόδους ύφεσης. Εκτός από την υφιστάμενη βιβλιογραφία, η εμπειρία παρουσιάζεται μέσα από τη στατιστική επεξεργασία ερωτηματολογίων, τα οποία έχουν διανεμηθεί σε ένα αντιπροσωπευτικό δείγμα στελεχών ναυτιλιακών επιχειρήσεων. Τέλος, η εργασία παρουσιάζει τα αποτελέσματα της στατιστικής επεξεργασίας, σημειώνοντας χρήσιμα ευρήματα, και καταλήγει σε τελικά συμπεράσματα.

Το κύριο αποτέλεσμα της παρούσας έρευνας είναι ότι οι βασικές στρατηγικές ανταγωνισμού που ακολουθούνται σε περιόδους ύφεσης είναι η ηγεσία κόστους και η διαφοροποίηση. Η ποιότητα και το κόστος των υπηρεσιών είναι τα πιο ισχυρά «όπλα» των ναυτιλιακών εταιρειών. Αν και μειώνουν τις λειτουργικές δαπάνες σε περιόδους ύφεσης, οι ναυτιλιακές εταιρείες δεν μειώνουν την ποιότητα των υπηρεσιών τους. Επιπλέον, η διατήρηση ενός υψηλού επιπέδου διαχείρισης της ασφάλειας και ποιότητας είναι μια πρόκληση στην οποία οι περισσότερες ναυτιλιακές εταιρείες έχουν επικεντρωθεί τον 21ο αιώνα. Σ' ένα άκρως ανταγωνιστικό περιβάλλον όπως αυτό της ναυτιλίας, οι περισσότερες εταιρείες επικεντρώνονται στη βελτίωση της ανταγωνιστικής θέσης των υπηρεσιών τους. Κατά τα τελευταία χρόνια, πολλές ναυτιλιακές εταιρείες έχουν υιοθετήσει τη στρατηγική ηγεσίας κόστους, καθώς δεν ήταν έτοιμες να αντιμετωπίσουν την κρίση, ενώ άλλες αποφάσισαν να μειώσουν τα λειτουργικά τους έξοδα.

Το μάρκετινγκ δεν έχει ακόμη καθιερωθεί στη ναυτιλία λόγω των ειδικών χαρακτηριστικών της ναυτιλιακής αγοράς. Έμφαση στο μάρκετινγκ δίνεται από εταιρείες που ακολουθούν στρατηγική ανάπτυξης προσπαθώντας να διεισδύσουν στην αγορά. Μια τακτική που θεωρείται ευεργετική σε περιόδους ύφεσης είναι η κατανομή των κινδύνων, η οποία επιτυγχάνεται με τη δραστηριοποίηση σε τομείς με μικρή συσχέτιση μεταξύ τους και τη γεωγραφική εξάπλωση των αγορών.

Η πλειοψηφία των ναυτιλιακών εταιριών εισάγει καινοτομίες στην τεχνολογία σε περιόδους ύφεσης, γεγονός που φαίνεται να έχει θετικό αντίκτυπο στη μείωση των

λειτουργικών τους εξόδων. Έτσι, αποκτούν ανταγωνιστικό πλεονέκτημα σε ένα συνεχώς εξελισσόμενο επιχειρηματικό περιβάλλον, όπου οι τεχνολογικές εξελίξεις είναι ραγδαίες. Επιπλέον, εφαρμόζουν βέλτιστες πρακτικές στη διαχείριση επάνδρωσης πλοίων, ασφάλειας και ποιότητας, τεχνικής διαχείρισης, τροφοδοσίας και οικονομικής διαχείρισης, δίνοντάς τους την ευελιξία να προσαρμόζουν τη στρατηγική και τις λειτουργίες τους.

Οι «νικητές» φαίνεται να είναι οι εταιρείες που πραγματικά καταφέρνουν να "πλοηγηθούν" στο μεταβαλλόμενο επιχειρηματικό περιβάλλον της ναυτιλίας. Μια στρατηγική επιτυχίας μπορεί να είναι αυτή που συνδυάζει την ευθύνη, την καλύτερη συνεργασία με όλους τους εμπλεκόμενους φορείς, τη βιωσιμότητα ως μέρος της επιχειρηματικής στρατηγικής και την αποτελεσματική διαχείριση των επιπτώσεων της βιωσιμότητας μεταξύ των αλυσίδων αξίας, έτσι ώστε να πραγματοποιηθούν καινοτόμες λύσεις.

ABSTRACT

Ship management evolved from an in-house function of the ship owners to a formal organisation to manage their vessels, performing the most basic functions of crewing, technical management, supply and compliance with statutory matters and industry best practices. Strategy followed by a shipping company in turbulent times is a key factor for gaining competitive advantage, improving its position against competitors and in general increasing its profits.

The research problem of this study is to investigate the strategies followed by shipping companies in turbulent times and practices used to maintain their good performance. Therefore, the aim of this research is to review the existing business strategies and practices during turbulent times and identify those resulting in improving performance of shipping companies. The existing experience is based on the literature and the shipping executives' perceptions on current strategies.

More specifically, at a first stage, the work analyzes the shipping business environment and identifies strategies followed by shipping companies. Strategic anticipation is considered as part of business strategy in an unpredictable and potentially volatile environment, following brief description of best practices, such as flexible planning and resilience development. Then, at a second stage, the work identifies the most appropriate strategies and practices followed by shipping companies in turbulent times. Except for the existing literature, the experience is presented through statistical processing of questionnaires as well, which have been distributed to a representative sample of executives. Finally, at a later stage, the work discusses the results and draws final conclusions.

The main result received through this research is that the main competitive strategies followed in turbulent times are cost leadership and differentiation. The quality and the cost of services are the most important benefits of shipping companies, which introduce technology innovations and implement best practices in Crew, Safety & Quality, Technical, Supplies and Financial management, giving them flexibility to adapt strategy and operations.

The "winners" likely will be those companies that truly manage to "navigate" the changing ship business environment. A winning strategy might be the one that embraces a new sense of responsibility, better collaboration with all stakeholders involved, including partners, suppliers, vendors, and customers; assert sustainability as part of business strategy; enable effective management of sustainability impacts across and between value chains with civil society organizations, customers and regulators - to enable innovative solutions to be realized.

INTRODUCTION

Early development of ship management was a result of ship owners suffering from high operating overheads in the face of a depressed freight market. Till the early 1980's, outsourcing of the vessel operations to a ship manager was seen as an effective method for reducing operation expense, while in the late 1980's the top executives of five leading independent ship management companies joined together to draft a code of practice for the industry, which was the basis for the formation of the International Ship Managers Association (ISMA) in 1991.

The second wave of reform came in the beginning of the 21st century with the implementation of the International Safety Management (ISM) Code, Seafarer's Training, Certification and Watchkeeping (STCW 95), International Ship and Port Facility Security (ISPS) Code and Maritime Labour Convention (MLC), as an attempt to ensure quality, professionalism and integrity in all aspects of a ship management operation ([Bajpae, 2010](#)).

It is undeniable fact that ship managers have been operating in an extremely undesirable freight and ship-value market in recent turbulent times, and still within a squeezed budget due to market conditions. In order to gain competitiveness over each other, ship owners on one hand are planning their next moves to exploit lower manufacturing costs and handle the potentially greater future demand, and ship managers, on the other, are working hard to reduce their operational expenses and respectively seek to develop and exploit competitive manning resources so that they establish and maintain good performance of the company and, therefore, its competitive advantage.

Of course the future for ship management is not pessimistic at all. It really depends on how ship managers perceive and respond to that challenge. In this respect, the challenge is essentially a matter of how efficiently they can leverage their resources, that is, their people, processes and technology in their service delivery to meet customers' needs. In these circumstances, traditional approaches to strategy, risk and change are not sufficient to sustain competitiveness any more.

The main challenge of 20th century in shipping business was to maintain the rate of profit whilst improving the level of safety as required by the ISM Code. The main challenge of the 21st century will be the ability to maintain competitiveness and safety within a dynamic changing global business environment focusing more and more on sustainable development principles as an integrated part of the business management strategy ([Chintoan-Uta, 2013](#)).

CHAPTER 1 RESEARCH DEFINITION

1.1 Introduction

In this chapter, the research problem and research justification are defined. The research problem section includes the strategies followed by shipping companies in turbulent times and the practices that have been selected so far, while the research justification section identifies the lack of the most effective ones. The next section presents the method which the research is based on and the existing relationship from theory as well as to what extent this relationship influences or affects the present condition of the matter under investigation. In the scope section, the aims of the research are examined, while the following section presents the research questions, which give guidance towards clarifying the problem.

1.2 Research Problem

The research problem of this study is to investigate the strategies followed by shipping companies during turbulent times and practices used to maintain their good performance. The hypothesis is that shipping business environment is turbulent and there are certain strategies that would maintain or improve the competitive advantage of companies. More precisely, the survey reviews the existing experience concerning shipping company strategies through the existing literature and then specifically focuses on executives' perceptions on the current strategies and the possibility of introducing new ones in the near future. The answer to the research problem will be the identification of the points of view held by executives in relation to the strategies and the necessity of alterations in their plans.

1.3 Justification of the research

The main aim of this research is to identify strategies followed by shipping companies in turbulent times and, especially, those that influenced their performance more.

The recent financial crisis evolved into a global economic crisis within the environment of closely interlinked economies, causing the greatest recession since the 1930s and a serious deterioration of public finances in most countries. There was an adverse impact on all the economies of the world, including global shipping. The economic activity was heavily influenced, as consumption and industrial activity were decreased ([Bank of Greece](#), 2014).

Strategic management is the most difficult and important challenge that an enterprise needs to deal with, especially in shipping industry. It refers to how it will survive and will prevail over competition as well as how it will develop a successful roadmap within this difficult environment in the future. Success in the present is not enough because it is not guaranteed in the future, therefore substantial conditions are required in order to maintain it. The aforementioned challenge is created due to demanding present and future, and it is in the centre of strategic management. This is because business environment is constantly evolving and there may be differences between present and future; expansion of new products, entrance of new competitors, increase in replacement products, changes in consumer preferences and technology advances are so rapid that alter not only the product features but also entire production processes.

The above factors cause changes in business environment, therefore the enterprise should change and adapt constantly. Strategic management is an important weapon for tackling this challenge, enabling the company exploit the opportunities of the present and plan the future roadmap combining developments of both external and internal environment ([Georgopoulos](#), 2010).

The company takes into account the conditions prevailing both in the external and internal environment before defining its mission, objectives, strategic choices and how they will be implemented and evaluated. Strategic decisions concern the whole environment in which it operates, all its resources and the interaction between them. The better the choice of the strategy, the more likely it is to gain a competitive advantage, improve its position against competitors and in general to increase its profits. According to Porter ([Porter](#), 1985), there are two basic types of competitive advantage:

- cost leadership, namely the production and supply capacity of a product at the lowest possible cost to the company
- diversification, namely the supply of a product that has such features as a potential customer is willing to pay more to get it

One of the main problems firms struggle with when planning, making decisions and taking action is the increasing uncertainty in the business environment. The level of perceived uncertainty is influenced by dynamism and complexity of the environment therefore as the pace of change increases, international markets become more complex and the international trading grows, the problem of uncertainty stemming from the socio-political-economical-regulatory changes deserves more attention. Although certain capabilities of the firm such as making sense and interpreting the environment or organizational design are proven to be essential in managing the

dynamic environment, there is a need to focus on the more strategic ones such as relationship management and its interaction with other resources ([Zafari et al.](#), 2015). During turbulent times, traditional approaches to strategy, risk and change are no longer appropriate. Among the challenges facing senior executives are Strategy determination, Strategy execution, Risk management and Change management. Therefore, the present research could be focused on identifying the most effective strategies and developing the most appropriate practices that could possibly be included or in parallel to the existing strategies, so that shipping companies maintain or improve their competitive advantage.

1.4 Methodology

The present research is based on the descriptive method and is concerned with an existing relationship from theory and to what extent this relationship influences or affect the present condition of the matter under investigation. The research is based on a relationship of the type “if...then” and is established using the proven theory “if there are more efficient strategies and practices in turbulent times then performance of shipping companies will be better”. The research does not try to re-appraise any existing material and practice that make strategy more efficient neither to modify nor re-interpret them from a different point of view. Therefore the review approach does not fit as the appropriate research method; instead the empirical approach is adopted for conducting the research ([Skittides & Koiliari](#), 2006).

The present research is a review of the existing literature data of company strategies during turbulent times. The research also records the shipping industry executives' perceptions on the current situation of shipping industry and the necessity of developing new practices that could possibly be included in the existing strategies. According to Skittides, the empirical approach is based on experiment results or observation data results. Therefore, the review approach does not characterize the whole research; instead the empirical approach is adopted for conducting the research. The empirical method employed is based on the results of statistical processing of questionnaires, which have been distributed to a representative sample of shipping industry executives.

Then, the deductive approach is also adopted. According to Skittides, this type of empirical research “*is a checking of application of a general theory for a specific case. In deductive research, the researcher starts up from a general theory formulating the research questions. The answers help the researcher to test if the theory can be applied in this special case. Probably, deductive research is a course*

from general to specific". The reasoning for selecting deduction derives from the fact that the answer to the research problem for developing new strategies and practices in shipping industry during turbulent times is based on the fact that traditional approaches to strategy, risk and change are no longer appropriate.

Regarding the type of design, survey is used because it is this type of research where data gathering takes place with the aim to generalize the collected results. This research checks if the hypothesis of the research is true; it neither tests a theory nor checks a theory using a specific case. At a first stage, the work reviews the existing experience in global shipping. Except for the existing literature, experience in Greece is presented through statistical processing of questionnaires as well, which have been distributed to a representative sample of executives.

The questionnaire is the appropriate technique because it is a way of gathering many perceptions referring to shipping company strategies from people who are directly related to it. The questionnaires were self-completed, which means that the interviewee himself answered them. The questionnaires were handed out to the executives after having received permission from the respective companies that were accessed. The questionnaires were accompanied by a written declaration of their rights, the researcher's responsibilities towards them and the purpose of the questionnaire, and also by a guarantee of secrecy (Bell, 2005). Some questionnaires were answered in situ, while others were returned on a specified date. A number of the interviewees answered the questionnaire at home at a later time and returned it on a specified day as they had no time available to complete it in situ.

At a second stage, the work presents the data processing. Processing involves editing and coding. Editing process aims at identifying and eliminating errors that have been made by those who gave the answers. Three main duties should be performed during the editing process: completeness, accuracy and consistency. The coding process, i.e. the correspondence of one number to one answer, aims at reducing the volume of the data so as to make the analysis easier. Data processing of the questionnaires is carried out with the help of a statistics package called SPSS (Statistical Package for the Social Sciences). Statistics is divided into two main areas: descriptive and inferential. Descriptive statistics aim to summarize a data set quantitatively without employing a probabilistic formulation while the aim of inferential statistics is to make inferences about a population from the sample data. Then, the work presents the results coming from this processing.

Finally, at a later stage, taking into account the existing experience in shipping industry and executives' opinions expressed in the questionnaires, the work develops and/or identifies the most appropriate and promising strategies and practices that

could possibly be applied in shipping enterprises in turbulent times, either included or in parallel to their strategies, makes recommendations for managers and possibly seeks more close cooperation between them.

1.5 Delimitation of scope

The aim of this research is to review the existing business strategies and practices in turbulent times and identify those resulting in improving performance of shipping companies.

The research is focused on problems related with strategy, risk and change. To be more specific, the existing experience is based on the executives' perceptions on current strategies in shipping industry, recorded through statistical processing of questionnaires. Therefore, the research tried through the questionnaire to examine the following aims:

- The performance of Greek shipping companies in turbulent times.
- The available strategies and practices to gain competitive advantage.
- The most appropriate and promising practices that could possibly be applied in the shipping industry.

1.6 Research questions

The research questions help determine what evidence needs to be collected to answer the research problem while also set the boundaries for the research problem by stating what is part of the research problem and what is not. A correct definition of the research questions will refine the problem and a clearer picture of it will emerge as the researcher will be fine-tuning and investigating the data collected.

1. Which are the current strategies of shipping companies in turbulent times?
2. What are the goals of shipping companies in order to maintain or gain competitive advantage during turbulent times?
3. Which are the most appropriate and promising practices to maintain or improve company performance?

1.7 Outline of the dissertation

In the first chapter an introduction to the present study is made. The reader is introduced to the context of the research and the research problem is defined. The aims of the research are outlined and a justification for attempting the research study is also given. In addition, the methodology chosen for conducting the research is

described and reasons for selecting strategic and tactical choices are explained. Finally, the research problem is defined along with the research questions, which help towards defining the problem.

The second chapter contains the research process plan and the steps followed during the research process.

In the third chapter, company strategies in turbulent business environment are defined and analyzed, including survival strategies, innovation, marketing and sustainability, while fourth chapter identifies the capability to determine and implement strategies that are highly responsive to an unpredictable and potentially volatile environment.

The fifth chapter contains the elaboration of collected data. The elaboration concerns the collection of all necessary information concerning executives' perceptions about the current situation in shipping industry and the analysis of the questionnaire data. The chapter also contains a discussion about the findings and their relation to the research problem.

In the last chapter, the final conclusions of the investigation are given. They have been resulted from the comparative analysis of the questionnaires, leading to particular proposals for the improvement of performance of shipping companies during turbulent times.

1.8 Summary

The first chapter introduced the problems concerning strategies followed by shipping companies during turbulent times and this is the starting point for conducting the present study. Based on the above justification, the research problem was defined as how the shipping industry executives' experience and opinions can be exploited in order to make suggestions for improving performance of shipping companies. After describing the research problem, the present chapter also presented the aims of the research, outlined the appropriate methodology and defined the research questions in order to perform investigations.

CHAPTER 2 METHODOLOGY

2.1 Introduction

In this chapter, the methodology applied for the fulfillment of the research is analyzed. For this purpose, the chosen methodology and the research procedures are fully and logically justified. The research process map is also presented. Special consideration is given to the section concerning ethical issues that may arise during the research procedures.

2.2 Research process plan

The research methodology has the following basic steps ([Skittides & Koiliari, 2006](#)):

1. Research approach selection: empirical or review, inductive or deductive
2. Type selection: experiment, case study or survey
3. Category selection: depends on type selection
4. Selection of the research techniques: depends on type and category selection

Step 1: As mentioned before, in order to create a clearer picture of the strategies in shipping industry during turbulent times, part of this research could be characterized as a literature review because it synthesizes work from literature on company strategies. However, the main approach for carrying out this research is empirical. *“Empirical research is based on experimentation or observation”*. The present empirical research could be characterized as deductive. The main characteristic of deductive research is the top down approach. *“A general theory is the base on the researcher’s mind and formulates a hypothesis on it; then the checking of positive or negative confirmation follows”* ([Skittides & Koiliari, 2006](#)).

Step 2: The types of an empirical research are: experiment, case study and survey.

- The experiment is a procedure which checks an “a priori” existing theory but is not suitable for the existing research because it is mainly used in cases of quantitative types; the present research is a qualitative one.
- A case study has the target to confirm a theory using a specific case in detail.
- Survey is the empirical research in which data collection is carried out for the generalization of the results. The intention of the author of the present study is to collect data regarding executives’ opinions about strategies in turbulent times and consequently generalizing the results. Therefore, the appropriate type of research is survey.

Step 3: The category selection suitable for a survey would be discovery, longitudinal or cross-sectional. A longitudinal survey investigates differences in a set of

phenomena over time and it needs extended time. A cross-sectional survey investigates differences in a set of phenomena at one time; this could be suitable for the current research. Discovery uncovers “what is there” and that is what the present research really aims to do. “What is there” means which are the current strategies followed by shipping companies, according to executives’ opinions.

Step 4: The next step of the research design is the selection of the appropriate research technique. This occurs in connection with the category of activity. The research technique will show whether it is necessary to use questionnaires, interviews, measurements, focus groups or a combination of them, in order that the research is carried out.

Accordingly, the investigative techniques that are adopted are mainly questionnaires and sometimes useful focus groups and interviews. Questionnaires are used in this assignment. The data collection was achieved through the use of a structured questionnaire which is detailed and consists of 3 parts. In the first part there are 4 questions that are related with company information of executives involved in the research. Second part consists of 9 questions in total, asking executives’ opinion about strategies followed by their company, according to their experience. The last part consists of 5 questions asking executives’ experience on management practices for better company performance.

Questions served to gather information on the opinion of the shipping industry executives about: the organizational structure of the company and relationships between management and employees, financial situation of company, development strategies, innovation strategies, internationalization of company, means of cost reduction in turbulent times, best practices in management. Most questions are close-ended. Questions of this type have the following advantages:

- they can cover a wide range of views
- they are brief and usually easy to understand
- they are better for statistical processing

Only a few open-ended questions are included to facilitate oral discussions and assessment of opinions; for example, what is the percentage of turnover last year and what is the target. A sample of the questionnaires used for the data collection is attached in [Appendix B](#).

In order to perform data collection by questionnaires, the companies received a letter covering the questionnaires that briefly described the research project, why they were chosen and why participating in the particular study was worth their time and effort. A sample of the covering letter is attached in [Appendix A](#).

Validity of any empirical research is largely based on the sample of people asked. When the sample is homogeneous and representative, then the results are highly reliable. People involved in this research are shipping industry executives with expertise in one of the following fields:

- Ship manager
- Ship broker
- Regulator
- Maritime services provider
- Maritime equipment provider

The questionnaire was distributed to executives of 35 shipping companies. The initial goal of collecting about 30 questionnaires was achieved since we received back 32 completed questionnaires. Another goal of receiving answered questionnaires from companies of all size categories was also achieved, since companies included in the survey were almost equally divided according to their size. Therefore the sample includes 32 executives from Greek shipping companies, where access was provided thanks to the principals' agreement. The majority of questionnaires were handed out in order to make responders feel that their opinion is of significant importance for the researcher and also to be able to answer any relevant questions they might have. Most questionnaires were sent by e-mail and were filled in anonymously. This method of collecting data was considered to be more successful than other methods for capturing ideas and attitudes. Other methods, such as interview, often require much more time and do not give specific answers to questions. In all cases, a deadline of return was given, fifteen days later, apart from those cases that questionnaires were answered in situ.

Having received the questionnaires, the next step was editing and coding, to the extent that this was possible. Coding is done using a random sample, approximately 10% of the questionnaires (3 in this case), and generating a frequency tally of the range of responses as a preliminary to coding classification. This data processing of the questionnaires is carried out with the help of the statistics package SPSS.

The analysis process is influenced by ([Chalikias](#), 2010):

1. The number of variables being examined:
 - In univariate analysis one variable is examined (e.g. number of employees). This involves presenting the number of attributes of the variable studied for each case observed in the sample in a table format, with a bar chart or any other form of graphical representation.

- In bivariate analysis two variables are examined simultaneously and the usual analysis methods are comparison of means, cross tabulations, scatter plots and regression.
 - In multivariate analysis three or more variables are examined at the same time.
2. Levels of measurement that can be distinguished:
- Nominal scales (or called categorical): Numbers are used to classify things, with no implication that one number is better than another
 - Ordinal scales: Involve ordering or ranking of the variable under consideration. Categories are ordered with respect to the degree to which they possess particular characteristics without being able to say how much of the characteristic they possess.
 - Interval scales: these not only rank objects by the degree to which they possess a characteristic but also indicate the exact distance between them.
 - Ratio scales
3. Descriptive or inferential statistics:
- Descriptive: Summarize patterns in responses
 - Inferential: Provide an idea about whether the patterns described in the sample are likely to apply in the population from which the sample is drawn

Statistical processing of the questionnaires was made using the SPSS software as the main tool and the following statistical techniques:

- Single-input frequency tables and the corresponding diagrams for the description of the variables.
- Crosstabs (dual-input frequency tables) to search for correlations between two variables.
- Independence test with "Pearson Chi-Square Test". The calculation of statistical indicator Chi-Square also gives its significance (significance or p-value). The verification is made simply by comparing a predetermined level of significance ($\alpha = 0.05$) with the significance resulting from the test.

2.3 Ethical considerations

The questionnaire-based researcher must have a true understanding of research ethics developed in the past as well as nurture his own ethical sensibility to promote the appropriate use of questionnaires in research ([Asai et al., 2003](#)). Research ethics

refer to the moral dimensions of researching about what is right and wrong, while engaged in research.

It is a basic principle of ethical research that those who participate in this research should give their consent to being part of the research. This consent should be both informed and voluntary. The researcher informs the participants of the aims of the study and what participants will be asked to do if they decide to participate by means of Information and consent Form. The most critical ethical consideration to take into account is confidentiality. It is vital for the researcher to respect the privacy of people who assist him with his research. It is usual to assure participants that they can withdraw from a study at any time without giving a reason, in questionnaire-based research ([Roger](#), 2007).

All the participants were constantly assured that their confidentiality and anonymity would be guaranteed. They were encouraged not to answer any questions that made them uncomfortable and promised that only the author would have access to data. The author thanked all those who participated in the study, as their willingness to respond by giving their views and opinions without payment or favor underscored their realization and acceptance of the benefits to be obtained.

The trustworthiness of all data used throughout this work is demonstrated by good quality sources and using honestly in the answers of the questionnaires.

2.4 Summary

In the second chapter an in depth analysis was provided concerning the basic steps of research design, such as the research approach selection, the selection of type, category and research techniques that the author adopted to complete the investigation. The research process plan was analyzed in detail. Ethical matters were also raised concerning the reliability and validity of data as well as the intentions of the author.

CHAPTER 3 STRATEGIES IN TURBULENT TIMES

3.1 Introduction

Chapter three identifies the strategies followed by shipping companies during turbulent times, including survival strategies, innovation, marketing and sustainability. For this purpose, these are preceded by the analysis of turbulent business environment for shipping industry. Special consideration is given to the section concerning strategic management which facilitates company to achieve the desired results in an unpredictable environment.

3.2 Turbulent times for Shipping Industry in 21st century

A business environment is turbulent when several components of that environment are subject to rapid, frequent or unpredictable change. In a turbulent environment, it is not possible, nor desirable, to commit resources on a long-term basis to only one technology. Instead, under conditions of turbulence a company needs access to a variety of technological options, each of which can be exercised or abandoned at short notice. For example, new technologies may form a threat to established industry leaders. Most notably, the music industry is under threat of MP3 technology and is missing substantial revenues because of people downloading music from the Internet ([Duysters & Man, 2003](#)).

The financial crisis, which originally broke out in the US in August 2007, and then rapidly deteriorated in autumn 2008 with the collapse of the Lehman Brothers investment bank, evolved into a global economic crisis within the environment of closely interlinked economies, causing the greatest recession since the 1930s and a serious deterioration of public finances in most countries. There was an adverse impact on all the economies of the world. The economic activity was heavily influenced, as consumption and industrial activity were decreased. In a globalized and interacting economy this fact generates a domino of events in international trade which is directly based on the global economic activity and demand. That trade fall is due to reduced imports and exports between countries and domestic reduction in demand due to other factors generated by the recession, such as uncertainty about the future, unemployment, loss of income.

Besides financial crisis, global shipping has to face range problems inextricably linked to the economic climate. The development of industrial production (extraction of raw materials, energy production) is limited, while the demand for industrial and consumer products abated, affecting the needs for maritime transport.

The significant reduction in transport demand downgraded the global freight market, affecting prices for newbuildings. As a result, the market is driven ultimately in conditions of oversupply of tonnage versus low availability of transported loads, which depresses the fare market in almost all markets. The strongly positive trends prevailing in the industry and the ever increasing demand for transport services, prior to turbulent times, led shipowners to increase newbuilding orders, resulting in the continued growth of tonnage worldwide.

The reduction in lending from several shipping banks, as a result their illiquidity, limited the activity and development of both international trade in goods and shipping market. The distrust between banks and the lack of guarantee letters limited credit limits on new lending to the minimum, which had negative impact on the volume of transported cargo. Furthermore, global trade was restricted due to reduced demand for consumer goods, which complicated further the shipping market.

In addition to the negative results in the freight market, ship sales and purchases were significantly reduced. The shipowners saw revenues be eliminated, as the value of their fleet was considerably reduced. The significant reduction of vessel value resulted in the scrapping of older ships at discounted prices or replaced with newer ships at very low rates ([Bank of Greece](#), 2014).

But despite the declining freight market, shipowners continued to order newbuildings in order to exploit lower manufacturing costs and handle the potentially greater future demand. The increase of orders improved not only available tonnage but also the average age of the world fleet, which is associated with advantages for both managing companies (new technologies, efficient cargo transport, lower operating costs) and environment.

Mr. Robert Stenvik, Chairman and Senior Partner of Via Mar AS, spoke in a recent shipping forum in Singapore on the developments in the various shipping markets, and demonstrated how a comprehensive professional analysis of shipping markets can serve as insurance to achieve the best investment outcomes. Mr. Stenvik opined that an effective analysis must consider world economic development and its impact on demand, domestic consumption and production, the volume of ship building and ship scrapping, as well as price developments in the freight rate and second hand vessel markets. Based on this analysis, Mr. Stenvik anticipated that a general increase in seaborne dry bulk trade, in conjunction with shrinkage of the bulker fleet between 2016 and 2017, presents a positive outlook for dry bulk vessels. Smaller containerships also present attractive opportunities. However, tankers, gas carriers and larger containerships appear less attractive. In concluding, Mr. Stenvik cautioned

that investment decisions require a further analysis of downside risks and other factors.

Participants of the forum were anonymously polled on issues of various shipping sectors and expected future developments in ship finance. Results of the poll indicated that ([Singapore Shipping Forum](#), 2016):

- Bulker prices are most likely to recover in the near term
- Investment in the shipping sector through debt and equity securities is preferred over direct vessel acquisition
- In respect of vessel acquisitions, bulkers are the preferred choice
- RMB is not expected to become one of the world's dominant trading currencies in the foreseeable future
- Singapore is best able to support OBOR as a key financial and maritime services centre
- Ship lending by banks will continue to dominate ship financing going forward, but it will be even scarcer than today, and available only to top tier clients

London-based shipping analysts Drewry recently gave a blunt assessment to dry bulk shipowners: *Cut half your Capesize ships over 12 years old or you will not make a profit for at least another two years.* The analyst could have said the same thing about the container shipping business. Financial results are starting to roll in and they are not pretty. A combination of chronic overcapacity and falling demand pushed freight rates to record lows in 2015 and that has continued in 2016. Around 1.7 million TEUs of capacity were added to the global fleet last year, with BIMCO (Baltic and International Maritime Council) estimating that container volumes grew just 1.1 percent. This year 850,000 TEUs will float into service, most of them in ships of 8,000 TEUs and above. Rock bottom bunker fuel prices are the only thing keeping container lines buoyant at the moment, but imagine being dependent on a self-serving, squabbling and unpredictable group of oil exporters that could decide to switch off the production taps at any time ([Knowler](#), 2016).

All the aforementioned constitute key elements outlining the industry in the last years. However, the business expectations for global freight market in the future seem to be high. In any case, the development of global shipping industry will depend on the recovery of global economy and especially world trade in the coming years. Along with that, balancing demand and tonnage supply will play a key role in the recovery of the sector.

3.3 Strategic Management

Strategy constitutes an action plan that will lead to the achievement of the objectives of a business. It consists of decisions and well-planned moves that result in good performance of the company and, therefore, to establish and maintain its competitive advantage. A prerequisite for the success of a strategy is good framing and proper execution. The most ingenious strategy is ineffective if the execution is poor. Conversely, a moderate strategy with excellent execution cannot create competitive advantage for the company. A combination of good strategy and proper execution leads to the correct strategic management.

Strategic planning is the result of the broader mission of the business, which is generally related to its history, the aspirations of its people, the environment in which it operates, the resources and skills available as well as the advantage over its competitors. The objective of strategic planning is to facilitate each organization to achieve the desired results in an unpredictable environment. Over the years and as the company's operation is becoming increasingly complex, the opportunities of the external environment should not be left to chance, but company should focus on the selection and implementation of strategic choices based on ([Georgopoulos, 2010](#)):

- A precise and real assessment of the company's position
- A clear and objective assessment of the external environment and competition



Figure 3.1: Business operation environment

Strategic management is the most difficult and important challenge that an enterprise needs to deal with either in public or in private sector. It refers to how it will survive and will prevail over competition as well as how it will develop a successful roadmap within this difficult environment in the future. Success in the present is not enough because it is not guaranteed in the future, therefore substantial conditions are required in order to maintain it. This challenge is difficult as the treatment of the present and the roadmap to the future include options that bring the management of a business against complex transactions, with many different stakeholders, and concern all the business decisions.

Strategic Planning for shipping companies has a key advantage and one major disadvantage. The disadvantage is the difficulty of planning in general (unpredictable) business processes, such as shipping, and the advantage is the similar services provided as a result of the limited types of ships. The numerous lines of businesses that other kinds of business have, with many different products, require a respective number of diversified strategies ([Papadakis, 2016](#)).

The aforementioned challenge is created due to demanding present and future, and it is in the centre of strategic management. This is because business environment is constantly evolving and there may be differences between present and future; expansion of new products, entrance of new competitors, increase in replacement products, changes in consumer preferences and technology advances are so rapid that alter not only the product features but also entire production processes.

The above factors cause changes in business environment, therefore the enterprise should change and adapt constantly. An important weapon for tackling this challenge is strategic management, with which the company is able to exploit the opportunities of the present and plan the future roadmap combining developments of both external and internal environment. Strategic management is therefore a very important factor for the development of each company because it answers to three critical questions ([Georgopoulos, 2010](#)):

- Where is the business? (Environment Analysis)
- Where does it want to go? (Strategy Development)
- How will it arrive at this point? (Implementation Strategy)

The company takes into account the conditions prevailing both in the external and internal environment before defining its mission, objectives, strategic choices and how they will be implemented and evaluated. Strategic decisions concern the whole environment in which it operates, all its resources and the interaction between them. Therefore, the basic model of strategic management follows four successive stages:

1. Environment analysis
2. Strategy development
3. Strategy implementation
4. Evaluation and check

Environment analysis involves monitoring and assessment of the external and internal environment of the company using the SWOT analysis model. It comprises the analysis of Strengths and Weaknesses of the internal environment of the enterprise, and Opportunities and Threats of the external environment.

Strategy development deals with the development of long-term plans of the enterprise taking into account the strengths and weaknesses of the internal environment in order to properly exploit the opportunities of the external environment and face any threats. The process of strategy development includes the identification of the mission, objectives, strategies and policies of the enterprise.

The next stage is **strategy implementation**, which is the process by which management implements strategies and company policies, by developing programs, budgets and procedures.

Finally, by the evaluation and check the management can determine the performance of the enterprise, by recording and comparing the actual with the desired results.

3.4 Shipping Company Strategies

Strategies are comprehensive plans that analyse the implementation way of the targets and the mission of a business. They are divided into corporate, business and functional. It is worth adding that a shipping company can configure and implement all three types of strategy mentioned above. Corporate strategy refers to the development and management of all activities, business strategy focuses on the competitive position of a product or service and functional strategy is related to the use of available resources for achieving the business objectives.

Business environment both external and internal plays an important role in the choice and implementation of the appropriate strategies, as already mentioned above. The strategy followed by the company is a key factor for its development and sustainability. The better the choice of the strategy, the more likely it is to gain a competitive advantage, improve its position against competitors and in general to increase its profits.

The strategies are applied in the following three levels ([Georgopoulos, 2010](#)):

- Corporate-level

- Business-level
- Functional-level

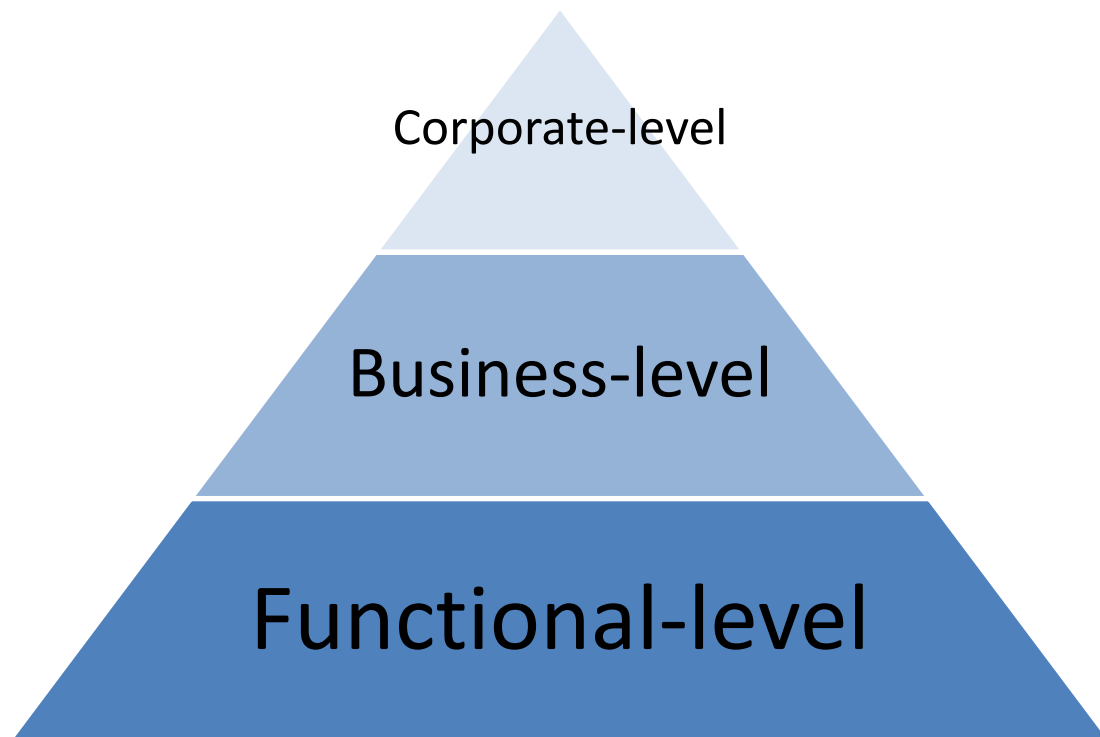


Figure 3.2: Strategy hierarchy

Corporate strategy describes the overall orientation of the organization, namely what business should the organization take action and how these can be structured and managed correctly. The corporate strategy role should be supportive and enhance the competitive position of business units through the development of links between them, allocation of resources etc.

Corporate strategy addresses three issues:

1. The *orientation strategy* of the company.
2. The *portfolio strategy* of the company, referring to the markets or industries in which the organization competes through its products and business units.
3. The *directional strategy* of the company, with regards to the manner in which management coordinates the activities, transfers resources and develops skills among product lines and business units.

Each company must decide the orientation for both survival and development. The *orientation strategy* falls into three broad categories:

- **Growth strategy:** The continuous development of business and its activities is essential for the survival and prosperity of a company. The development of a

business may occur internally or externally according to the following ways: mergers, acquisitions, strategic alliances.

- **Stability strategy:** This is followed by companies operating in a reasonably predictable environment. The company continue its activities without making any change in them. There are three basic stability strategies: no-change strategy, profit strategy, pause strategy.
- **Retrenchment strategy:** When a company fails to achieve its purpose, nevertheless wants to address its weaknesses follows this strategy. It includes the following types: turnaround strategy, captive company strategy, sell-out strategy, bankruptcy or liquidation.

Portfolio strategy is often followed by enterprises having more than one product or business units. Portfolio analysis determines the way in which each product or unit contributes to the overall performance of the enterprise, enabling the administration to properly manage its investments. The most common approach of portfolio analysis is the market share growth matrix developed by B.C.G. (Boston Consulting Group) executives, which operates as a diagram and helps companies identify where their products are based on certain criteria.



Figure 3.3: B.C.G. matrix

Directional strategy focuses on how each unit operates, based on resources and capabilities that add value both to the group to which they belong and to the parent company. It focuses on the competitive advantages of the parent company and the relation of skills and resources with the needs and opportunities arise. This analysis

helps select new units and determine type of administration. The stages of this process are the following ([Wheelen](#), 2012):

1. Examine each business unit in terms of important success factors.
2. Examine each business unit in terms of areas where performance can be improved.
3. Analysis of how well the parent-company matches the business unit.

Business strategy is followed by a company in order to face competitors in the area in which it operates. It focuses on improving the competitive position of the products or services and can be competitive, cooperative, or both together.

The three key business strategies are:

- Cost leadership
- Differentiation
- Focus

According to Porter ([Porter](#), 1985), there are two basic types of competitive advantage:

- Cost leadership, namely the production and supply capacity of a product at the lowest possible cost to the company
- Diversification, namely the supply of a product that has such features as a potential customer is willing to pay more to get it

Either one or the other way, the company's profits increase; in the first case due to reduction of operation cost and in the second case because the total enterprise revenue increase. Taking into consideration these two types of competitive advantage, there are three options regarding company's **competitive strategy**:

- Cost leadership strategy
- Differentiation strategy
- Focus strategy, which in turn can be divided into focus strategy with diversification or strategic focus on cost leadership

Functional strategies can be applied to the components of a business: marketing, production, research & development, human resources, financial, sales, distribution, etc. The basic mission of a functional strategy is to support the business strategy and achieve specific objectives for the department. It includes the following strategies:

- Marketing
- Financial
- Information systems
- Research and Development

Each of these strategies involve a completely different view of both the company's organizational structure, skills development and philosophy for dealing with competitors.

The competition strategies available for shipping companies are determined by the structural characteristics of the freight market in which they participate. The options in relation to the competition strategy are cost leadership, differentiation and response to specific requirements of shippers. For the majority of Greek-owned enterprises, the main competitive strategy is cost leadership ([Gupta, 1987](#)).

The components of the aforementioned strategy are presented below:

- Acquisition of ships with low cost, mainly through second-hand ship market taking advantage of conjunctures
- Use of flags depending on the circumstances and advantages of each flag
- Acquisition of production factors from the international market, taking efficiency into consideration
- Implementation of a management model focused on cost control
- Use of ship management expertise of human resources

3.5 Survival Strategies

Any organization in all business sectors, as in shipping, has the right to make mistakes. Wrong movements, bad timing or even poor management can lead an enterprise to decline. Both internal and external factors are responsible in such cases. Rescue and Reversal strategy is a solution that can be followed by shipping companies when they face reduced revenues, low profits and operational difficulties.

This strategy consists of the following stages ([Papadakis, 2016](#)):

- Downsizing: restraint cash flows and cost reduction
- Liquidation: sale of vessels to obtain some funds in order to cover short term obligations or scrapping
- Stabilization: the company tries to keep its operations stable
- Rebuilding: gradual development of the company

During the last three years many shipping companies have adopted this kind of strategy, as they were not ready to deal with crisis, while others decided to reduce their operational costs. Behind every vessel lies a management company with staff and facilities, namely costs for managing the affairs of each vessel and the services offered. Shipping companies can affect the fleet operating costs, according to the management, in order to maintain or achieve maximum revenue.

The total cost is categorized into fixed and variable. The fixed cost remains unaffected by changes in the production process, while the variable is affected by them ([Vlachos, 2011](#)).

The fixed costs include:

- The capital cost, namely the depreciation of initial investment and repayments
- General costs including rents, administrative expenditure, agents and operating expenses
- The repair and maintenance of vessels as regards compulsory maintenance costs (dry docking, special surveys) rather extraordinary
- The cost for insurance coverage that is independent of its output

The variable costs include:

- Travel expenses (fuels, lubricants, port fees, supplies, etc.)
- Operating costs including labor costs (manning, crew changes, provisions), repairs and maintenance, supplies and spare parts, insurance and registration

Mergers and Acquisitions (M&A) add a dynamic to the new company, which gains the confidence of investors and ensures the rise of share price. The performance is even greater M&A are followed by increase of capital share. These are short term expectations while the increase of the share price will be long term if the company expands its profits in the coming years.

A strong company coming from merger has the potential to face competition both domestically and internationally. Mergers and exports contribute to enlarge market share and acquire pricing power, namely enable the company to set the prices in the market. The strategy of company mergers is a kind of survival strategy. The new company has greater power and stronger character against systematic risk and aggressive M&A proposals from other companies.

Another advantage is the publicity which is involved in a merger or acquisition. It contributes to the strengthening of brand name, bringing multiple benefits in several areas, especially in sales and financial transactions, and of course in its credibility. Furthermore, M&A contribute to cost savings and reduction of operating costs, especially the staff payroll. Benefits also accrue to the expertise and technology that are property of the company. The growth contributes to rapid development and exploitation of technology. M&A lead to greater financial stability. Cash flow and profits are more stable and predictable, which can lead to better and successful financial management.

Finally, mergers and acquisitions may result in tax reductions and exemptions, as in the case of the use of purchased profits either by reinvesting capital assets or by presenting decreased profits from the merger-acquisition of companies with losses.

Mergers and acquisitions also have several disadvantages. In many cases actual results are not as expected. This may be due to incorrect information that led to the wrong strategy. But a significant disadvantage of these acts is the social cost involved since in many cases there is a reduction in the number of employees. This phenomenon affects the community and in particular the unions watching with concern their affected labour achievements.

Many studies indicate that adjustment difficulties arise after completion of the merger, such as the integration of different business cultures, different payroll and benefits. These differences of merged companies result in poor performance which may lead to failure ([Papadakis, 2016](#)).

3.6 Innovation

Investments in Research and Development (R&D) are typically made under uncertainty. Firms cannot safely predict the state of demand when the resulting product offering will be launched in the marketplace, nor what the competitive situation will be.

An innovative idea can create a remarkable competitive advantage, helping in finding new markets and leading to growth of a business. Innovation in any sector of a company (production, supplies, client management, etc.) is inextricably linked to its investments for the introduction of new technologies. It is important to mention that the success of a technological investment is not guaranteed, but it depends on the degree of technological expertise and the strategic importance of the investment.

Investments in R&D still have a medium impact on the growth of a company, therefore their results are not obvious in short term, which is daunting in turbulent times. Thus, the strong R&D activity at a certain time does not fully justify the different performance between companies, but mainly the differentiation in performance of a specific company in long term. In turbulent times, the ongoing growth may not mean improvement of the position of the company but also its survival ([Capasso & Verspagen, 2011](#)).

The successful adoption of new technologies or organizational change is more likely in turbulent times because the main activity remains unchanged. Enterprises, in this view, exploit and renew their potential advantages through innovation, turning them into competitive advantage ([Makkonen et al., 2013](#)). Although Greek economy is characterized by long-term decline and any theory is far from the real possibilities offered, one has to take into account the beneficial effects of innovation, even in this business environment.

During financial crisis, smaller and newer companies, but also companies with significant export activity as suppliers, forced to reduce their innovation investments due to severe restrictions to funding access ([Paunov, 2012](#)).

Research shows that companies which develop and implement innovative business models, so that existing procedures are better implemented, probably perform better than those that focus on product innovation, but also that inactivity towards changing business model affects the sustainability of many companies.

3.7 Marketing

The maritime marketing is the specialization of Business to Business (B2B) marketing as regards the shipping industry as a provider of seaborne transportation services worldwide and is addressed to charterers and shippers. The shipping company provides transportation services to other companies – charterers and shippers – in order to meet their needs. On the side of shipping company a series of actions are required to approach customer, which comprise the application of marketing in shipping industry. They are similar to other economic sectors and their aim is to select the most appropriate, efficient and long term fleet employment.

The satisfaction of demand requires on the one hand correct diagnosis of the shipping market for the better understanding and anticipation of the transportation needs of customer and on the other, proper organization, planning and control of the means available by the shipping company ([Plomaritou, 2006](#)).

Some features that affect B2B marketing are also met in shipping, such as the intangible nature of shipping service and the fact that production and consumption occur simultaneously. However, marketing has not yet been established in shipping industry due to special characteristics of shipping market.

This is the reason that more and more shipping companies perceive the importance of market orientation, as an adaptation tool in modern competitive and turbulent environment. The need for application of marketing principles has been imperative to a fleet that has increased significantly over the last decade and a global economy that is looking for ways to recover from a great depression.

The literature also indicates that environmental factors, such as rapid technological changes, competition and market fluctuations, create the need of market orientation. The market orientation includes the action plan for collecting or spreading information about current and relevant future needs of customers, sharing of that information throughout the organization, and strategic management for responding to that. Therefore the market orientation is demonstrated either as philosophy or as a set of

business practices to be applied always in alignment with the organization's strategy ([Jaworski & Kohli](#), 1993). Market orientation as part of the marketing philosophy may also include many different approaches for the strategic alignment of the organization with the external environment.

A tactic that is considered beneficial during turbulent times is the allocation of risk, which is achieved by operating in sectors with little correlation between them and geographical spreading of the markets. Equally perfect is considered the case of the company having market share in a recession-proof market, as well as the vertical integration in production, which ensures high operational cost reduction in a sustainable way.

In any case, the constant monitoring of the market trends and collecting information about customers, competitors and stakeholders in general, is corporate practice and part of the marketing. Especially during turbulent times it becomes more important, as the identification of opportunities and threats is vital for the survival and growth of the enterprise. Such a market-oriented business can easily detect the oncoming recession and have all the necessary information in order to decide what kind of changes will be made regarding product, pricing, distribution and promotion ([Pearce & Michael](#), 2006).

Many business giants, such as Microsoft, Dell and BMW, have implemented aggressive marketing policies in turbulent times, gaining a large market share. Their planning for increased investments in this area had a preventive character as it had started before the beginning of the recession, which strategically was addressed as "opportunity" ([Srinivasana et al.](#), 2005).

The approaches that shipping companies have implemented in relation to their social responsibility vary. The definition of Corporate Social Responsibility (CSR) shows that enterprises should monitor and evaluate their effects on all stakeholders and wider society, in order to be considered as socially responsible entities. There are three approaches to this issue. The first one could be characterized as aggressive to the concept of CSR, the second one as neutral, while the third approach as supportive.

The first approach is implemented by a small group of depressed companies. Competitiveness for them is their main concern, even if its implementation means less safety and lower quality. This group of companies produce externalities that destroy the image of total industry. The second approach is implemented by the majority of companies, which simply remain within the rules of the game. According to this approach, companies comply with the rules while following their key objectives, namely to generate profits for their shareholders. They manage their

activities in such a way that they neither generate externalities nor affect the public image of the industry ([Friedman](#), 1962). Finally, the third approach is implemented by a group of companies that move beyond the compliance with the rules, in accordance with non-mandatory standards, or even create their own standards for their operation ([Fafaliou et al.](#), 2005).

Even in turbulent times many companies underestimate the role of CSR, considering that it is an activity with negative effects on their finances. However, recent research shows that the image of business depends even more on CSR in such cases, as consumers and stakeholders are aware and demanding more, therefore the socially conscious CSR is able to increase the market share. Successful CSR activities also have a positive impact both to shareholders and the company's lenders, which has a positive impact on funding with better interest rates, thus reducing the probability of depression or bankruptcy of company during turbulent times ([Sun & Cui](#), 2013).

3.8 Sustainability

The reality of the financial crisis has revised the free market operation. Bill Gates and Warren Buffet have reported the need of a creative capitalism with strong “*ethical basis*”. A key point of this theory is the application of the principles of sustainable development; the medium and long-term economic growth is achieved and maintained only through the preservation of natural resources and environmentally friendly production processes.

The big challenge in the case of application of environmentally friendly strategies is to convince management to medium-term profitability costs, which seem harmful and irrelevant to the main activity of the enterprise. Research findings actually show that compliance with the above practices in turbulent times seems to be a factor of economic success and performance above average ([Mahler et al.](#), 2009).

A common policy between these two issues is to invest in R&D and innovation of environmental cost-efficient production processes that large corporations with different profiles, such as Apple and Wal-Mart, embraced successfully during crisis. Equally important is executives' training in sustainable production approach.

The various management systems that can be used to execute a sustainability strategy are critical elements in any successful implementation. This includes the variety of information that is needed to improve both operational and capital investment decisions. It includes improving the financial analysis needed for better management decision-making throughout the organization along with a more formal

integration of social risk into the analysis. These systems provide the levers that managers can use to increase social, environmental, and financial performance.

Just as the formulation of sustainability strategy is critical, so is the execution. Management must also make choices about how to implement the sustainability strategy and integrate economic, social, and environmental impacts into their organizations. These impacts are sometimes managed using “soft” leadership elements such as people and culture along with a variety of informal systems. In their recruitment and development practices, companies may seek to create in their employees a passion and commitment to sustainability. They in effect create a culture to support sustainability decisions. This culture is firmly embedded in the beliefs, values, and mission and vision statements of companies that serve to inspire and motivate employees to take sustainability obligations seriously ([Epstein](#), 2009).

The environmental emphasis of Green Shipping Practices (GSP) allows shipping firms to comply with the institutional forces and improve the environmental performance of shipping activities profitably. There are six dimensions of environmental management in shipping operations that help conceptualize GSP. Taking as a case a leading shipping firm, A.P. Moller-Maersk Group (Maersk), these dimensions of GSP include ([Lai et al.](#), 2011):

- Company policy and procedure (CPP). This is concerned with corporate commitment to a vision or culture of sustainability in a shipping firm.
- Shipping documentation (SD). This is concerned with the documents involved in performing shipping activities such as booking request, booking confirmation, shipping instructions, invoice, and remittance advice.
- Shipping equipment (SE). This is concerned with the use of environmentally friendly shipping equipment and facilities.
- Shipper cooperation (SC). This is about cooperating with shippers on environmental objectives.
- Shipping materials (SM). This is concerned with recovering from used shipping resources to reduce costs and improve operations.
- Shipping design and compliance (SDC). This is concerned with minimizing the life-cycle environmental damage of shipping activities by taking measures in compliance with regulatory requirements.

From another point of view, sustainability may also refer to maintaining their competitive advantage. Many once-leading firms have been dethroned abruptly for not being able to protect and sustain their once-formidable competitive advantage. Imitators and new entrants with superior technologies can quickly erode competitive

advantages that have taken years to build. Firms that persistently outperform their peers are those able to sustain or renew their competitive advantage over the long run. Sustainability of competitive advantage invariably depends on the dynamics of the market. In a market with low entry and exit barriers, it is more likely that a firm will enter when it sees a window of opportunity. To avoid this, an incumbent can erect entry barriers.

Just as there are various mechanisms to protect the profitability of an industry (e.g., erection of entry and exit barriers), there exist mechanisms within an industry to protect a firm's competitive advantage from rivals' imitation. A firm's ability to create and sustain a competitive advantage depends on its firm-specific resources and the distinctive capabilities arising from these resources. To keep competitors from duplicating its competitive advantage, the firm should constantly strive to create or enhance asymmetries by acquiring and managing distinctive resources and capabilities that cannot be readily duplicated by would-be imitators. Heterogeneity among firms is the cornerstone of the resource-based view of the firm, emphasizing firm specificity and uniqueness. Imitation can only be precluded if there is heterogeneity and imperfect transferability of key resources. Besides the scarcity and immobility of unique resources, firms can erect isolating mechanisms to prevent rivals from internally developing similar resources ([Chevalier & Trigeorgis](#), 2011).

3.9 Funding – Cash Flow

Shipping as an international industry, poses some special features which make it changeable from international economic and not just developments. The action environment, the internationalized product that offers an internationally competitive environment, the raising rates of the world market, the direct dependence of the world economy and market conditions, financing and raising funds from the world's banks and exchanges, geopolitical developments, the protection of the environment and the flexibility or not from institutional settings are some of the factors that shape a world sensitive to changes in character.

Restrictions in funding is a problem that became even bigger in Greece since the outbreak of the financial crisis. There is research showing that the problems were not significantly lower for firms with less lending funds, compared to companies with high financial leverage, resulting in the reduction of both loans and investments, and consequently requested funds ([Kahle & Stulz](#), 2013).

These external constraints are more easily treated if the company belongs to a business group in which internal lending substitutes the external, at least to cover

basic needs. Conversely, in periods of growth rather than recession, this funding scheme is often ineffective ([Hovakimian, 2011](#)).

The main features of investment funds for a company seeking funding are the following ([Investopedia, 2014](#)):

- Hedge Funds: The goal of a hedge fund investment is to provide the highest possible investment return in the shortest possible time. To achieve this goal, hedge funds invest in highly liquefiable assets, enabling fast profits from an investment, and then move the funds into another more promising investment.
- Private equity funds: Private equity funds are more like business funds in the sense that invest directly in companies, mainly by purchasing private companies, although sometimes seek to gain their control through their market shares.
- Hedge Funds VS Private equity funds: Unlike hedge funds, private equity funds since gaining control of company's interest, they are trying to improve company through management changes, rationalization of operation and expansion, aiming to sell the company for profit, either at individuals or through initial public offer (IPO).

During the financial crisis bank funding for shipping is particularly difficult, since the maritime sector is characterized as high risk industry. Banks possessing large shipping portfolios will not expand, but will try to get rid of some. The best scenario is to maintain their portfolio by refunding some loans. Apart from China, whose banks lend to Chinese shipping companies and shipyards, no other bank is easy to deal with shipping in the coming years.

The issue of funding in turbulent times is perhaps the most difficult problem that arises and, simultaneously, the most critical to the survival of business. Possible beneficial practices include internal savings by reducing operating costs, more advantageous agreements with suppliers, and increase of profits giving emphasis on exports. Concerning external lending, it is important to have sustainable planning before the depression, in order to increase funding possibilities at reasonable costs during turbulent times.

3.10 Summary

At the close of the third chapter we have gained a first impression and we are familiar with the concept of the strategy and the importance of this within companies. Therefore, business strategy is a plan that will lead to achieving the objectives of an

enterprise and consisting of decisions and well-planned moves that result in good performance of the company and thus to establish and maintain its competitive advantage. In addition, the concept of strategic management was analyzed as well as the stages that make up that model (environmental scanning, strategy formulation, implementation strategy, evaluation and monitoring).

Finally, reference was made in survival strategies and the role of innovation, marketing, sustainability and funding during turbulent times.

CHAPTER 4 STRATEGIC ANTICIPATION

4.1 Introduction

In this chapter, the concept of strategic anticipation is identified as part of business strategy in turbulent times, namely the capability to determine and the ability to implement a strategy that is highly responsive to an unpredictable and potentially volatile environment. Environmental uncertainty has long been viewed as a central problem of organization as it makes challenging for businesses to plan, make decisions, and act. Best practices include flexible planning, resilience development and collaboration with other industries.

4.2 Dealing with Uncertainty

“There are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don’t know we don’t know.”

Donald Rumsfeld got it right. When he used the above analogy, he was speaking at a press briefing in 2002 about the absence of evidence linking the government of Iraq with the supply of weapons of mass destruction to terrorist groups. His words were criticized at the time as an abuse of language by, among others, the Plain English Campaign. However, Geoffrey Pullum, a linguist, disagreed, saying the comment was *“completely straightforward”* and *“impeccable, syntactically, semantically, logically and rhetorically”* ([Syrett & Devine, 2012](#)).

The managing uncertainty survey carried out for the above mentioned book found that most companies were late to spot the crisis of 2008. They did not believe the situation was serious until the fall of Lehman Brothers, approximately one year after they should have known. Furthermore, most companies took another six months to respond, leaving an 18-month gap between observation and action. Speed was a critical factor in how companies measured the effectiveness of their response.

In this constantly evolving environment, where firms must often make quick decisions that have long-term impact, it is anybody’s guess what might happen in the future – market developments often prove expectations wrong. Firms must carefully commit to specific strategies while developing adaptive capabilities in an ever-changing marketplace. Globalization, deregulation, and the emergence of new economies (e.g. Brazil, Russia, India, China) have created both threats and opportunities for incumbent firms who now have to adapt more effectively to the rapidly changing global environment or suffer damage by new entrants and risk extinction.

Following the liberalization and deregulation of European economies, only a limited number of industries have remained secure, while most companies across the board face serious competitive pressures. At the same time other economic sectors traditionally characterized by a large number of companies have undergone significant consolidation, resulting in oligopoly structures with a reduced number of players. The recent economic crisis has amplified these consolidation pressures. These two concurrent phenomena – liberalization and consolidation – have put higher on the corporate agenda the assessment of strategic uncertainty ([Chevalier & Trigeorgis, 2011](#)).

Arnoud De Meyer (former professor of management studies) anticipated Rumsfeld's analogy when he postulated four types of uncertainty that firms may encounter as separate phenomena or in some form of combination ([Syrett & Devine, 2012](#)):

- Variation comes from many small influences that cannot be easily anticipated individually; however, the resulting variation from a firm's expected outcome can be identified and managed.
- Foreseen uncertainty is identifiable and understood influence that may or may not occur. This form of uncertainty is often resolved through risk management and scenario planning.
- Unforeseen uncertainty is more difficult to manage as a company is unaware of the event's possibility or has discounted its likelihood. There is no contingency plan in place. This form of uncertainty requires businesses to work more flexibly, employ more novel strategic approaches and work more closely with suppliers and customers on which the firm is most dependent.
- Chaos is where unforeseen events invalidate a firm's basic premise and strategy. The firm's best option is to redefine its objectives and business approach. Organisational learning is at a premium. Managers also have to be resilient yet adaptable, and nimble, creative and clear-headed in assessing the options and deciding what actions to take.

Environmental uncertainty has long been viewed as a central problem of organization as it makes challenging for businesses to plan, make decisions, and act. As pace of change and complexity in the shipping business environment aggravates, the problem of uncertainty requires more attention. Taking an open system perspective and drawing on the resource base view of the firm, the literature on organizational behavior and strategy underlines the importance of certain capabilities like scanning, sense making, and utilizing interdependencies ([Zafari et al, 2015](#)).

The level of perceived uncertainty is influenced by dynamism and complexity of the environment therefore as the pace of change increases, international markets become more complex and the international trading grows, the problem of uncertainty stemming from the socio-political-economic changes deserves more attention. Although certain capabilities of the firm, such as making sense and interpreting the environment or organizational design, are proven to be essential in managing the dynamic environment, there is a need to focus on the more strategic ones, such as relationship management and its interaction with other resources.

The ability to manage uncertainty effectively is predicated less on senior executives adopting a set of distinctive management skills – as in the case of risk or change management – and more on inculcating a number of important organization-wide capabilities that will contribute to a firm's strategic readiness. Developing this further, there are six capabilities that organizations need to develop: strategic anticipation, navigational leadership, agility, resilience, open collaboration and predictive learning ([Syrett & Devine, 2012](#)).

4.3 Integrating Strategy Determination and Execution

Today's problems can be so immediate and all-pervasive that they can act as blinkers which result in a myopic focus on the present, to the exclusion of a more strategic vision of the future. Given that some elements of the future will be profoundly different from those of today, it follows that the shape and purpose of policy and organisations must adapt and change in order to meet the challenges and opportunities of a new strategic environment ([Government Office for Science, 2010](#)).

In turbulent times, traditional approaches to strategy, risk and change are no longer appropriate. Among the challenges facing senior executives are the following ([Syrett & Devine, 2012](#)):

- **Strategy determination.** The traditional assumption underpinning strategy formulation has been that the future can be predicted through the use of powerful analytical tools and therefore that it is possible to set a clear strategic direction. Now that no amount of analysis will provide a reliable set of indicators about the future, how do you determine strategy when the operating environment is uncertain and potentially volatile?
- **Strategy execution.** This is still dominated by methods developed in the 1980s with the adoption of total quality management. This presumes that goals are determined at the top and the methods required to achieve these goals are driven downwards through the organisation. The emphasis is to achieve “buy-

in” to these methods at middle and junior management levels. However, uncertainty breeds flaws. Internal politics and turf wars are just some of the hidden forces that can distort strategy execution and cause unexpected outcomes.

- **Risk management.** This is the identification, assessment and prioritisation of risks followed by co-ordinated and economical application of resources to minimise, monitor and control the probability and/or impact of unfortunate events. As such, risk management is a transactional financial discipline. While it is an important tool in managing uncertainty, it is not enough on its own to enable senior executives to set the context of events that are difficult to anticipate or to identify alternative strategies. Nor does risk management enable an organisation to achieve the right level of adaptability and “readiness”. It is a reactive rather than proactive process.
- **Change management.** Conventional change management programmes that often take up to five years to fulfil and are initiated on senior management terms may well be derailed by unpredictable events. Effective communication and consultation with the workforce, early in the process, is crucial to the success of change programmes. Yet senior executives are hampered by the fact that they may no longer have a clear vision of where the organisation will be in five years’ time. They are therefore unable to provide the strategic leadership that has been their conventional task during change management programmes.

A recent Survey of CEOs revealed that chief executives are so concerned about strategy execution that they rated it as both their number one and number two most challenging issue. For anyone who’s tried to execute strategy, this finding should come as no surprise: it’s estimated that more than 60% of strategies are not successfully implemented.

Strategy execution can be approached in two ways ([Barrows](#), 2010):

Strategy execution as a process: Execution is a discipline or “*systematic way of exposing reality and acting on it*”. The heart of execution lies in three core processes:

1. People
2. Strategy
3. Operations

Strategy execution as a system: There have been significant advancements in this area. The management system houses six sequential stages intended to help organizations capture what they call an “execution premium” (a measurable increase in value derived from successful strategy execution):

1. Develop the strategy
2. Plan the strategy
3. Align the organization
4. Plan operations
5. Monitor and learn
6. Test and adapt

4.4 Flexible Planning

Business psychologists have observed that successful leaders with very successful business strategies become fixated on that formula for success. As times and requirements for success change, the architect of the past strategy becomes inflexible, stifling growth. Other classic entrepreneurial characteristics also block growth opportunities. For example, many entrepreneurial personalities reject planning as a managerial practice, often arguing persuasively that it brings more disadvantages than advantages ([Ward, 1997](#)):

- Planning requires sharing information. Entrepreneurs frequently prize secrecy.
- Planning forces entrepreneurs to respond to the ideas of others and to defend their own views. Entrepreneurs often relish ambiguity.
- Planning increases the opportunity for conflict among management and family. Entrepreneurs tend to avoid negatives and conflicts.
- Planning concentrates limited resources in a more focused manner. Entrepreneurs prefer spreading risk among many products, customers, and lines of business.
- Planning implies long-term commitments. Entrepreneurs like to keep as many options open as long as possible.

In recent turbulent years, competitive advantage has become rather temporary because industries and competition within industries change continually. Firms make tremendous efforts to sustain competitive advantage and protect their future growth options from duplication efforts by rivals. Whether competitive advantage can be sustained in the long term partly depends on mechanisms put in place by the firm to renew and protect its resource position and capabilities.

At the core of strategy is a dilemma between flexibility and commitment. Flexibility to adapt strategy and operations is clearly valuable when the environment changes unexpectedly, as with shipping. An early investment commitment may yet have strategic value because it can influence the behavior of rivals in equilibrium, potentially creating a future competitive advantage for the firm. The flexibility

perspective partly draws on the resource-based view of the firm and core-competence arguments: a firm should invest in resources and competencies that give it a distinctive ability to pursue a set of market opportunities ([Chevalier & Trigeorgis](#), 2011).

Therefore entrepreneurs, especially in shipping industry, need to create a flexible, innovative organization that can ([Ward](#), 1997):

Share business information openly: As noted earlier, secrecy is a common trait of business owners. They fear disclosing financial success, because it leads to demands by valuable employees, and financial failure, because it drives away good people. But without information and trust, creativity and loyalty are limited. Successful firms grow by sharing vital information among a large number of managers.

Champion change and celebrate new ideas: For innovation and flexibility to flourish, teamwork must be a part of the company's culture. Growing companies de-emphasize heroic leaders as the reasons for success. Instead, they credit the organizational team and the habit of past innovation that extends to the founding of the business itself.

Constantly change some things: The best way to encourage innovation is to foster positive feelings about change. One popular approach to increasing comfort with ongoing change is to tinker regularly with management systems and processes, such as compensation bonus systems, information systems, organizational roles and structure, and reporting and personal performance review processes.

4.5 Developing Resilience

For firms located in highly uncertain and turbulent environments, like shipping, the management difficulties encourage the development of certain abilities to ensure the resilience and agility required for such environments. Among them is the retrospective sensemaking of the environment which helps the organization to interpret and enact the environment via retrospective learning. Another is the dynamic capabilities helping to create extend, upgrade and protect all the capabilities that firms require to combine internal and external resources to stay competent ([Zafari et al](#), 2015).

The different forms of developing business operations are best practices that can be utilized both as proactive measures and as means of managing an acute change situation. The development of business operations is primarily the responsibility of the companies, but it can be boosted and encouraged through cooperation between companies, universities and public sector actors. Small and medium-sized

enterprises, in particular, need support from other actors in the development of their business operations, while large companies have their own development units with possibilities for following changes in trends and anticipating the future on an entirely different scale to small companies. On the other hand, large companies may also have the most to give in triple helix cooperation ([Keltaniemi](#), 2013).

In Germany, for example, three different recovery programs were applied on a shipyard area that had remained unused for years. Their strategies concentrated on:

- very strong support of science and research and expanding their capacity
- travel and tourism sector
- furthering of innovative and future-oriented industrial sectors

In Denmark, preparedness for the decrease in the number of shipyards was non-existent, and there was no survival strategy in place for the crisis. The shipyards did, however, have various change strategies in place; today, they have moved from new building to repair shipyard operations, created flexible supply chains from networks of small companies, carried out ship refurbishments, invested in green technology and converted supply ships for offshore operations.

There are two important factors with regard to strategies built to minimize the negative effects of a sudden change. First, they need to be as comprehensive as possible: in other words, they need to take into account the direct and indirect consequences to a largest possible extent. Secondly, they need to be executed immediately, which requires clear plans made in advance. A need for co-operation at different levels and in different forms between companies, educational institutes and public administration came up very strongly ([Keltaniemi](#), 2013).

According to organizational behavior theorists the highly resilient organizations which survive the unexpected events are not concerned about decision making. They rather worry about making sense of the unexpected and make sure they are prepared for it by paying attention to previous experience, failures, simplification and operations coupled with the attempt to respond adaptively through resilience. For them it's vital to create a system which has the basic interpretation and resilience capabilities to sense and act upon what comes unexpectedly; the building blocks to improvise upon. Unlike the act of strategizing, such organizations are mindful about the past experiences and such retrospective learning experience helps them develop certain culture to notice even small signals about what will happen in future. As a result they deal with uncertainty and unexpected change, through basic capabilities upon which they can improvise for different situations as they arise.

Development of dynamic capabilities helps organizations to react to environment's dynamics by combining the necessary internal and external resources. Dynamic capabilities are defined as the capacity of an organization to purposefully create, extend or modify its resources like exchange partners. As resources and capabilities exist in form of bundles, managing them is more of an orchestration of the resource or capability bundle ([Zafari et al](#), 2015).

4.6 Cross-industry Collaboration

Under conditions of turbulence fast learning and experimentation is required. Building up knowledge internally to expand in new markets is too slow to innovate timely. Moreover, as it is uncertain which cargo will be successful, enterprises need to invest in a variety of types. Few firms are able to do that by themselves.

A major source of tangible and intangible benefits to manage change and deal with uncertainty is maintaining inter-firm relationships; however, as much as relationships are deemed beneficial, firms may find them challenging to manage particularly under uncertain conditions. On one hand, such firms require flexibility in entering and leaving their relationships as the environment changes; on the other hand, such environments require close cooperation which enables open communication, flexibility and timely action. As the disruptive change in the environment increases, it becomes more important to explore the role of relationship management capabilities in dealing with uncertainty and change ([Zafari et al](#), 2015).

From the above, it is clear that firms are forced to redirect their attention from traditional knowledge acquisition modes towards new forms of alliances. There are three steps in the management process of transitory alliances.

Step 1: preparing the internal organization. This requires building a strong and coherent internal knowledge base.

Step 2: build an optimal portfolio of transitory alliances, traditional alliances and Mergers and Acquisitions (M&A). Whereas M&A can be used effectively to strengthen existing core technologies, strategic alliances can be used to learn in detail about new technological directions.

Step 3: Management, which includes specific elements:

- Increase your partnering options by building a reputation of credibility.
- Include learning as an explicit goal for your alliances.
- Focus on a few specific tasks for the transitory alliance.

Recently, a specific kind of non-equity alliances has by far replaced equity joint venture type of alliances as the most dominant form of alliance in dynamic high-tech

sectors. This type is called “Transitory alliances” and can be defined as particularly short-lived non-equity alliances that focus on completing narrowly defined tasks in a very short time frame. However, transitory alliances are not limited to Internet environments. In biotechnology this alliance type also occurs. In low-tech industries transitory alliances are useful as well. For example, after the 9/11 attacks airlines faced a high level of turbulence, with a drop in demand, new safety measures being taken and an uncertain outlook for the future. Many airlines entered into short-term alliance agreements, lasting for less than 6 months, to drive down costs and share airline routes. Hence: turbulence is the key to transitory alliances. In the case of airlines, learning may not be a specific objective of the transitory alliances, but they do share many of the characteristics with other such alliances. Although transitory alliances are related to their predecessors, they have a number of distinct features that clearly separates them from traditional alliances ([Duysters & Man, 2003](#)).

Table 4.1: Traditional alliances Vs Transitory alliances

Traditional alliances		Transitory alliances
Market access, efficiency	Motives	Learning
Slow, long	Speed and planning horizon	e-Speed, short
Individual fit	Partner fit	Network fit
Familiar sectors	Partner type I	Unfamiliar quarters
Established	Partner type II	Entrepreneurial
Trust	Commitment	Aligned objectives
Many tasks	Focus	Few, specific tasks

4.7 Summary

In the fourth chapter, uncertainty was identified as a growing issue in constantly evolving environments, like shipping. As the pace of change increases, international markets become more complex and the international trading grows, the problem of uncertainty encourages the development of flexible planning, resilience and cross-industry collaboration, including new forms of alliances.

CHAPTER 5 ANALYSIS AND RESULTS

5.1 Introduction

Chapter five contains the elaboration of gathered data. This chapter is the vital approach for someone who has an interest in the survey. There is a statistical analysis of the information collected through the use of questionnaires, presented by tables and figures. The reader may also find the analysis of the comparisons made between results and see in detail the comparisons that took place among respondents.

As mentioned in previous chapter, the questionnaires were distributed to executives of 35 shipping companies and there were 32 responses. The following paragraphs focus on the summary of data collected. All tables produced by the SPSS software are presented in [Appendix C](#).

5.2 Results of analysis

Part 1: Company information

Participating companies were almost equally divided according to their size, as presented in the following Table. However, the majority of executives (66%) involved in the research are working in ship management companies. Many of them (41%) identified the high level of loyalty and integrity between top management and employees, while about the same percentage characterized the relationships as close. Concerning the organizational structure and business administration, many of them (41%) referred to entrepreneur-centric or customer-centric organization, while the vast majority consider that their companies are organized by service or market (81% & 63% respectively). All information about companies involved in the research, relationship between top management and employees, and organizational structure is given by the following Tables.

Table 5.1: Company information

Company	Frequency	Percent	Valid Percent	Cumulative Percent
Number of employees				
Valid 1-19	7	21,9	21,9	21,9
20-49	5	15,6	15,6	37,5
50-99	8	25,0	25,0	62,5
100-250	12	37,5	37,5	100,0
Total	32	100,0	100,0	
Kind of business				
Valid Ship manager	21	65,6	65,6	65,6
Ship broker	6	18,8	18,8	84,4
Regulator	2	6,3	6,3	90,6
Maritime services provider	3	9,4	9,4	100,0
Total	32	100,0	100,0	

Table 5.2: Relationships between management and employees

	Very little	Little	Somewhat	Much	Very much
Family atmosphere				100%	
Close relationships			40.6%	40.6%	18.8%
Distant relationships	18.8%	40.6%	21.9%	18.8%	
Level of loyalty and integrity				59.4%	40.6%

Table 5.3: Organizational structure and Business Administration

	Very little	Little	Somewhat	Much	Very much
Entrepreneur-centric organization		18.8%	40.6%		40.6%
Customer-centric organization			18.8%	40.6%	40.6%
Flatter organization		37.5%		43.8%	18.8%
Clear hierarchical organization		21.9%	40.6%	18.8%	18.8%
Organized by service			18.8%	62.5%	18.8%
Organized by market			18.8%	81.3%	

Part 2: Company strategies

The majority of participants (59%) indicated the quality of company's services, while about the same percentage (63%) considered the cost of services as an important aspect of company's evaluation. When requested about development strategies followed by their company, most executives (63%) declared market penetration. As for introduction of innovations in the company, most participants (59%) consider technology innovations as the leading ones and a satisfactory percentage (41%) recognized innovations in services. International organizations seem to be used as source of innovation by most companies (59%). Regarding turnover and financial situation, all participants stated that a significant percentage between 21% and 40% comes from voyage charter, while the vast majority of them (77%) declared about the same percentage for time charter. The majority of participating companies (59%) face very little funding and/or cash flow problems. All information about company development strategies, innovations and financial situation is given by the following Tables and Figures.

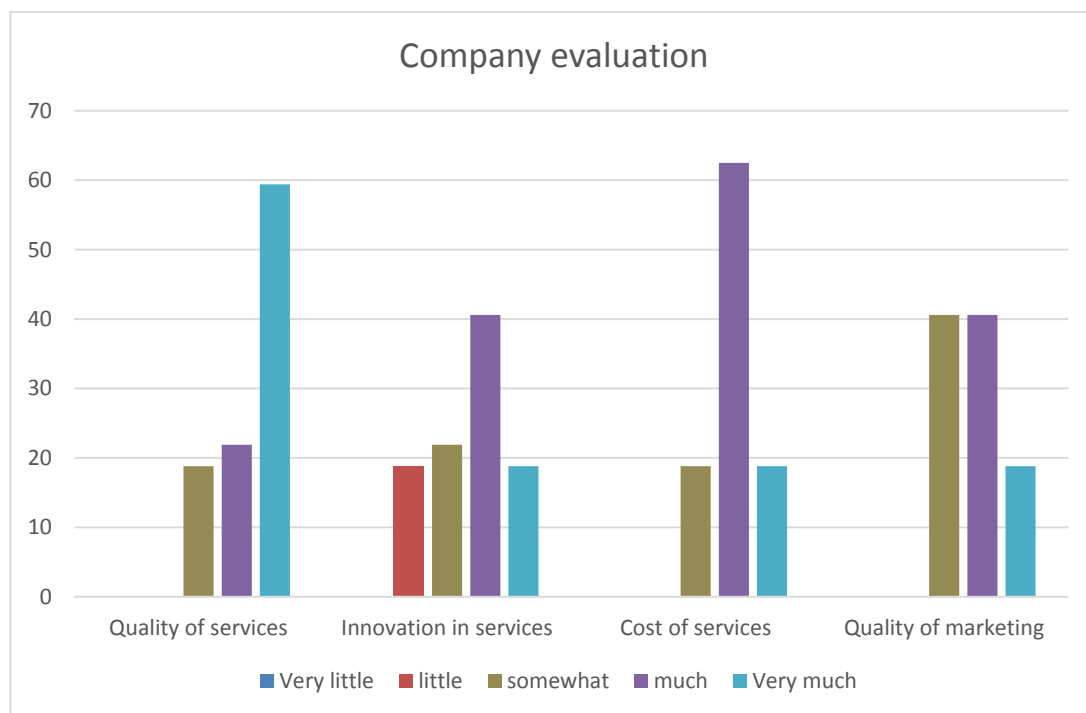
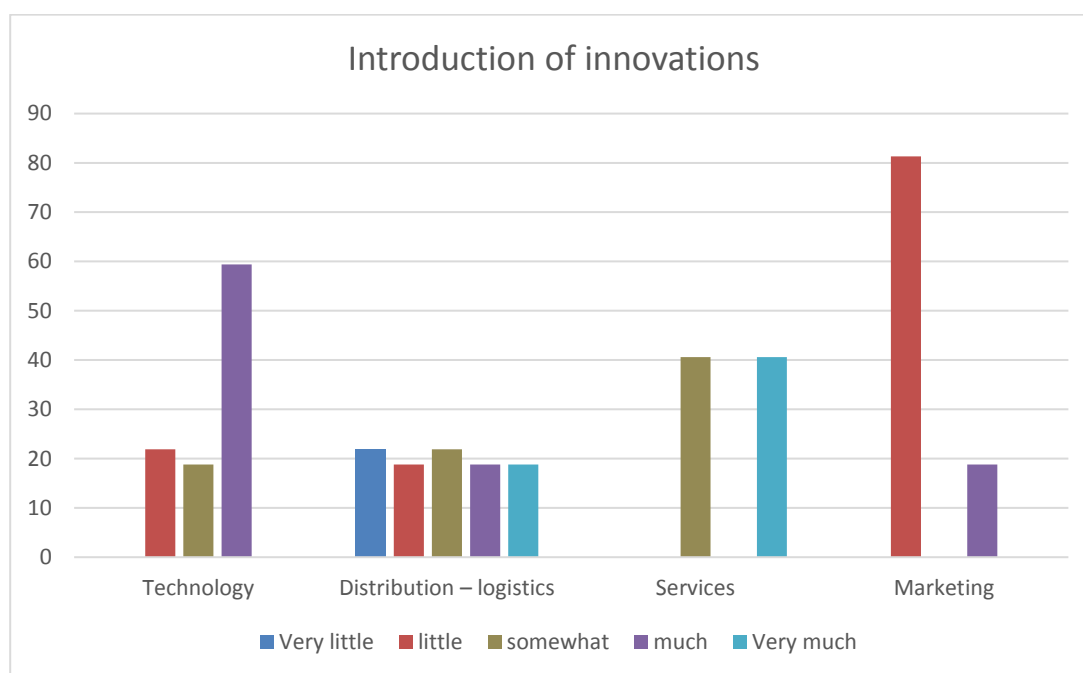


Figure 5.1: Company evaluation

Table 5.4: Development strategies

	Very little	Little	Somewhat	Much	Very much
Market penetration		18.8%		62.5%	18.8%
New markets development		18.8%	21.9%	40.6%	18.8%
New services development		59.4%		21.9%	18.8%
Differentiation in related business lines		40.6%	40.6%	18.8%	
Differentiation in unrelated business lines		37.5%	21.9%	40.6%	

**Figure 5.2:** Introduction of innovations**Table 5.5:** Innovation sources

	Very little	Little	Somewhat	Much	Very much
Other companies	43.8%		18.8%	18.8%	18.8%
Suppliers	43.8%	18.8%		37.5%	
Customers	21.9%		18.8%	40.6%	18.8%
Consultants	21.9%	18.8%		40.6%	18.8%
Employees	21.9%	18.8%		40.6%	18.8%
International organizations	21.9%			59.4%	18.8%
Other _____					

Table 5.6: Percentage of turnover

Percentage of turnover	Last year					Target				
	0-20	21-40	41-60	61-80	81-100	0-20	21-40	41-60	61-80	81-100
Voyage charter		100%					100%			
Time charter		76.9%		23.1%			76.9%			23.1%
Bareboat	100%					100%				
Sales	73.1%	26.9%				50%	50%			
Scrap	100%					100%				
Manning	100%					100%				
Other service _____	100%					100%				

Table 5.7: Financial situation

	Very little	Little	Somewhat	Much	Very much
Company faces funding problems	59.4%	40.6%			
Company faces cash flow problems	59.4%	18.8%		21.9%	

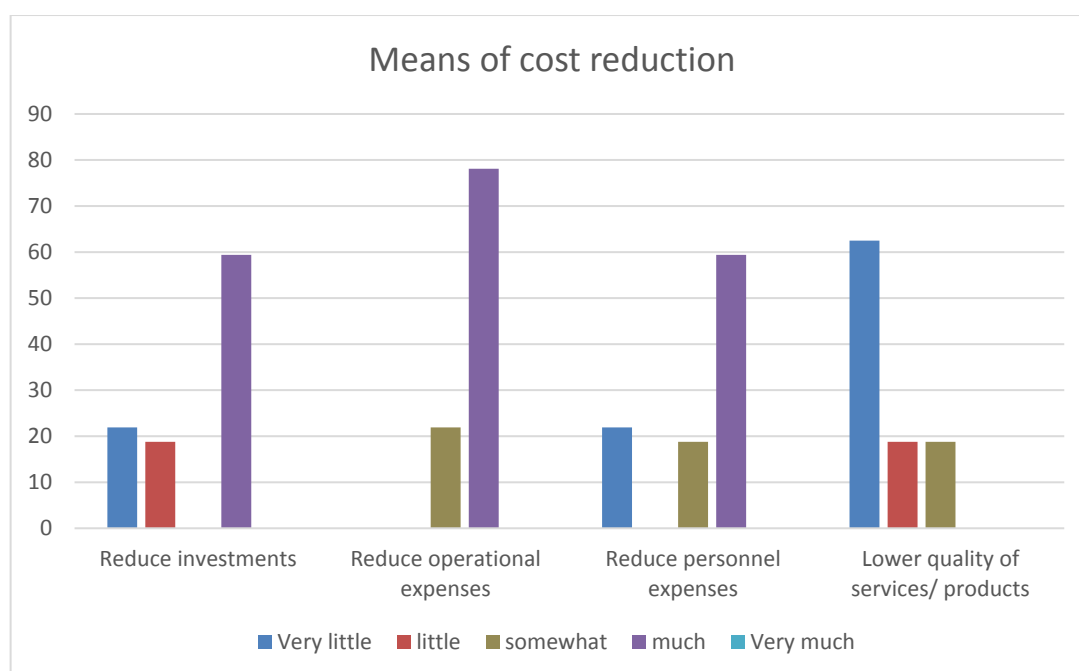
When requested about the extent to which customers affect the company strategies, a significant number of executives (41%) identified customers' engagement in following new practices and developing new services. Despite the global character of shipping industry, the majority of participating companies (63%) are dealing directly from Greece, while about the same percentage (59%) are working with representatives or have created joint ventures. Finally, concerning the means of cost reduction in turbulent times, the vast majority of executives (78%) identified the reduction of operational expenses, while many of them (59%) noted that company reduces investments and personnel expenses. It is interesting that in spite of the turbulent times, most companies (63%) do not lower the quality of their services. All information about customers' engagement in company's strategies and means of cost reduction in turbulent times is given by the following Tables and Figures.

Table 5.8: Customers' engagement

	Very little	Little	Somewhat	Much	Very much
Customers engaging in following new practices	21.9%	18.8%	18.8%	40.6%	
Customers engaging in developing new services			59.4%	40.6%	

Table 5.9: Company internationalization

	Very little	Little	Somewhat	Much	Very much
Dealing directly from Greece		18.8%	18.8%		62.5%
Working with representatives			21.9%	59.4%	18.8%
Partnerships with local companies	40.6%	18.8%		40.6%	
Joint ventures	40.6%			59.4%	
Subsidiaries	50%			50%	
Other _____					

**Figure 5.3:** Means of cost reduction

Part 3: Best practices

The majority of participants (62%) stated that their company integrates training, appraisal and development in management systems, use a combination of personal and computer-based training, and have implemented an integrated crewing solution onboard and onshore. As for Safety & Quality management, a high percentage of participating companies (57%) regularly monitor crew training on safety issues, have nurtured a “no accusation/ blame” culture, use integrated safety and quality solutions, and automatically produce regular Key Performance Indicator (KPI) reports fleet-wide, while about the same percentage (62%) are at a good level of integrating risk assessment in regular processes. The vast majority of participating companies (91%) have built processes around a state-of-art Planned Maintenance System (PMS),

while many of them (62%) have harmonized and centralized the management of master data. About the same percentage of executives (57%) stated that they follow the principles of Ship Energy Efficiency Management Plan (SEEMP) and manage a key element of their maintenance budget, including dry dockings. Regarding Supplies management, most executives (62%) stated that they have automated and simplified the process, plan the demands fleet-wide and have adopted economies of scale through global contracts. Finally, the majority of participating companies (59%) declared a satisfactory level at simplifying and harmonizing the accounting structures, centralizing the invoice registration process, and automating reporting. All information about best practices followed by companies is given by the following Figures.

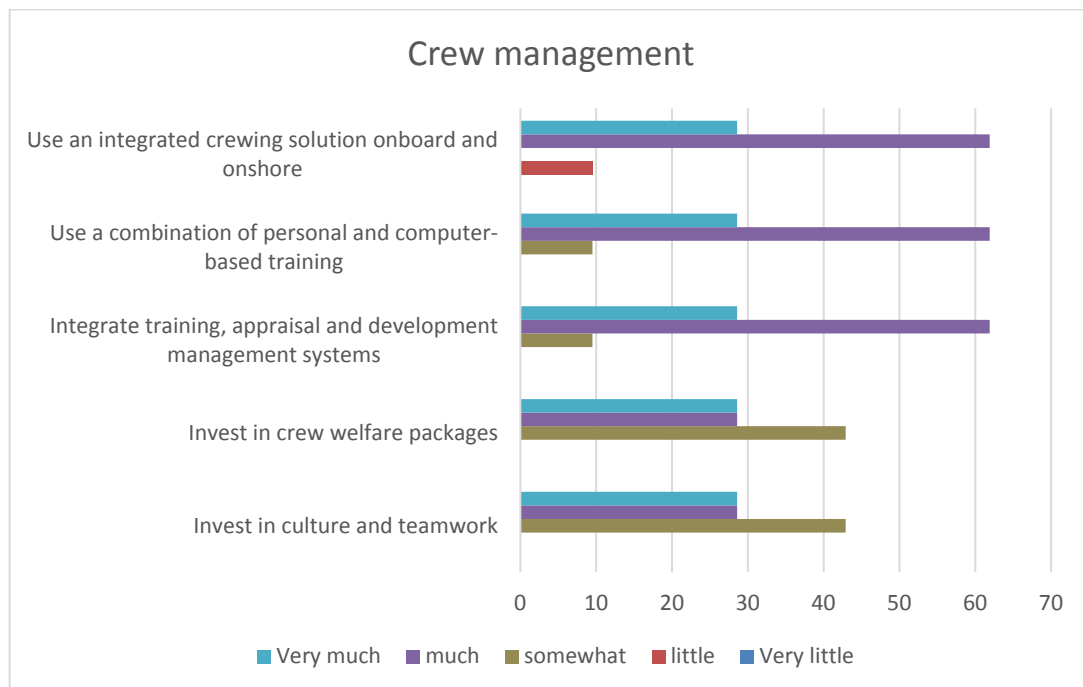


Figure 5.4: Best practices in Crew management

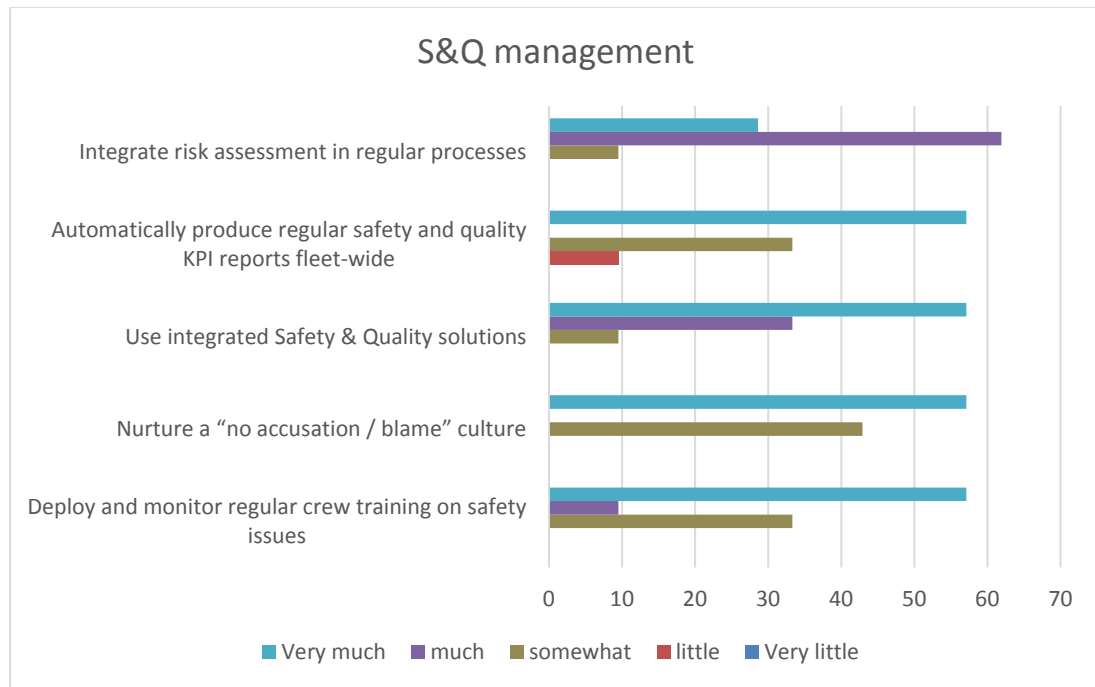


Figure 5.5: Best practices in S&Q management

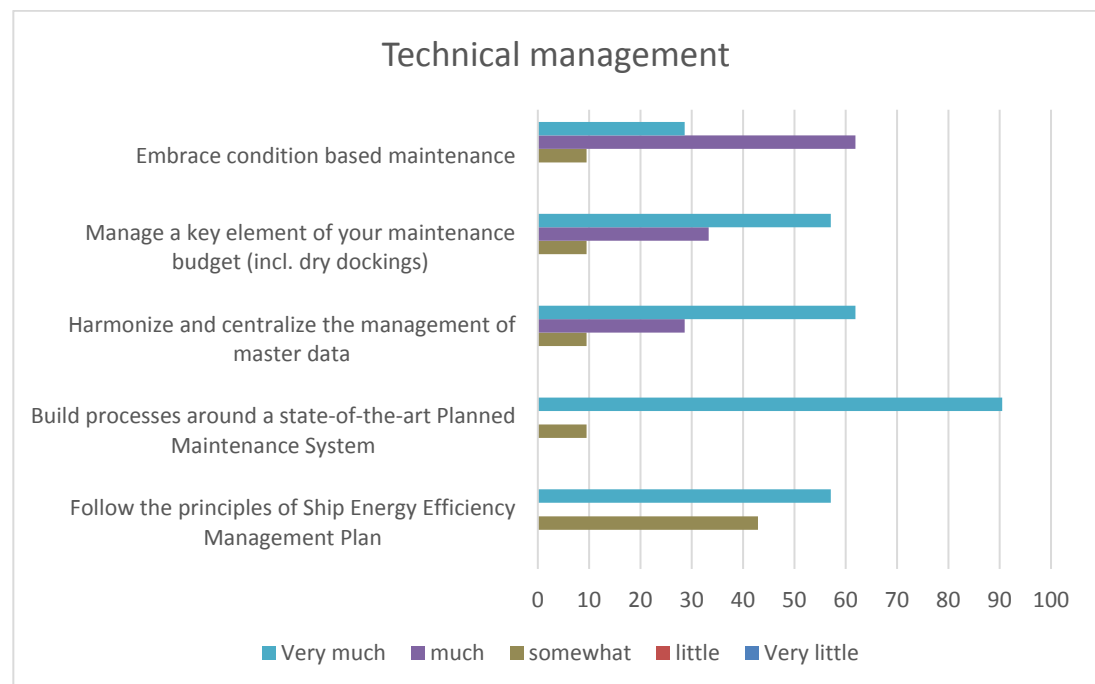


Figure 5.6: Best practices in Technical management

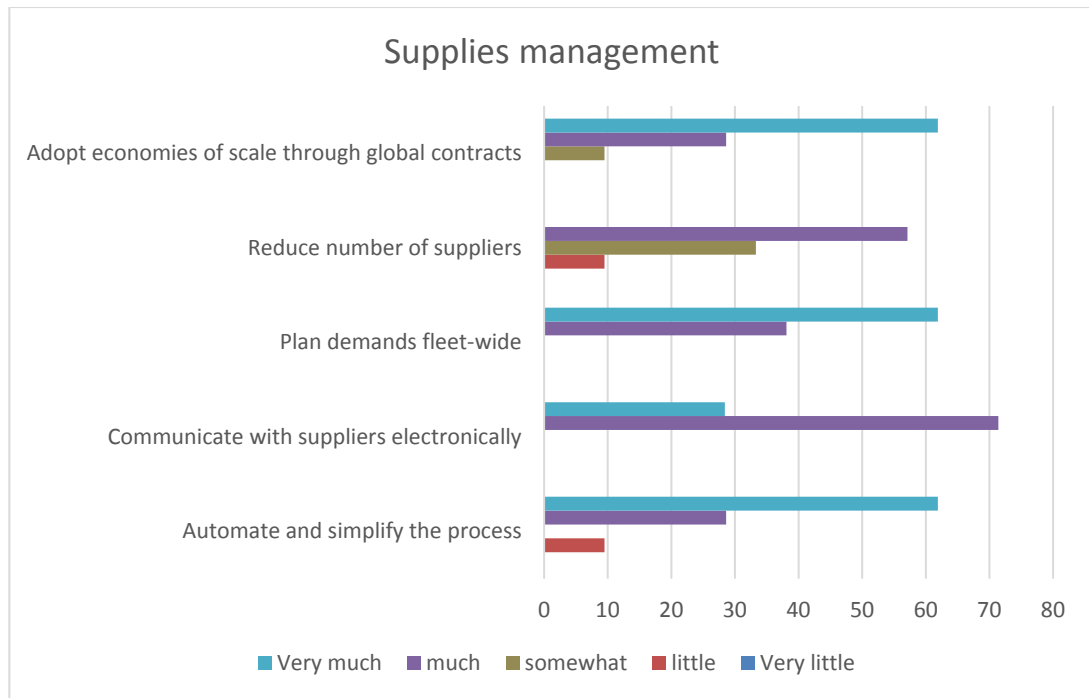


Figure 5.7: Best practices in Supplies management

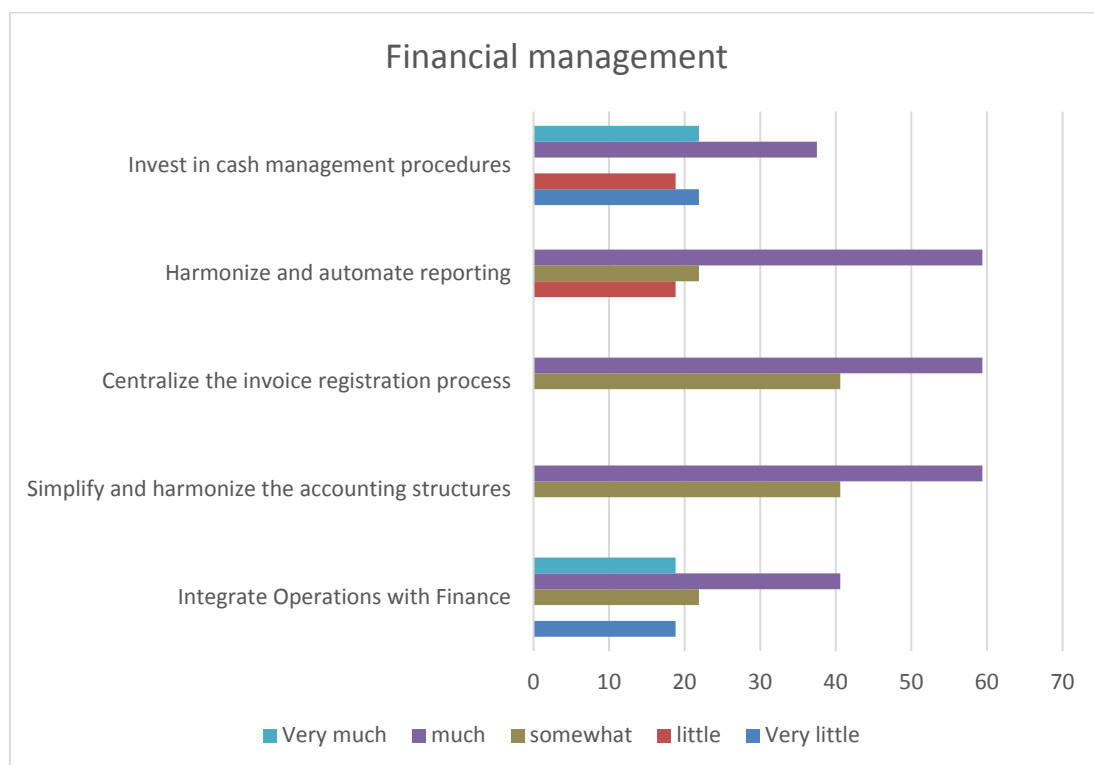


Figure 5.8: Best practices in Financial management

5.3 Findings

The initial goal of collecting questionnaires from companies of all size categories was achieved, since we received back questionnaires that were filled by executives from all company sizes. The sample includes 32 executives from different shipping companies. The majority of executives (66%) involved in the research are working in ship management companies. The fact that shipping industry in Greece has limited entry is also confirmed in the research, since 41% of executives declared the high level of loyalty and integrity and the close relationships between top management and employees.

The majority of participants distinguished the quality and the cost of company's services. In shipping there is limited room for marketing innovation, as confirmed by the vast majority of executives (81%), while most of them consider technology innovations as the most introduced in their companies. International organizations seem to be the source of innovation by most companies, as declared by the majority of executives (59%).

The turnover is mainly coming from voyage charter and time charter, as stated by the vast majority of executives. The fact that shipping industry was less affected by the financial crisis is also confirmed in the research, since 59% of participating companies face very little funding and/or cash flow problems. Despite the global character of shipping, the majority of companies (63%) prefer dealing directly from Greece or working with representatives.

It should be noted that the vast majority of participants (78%) admit that although their companies reduce the operational expenses in turbulent times, most of them (63%) do not lower the quality of their services.

The majority of participating companies have already implemented best practices in Crew, Safety & Quality, Technical, Supplies and Financial management. In crew management, most companies (62%) integrate training, appraisal and development in management systems, use a combination of personal and computer-based training, and have implemented an integrated crewing solution onboard and onshore. Maintaining a high level of safety and quality management is a challenge which most shipping companies have focused on in 21st century and it is also confirmed in the research, since 57% of participating companies regularly monitor crew training on safety issues, have nurtured a "no accusation/ blame" culture, use integrated safety and quality solutions, automatically produce regular KPI reports fleet-wide, as well as they are integrating risk assessment in regular processes.

Regarding technical management, the vast majority of participating companies (91%) have built processes around a state-of-art PMS, while many of them have harmonized and centralized the management of master data, follow the principles of SEEMP and manage a key element of their maintenance budget, including dry dockings. As with technical, supplies management has been also improved, automating and simplifying the process, planning the demands fleet-wide and having adopted economies of scale through global contracts, as declared by most executives. Finally, financial management seems to be also affected by automating processes, since the majority of executives (59%) declared a satisfactory level at simplifying and harmonizing the accounting structures, centralizing the invoice registration process, and automating reporting.

The next findings are the result of some tests (Pearson Chi-Square Test) that were carried out in order to find any correlations between variables. Data appears with absolute and relevant percentages (%). The criterion Chi-Square (χ^2) has been used in order to check the correlation between two variants. The observed level of significance 5% has been considered as statistically important. As mentioned before, all statistics were carried out with SPSS software.

For each correlation case there are two tables; the first one is a dual-input table that crosses both variables, while the other presents the level of significance (Pearson Chi-Square Test). If significance level is lower than 0.05 then null hypothesis is rejected. In other words, the hypothesis that there is no correlation between the two variables is rejected and, therefore, the hypothesis that both variables are correlated with each other is accepted.

The first Table presents the correlation between organizational structure of company and quality of marketing. It appears that emphasis is given to marketing by companies organized by service.

Table 5.10: Organization by service Vs Quality of marketing

			Quality of marketing			Total
			somewhat	much	very much	
Organized by service	somewhat	Count	6	0	0	6
		% within				
		Organized by service	100,0%	0%	0%	100,0%
	much	Count	7	7	6	20
		% within				
		Organized by service	35,0%	35,0%	30,0%	100,0%
	very much	Count	0	6	0	6
		% within				
		Organized by service	0%	100,0%	0%	100,0%
Total	Count	13	13	6	32	
	% within					
	Organized by service	40,6%	40,6%	18,8%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19,200 ^a	4	,001
Likelihood Ratio	23,086	4	,000
Linear-by-Linear Association	5,324	1	,021
N of Valid Cases	32		

a. 7 cells (77,8%) have expected count less than 5. The minimum expected count is 1,13.

Quality of marketing is also correlated with development strategies, as presented in the next Table. Emphasis to marketing is given by companies following market penetration as a development strategy.

Table 5.11: Market penetration Vs Quality of marketing

			Quality of marketing			Total
			somewhat	much	very much	
Market penetration	little	Count	6	0	0	6
		% within Development strategies-market penetration	100,0%	0%	0%	100,0%
	much	Count	7	7	6	20
		% within Development strategies-market penetration	35,0%	35,0%	30,0%	100,0%
	very much	Count	0	6	0	6
		% within Development strategies-market penetration	0%	100,0%	0%	100,0%
Total		Count	13	13	6	32
		% within Development strategies-market penetration	40,6%	40,6%	18,8%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19,200 ^a	4	,001
Likelihood Ratio	23,086	4	,000
Linear-by-Linear Association	7,020	1	,008
N of Valid Cases	32		

a. 7 cells (77,8%) have expected count less than 5. The minimum expected count is 1,13.

In contrast with companies organized by service, those organized by market are characterized by innovation in services, as presented in the following Table.

Table 5.12: Organization by market Vs Innovation in services

			Innovation in services				Total
			little	somewhat	much	very much	
Organized by market	somewhat	Count	0	0	6	0	6
		% within Organized by market	0%	0%	100,0%	0%	100,0%
	much	Count	6	7	7	6	26
		% within Organized by market	23,1%	26,9%	26,9%	23,1%	100,0%
Total		Count	6	7	13	6	32
		% within Organized by market	18,8%	21,9%	40,6%	18,8%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,793 ^a	3	,013
Likelihood Ratio	12,940	3	,005
Linear-by-Linear Association	1,191	1	,275
N of Valid Cases	32		

a. 6 cells (75,0%) have expected count less than 5. The minimum expected count is 1,13.

The next correlation identifies a significant relation between the introduction of innovations and company turnover, as the majority of companies introducing innovations in services achieve turnover coming mainly from time charter.

Table 5.13: Innovation in services Vs Time charter

			Time charter		Total
			21-40	61-80	
Innovation in services	somewhat	Count % within Innovation introduction-services	7 53,8%	6 46,2%	13 100,0%
	very much	Count % within Innovation introduction-services	13 100,0%	0 0%	13 100,0%
Total		Count % within Innovation introduction-services	20 76,9%	6 23,1%	26 100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7,800 ^b	1	,005		
Continuity Correction ^a	5,417	1	,020		
Likelihood Ratio	10,146	1	,001		
Fisher's Exact Test				,015	,007
Linear-by-Linear Association	7,500	1	,006		
N of Valid Cases	26				

a. Computed only for a 2x2 table

b. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 3,00.

The next two correlations refer to companies introducing innovations related with customers' influence to company strategies. As presented in the following Tables, companies introducing technology and marketing innovations are affected by customers in developing new services.

Table 5.14: Innovation in technology Vs Developing new services

			Developing new services		Total
			somewhat	much	
Innovation in technology	little	Count	7	0	7
		% within Innovation introduction-technology	100,0%	0%	100,0%
	somewhat	Count	6	0	6
		% within Innovation introduction-technology	100,0%	0%	100,0%
	much	Count	6	13	19
		% within Innovation introduction-technology	31,6%	68,4%	100,0%
Total	Count	19	13	32	
	% within Innovation introduction-technology	59,4%	40,6%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,981 ^a	2	,001
Likelihood Ratio	19,531	2	,000
Linear-by-Linear Association	12,332	1	,000
N of Valid Cases	32		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is 2,44.

Table 5.15: Innovation in marketing Vs Developing new services

			Developing new services		Total
			somewhat	much	
Innovation in marketing	little	Count	19	7	26
		% within Innovation introduction-marketing	73,1%	26,9%	100,0%
	much	Count	0	6	6
		% within Innovation introduction-marketing	0%	100,0%	100,0%
Total		Count	19	13	32
		% within Innovation introduction-marketing	59,4%	40,6%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10,793 ^b	1	,001		
Continuity Correction ^a	7,976	1	,005		
Likelihood Ratio	12,940	1	,000		
Fisher's Exact Test				,002	,002
Linear-by-Linear Association	10,456	1	,001		
N of Valid Cases	32				

a. Computed only for a 2x2 table

b. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 2,44.

The next two correlations are interesting as it appears that regardless of the amount of cost reduction in investments and personnel expenses, the majority of companies introduce innovations in technology.

Table 5.16: Innovation in technology Vs Reduction of investments

			Reduce investments			Total
			very little	little	much	
Innovation in technology	little	Count	0	0	7	7
		% within Innovation introduction-technology	0%	0%	100,0%	100,0%
	somewhat	Count	0	0	6	6
	% within Innovation introduction-technology	0%	0%	100,0%	100,0%	
	much	Count	7	6	6	19
	% within Innovation introduction-technology	36,8%	31,6%	31,6%	100,0%	
Total		Count	7	6	19	32
		% within Innovation introduction-technology	21,9%	18,8%	59,4%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,981 ^a	4	,005
Likelihood Ratio	19,531	4	,001
Linear-by-Linear Association	11,580	1	,001
N of Valid Cases	32		

a. 8 cells (88,9%) have expected count less than 5. The minimum expected count is 1,13.

Table 5.17: Innovation in technology Vs Reduction of personnel expenses

			Reduce personnel expenses			Total
			very little	somewhat	much	
Innovation in technology	little	Count	0	0	7	7
		% within Innovation introduction-technology	0%	0%	100,0%	100,0%
	somewhat	Count	0	0	6	6
	% within Innovation introduction-technology	0%	0%	100,0%	100,0%	
	much	Count	7	6	6	19
	% within Innovation introduction-technology	36,8%	31,6%	31,6%	100,0%	
Total		Count	7	6	19	32
	% within Innovation introduction-technology	21,9%	18,8%	59,4%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,981 ^a	4	,005
Likelihood Ratio	19,531	4	,001
Linear-by-Linear Association	8,884	1	,003
N of Valid Cases	32		

a. 8 cells (88,9%) have expected count less than 5. The minimum expected count is 1,13.

Unlike the previous cases, the introduction of technology innovations seems to have a positive impact on the reduction of operational expenses, as presented in the following Table.

Table 5.18: Innovation in technology Vs Reduction of operational expenses

			Reduce operational expenses		Total
			somewhat	much	
Innovation in technology	little	Count	0	7	7
		% within Innovation introduction-technology	0%	100,0%	100,0%
	somewhat	Count	0	6	6
		% within Innovation introduction-technology	0%	100,0%	100,0%
	much	Count	7	12	19
		% within Innovation introduction-technology	36,8%	63,2%	100,0%
Total	Count	7	25	32	
	% within Innovation introduction-technology	21,9%	78,1%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,131 ^a	2	,047
Likelihood Ratio	8,612	2	,013
Linear-by-Linear Association	5,047	1	,025
N of Valid Cases	32		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is 1,31.

The next two correlations show a significant relation between the means of cost reduction and the best practices followed by company regarding crew management. More specifically, it appears that companies which invest in culture and teamwork and have integrated training, appraisal and development in their management systems, they also reduce their operational expenses in turbulent times.

Table 5.19: Reduction of operational expenses Vs Crew management practices

			Invest in culture and teamwork			Total
			somewhat	much	very much	
Reduce operational expenses	somewhat	Count % within Means of cost reduction-reduce operational expenses	7 100,0%	0 0%	0 0%	7 100,0%
	much	Count % within Means of cost reduction-reduce operational expenses	2 14,3%	6 42,9%	6 42,9%	14 100,0%
Total		Count % within Means of cost reduction-reduce operational expenses	9 42,9%	6 28,6%	6 28,6%	21 100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,000 ^a	2	,001
Likelihood Ratio	17,199	2	,000
Linear-by-Linear Association	10,588	1	,001
N of Valid Cases	21		

a. 5 cells (83,3%) have expected count less than 5. The minimum expected count is 2,00.

Table 5.20: Reduction of operational expenses Vs Crew management practices

			Integrate training, appraisal and development management systems			Total
			somewhat	much	very much	
Reduce operational expenses	somewhat	Count % within Means of cost reduction-reduce operational expenses	0 ,0%	7 100,0%	0 ,0%	7 100,0%
	much	Count % within Means of cost reduction-reduce operational expenses	2 14,3%	6 42,9%	6 42,9%	14 100,0%
Total		Count % within Means of cost reduction-reduce operational expenses	2 9,5%	13 61,9%	6 28,6%	21 100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,462 ^a	2	,040
Likelihood Ratio	8,789	2	,012
Linear-by-Linear Association	1,053	1	,305
N of Valid Cases	21		

a. 5 cells (83,3%) have expected count less than 5. The minimum expected count is ,67.

In the next three Tables it appears that there is significant relation between safety and quality management practices and company size as well as organizational structure. The following correlations show that the nurture of “no accusation/ blame” culture is followed more by large-sized companies. Furthermore, companies organized by market deploy and monitor regular crew training on safety issues and automatically produce regular safety and quality KPI reports fleet-wide.

Table 5.21: Nurture of "no accusation/ blame" culture Vs Company size

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Nurture a "no accusation/ blame" culture	somewhat	Count	1	1	0	7	9
		% within Best practices in S & Q management-nurture a "no accusation/ blame" culture	11,1%	11,1%	0%	77,8%	100,0%
	very much	Count	0	0	7	5	12
		% within Best practices in S & Q management-nurture a "no accusation/ blame" culture	0%	0%	58,3%	41,7%	100,0%
Total		Count	1	1	7	12	21
		% within Best practices in S & Q management-nurture a "no accusation/ blame" culture	4,8%	4,8%	33,3%	57,1%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9,090 ^a	3	,028
Likelihood Ratio	12,382	3	,006
Linear-by-Linear Association	,006	1	,938
N of Valid Cases	21		

a. 6 cells (75,0%) have expected count less than 5. The minimum expected count is ,43.

Table 5.22: Crew training on safety issues Vs Organization by market

			Organized by market		Total
			somewhat	much	
Deploy ant monitor regular crew training on safety issues	somewhat	Count % within Best practices in S & Q management-deploy ant monitor regular crew training on safety issues	0 0%	7 100,0%	7 100,0%
	much	Count % within Best practices in S & Q management-deploy ant monitor regular crew training on safety issues	0 0%	2 100,0%	2 100,0%
	very much	Count % within Best practices in S & Q management-deploy ant monitor regular crew training on safety issues	6 50,0%	6 50,0%	12 100,0%
Total		Count % within Best practices in S & Q management-deploy ant monitor regular crew training on safety issues	6 28,6%	15 71,4%	21 100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,300 ^a	2	,043
Likelihood Ratio	8,492	2	,014
Linear-by-Linear Association	5,476	1	,019
N of Valid Cases	21		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is ,57.

Table 5.23: KPI reports fleet-wide Vs Organization by market

			Organized by market		Total
			somewhat	much	
Automatically produce little regular safety and quality KPI reports fleet-wide	Count		0	2	2
	% within Best practices in S & Q management- automatically produce regular KPI reports fleet-wide		0%	100,0%	100,0%
	somewhat	Count	0	7	7
	% within Best practices in S & Q management- automatically produce regular KPI reports fleet-wide		0%	100,0%	100,0%
very much	Count		6	6	12
	% within Best practices in S & Q management- automatically produce regular KPI reports fleet-wide		50,0%	50,0%	100,0%
Total	Count		6	15	21
	% within Best practices in S & Q management- automatically produce regular KPI reports fleet-wide		28,6%	71,4%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,300 ^a	2	,043
Likelihood Ratio	8,492	2	,014
Linear-by-Linear Association	5,654	1	,017
N of Valid Cases	21		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is ,57.

The fact that large-sized companies are keen on following industry best practices is also demonstrated in the following correlations. The last five Tables show that larger companies are more possible to follow the principles of SEEMP, harmonize the management of master data, automate the supply processes, plan their demands fleet-wide, and simplify their accounting structures.

Table 5.24: SEEMP principles Vs Company size

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Follow the principles of SEEMP	somewhat	Count	1	1	0	7	9
		% within Best practices in Technical management-follow the principles of SEEMP	11,1%	11,1%	0%	77,8%	100,0%
	very much	Count	0	0	7	5	12
		% within Best practices in Technical management-follow the principles of SEEMP	0%	0%	58,3%	41,7%	100,0%
Total		Count	1	1	7	12	21
		% within Best practices in Technical management-follow the principles of SEEMP	4,8%	4,8%	33,3%	57,1%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9,090 ^a	3	,028
Likelihood Ratio	12,382	3	,006
Linear-by-Linear Association	,006	1	,938
N of Valid Cases	21		

a. 6 cells (75,0%) have expected count less than 5. The minimum expected count is ,43.

Table 5.25: Management of master data Vs Company size

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Harmonize and centralize the management of master data	somewhat	Count	1	1	0	0	2
		% within Best practices in Technical management-harmonize and centralize the management of master data	50,0%	50,0%	0%	0%	100,0%
	much	Count	0	0	2	4	6
		% within Best practices in Technical management-harmonize and centralize the management of master data	0%	0%	33,3%	66,7%	100,0%
	very much	Count	0	0	5	8	13
		% within Best practices in Technical management-harmonize and centralize the management of master data	0%	0%	38,5%	61,5%	100,0%
	Total	Count	1	1	7	12	21
		% within Best practices in Technical management-harmonize and centralize the management of master data	4,8%	4,8%	33,3%	57,1%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21,051 ^a	6	,002
Likelihood Ratio	13,255	6	,039
Linear-by-Linear Association	6,508	1	,011
N of Valid Cases	21		

a. 11 cells (91,7%) have expected count less than 5. The minimum expected count is ,10.

Table 5.26: Automation of supply processes Vs Company size

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Automate and simplify the process	little	Count	1	1	0	0	2
		% within Best practices in Supplies management-automate and simplify the process	50,0%	50,0%	0%	0%	100,0%
	much	Count	0	0	2	4	6
		% within Best practices in Supplies management-automate and simplify the process	0%	0%	33,3%	66,7%	100,0%
	very much	Count	0	0	5	8	13
		% within Best practices in Supplies management-automate and simplify the process	0%	0%	38,5%	61,5%	100,0%
Total	Count	1	1	7	12	21	
	% within Best practices in Supplies management-automate and simplify the process	4,8%	4,8%	33,3%	57,1%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21,051 ^a	6	,002
Likelihood Ratio	13,255	6	,039
Linear-by-Linear Association	9,132	1	,003
N of Valid Cases	21		

a. 11 cells (91,7%) have expected count less than 5. The minimum expected count is ,10.

Table 5.27: Plan of demands fleet-wide Vs Company size

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Plan demands fleet-wide	much	Count	1	1	5	1	8
		% within Best practices in Supplies management-plan demands fleet-wide	12,5%	12,5%	62,5%	12,5%	100,0%
	very much	Count	0	0	2	11	13
		% within Best practices in Supplies management-plan demands fleet-wide	0%	0%	15,4%	84,6%	100,0%
Total		Count	1	1	7	12	21
		% within Best practices in Supplies management-plan demands fleet-wide	4,8%	4,8%	33,3%	57,1%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11,055 ^a	3	,011
Likelihood Ratio	12,650	3	,005
Linear-by-Linear Association	9,055	1	,003
N of Valid Cases	21		

a. 7 cells (87,5%) have expected count less than 5. The minimum expected count is ,38.

Table 5.28: Simplification of accounting structures Vs Company size

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Simplify and harmonize the accounting structures	somewhat	Count	2	4	0	7	13
		% within Best practices in Financial management-simplify and harmonize the accounting structures	15,4%	30,8%	0%	53,8%	100,0%
	much	Count	5	1	8	5	19
		% within Best practices in Financial management-simplify and harmonize the accounting structures	26,3%	5,3%	42,1%	26,3%	100,0%
Total		Count	7	5	8	12	32
		% within Best practices in Financial management-simplify and harmonize the accounting structures	21,9%	15,6%	25,0%	37,5%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,669 ^a	3	,014
Likelihood Ratio	13,549	3	,004
Linear-by-Linear Association	,314	1	,575
N of Valid Cases	32		

a. 7 cells (87,5%) have expected count less than 5. The minimum expected count is 2,03.

5.4 Discussion of results

The present research is a survey on the viewpoints of shipping industry executives in relation with the strategies followed by shipping companies in turbulent times and the most appropriate and promising practices that could possibly be applied in order to maintain or gain competitive advantage.

As presented in the previous section, the quality and the cost of services are distinguished as the most important benefits of shipping companies. The vast majority of participants admit that although their companies reduce the operational expenses in turbulent times, they do not lower the quality of their services. Maintaining a high level of quality management is a challenge which most shipping companies have focused on in 21st century, and has also started in the 1980s by the adoption of total quality management as part of strategy execution ([Barrows](#), 2010). For the majority of Greek-owned enterprises, the main competitive strategies are cost leadership, differentiation and response to specific requirements of shippers ([Gupta](#), 1987). During the last years many shipping companies have adopted the cost leadership strategy, as they were not ready to deal with crisis, while others decided to reduce their operational costs keeping the cost of services at the same levels.

Marketing has not yet been established in shipping industry due to special characteristics of shipping market and it is also confirmed by the vast majority of participants. This is the reason that more and more shipping companies perceive the importance of market orientation, as an adaptation tool in modern competitive and turbulent environment ([Jaworski & Kohli](#), 1993). Emphasis to marketing is given by companies following market penetration as a development strategy, as presented in the previous section.

Most companies consider technology innovations as the most introduced in their companies in turbulent times. Technology advances are so rapid that cause changes in business environment, therefore the enterprise should change and adapt constantly. This is also part of strategic management, which is a very important factor for the development of each company in a constantly evolving environment ([Georgopoulos](#), 2010). Regardless of the amount of cost reduction in investments and personnel expenses, the majority of companies introduce innovations in technology, which seem to have a positive impact on the reduction of operational expenses.

The fact that shipping industry was less affected by the financial crisis is also confirmed, since most companies involved in the research face very little funding

and/or cash flow problems. On one hand, the shipowners saw revenues be eliminated, as the value of their fleet was considerably reduced, resulting in the scrapping of older ships at discounted prices or replacing with newer ships at very low rates ([Bank of Greece](#), 2014). But, on the other hand, shipowners continued to order newbuildings in order to exploit lower manufacturing costs and handle the potentially greater future demand. The increase of orders improved not only available tonnage but also the average age of the world fleet, which is associated with advantages for both managing companies and environment.

At the core of strategy is a dilemma between flexibility and commitment. Flexibility to adapt strategy and operations is clearly valuable when the environment changes unexpectedly, as with shipping. An early investment commitment may yet have strategic value because it can influence the behavior of rivals in equilibrium, potentially creating a future competitive advantage for the firm. A firm should invest in resources and competencies that give it a distinctive ability to pursue a set of market opportunities ([Chevalier & Trigeorgis](#), 2011). So do the majority of participating companies, as they implement best practices in Crew, Safety & Quality, Technical, Supplies and Financial management.

According to [Barrows](#) (2010), people is one of the three core processes of strategy execution. That syllogism is adopted by most shipping companies, since most of them integrate training, appraisal and development in management systems, use a combination of personal and computer-based training, and have implemented an integrated crewing solution onboard and onshore. It appears that those companies also reduce their operational expenses in turbulent times.

The wave of reform in the beginning of the 21st century with the implementation of the ISM Code, STCW 95, ISPS Code and MLC, was an attempt to ensure safety, quality, professionalism and integrity in all aspects of a ship management operation ([Baipae](#), 2010). Since then, maintaining a high level of safety management is a continuous challenge for most shipping companies, especially the large-sized ones, as presented in the previous section. It is also confirmed by the majority of participating companies, which regularly monitor crew training on safety issues, have nurtured a “no accusation/ blame” culture, use integrated safety and quality solutions, automatically produce regular KPI reports fleet-wide, as well as they are integrating risk assessment in regular processes.

There are two important factors with regard to strategies built to minimize the negative effects of a sudden change. First, they need to be as comprehensive as possible: in other words, they need to take into account the direct and indirect consequences to a largest possible extent. Secondly, they need to be executed

immediately, which requires clear plans made in advance ([Keltaniemi, 2013](#)). A state-of-art PMS, the harmonization and centralization of the management of master data, the automation and simplification of the supply process, planning the demands fleet-wide, and the adoption of economies of scale through global contracts declare the above mentioned effort made by most shipping companies. Financial management appears to be along the same lines, since the majority of large-sized companies declare a satisfactory level at simplifying and harmonizing the accounting structures, centralizing the invoice registration process, and automating reporting.

Last but not least, most enterprises in shipping industry have been convinced of sustainability practices which, according to [Mahler et al. \(2009\)](#), seem to be a factor of economic success and performance above average in turbulent times. Many shipping companies, especially the large-sized ones, follow the principles of SEEMP and manage a key element of their maintenance budget, including dry dockings.

5.5 Summary

In this chapter, the author presented and analyzed the main data findings, which stem from statistical analysis of the information collected through the use of questionnaires. Executives' opinion concerning the strategies followed by shipping companies in turbulent times was investigated and comparisons that took place among respondents were presented. The author also discussed the meaning and reliability of the results, making comparisons with other researches.

CONCLUSIONS

The researcher attempted to record viewpoints on the part of shipping industry executives in order to help strategies and best practices in turbulent times become discernible. The conclusions are the outcome of the further discussion that took place in the previous Chapter and they also summarize executives' viewpoints related to the company strategies.

The quality and the cost of services are the most important benefits of shipping companies. Although companies reduce operational expenses in turbulent times, they do not lower the quality of their services. Besides, maintaining a high level of safety and quality management is a challenge which most shipping companies have focused on in 21st century.

In a highly competitive industry, like shipping, most companies focus on improving the competitive position of their services. The main competitive strategies followed are cost leadership and differentiation. In the last years, many shipping companies have adopted the cost leadership strategy, as they were not ready to deal with crisis, while others decided to reduce their operational costs.

Marketing has not yet been established in shipping industry due to special characteristics of shipping market. Emphasis to marketing is given by companies following market penetration as a development strategy. A tactic that is considered beneficial during turbulent times is the allocation of risk, which is achieved by operating in sectors with little correlation between them and geographical spreading of the markets.

The majority of shipping companies introduce technology innovations in turbulent times, which seem to have a positive impact on the reduction of operational expenses. Thus, they gain competitive advantage in a constantly evolving business environment, where technology advances are rapid. [Makkonen et al.](#) (2013) remarkably stated that the successful adoption of new technologies or organizational change is more likely in turbulent times because the main activity remains unchanged. Enterprises, in this view, exploit and renew their potential advantages through innovation, turning them into competitive advantage.

Shipping industry was less affected by the financial crisis, including most companies involved in the research. Shipowners continued to order newbuildings in order to exploit lower manufacturing costs and handle the potentially greater future demand. The increase of orders improved not only available tonnage but also the average age of the world fleet, which is associated with advantages for both managing companies and environment.

The majority of shipping companies implement best practices in Crew, Safety & Quality, Technical, Supplies and Financial management, which gives them flexibility to adapt strategy and operations, especially when the environment changes unexpectedly. According to [Chevalier & Trigeorgis](#) (2011), a firm should invest in resources and competencies that give it a distinctive ability to pursue a set of market opportunities.

More specifically, most shipping companies integrate training, appraisal and development in their management systems, and have implemented an integrated crewing solution onboard and onshore, resulting in reduction of their operational expenses in turbulent times. The majority of large-sized companies regularly monitor crew training on safety issues, use integrated safety and quality solutions, automatically produce regular KPI reports fleet-wide, and integrate risk assessment in regular processes, maintaining a high level of safety management. They have also built processes around a state-of-art PMS, followed the principles of SEEMP, centralized the management of master data, simplified the supply process, adopted economies of scale through global contracts, harmonized the accounting structures, and automated reporting.

As ships become safer and arrival a more or less certainty to be expected, public perception to seafaring risks changes from being accepted hazardous ventures to being regular transit passages. Any form of mishap becomes exceptions and the expectation of safety at sea is heightened as industry confronts new challenges. Today, technology revolutionizes traditional operation processes in all business contexts, including ship management business, and the values of human intervention may be changing from correctly performing a series of tasks to monitoring the same tasks and intervening only in complex situations where automatic processes cannot come up with a solution ([Baipae](#), 2010).

In turbulent times both ship owners and ship managers are operating within a squeezed budget. In order to gain competitiveness over each other, ship managers are working hard to reduce their overheads on one hand, and on the other, they respectively seek to develop and exploit competitive manning resources. Increased emphasis on compliance with legislative requirements has added more weight in procedures than in people in all aspects of the ship management process. To actualize the value of these requirements, there is a need for the management to cater for the matching tasks, such as adjusting the training focus on people development, building the right working culture, facilitating a motivational learning environment.

For the majority of Greek-owned enterprises, the main competitive strategy is cost leadership, the components of which are presented below ([Gupta, 1987](#)):

- Acquisition of ships with low cost, mainly through second-hand ship market taking advantage of conjunctures
- Use of flags depending on the circumstances and advantages of each flag
- Acquisition of production factors from the international market, taking efficiency into consideration
- Implementation of a management model focused on cost control
- Use of ship management expertise of human resources

Regarding the current crisis in the offshore oil and gas industry, offshore asset owners and financiers share responsibility and must avoid past mistakes in order for the industry to navigate out of the downturn. Shipping is a cyclical business. Business plans in the industry must reflect such cyclicity, avoid over-leveraging and speculative asset building, incorporate stress-testing, and plan for worst case scenarios. In order to navigate out of the downturn, reduction of capacity through scrapping of vessels, cancellation of new builds, and industry consolidation will be required. The industry is already heavily over-supplied, and any further vessel building will only add to the industry woes ([Singapore Shipping Forum, 2016](#)).

REFERENCES

Asai, A., Nakayama, T., Naito, M. (2003). *Ethics in questionnaire-based research*, Eubios Journal of Asian and International Bioethics, 13, pp. 147-151.

Bajpae, R. (2010). *What is the key to successful ship management*.

Bank of Greece (2014). *The Chronicle of the Great Crisis*, available on <<http://www.bankofgreece.gr/BogEkdoseis/The%20Chronicle%20Of%20The%20Great%20Crisis.pdf>>.

Barrows, E. (2010). *What is Strategy Execution?*, available on <<http://www.amanet.org/training/articles/What-Is-Strategy-Execution.aspx>>.

Bell, J. (2005). *Doing Your Research Project: A Guide for First-Time Researchers in Education, Health and Social Science*, Bell and Bain Ltd (4th Edition).

BSR (2010). *Business for Social Responsibility Report*.

Capasso, M., Verspagen, B. (2011). *The medium-term effect of R&D on firm growth*, DIME Final Conference, Maastricht.

Chalikias, I. (2010). *Analytical Methods for Business Decisions*, Rosili (3rd Edition).

Chevalier-Roignant, B., Trigeorgis, L. (2011). *Competitive Strategy: Options and Games*, MIT Press.

Chintoan-Uta, M. (2013). *Ship management: challenges for implementation of sustainable development principles within international ship-management companies*, Technical University of Lisbon.

Constantinou, C. (2014). *A different business environment*, The International Propeller Club of the United States, 16(31), pp. 38-40.

Duysters, G., Man, A. (2003). *Transitory Alliances: An Instrument for Surviving Turbulent Industries?*, R&D Management, available on <https://www.researchgate.net/publication/228130038_Transitory_Alliances_An_Instrument_for_Surviving_Turbulent_Industries>.

Eason, C. (2015). *Insight: Ship Management*, The Intelligence, October 2015, pp. 27-28.

Epstein, M., J. (2009). *Making Sustainability Work: Best Practices in Managing and Measuring Corporate Social, Environmental and Economic Impacts*, Berrett-Koehler Publications.

Fafaliou, I., Lekakou, M., Theotokas, I. (2005). *Is the European Shipping Industry aware of Corporate Social Responsibility? The case of the Greek-Owned Short Sea Shipping Companies*, Marine Policy.

Friedman, M. (1962). *Capitalism and Freedom*, University of Chicago Press.

Georgopoulos, N. (2010). *Strategic Management*, Benou Publications.

Government Office for Science (2010). *Dimensions of Uncertainty*, available on <<http://webarchive.nationalarchives.gov.uk/20121212135622/http://www.bis.gov.uk/assets/foresight/docs/horizon-scanning-centre/dimensions-of-uncertainty-final.pdf>>.

Gupta, A., K. (1987). *SBU strategies, corporate-SBU relations and SBU effectiveness in strategy implementation*, Academy of Management journal.

Hovakimian, G. (2011). *Financial constraints and investment efficiency: Internal capital allocation across the business cycle*, Journal of Financial Intermediation, 20, pp. 264-283.

IMO (2012). *The Role and Importance of International Shipping*, available on <<http://www.imo.org/en/KnowledgeCentre/ShipsAndShippingFactsAndFigures/TheRoleandImportanceofInternationalSh/Pages/TheRoleAndImportanceOfInternationalTheRoleAn.aspx>>.

Investopedia (2014). *What is the difference between a hedge fund and a private equity fund?*, available on <<http://www.investopedia.com/ask/answers/121614/what-difference-betweenhedge-fund-and-private-equity-fund.asp>>.

Jaworski, J., B., Kohli, K., A. (1993). *Market Orientation: Antecedents and Consequences*, Journal of Marketing, 57.

Kahle, K., M., Stulz, R., M. (2013). *Access to capital, investment and the financial crisis*, Journal of Financial Economics, 110, pp. 280-29.

Keltaniemi, A., Karvonen, T., Lappalainen, A., Gustafsson, J., Heikkila, A., Hillgren, E. (2013). *The Challenges and Best Practices of Structural Change in the European Maritime Industry*, Painosalama.

Knowler, G. (2016). *Shipping facing turbulent times in 2016*, available on <<http://www.fwd.news/shipping-facing-turbulent-times-2016>>.

Lai, K., Lun, V., Wong, C., Cheng, T. (2011). *Green Shipping Practices in the Shipping Industry*, Resources, Conservation and Recycling, 55, pp. 631-638, Elsevier B.V.

Mahler, D., Barker, J., Belsand, L., Schulz, O. (2009). *Green Winners*, A.T. Kerney Consultants Inc.

Makkonen, H., Pohjola, M., Olkkonen, R., Koponen, A. (2013). *Dynamic capabilities and firm performance in a financial crisis*, Journal of Business Research.

Papadakis, V. (2016). *Business Strategy*, Benou Publications (7th Edition).

Paunov, C. (2012). *The global crisis and firms' investments in innovation*, Research Policy, 41, pp. 24–35.

Pearce, J., A., Michael, S., C. (2006). *Strategies to prevent economic recessions from causing business failure*, Business Horizons, 49, pp. 201-209.

Plomaritou, E. (2006). *Marketing of Shipping Companies*, Stamoulis Publications.

Porter, M., E. (1985). *Competitive Advantage*, New York, Free Press.

Poulovassilis, A., Meidanis, S. (2012). *Sustainability of Shipping – Addressing Corporate Social Responsibility through Management Systems*.

Roger, P. (2007). *Navigating Research Ethics*, available on <<http://www.ling.mq.edu.au/research/Navigating%20Research%20Ethics.pdf>>.

Singapore Shipping Forum (2016). *Shipping in Turbulent Times*, Moore Stephens LLP.

Skittides, P., Koiliari, P. (2006). *Introduction to the Research Methodology for technologists*, Synchroni Ekdotiki editions.

Sormunen, O., Goerlandt, F., Hakkinen, J., Posti, A., Hanninen, M., Montewka, J., Stahlberg, K., Kujala, P. (2013). *Uncertainty in Maritime Risk Analysis: Extended Case-study on Chemical Tanker Collisions*, Journal of Engineering for the Maritime Environment, SAGE Publications Ltd.

- Srinivasana, R., Rangaswamyb, A., Lilien, G., L. (2005). *Turning adversity into advantage: Does proactive marketing during a recession pay off?*, International Journal of Research in Marketing, 22, pp. 109–125.
- Sun, W., Cui, K. (2013). *Linking corporate social responsibility to firm default risk*, European Management Journal, Article in Press.
- Syrett, M., Devine, M. (2012). *Managing Uncertainty*, The Economist, Profile Books Ltd.
- Tsakiri, L. (2004). *Introduction to Strategic Planning of Enterprises*, Aristotle University of Thessaloniki.
- Vlachos, G. (2011). *Maritime Economy*, Stamoulis, Piraeus.
- Ward, J., L. (1997). *Growing the Family Business: Special Challenges and Best Practices*, Family Business Review, 10.
- Wheelen, T., Hunger, D. (2012). *Concepts in Strategic Management and Business Policy*, Prentice Hall (13th Edition).
- Zafari, K., Biggermann, S., Knight, J. (2015). *Dealing with Uncertainty in a Turbulent Business Environment*, ANZMAC Midyear Doctoral Colloquium, University of Otago.

APPENDIX A: THE COVERING LETTER

Dear Sir/Madam

My name is Konstantinos Kyrou and I am a MBA student of Athens University of Economics and Business in collaboration with National Technical University of Athens. I have undertaken a dissertation for my Master degree that examines and evaluates the shipping business strategies and practices in turbulent times. It is vital that I obtain your opinion regarding this aspect in order to find out possible problems or difficulties that shipping companies are facing as well as identify those strategies resulting in improving performance of shipping companies in turbulent times. Therefore, the views and experience of executives are a crucial part of this research.

You are kindly requested to answer the following questionnaire. For this purpose it would be a great help if you could spend a few minutes responding to these short questions.

All the information be given will remain anonymous and confidential. Furthermore, the results of the work – if you are interested – may be sent to you in a complimentary copy.

I hope you can find time to assist me with this research project.

Yours faithfully

.....

Konstantinos Kyrou

.....

Professor: Dr. S. Lioukas

APPENDIX B: QUESTIONNAIREQuestionnaire No **Shipping Company Strategies in Turbulent Times**

The aim of this questionnaire is to record the views of shipping industry executives on the strategies followed by shipping companies in turbulent times.

NOTE: In scale 1-5, 1 corresponds to very little and 5 to very much.

PART 1: Company Information**1. Record the approximate total number of employees in the company:**

1 – 20	
21 – 50	
51 – 100	
101 –	
251 –	
Over 500	

2. Specify what best describes the business:

Ship manager	
Trade organization	
Regulator	
Maritime services	
Equipment provider	
Other	

3. Evaluate the relationships between top and senior management with employees:

	1	2	3	4	5
Family atmosphere					
Close relationships					
Distant relationships					
Level of loyalty and					

4. Evaluate the organizational structure and business administration of the company, according to the following terms:

1 2 3 4 5

Entrepreneur-centric organization					
Customer-centric organization					
Flatter organization					
Clear hierarchical organization					
Organized by service					
Organized by market					

PART 2: Company Strategies

5. Evaluate the company compared with other companies in the industry, according to the following terms:

1 2 3 4 5

Quality of services					
Innovation in					
Cost of services					
Quality of marketing					

6. Evaluate the extent to which the company follows development strategies:

1 2 3 4 5

Market penetration					
New markets development					
New services development					
Differentiation in related business lines					
Differentiation in unrelated business lines					

7. Evaluate the extent to which the company introduces innovations:

1 2 3 4 5

Technology					
Distribution – logistics					
Services					
Marketing					

8. Specify the innovation sources used by the company:

1 2 3 4 5

Other companies					
Suppliers					
Customers					
Consultants					
Employees					
International organizations					
Other _____					

9. Assess the approximate percentage of turnover regarding the following sources:

	Last	Target
Voyage charter		
Time charter		
Bareboat		
Sales		
Scrap		
Manning		
Other service _____		

10. Evaluate the financial situation of the company:

1 2 3 4 5

Company faces funding problems					
Company faces cash flow problems					

11. Evaluate the extent to which the customers affect the company strategies:

1 2 3 4 5

Customers engaging in following new					
Customers engaging in developing new					

12. Evaluate the internationalization of the company:

1 2 3 4 5

Dealing directly from Greece					
Working with representatives					
Partnerships with local companies					
Joint ventures					
Subsidiaries					
Other _____					

13. Assess the means of cost reduction at turbulent times:

1 2 3 4 5

Reduce investments					
Reduce operational expenses					
Reduce personnel expenses					
Lower quality of services/ products					
Other _____					

PART 3: Best Practices**14. Evaluate the extent to which the company follows best practices in Crew management:**

1 2 3 4 5

Invest in culture and teamwork					
Invest in crew welfare packages					
Integrate training, appraisal and development management					
Use a combination of personal and computer-based training					
Use an integrated crewing solution onboard and onshore					

15. Evaluate the extent to which the company follows best practices in S&Q management:

1 2 3 4 5

Deploy and monitor regular crew training on safety issues					
Nurture a "no accusation / blame" culture					
Use integrated Safety & Quality solutions					
Automatically produce regular KPI reports fleet-wide					
Integrate risk assessment in regular processes					

16. Evaluate the extent to which the company follows best practices in Technical management:

1 2 3 4 5

Follow the principles of Ship Energy Efficiency Management Plan					
Build processes around a state-of-the-art Planned Maintenance					
Harmonize and centralize the management of master data					
Manage a key element of your maintenance budget (dry dockings)					
Embrace condition based maintenance					

17. Evaluate the extent to which the company follows best practices in Supplies management:

	1	2	3	4	5
Automate and simplify the process					
Communicate with suppliers electronically					
Plan demands fleet-wide					
Reduce number of suppliers					
Adopt economies of scale through global contracts					

18. Evaluate the extent to which the company follows best practices in Financial management:

	1	2	3	4	5
Integrate Operations with Finance					
Simplify and harmonize the accounting structures					
Centralize the invoice registration process					
Harmonize and automate reporting					
Invest in cash management procedures					

Thank you for your precious time

APPENDIX C: TABLES

1. number of employees in the company:

Number of employees	Frequency	Percent	Valid Percent	Cumulative Percent
1-19	7	21,9	21,9	21,9
20-49	5	15,6	15,6	37,5
Valid 50-99	8	25,0	25,0	62,5
100-250	12	37,5	37,5	100,0
Total	32	100,0	100,0	

2. Kind of business

Kind of business	Frequency	Percent	Valid Percent	Cumulative Percent
Ship manager	21	65,6	65,6	65,6
shipbroker	6	18,8	18,8	84,4
Valid Regulator	2	6,3	6,3	90,6
Maritime services provider	3	9,4	9,4	100,0
Total	32	100,0	100,0	

3. Evaluate the relationships between top and senior management with employees:

Relationships management with employees	Very little	little	somewhat	much	Very much
Family atmosphere				100%	
Close relationships			40.6%	40.6%	18.8%
Distant relationships	18.8%	40.6%	21.9%	18.8%	
Level of loyalty and integrity				59.4%	40.6%

4. Business administration of the company

Business administration	Very little	little	somewhat	much	Very
Entrepreneur-centric organization		18.8%	40.6%		40.6%
Customer-centric organization			18.8%	40.6%	40.6%
Flatter organization		37.5%		43.8%	18.8%
Clear hierarchical organization		21.9%	40.6%	18.8%	18.8%
Organized by service			18.8%	62.5%	18.8%
Organized by market			18.8%	81.3%	

5. Company evaluation

Company evaluation	Very little	little	somewha	much	Very much
Quality of services			18,8%	21,9%	59,4%
Innovation in services		18,8%	21,9%	40,6%	18,8%
Cost of services			18,8%	62,5%	18,8%
Quality of marketing			40,6%	40,6%	18,8%

6. Evaluate the extent to which the company follows development strategies:

Development strategies	Very	little	somewh	much	Very
Market penetration		18.8%		62.5%	18.8%
New markets development		18.8%	21.9%	40.6%	18.8%
New services development		59.4%		21.9%	18.8%
Differentiation in related business lines		40.6%	40.6%	18.8%	
Differentiation in unrelated business lines		37.5%	21.9%	40.6%	

7. Evaluate the extent to which the company introduces innovations:

Introduces innovations	Very little	little	somewhat	much	Very much
Technology		21.9%	18.8%	59.4%	
Distribution – logistics	21.9%	18.8%	21.9%	18.8%	18.8%
Services		18.8%	40.6%		40.6%
Marketing		81.3%		18.8%	

8. Specify the innovation sources used by the company:

Innovation sources	Very little	little	somewhat	much	Very much
Other companies	43.8%		18.8%	18.8%	18.8%
Suppliers	43.8%	18.8%		37.5%	
Customers	21.9%		18.8%	40.6%	18.8%
Consultants	21.9%	18.8%		40.6%	18.8%
Employees	21.9%	18.8%		40.6%	18.8%
International organizations	21.9%			59.4%	18.8%
Other _Universities				100%	

9. Assess the approximate percentage of turnover regarding the following sources:

Percentage of turnover	Last year					Target				
	0-20	21-40	41-60	61-80	81-100	0-20	21-40	41-60	61-80	81-100
Voyage		100%					100%			
Time charter		76.9%		23.1%			76.9%			23.1%
Bareboat	100%					100%				
Sales	73.1%	26.9%				50%	50%			
Scrap	100%					100%				
Manning	100%					100%				
Other service _	100%					100%				

10. Evaluate the financial situation of the company:

Financial situation	Very little	little	somewhat	much	Very much
Company faces funding problems	59.4%	40.6%			
Company faces cash flow problems	59.4%	18.8%		21.9%	

11. Evaluate the extent to which the customers affect the company strategies:

Customers affect	Very	little	somewhat	much	Very much
Customers engaging in following new practices	21.9%	18.8%	18.8%	40.6%	
Customers engaging in developing new services			59.4%	40.6%	

12. Evaluate the internationalization of the company:

Internationalization of the company	Very little	little	somewhat	much	Very much
Dealing directly from Greece		18.8%	18.8%		62.5%
Working with representatives			21.9%	59.4%	18.8%
Partnerships with local companies	40.6%	18.8%		40.6%	
Joint ventures	40.6%			59.4%	
Subsidiaries	50%			50%	
Other _____					

13. Assess the means of cost reduction in turbulent times:

Means of cost reduction	Very little	little	somewhat	much	Very much
Reduce investments	21.9%	18.8%		59.4%	
Reduce operational expenses			21.9%	78.1%	
Reduce personnel expenses	21.9%		18.8%	59.4%	
Lower quality of services/ products	62.5%	18.8%	18.8%		
Other _____					

14. Evaluate the extent to which the company follows best practices in Crew management:

Best practices in crew management	Very little	little	somewhat	much	Very much
Invest in culture and teamwork			42.9%	28.6%	28.6%
Invest in crew welfare packages			42.9%	28.6%	28.6%
Integrate training, appraisal and development			9.5%	61.9%	28.6%
Use a combination of personal and computer-based training			9.5%	61.9%	28.6%
Use an integrated crewing solution onboard and onshore		9.5%		61.9%	28.6%

15. Evaluate the extent to which the company follows best practices in S&Q management:

Best practices in S&Q management	Very little	little	somewhat	much	Very much
Deploy regular crew training on safety issues			33.3%	9.5%	57.1%
Nurture a “no accusation / blame” culture			42.9%		57.1%
Use integrated Safety & Quality solutions			9.5%	33.3%	57.1%
Automatically produce regular KPI reports		9.5%	33.3%		57.1%
Integrate risk assessment in regular processes			9.5%	61.9%	28.6%

16. Evaluate the extent to which the company follows best practices in Technical management:

Best practices in technical management	Very little	little	somewhat	much	Very much
Follow the principles of SEEMP			42.9%		57.1%
Build processes around a state-of-the-art PMS			9.5%		90.5%
Harmonize and centralize the management of master data			9.5%	28.6%	61.9%
Manage a key element of your maintenance budget			9.5%	33.3%	57.1%
Embrace condition based maintenance			9.5%	61.9%	28.6%

17. Evaluate the extent to which the company follows best practices in Supplies management:

Best practices in supplies management	Very little	little	somewhat	much	Very much
Automate and simplify the process		9.5%		28.6%	61.9%
Communicate with suppliers electronically				71.4%	28.6%
Plan demands fleet-wide				38.1%	61.9%
Reduce number of suppliers		9.5%	33.3%	57.1%	
Adopt economies of scale through global contracts			9.5%	28.6%	61.9%

18. Evaluate the extent to which the company follows best practices in Financial management:

Best practices in Financial management	Very little	little	somewhat	much	Very much
Integrate Operations with Finance	18.8%		21.9%	40.6%	18.8%
Simplify and harmonize the accounting structures			40.6%	59.4%	
Centralize the invoice registration process			40.6%	59.4%	
Harmonize and automate reporting		18.8%	21.9%	59.4%	
Invest in cash management procedures	21.9%	18.8%		37.5%	21.9%

19. Crosstab

			Company evaluation-quality of marketing			Total
			somewhat	much	very much	
Organized by service	somewhat	Count	6	0	0	6
		% within Organized by service	100,0%	,0%	,0%	100,0%
		% of Total	18,8%	,0%	,0%	18,8%
	much	Count	7	7	6	20
		% within Organized by service	35,0%	35,0%	30,0%	100,0%
		% of Total	21,9%	21,9%	18,8%	62,5%
	very much	Count	0	6	0	6
		% within Organized by service	,0%	100,0%	,0%	100,0%
		% of Total	,0%	18,8%	,0%	18,8%
Total	Count	13	13	6	32	
	% within Organized by service	40,6%	40,6%	18,8%	100,0%	
	% of Total	40,6%	40,6%	18,8%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19,200 ^a	4	,001
Likelihood Ratio	23,086	4	,000
Linear-by-Linear Association	5,324	1	,021
N of Valid Cases	32		

a. 7 cells (77,8%) have expected count less than 5. The minimum expected count is 1,13.

20. Crosstab

			Company evaluation-quality of marketing			Total
			somewhat	much	very much	
Development strategies-market penetration	little	Count	6	0	0	6
		% within Development strategies-market penetration	100,0%	,0%	,0%	100,0%
		% of Total	18,8%	,0%	,0%	18,8%
	much	Count	7	7	6	20
		% within Development strategies-market penetration	35,0%	35,0%	30,0%	100,0%
		% of Total	21,9%	21,9%	18,8%	62,5%
	very much	Count	0	6	0	6
		% within Development strategies-market penetration	,0%	100,0%	,0%	100,0%
		% of Total	,0%	18,8%	,0%	18,8%
	Total	Count	13	13	6	32
		% within Development strategies-market penetration	40,6%	40,6%	18,8%	100,0%
		% of Total	40,6%	40,6%	18,8%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19,200 ^a	4	,001
Likelihood Ratio	23,086	4	,000
Linear-by-Linear Association	7,020	1	,008
N of Valid Cases	32		

a. 7 cells (77,8%) have expected count less than 5. The minimum expected count is 1,13.

21. Crosstab

			Company evaluation-innovation in services				Total
			little	somewhat	much	very much	
Organized by market	somewhat	Count	0	0	6	0	6
		% within Organized by market	,0%	,0%	100,0%	,0%	100,0%
		% of Total	,0%	,0%	18,8%	,0%	18,8%
	much	Count	6	7	7	6	26
		% within Organized by market	23,1%	26,9%	26,9%	23,1%	100,0%
		% of Total	18,8%	21,9%	21,9%	18,8%	81,3%
Total	Count	6	7	13	6	32	
	% within Organized by market	18,8%	21,9%	40,6%	18,8%	100,0%	
	% of Total	18,8%	21,9%	40,6%	18,8%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,793 ^a	3	,013
Likelihood Ratio	12,940	3	,005
Linear-by-Linear Association	1,191	1	,275
N of Valid Cases	32		

a. 6 cells (75,0%) have expected count less than 5. The minimum expected count is 1,13.

22. Crosstab

			Last year turnover percentage-time charter		Total
			21-40	61-80	
Innovation introduction-services	somewhat	Count	7	6	13
		% within Innovation introduction-services	53,8%	46,2%	100,0%
		% of Total	26,9%	23,1%	50,0%
	very much	Count	13	0	13
		% within Innovation introduction-services	100,0%	,0%	100,0%
		% of Total	50,0%	,0%	50,0%
Total	Count	20	6	26	
	% within Innovation introduction-services	76,9%	23,1%	100,0%	
	% of Total	76,9%	23,1%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7,800 ^b	1	,005		
Continuity Correction ^a	5,417	1	,020		
Likelihood Ratio	10,146	1	,001		
Fisher's Exact Test				,015	,007
Linear-by-Linear Association	7,500	1	,006		
N of Valid Cases	26				

a. Computed only for a 2x2 table

b. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 3,00.

23. Crosstab

			Last year turnover percentage-sales		Total
			0-20	21-40	
Innovation introduction-services	somewhat	Count	13	0	13
		% within Innovation introduction-services	100,0%	,0%	100,0%
		% of Total	50,0%	,0%	50,0%
	very much	Count	6	7	13
		% within Innovation introduction-services	46,2%	53,8%	100,0%
		% of Total	23,1%	26,9%	50,0%
Total	Count	19	7	26	
	% within Innovation introduction-services	73,1%	26,9%	100,0%	
	% of Total	73,1%	26,9%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9,579 ^b	1	,002		
Continuity Correction ^a	7,038	1	,008		
Likelihood Ratio	12,345	1	,000		
Fisher's Exact Test				,005	,003
Linear-by-Linear Association	9,211	1	,002		
N of Valid Cases	26				

a. Computed only for a 2x2 table

b. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 3,50.

24. Crosstab

			Customers influence- in developing new services		Total
			somewhat	much	
Innovation introduction- technology	little	Count	7	0	7
		% within Innovation introduction-technology	100,0%	,0%	100,0%
	somewhat	% of Total	21,9%	,0%	21,9%
		Count	6	0	6
	much	% within Innovation introduction-technology	100,0%	,0%	100,0%
		% of Total	18,8%	,0%	18,8%
Total	Count	6	13	19	
	% within Innovation introduction-technology	31,6%	68,4%	100,0%	
	% of Total	18,8%	40,6%	59,4%	
	Count	19	13	32	
	% within Innovation introduction-technology	59,4%	40,6%	100,0%	
	% of Total	59,4%	40,6%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,981 ^a	2	,001
Likelihood Ratio	19,531	2	,000
Linear-by-Linear Association	12,332	1	,000
N of Valid Cases	32		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is 2,44.

25. Crosstab

			Customers influence- in developing new services		Total
			somewhat	much	
Innovation introduction-marketing	little	Count	19	7	26
		% within Innovation introduction-marketing	73,1%	26,9%	100,0%
		% of Total	59,4%	21,9%	81,3%
	much	Count	0	6	6
		% within Innovation introduction-marketing	,0%	100,0%	100,0%
		% of Total	,0%	18,8%	18,8%
Total	Count	19	13	32	
	% within Innovation introduction-marketing	59,4%	40,6%	100,0%	
	% of Total	59,4%	40,6%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10,793 ^b	1	,001		
Continuity Correction ^a	7,976	1	,005		
Likelihood Ratio	12,940	1	,000		
Fisher's Exact Test				,002	,002
Linear-by-Linear Association	10,456	1	,001		
N of Valid Cases	32				

a. Computed only for a 2x2 table

b. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 2,44.

26. Crosstab

			Means of cost reduction-reduce investments			Total
			very little	little	much	
Innovation introduction-technology	little	Count	0	0	7	7
		% within Innovation introduction-technology	,0%	,0%	100,0%	100,0%
		% of Total	,0%	,0%	21,9%	21,9%
	somewhat	Count	0	0	6	6
		% within Innovation introduction-technology	,0%	,0%	100,0%	100,0%
		% of Total	,0%	,0%	18,8%	18,8%
	much	Count	7	6	6	19
		% within Innovation introduction-technology	36,8%	31,6%	31,6%	100,0%
		% of Total	21,9%	18,8%	18,8%	59,4%
Total	Count	7	6	19	32	
	% within Innovation introduction-technology	21,9%	18,8%	59,4%	100,0%	
	% of Total	21,9%	18,8%	59,4%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,981 ^a	4	,005
Likelihood Ratio	19,531	4	,001
Linear-by-Linear Association	11,580	1	,001
N of Valid Cases	32		

a. 8 cells (88,9%) have expected count less than 5. The minimum expected count is 1,13.

27. Crosstab

			Means of cost reduction-reduce personnel expenses			Total
			very little	somewhat	much	
Innovation introduction-technology	little	Count	0	0	7	7
		% within Innovation introduction-technology	,0%	,0%	100,0%	100,0%
		% of Total	,0%	,0%	21,9%	21,9%
	somewhat	Count	0	0	6	6
		% within Innovation introduction-technology	,0%	,0%	100,0%	100,0%
		% of Total	,0%	,0%	18,8%	18,8%
	much	Count	7	6	6	19
		% within Innovation introduction-technology	36,8%	31,6%	31,6%	100,0%
		% of Total	21,9%	18,8%	18,8%	59,4%
Total	Count	7	6	19	32	
	% within Innovation introduction-technology	21,9%	18,8%	59,4%	100,0%	
	% of Total	21,9%	18,8%	59,4%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,981 ^a	4	,005
Likelihood Ratio	19,531	4	,001
Linear-by-Linear Association	8,884	1	,003
N of Valid Cases	32		

a. 8 cells (88,9%) have expected count less than 5. The minimum expected count is 1,13.

28. Crosstab

			Means of cost reduction-reduce operational expenses		Total
			somewhat	much	
Innovation introduction-technology	little	Count	0	7	7
		% within Innovation introduction-technology	,0%	100,0%	100,0%
		% of Total	,0%	21,9%	21,9%
	somewhat	Count	0	6	6
		% within Innovation introduction-technology	,0%	100,0%	100,0%
		% of Total	,0%	18,8%	18,8%
	much	Count	7	12	19
		% within Innovation introduction-technology	36,8%	63,2%	100,0%
		% of Total	21,9%	37,5%	59,4%
Total	Count	7	25	32	
	% within Innovation introduction-technology	21,9%	78,1%	100,0%	
	% of Total	21,9%	78,1%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,131 ^a	2	,047
Likelihood Ratio	8,612	2	,013
Linear-by-Linear Association	5,047	1	,025
N of Valid Cases	32		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is 1,31.

29. Crosstab

			Best practices in Crew management-invest in culture and teamwork			Total
			somewhat	much	very much	
Means of cost reduction-reduce operational expenses	somewhat	Count	7	0	0	7
		% within Means of cost reduction-reduce operational expenses	100,0%	,0%	,0%	100,0%
		% of Total	33,3%	,0%	,0%	33,3%
	much	Count	2	6	6	14
		% within Means of cost reduction-reduce operational expenses	14,3%	42,9%	42,9%	100,0%
		% of Total	9,5%	28,6%	28,6%	66,7%
Total	Count	9	6	6	21	
	% within Means of cost reduction-reduce operational expenses	42,9%	28,6%	28,6%	100,0%	
	% of Total	42,9%	28,6%	28,6%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,000 ^a	2	,001
Likelihood Ratio	17,199	2	,000
Linear-by-Linear Association	10,588	1	,001
N of Valid Cases	21		

a. 5 cells (83,3%) have expected count less than 5. The minimum expected count is 2,00.

30. Crosstab

			Best practices in Crew management-integrate training, appraisal and development management systems			Total
			somewhat	much	very much	
Means of cost reduction-reduce operational expenses	somewhat	Count	0	7	0	7
		% within Means of cost reduction-reduce operational expenses	,0%	100,0%	,0%	100,0%
		% of Total	,0%	33,3%	,0%	33,3%
	much	Count	2	6	6	14
		% within Means of cost reduction-reduce operational expenses	14,3%	42,9%	42,9%	100,0%
		% of Total	9,5%	28,6%	28,6%	66,7%
Total	Count	2	13	6	21	
	% within Means of cost reduction-reduce operational expenses	9,5%	61,9%	28,6%	100,0%	
	% of Total	9,5%	61,9%	28,6%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,462 ^a	2	,040
Likelihood Ratio	8,789	2	,012
Linear-by-Linear Association	1,053	1	,305
N of Valid Cases	21		

a. 5 cells (83,3%) have expected count less than 5. The minimum expected count is ,67.

31. Crosstab

			Best practices in Crew management-integrate training, appraisal and development management systems			Total
			somewhat	much	very much	
Best practices in S & Q management-nurture a "no accusation/blame" culture	somewhat	Count	2	7	0	9
		% within Best practices in S & Q management-nurture a "no accusation/blame" culture	22,2%	77,8%	,0%	100,0%
		% of Total	9,5%	33,3%	,0%	42,9%
	very much	Count	0	6	6	12
	% within Best practices in S & Q management-nurture a "no accusation/blame" culture	,0%	50,0%	50,0%	100,0%	
	% of Total	,0%	28,6%	28,6%	57,1%	
Total		Count	2	13	6	21
		% within Best practices in S & Q management-nurture a "no accusation/blame" culture	9,5%	61,9%	28,6%	100,0%
		% of Total	9,5%	61,9%	28,6%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7,808 ^a	2	,020
Likelihood Ratio	10,737	2	,005
Linear-by-Linear Association	7,412	1	,006
N of Valid Cases	21		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is ,86.

32. Crosstab

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Best practices in S & Q management-nurture a "no accusation/blame" culture	somewhat	Count	1	1	0	7	9
		% within Best practices in S & Q management-nurture a "no accusation/blame" culture	11,1%	11,1%	,0%	77,8%	100,0%
		% of Total	4,8%	4,8%	,0%	33,3%	42,9%
	very much	Count	0	0	7	5	12
		% within Best practices in S & Q management-nurture a "no accusation/blame" culture	,0%	,0%	58,3%	41,7%	100,0%
		% of Total	,0%	,0%	33,3%	23,8%	57,1%
Total	Count	1	1	7	12	21	
	% within Best practices in S & Q management-nurture a "no accusation/blame" culture	4,8%	4,8%	33,3%	57,1%	100,0%	
	% of Total	4,8%	4,8%	33,3%	57,1%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9,090 ^a	3	,028
Likelihood Ratio	12,382	3	,006
Linear-by-Linear Association	,006	1	,938
N of Valid Cases	21		

a. 6 cells (75,0%) have expected count less than 5. The minimum expected count is ,43.

33. Crosstab

			Organized by market		Total
			somewhat	much	
Best practices in S & Q management-deploy ant monitor regular crew training on safety issues	somewhat	Count	0	7	7
		% within Best practices in S & Q management-deploy ant monitor regular crew training on safety issues	,0%	100,0%	100,0%
		% of Total	,0%	33,3%	33,3%
		Count	0	2	2
	much	% within Best practices in S & Q management-deploy ant monitor regular crew training on safety issues	,0%	100,0%	100,0%
		% of Total	,0%	9,5%	9,5%
		Count	6	6	12
		% within Best practices in S & Q management-deploy ant monitor regular crew training on safety issues	50,0%	50,0%	100,0%
	very much	% of Total	28,6%	28,6%	57,1%
		Count	6	15	21
		% within Best practices in S & Q management-deploy ant monitor regular crew training on safety issues	28,6%	71,4%	100,0%
		% of Total	28,6%	71,4%	100,0%
Total					

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,300 ^a	2	,043
Likelihood Ratio	8,492	2	,014
Linear-by-Linear Association	5,476	1	,019
N of Valid Cases	21		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is ,57.

34. Crosstab

			Organized by market		Total
			somewhat	much	
Best practices in S & Q management-automatically produce regular safety and quality KPI reports fleet-wide	little	Count	0	2	2
		% within Best practices in S & Q management-automatically produce regular safety and quality KPI reports fleet-wide	,0%	100,0%	100,0%
		% of Total	,0%	9,5%	9,5%
	somewhat	Count	0	7	7
		% within Best practices in S & Q management-automatically produce regular safety and quality KPI reports fleet-wide	,0%	100,0%	100,0%
		% of Total	,0%	33,3%	33,3%
	very much	Count	6	6	12
		% within Best practices in S & Q management-automatically produce regular safety and quality KPI reports fleet-wide	50,0%	50,0%	100,0%
		% of Total	28,6%	28,6%	57,1%
Total	Count	6	15	21	
	% within Best practices in S & Q management-automatically produce regular safety and quality KPI reports fleet-wide	28,6%	71,4%	100,0%	
	% of Total	28,6%	71,4%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,300 ^a	2	,043
Likelihood Ratio	8,492	2	,014
Linear-by-Linear Association	5,654	1	,017
N of Valid Cases	21		

a. 4 cells (66,7%) have expected count less than 5. The minimum expected count is ,57.

35. Crosstab

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Best practices in Technical management-follow the principles of Ship Energy Efficiency Management Plan	somewhat	Count	1	1	0	7	9
		% within Best practices in Technical management-follow the principles of Ship Energy Efficiency Management Plan	11,1%	11,1%	,0%	77,8%	100,0%
	very much	% of Total	4,8%	4,8%	,0%	33,3%	42,9%
		Count	0	0	7	5	12
Total		% within Best practices in Technical management-follow the principles of Ship Energy Efficiency Management Plan	,0%	,0%	58,3%	41,7%	100,0%
		% of Total	,0%	,0%	33,3%	23,8%	57,1%
		Count	1	1	7	12	21
		% within Best practices in Technical management-follow the principles of Ship Energy Efficiency Management Plan	4,8%	4,8%	33,3%	57,1%	100,0%
		% of Total	4,8%	4,8%	33,3%	57,1%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9,090 ^a	3	,028
Likelihood Ratio	12,382	3	,006
Linear-by-Linear Association	,006	1	,938
N of Valid Cases	21		

a. 6 cells (75,0%) have expected count less than 5. The minimum expected count is ,43.

36. Crosstab

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Best practices in Technical management-harmonize and centralize the management of master data	somewhat	Count	1	1	0	0	2
		% within Best practices in Technical management-harmonize and centralize the management of master data	50,0%	50,0%	,0%	,0%	100,0%
		% of Total	4,8%	4,8%	,0%	,0%	9,5%
	much	Count	0	0	2	4	6
		% within Best practices in Technical management-harmonize and centralize the management of master data	,0%	,0%	33,3%	66,7%	100,0%
		% of Total	,0%	,0%	9,5%	19,0%	28,6%
	very much	Count	0	0	5	8	13
		% within Best practices in Technical management-harmonize and centralize the management of master data	,0%	,0%	38,5%	61,5%	100,0%
		% of Total	,0%	,0%	23,8%	38,1%	61,9%
	Total	Count	1	1	7	12	21
		% within Best practices in Technical management-harmonize and centralize the management of master data	4,8%	4,8%	33,3%	57,1%	100,0%
		% of Total	4,8%	4,8%	33,3%	57,1%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21,051 ^a	6	,002
Likelihood Ratio	13,255	6	,039
Linear-by-Linear Association	6,508	1	,011
N of Valid Cases	21		

a. 11 cells (91,7%) have expected count less than 5. The minimum expected count is ,10.

37. Crosstab

			Number of employees				Total	
			1-19	20-49	50-99	100-250		
Best practices in Supplies management-automate and simplify the process	little	Count	1	1	0	0	2	
		% within Best practices in Supplies management-automate and simplify the process	50,0%	50,0%	,0%	,0%	100,0%	
		% of Total	4,8%	4,8%	,0%	,0%	9,5%	
		much	Count	0	0	2	4	6
			% within Best practices in Supplies management-automate and simplify the process	,0%	,0%	33,3%	66,7%	100,0%
			% of Total	,0%	,0%	9,5%	19,0%	28,6%
	very much	Count	0	0	5	8	13	
		% within Best practices in Supplies management-automate and simplify the process	,0%	,0%	38,5%	61,5%	100,0%	
		% of Total	,0%	,0%	23,8%	38,1%	61,9%	
		Total	Count	1	1	7	12	21
			% within Best practices in Supplies management-automate and simplify the process	4,8%	4,8%	33,3%	57,1%	100,0%
			% of Total	4,8%	4,8%	33,3%	57,1%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21,051 ^a	6	,002
Likelihood Ratio	13,255	6	,039
Linear-by-Linear Association	9,132	1	,003
N of Valid Cases	21		

a. 11 cells (91,7%) have expected count less than 5. The minimum expected count is ,10.

38. Crosstab

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Best practices in Supplies management-plan demands fleet-wide	much	Count	1	1	5	1	8
		% within Best practices in Supplies management-plan demands fleet-wide	12,5%	12,5%	62,5%	12,5%	100,0%
	very much	% of Total	4,8%	4,8%	23,8%	4,8%	38,1%
		Count	0	0	2	11	13
		% within Best practices in Supplies management-plan demands fleet-wide	,0%	,0%	15,4%	84,6%	100,0%
		% of Total	,0%	,0%	9,5%	52,4%	61,9%
Total	Count	1	1	7	12	21	
	% within Best practices in Supplies management-plan demands fleet-wide	4,8%	4,8%	33,3%	57,1%	100,0%	
	% of Total	4,8%	4,8%	33,3%	57,1%	100,0%	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11,055 ^a	3	,011
Likelihood Ratio	12,650	3	,005
Linear-by-Linear Association	9,055	1	,003
N of Valid Cases	21		

a. 7 cells (87,5%) have expected count less than 5. The minimum expected count is ,38.

39. Crosstab

			Number of employees				Total
			1-19	20-49	50-99	100-250	
Simplify and harmonize the accounting structures	somewhat	Count	2	4	0	7	13
		% within Best practices in Financial management-simplify and harmonize the accounting structures	15,4%	30,8%	0%	53,8%	100,0%
	much	Count	5	1	8	5	19
		% within Best practices in Financial management-simplify and harmonize the accounting structures	26,3%	5,3%	42,1%	26,3%	100,0%
Total		Count	7	5	8	12	32
		% within Best practices in Financial management-simplify and harmonize the accounting structures	21,9%	15,6%	25,0%	37,5%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,669 ^a	3	,014
Likelihood Ratio	13,549	3	,004
Linear-by-Linear Association	,314	1	,575
N of Valid Cases	32		

a. 7 cells (87,5%) have expected count less than 5. The minimum expected count is 2,03.