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School of Maritime and Industrial Studies

Department of Maritime Studies

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Maria Karakasnaki

The impact of quality management systems (ISO standards, ISM Code, TQM) on the management and performance of shipping companies

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Supervisor: Angelos Pantouvakis – Associate Professor, University of Piraeus

Athanasios Kouremenos – Professor, University of Piraeus

Constantinos Chlomoudis – Professor, University of Piraeus

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Summary

Aim of the thesis – Shipping service operations are characterized by the implementation of quality and safety management systems, such as the ISM Code. Although mandatory, many shipping companies encounter difficulties in successfully responding to the ISM Code's requirements and as a consequence various authors in the literature have demonstrated that additional quality standards (i.e. ISO 9000 series) should be an integral part of a shipping company's management processes, while other authors argue in favor of the dissemination of holistic quality management philosophies inside shipping companies, such as Total quality management (TQM). However, the successful implementation of these management systems is significantly impeded by failures mainly attributed to the human factor, posing a threat to the fulfillment of organizational goals and calling for the adoption of new employee management schemes that will tackle these inconsistencies.

In this regard, acknowledging the critical role of the human factor in determining the outcomes of any management strategy and responding to the call for focusing on new and innovative human resource concepts, this thesis introduces for the first time the application of the novel talent philosophies in the shipping industry. Moreover, this thesis takes a different approach from previous studies in the literature and aims to evaluate the ISM Code effectiveness by drawing analogy from similar applications of ISO 9001 effectiveness in service companies. For the first time the impact of the effective implementation of the ISM Code on shipping company performance is evaluated, while this relationship is also examined among ISO and non-ISO certified shipping companies. This thesis also adds upon the limited empirical evidence on TQM implementation issues in the shipping sector, while it also investigates the joint implications of a certain TQM dimension (top management commitment to quality) and ISM Code effectiveness on performance outcomes. Finally, the present thesis examines the degree to which managers' perceptions regarding the nature of human talent condition the success of quality management initiatives in the shipping industry.

Methodology – A structured questionnaire was administered to shipping companies located in Greece, resulting in a number of 199 responses that were usable for further analysis. The questionnaires were collected through personal interviews in two different time frames (from December 2014 to February 2015 and from December

2015 to February 2016). The data were analyzed through Exploratory and Confirmatory Factor Analyses as well as Regression Analyses.

Findings – The findings confirm the applicability of the main talent philosophies in the context of the shipping industry, which concern the distinction among the innate/developable and exclusive/ inclusive perceptions on human talent. Also, the findings indicate that ISM Code effectiveness consists of two dimensions, namely continuous improvement and customer satisfaction focus, and the significance of its contribution on improving company performance is revealed, especially in the case of ISO certified shipping companies. The findings also confirm the applicability of the TQM concept in the shipping industry, but it was revealed that only the dimension of top management commitment has a significant impact on shipping company performance. Furthermore, the results highlight the fully mediating role of ISM Code effectiveness in the relationship between top managers' commitment to quality and performance, while this association is conditioned by the different talent philosophies as perceived by the managers, indicating the important role of the human talent perceptions when assessing the successful implementation of quality management systems.

Originality – The novel talent philosophies are empirically assessed for the first time, while this is also the very first time, in which the role of managers' perceptions about human talent is investigated in order to analyze how it conditions the successful and effective implementation of quality systems inside maritime organizations. This thesis is the first one to evaluate the effective implementation of the ISM Code by drawing analogy from similar applications of the effectiveness of other standardized quality management systems (ISO 9000 standards) in service companies. Moreover, this thesis constitutes the first attempt to assess the degree to which ISM Code effectiveness can explain shipping company performance and to differentiate among companies on the basis of ISO certification. Additionally, the combined effects of the concepts of top management commitment and ISM Code effectiveness on performance are evaluated.

Keywords – International Safety Management Code, ISM Code, Total quality management, performance, talent, talent philosophies, talent management

Περίληψη

Σκοπός της διατριβής – Η λειτουργία των ναυτιλιακών επιχειρήσεων χαρακτηρίζεται από την εφαρμογή συστημάτων διοίκησης ποιότητας και ασφάλειας, όπως ο Κώδικας Ασφαλούς Διαχείρισης των πλοίων (ISM Code). Παρά τον υποχρεωτικό του χαρακτήρα, πολλές ναυτιλιακές επιχειρήσεις δυσκολεύονται να ανταποκριθούν με επιτυχία στις απαιτήσεις του και συνεπώς πολλοί ερευνητές τονίζουν πως η ύπαρξη επιπλέον προτύπων διασφάλισης ποιότητας (όπως τα πρότυπα ISO 9000) πρέπει να είναι αναπόσπαστο κομμάτι της λειτουργίας των εταιρειών, ενώ άλλοι ερευνητές δίνουν ιδιαίτερη έμφαση στην υιοθέτηση ολιστικών φιλοσοφιών διοίκησης ποιότητας, όπως η Διοίκηση Ολικής Ποιότητας (ΔΟΠ). Παρόλα αυτά, η αποτελεσματική εφαρμογή των παραπάνω συστημάτων διοίκησης παρεμποδίζεται από λάθη που συνήθως αποδίδονται στον ανθρώπινο παράγοντα. Τα λάθη αυτά απειλούν την εκπλήρωση των οργανωσιακών στόχων, ενώ τονίζουν την αναγκαιότητα ύπαρξης νέων διαδικασιών που σχετίζονται με το ανθρώπινο δυναμικό με στόχο να αντιμετωπιστούν αυτές οι αστοχίες.

Συνεπώς, αναγνωρίζοντας τον καίριο ρόλο του ανθρώπινου παράγοντα στην επιτυχία των εταιρικών στρατηγικών και ανταποκρινόμενη στην ανάγκη για την εστίαση σε νέα και καινοτόμα ζητήματα ανθρώπινου δυναμικού, η παρούσα διατριβή εισάγει για πρώτη φορά την καινοτόμα έννοια των φιλοσοφιών γύρω από το ανθρώπινο ταλέντο στις ναυτιλιακές εταιρείες. Επιπλέον, ακολουθώντας μία διαφορετική προσέγγιση από άλλες μελέτες στη βιβλιογραφία, η παρούσα διατριβή στοχεύει στην αξιολόγηση της αποτελεσματικής εφαρμογής του Κώδικα ISM σε αναλογία με την αποτελεσματικότητα των προτύπων ISO 9001 σε εταιρείες παροχής υπηρεσιών. Επίσης, για πρώτη φορά εξετάζεται η επίδραση της αποτελεσματικής εφαρμογής του Κώδικα ISM στην απόδοση των ναυτιλιακών επιχειρήσεων, ενώ πραγματοποιείται και διαφοροποίηση ανάμεσα στις εταιρείες που είναι πιστοποιημένες με ISO και στις υπόλοιπες. Η συγκεκριμένη διατριβή επιβεβαιώνει την εφαρμογή της ΔΟΠ στο χώρο της ναυτιλίας ενώ εξετάζει και τις επιπτώσεις της στα αποτελέσματα. Επιπλέον, αναλύεται ταυτόχρονα η επιρροή μίας συγκεκριμένης μεταβλητής της ΔΟΠ (δέσμευση στην ποιότητα από την ανώτατη διοίκηση) σε συνδυασμό με την αποτελεσματικότητα του Κώδικα ISM πάνω στην απόδοση των ναυτιλιακών επιχειρήσεων. Τέλος, εξετάζεται κατά πόσο οι αντιλήψεις των διοικούντων σχετικά

με τη φύση του ανθρώπινου ταλέντου επηρεάζουν την επιτυχία συστημάτων διοίκησης ποιότητας στον κλάδο της ναυτιλίας.

Μεθοδολογία – Η διανομή του ερωτηματολογίου πραγματοποιήθηκε σε ναυτιλιακές εταιρείες που εδρεύουν στην Ελλάδα και τελικά συλλέχθηκαν συνολικά 199 ερωτηματολόγια κατάλληλα προς επεξεργασία. Η συλλογή πραγματοποιήθηκε μέσω προσωπικών συνεντεύξεων σε δύο διαφορετικές χρονικές περιόδους (Δεκέμβριος 2014 – Φεβρουάριος 2015 και Δεκέμβριος 2015 – Φεβρουάριος 2016). Η ανάλυση των δεδομένων πραγματοποιήθηκε με τη χρήση Εξερευνητικής και Επιβεβαιωτικής Παραγοντικής Ανάλυσης καθώς και με Αναλύσεις Πολλαπλής Παλινδρόμησης.

Ευρήματα – Τα ευρήματα επιβεβαιώνουν την εφαρμογή των κύριων φιλοσοφιών γύρω από το ανθρώπινο ταλέντο στη ναυτιλιακή βιομηχανία, οι οποίες αφορούν τον διαχωρισμό ανάμεσα στην έμφυτη/ αναπτυσσόμενη και σπάνια/ καθολική φύση του ταλέντου. Επίσης, τα αποτελέσματα δείχνουν ότι η αποτελεσματική εφαρμογή του Κώδικα ISM χαρακτηρίζεται από δύο διαστάσεις και συγκεκριμένα από τη συνεχή βελτίωση και την επικέντρωση στην ικανοποίηση του πελάτη, ενώ η συμβολή των δύο διαστάσεων στη βελτίωση της απόδοσης των ναυτιλιακών επιχειρήσεων επιβεβαιώνεται, ιδιαίτερα στην περίπτωση των πιστοποιημένων με ISO εταιρειών. Επιπλέον, επιβεβαιώνεται η εφαρμογή της ΔΟΠ στον ναυτιλιακό χώρο παρόλο που μόνο η διάσταση της δέσμευσης στην ποιότητα από την ανώτατη διοίκηση ασκεί επιρροή στα αποτελέσματα. Τα αποτελέσματα φανερώνουν τον διαμεσολαβητικό ρόλο της αποτελεσματικότητας του Κώδικα ISM στην σχέση ανάμεσα στην δέσμευση στην ποιότητα από την ανώτατη διοίκηση και την επιχειρηματική απόδοση, ενώ η σχέση αυτή διαταράσσεται από το πώς αντιλαμβάνονται οι διοικούντες τις διαφορετικές φιλοσοφίες για το ανθρώπινο ταλέντο, αναδεικνύοντας με αυτόν τον τρόπο τον καίριο ρόλο των αντιλήψεων γύρω από το ταλέντο κατά τη διαδικασία αξιολόγησης της επιτυχούς εφαρμογής συστημάτων διοίκησης ποιότητας.

Πρωτοτυπία – Για πρώτη φορά οι φιλοσοφίες σχετικά με το ανθρώπινο ταλέντο αξιολογούνται στο ναυτιλιακό χώρο, ενώ αναλύεται και το πώς οι αντιλήψεις των διοικούντων σχετικά με το ταλέντο επηρεάζουν την επιτυχημένη και αποτελεσματική εφαρμογή συστημάτων ποιότητας. Η παρούσα διδακτορική διατριβή αποτελεί την πρώτη προσπάθεια αξιολόγησης της αποτελεσματικότητας του Κώδικα ISM σε αναλογία με την αποτελεσματικότητα των προτύπων ISO 9001 σε εταιρείες παροχής

υπηρεσιών, για πρώτη φορά εξετάζεται η επιρροή της στην απόδοση των ναυτιλιακών επιχειρήσεων, ενώ καταδεικνύεται και ο ρόλος του προτύπων ISO 9000 στη σχέση αυτή. Επιπλέον για πρώτη φορά εξετάζεται η ταυτόχρονη συμβολή της δέσμευσης στην ποιότητα από την ανώτατη διοίκηση και της αποτελεσματικότητας του Κώδικα ISM στην επιχειρηματική απόδοση.

Λέξεις Κλειδιά – Κώδικας Ασφαλούς Διαχείρισης των πλοίων, ISM Code, Διοίκηση Ολικής Ποιότητας, απόδοση, ταλέντο, διαχείριση του ταλέντου

Chapter 1. Introduction

Chapter 1 presents a brief introduction to the main topics that are discussed in the current thesis. The stimuli of the research are articulated and the aims of the thesis are then determined. Finally, the chapter includes the original contribution of the research, while the structure of the thesis is also outlined in the last paragraph.

1.1 Generally

Of the course of the last decades, maritime safety and quality – related considerations have received a great deal of attention both from an academic as well as practitioner perspective. Also, they still remain important topics of interest in the maritime community and are the ultimate concerns of all maritime stakeholders (Karahalios et al., 2015, Schröder-Hinrichs et al., 2013). It is now recognized that in order to ensure customer satisfaction and to maintain strong and committed customer relationships in the shipping industry, focusing only on competitive rates and cost minimization strategies is not enough; shipping companies should now pursue quality – enhancing management initiatives in order to provide reliable, safe and qualitative services to their customers and to ensure their satisfaction (Huang et al., 2015). The effective implementation of these quality and safety management endeavors will ultimately pave the way for performance achievements and the attainment of a strong competitive advantage.

Thus, there is a growing body of literature that recognizes the importance of cultivating a quality and safety philosophy and implementing well-designed measures and plans that promote the existence of safety management systems in the shipping industry. In this regard, the International Safety Management (ISM) Code plays an important role in the maintenance of high safety standards as it refers to the establishment of good management practices directed towards safety and pollution prevention (IMO, 2010).

Although the proper implementation of the ISM Code is a major area of interest within the field of maritime discipline, the ability of shipping companies to effectively respond to the Code's mandatory requirements has gained considerable critical attention (Bhattacharya, 2012). As a result, an increasing number of academic voices are now also calling for the adoption of other standardized quality management

systems, such as ISO (International Organization for Standardization) 9000 series standards (Celik, 2009) or holistic quality management philosophies, such as Total quality management (TQM), that can positively configure the daily operations of shipping organizations, since the unpredictable and volatile environment of the shipping industry renders their adoption imperative for survival (Pantouvakis and Psomas, 2016).

However, the implementation of these quality management systems does not always lead directly to the intended organizational outcomes, but may be contingent upon several factors. On the one hand, these factors can include various external – outside the control of the firm – characteristics, such as the level of competition in the sector under examination or the market and technological turbulence (Wang et al., 2012), as well as environmental uncertainty (Zhang et al., 2012). On the other hand, various authors have demonstrated that several internal variables can also moderate the relationship between undertaking quality management projects and company results. These variables that are unique to each business organization can refer to the level of innovativeness (Wiengarten et al., 2013) or the firm's organizational structure (Douglas and Judge, 2001). Moreover, other studies have focused on the unique competences of the human element and specifically those of leaders (Das et al., 2011) in order to investigate how the different levels of skills influence the TQM – performance relationship.

In general, the role of human element is crucial during the successful implementation of any quality management system, since the human factor acts as a catalyst in determining the performance outcomes of quality and safety management practices. Especially, in the case of the maritime industry, in matters of safety and quality it is the commitment, competence, attitudes and motivation of individuals (IMO, 2010) as well as the interpersonal and cognitive abilities of the human resource pool (Hetherington et al., 2006) at all levels of a shipping organization that determine the end result. Thus, it becomes obvious that the human factor is the dominant contributor in assuring the qualitative and safe execution of shipping operations in a timely and reliable manner, as well as it actively supports the top management's efforts towards effective implementation of quality systems and conformance to ISM Code regulations.

1.2 Stimuli and aims of the research

Following the above discussion, the stimuli and the aims of this thesis are articulated below. The work presented in this thesis was conceived in response to:

1. An increased awareness of the need to evaluate ISM Code effectiveness (Bhattacharya, 2012). Recent evidence suggests that the introduction of the ISM Code has improved the safety levels in the maritime industry and has contributed to the reduction of shipping accidents, mainly caused by the human factor (Tzannatos and Kokotos, 2009, Tzannatos, 2010). However, this notion has been challenged by other studies, which demonstrate that the Code's actual implementation by the shipping companies does not reflect its character and purpose and thus question its true effectiveness (Bhattacharya, 2012).

However, the effectiveness of other quality management systems, such as ISO 9000 series standards, has been well documented in the relevant literature (Psomas et al., 2013). Generally, ISO 9000 standards certify that an implemented quality management system is in place and that all the prescribed guidelines for process systemization improvements are followed (ISO, 2009). Although ISO 9000 certification constitutes a voluntary procedure contrary to the ISM Code which is mandatory for all shipping companies, both present many conceptual and structural similarities (Chen, 2000, Pun et al., 2003) and are based on general principles and objectives aimed at promoting sound management practices. Specifically, both ISO standards and the ISM Code have been explicitly designed to encourage a structural, formalized, systematic, and process-oriented management of companies' operations. This can be achieved through emphasizing the provision of clear requirements, specifications, and guidelines for process documentation, encouraging a formal and hierarchic organizational structure, constantly executing strict controls and formal means of coordination, complying with a large number of mandatory rules, reporting nonconformities and promoting continuous improvement initiatives.

In the literature stream, research studies that deal with ISM Code effectiveness are generally scarce, have mostly placed an emphasis on accident patterns investigations (Kokotos and Linardatos, 2011) or have been based on qualitative case studies (Lappalainen et al., 2014). Taking into account the recommendations for more research attention on the Code's effectiveness issues (Bhattacharya, 2012), *the*

current thesis first aims to examine the ISM Code effectiveness and the dimensions that may best describe it in an analogy to the ISO 9001 effectiveness as examined in the quality management literature and successfully applied in the case of service companies (Psomas et al., 2013).

2. The fact that ISM Code effectiveness is not a standalone concept, but influences other organizational variables, such as shipping company performance. Generally, it is widely accepted that the effective implementation of various quality management systems, such as ISO 9000 series standards, contributes to performance improvements (Psomas et al., 2013), since in their literature review, Tari et al. (2012) postulated that the benefits most frequently encountered in the literature include efficiency increases, enhanced customer satisfaction and improvements in relations with employees, as well as various performance attainments. As a result, *this thesis also intends to determine the extent to which ISM Code effectiveness can explain shipping company performance* which is described as in ISO case by its customer satisfaction or service quality outcomes (Lun et al., 2014, Psomas et al., 2013, Yang et al., 2009). Also, *this thesis differentiates ISM-certified shipping companies between those that are ISO and non-ISO certified* in an attempt to further exploit differences in shipping companies' performance (Wu and Chen, 2012) as it is widely supported that companies that are ISO certified perform better than their non-ISO certified counterparts.

3. The limited empirical evidence on TQM implementation issues in the context of shipping companies. Although the importance of the TQM concept as a means to achieve continuous improvement (Dahlgaard and Dahlgaard-Park, 2006), attain a strong competitive advantage (Jaeger and Adair, 2016) and ultimately move towards business excellence has been long ago highlighted in the quality management literature, its philosophy as well as the potential benefits arising from its implementation are underexplored in the context of maritime companies (Pantouvakis and Psomas, 2016, Cheng and Choy, 2013, 2007), revealing thus an urgent need to further provide empirical evidence in TQM implementation issues and its performance implications in the shipping environment. Thus, *a further aim of the current thesis is the assessment of the TQM applicability in shipping companies, as well as its impact on shipping company performance*, as broadly corroborated in various business environments in terms of operational (Baird et al., 2011) and

financial (Pantouvakis and Psomas, 2016) increases, market improvements (Lam et al., 2011), product/ service quality advancements (Ng et al., 2014, Lam et al., 2012) or customer satisfaction and loyalty (Ng et al., 2014).

4. The need to explicate the interrelationships among quality principles and systems and their impacts on shipping company performance. Specifically, in the literature dealing with TQM considerations, there is an unambiguous argument that one of the most decisive critical success factors of a TQM program is the commitment to quality on behalf of the top management (Yazdani et al., 2016, Sinha et al., 2016, Psomas and Jaca, 2016, Mehralian et al., 2016, Jaeger and Adair, 2016). The importance of top management as a crucial determinant of the success of any quality management initiative is largely revealed in the case of the Greek shipping industry, since the latter is characterized by a family – owned organizational structure (Harlaftis and Theotokas, 2004) in which the founder is also the strategic leader and, in cooperation with the rest of the management team, is absolutely in charge of any decisions affecting the operations of a shipping company (Theotokas, 2007). It has been generally proven that a strong commitment to quality on behalf of the top management team of an organization encourages continuous improvement efforts (Jung and Wang, 2006), or enhances customer satisfaction (Pantouvakis and Psomas, 2016) and organizational performance (Mokhtar and Yusof, 2010).

Especially, in the context of the maritime industry, the commitment on quality of the top management has remarkable positive outcomes, such as high safety awareness, effective compliance with the imposed shipping regulations (Cheng and Choi, 2013) or increased customer satisfaction (Pantouvakis and Psomas, 2016). It is evident that the focus of top managers should be on meeting the quality and safety standards during operations as well as be committed to the effective implementation of the obligatory ISM Code. Although, the literature has already acknowledged the important role of top managers' commitment (TMC) to quality in obtaining positive performance results, no attempt has been made so far to investigate the mechanism through which TMC and the effective implementation of the ISM Code jointly impact shipping company performance. Thus, *an objective of the current thesis is also to analyze how top managers' commitment to quality initiatives and the effective implementation of safety and quality management standards, such as the ISM*

Code, form synergies in order to jointly contribute to improvements in shipping company performance.

5. The necessity of finding new, flexible and innovative ways of managing quality operations focused on competent human capital (Pantouvakis and Psomas, 2016). As described in the previous paragraph (1.1), the adoption and implementation of safety or quality management systems do not always lead directly to the intended organizational outcomes, but this effect may be contingent upon several factors. The role of human capital is crucial during the successful implementation of any quality management system (Das et al., 2011). Especially in the context of the maritime industry, acknowledging that the lack of advanced knowledge, skills and expertise can hinder the success of the ISM Code implementation (Tunidau and Thai, 2010), it becomes obvious that the way quality and safety management strategies contribute to shipping company performance is influenced by the presence of high quality human capital.

However, human failures and incapacibilities still continue to be omnipresent during shipping operations, while they also jeopardize the effective implementation of quality and safety management strategies, such as the ISM Code, and cause failures in executing the shipping service processes, arguing in favor of the adoption of new employee management schemes that will tackle these inconsistencies. One efficient solution to confront these unpleasant situations is to focus on those individuals whose systematically developed innate abilities (Nijs et al., 2014) can be identified by the organizations and deployed in the right positions in order to contribute to the achievement of organizational goals (Collings and Mellahi, 2009).

The management of these individuals, commonly referred as *talented people*, is on the absolute edge of the recent human resource management literature to form a strong and sustainable competitive advantage (Collings and Mellahi, 2009). Although the literature has already deviated from the hierarchical approaches to quality management and recognized the necessity of finding new, flexible and innovative ways of managing quality operations focused on competent human capital (Pantouvakis and Psomas, 2016), no attempt has been made so far to analyze how managers' perceptions regarding talented individuals and their management (Meyers

and van Woerkom, 2014) inside organizations can determine the performance outcomes of quality initiatives.

Each underlying philosophy on talent has its respective implications for the talent management practices adopted by the organizations (Meyers and van Woerkom, 2014). Specifically, managers' perceptions on human talent, or stated differently their unique approaches to talent management, are based on several notions depending on the different assumptions about the nature of human talent, such as the distinction between its innate and developable (Meyers et al., 2013) or exclusive and inclusive nature (Dries, 2013). These perceptions may strongly characterize the internal environment of any business organization and may subsequently determine top managers' priorities, the effectiveness of any business strategy and finally company performance (Thunnissen et al., 2013).

Following the above discussion, the current thesis also draws upon certain propositions in the literature that call for investigating talent management issues in non US contexts and assessing the implications of the various talent philosophies (Al Ariss et al., 2014) as well as focusing on new and innovative human resource concepts during the implementation of quality management systems (Pantouvakis and Psomas, 2016) and *intends to evaluate the applicability of the main talent philosophies encountered in the literature in the context of shipping companies*. Furthermore, *the current thesis intends to investigate how the different talent philosophies as perceived by the managers may have considerable implications for or condition the way top management commitment and ISM Code effectiveness impact shipping company performance*.

1.3 Original contribution of the thesis

The originality of the present thesis is summarized below.

1. The two main novel talent philosophies (as perceived by managers) identified in the literature are evaluated and for the first time empirically examined in the context of the maritime industry, drawing upon the concerns of limited amount of empirical studies on talent issues (Meyers and van Woerkom, 2014) and responding to recommendations for examining the talent concept in practice (Collings and Mellahi, 2009). Thus, the current thesis focuses on the two main talent philosophies

identified in the literature, which address the innate/ developable and the exclusive/ inclusive perceptions about human talent, and evaluates their applicability in the context of the shipping industry.

2. The effective implementation of the ISM Code is evaluated for the first time by drawing analogy from similar applications of the effectiveness of other standardized quality management systems (ISO 9000 standards) in service companies.

3. The links of ISM Code effectiveness to shipping company performance are assessed and a differentiation is made among companies on the basis of ISO certification.

4. The combined effects of quality principles (top management commitment to quality) and ISM Code effectiveness are evaluated and their impact on shipping company performance is determined.

5. The role of managers' perceptions about human talent (or stated differently their perceived talent philosophies) is investigated with regard to the successful and effective implementation of quality management systems inside maritime organizations. The extent to which the main talent philosophies condition the joint contribution of quality principles and ISM Code effectiveness towards performance improvements is assessed.

1.4 Structure of the thesis

The remaining part of the current thesis proceeds as follows.

Chapter 2 presents the literature review on the constructs under examination. Specifically throughout the second chapter, the main research findings regarding ISO 9000 quality series standards, ISM Code, Total quality management, Talent and talent management and Performance are presented in detail. Specifically, a detailed review is presented with regard to, inter alia, the definitions of the constructs under research, their main measurement models as encountered in the literature, and their implications for business organizations. Moreover, the simultaneous examination among the previously mentioned quality concepts is also undertaken in this specific chapter.

Furthermore, Chapter 3 deals with the development of the research hypotheses along with specific reference to previous, relevant research studies.

Chapter 4 analyzes the data and methods used in the current thesis, including the sample, the description of its demographics, the measurement instruments that were utilized in order to operationalize the examined constructs as well as the methodology that was followed in order to analyze the data and test the hypotheses.

Chapter 5 presents a thorough analysis and a detailed description of the research hypotheses' testing with the use of Exploratory and Confirmatory Factor Analyses as well as Multiple Regression Analyses. This chapter is also concerned with the presentation of the results and the discussion of the findings.

Finally, a further section (Chapter 6) is allocated to the main conclusions that have been derived from the study and to the managerial implications, while the limitations and the areas for future research are also identified.

Chapter 2. Literature review

Chapter 2 presents a detailed literature review on the topics under examination.

2.1 ISO 9000 quality standards

The literature on ISO 9000 quality series standards is reviewed. More specifically, the paragraph 2.1 contains a general description of ISO 9000 quality standards, followed by the motivations that drive the organizations to pursue certification. Then, the critical success factors of ISO 9000 implementation as well as the most frequently used measurement instruments are described. The barriers that impede the successful implementation of ISO 9000 standards are identified, while specific attention is given to the consequences that ISO 9000 standards have for the certified organizations.

2.1.1 Generally

ISO 9000 series standards constitute a family of standards that determine the basic requirements that an organization must fulfill in order to develop and implement an effective and efficient quality management system (ISO, 2009). ISO 9000 standards do not measure the quality of a product or service. Instead, they provide guidelines for the proper systemization and formalization of companies' processes and emphasize the importance of documenting such procedures (Tari et al., 2012). In this way, the ability of an organization to consistently provide products and services, which lead to increased customer satisfaction and meet applicable statutory and regulatory requirements, becomes evident (ISO, 2009).

The ISO 9000 core family encompasses a number of different standards, which all together aim to establish a quality management system (ISO, 2009). As a matter of fact, ISO 9000 standard introduces the basic fundamentals, the vocabulary as well as the quality management principles. ISO 9000 also emphasizes the importance of taking a process approach to management aiming at continuous improvement. The implementation of ISO 9001 standard demonstrates an organization's ability to provide product/ services that effectively correspond to its customers' wants and expectations. The standard consists of certain sections, in which the need of implementing certain activities becomes evident, regarding overall

requirements, management responsibility, resource and process management, monitoring and measurement. On the other hand, ISO 9004 takes into account all interested stakeholders' benefits and targets the long – term success and continual improvement of an organization's overall performance. Finally, ISO 19011 provides guidelines on internal and external auditing of quality and environmental management systems.

According to the International Organization for Standardization, the general quality management principles underlying the ISO 9000 series are customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making and mutually beneficial supplier relationships (ISO, 2012). All these principles are directed towards meeting and exceeding customer expectations, creating a unique organizational direction supported by the leaders, ensuring the involvement of motivated and committed personnel, establishing systematic activities, executing interrelated processes as a system, advancing continuous improvement initiatives, taking decisions based on data and information analysis and creating value through the close cooperation with the suppliers. The above principles embedded in the quality management systems, can offer valuable benefits to the organizations that have adopted them.

ISO 9000 series standards are generic and a large and growing body of literature has investigated their implementation both in manufacturing (i.e. Kammoun and Aouni, 2013) as well as services organizations (i.e. Psomas et al., 2013). The Tables 2.1, 2.2, 2.3 below illustrate the variety of contexts in which the implementation of ISO 9000 series standards has been examined. Overall, these studies indicate that ISO 9000 series standards have been extensively applied in any organization (Boiral, 2011), regardless of its size (small, medium or large), its legal status (public or private), or irrespective of the business sector (manufacturing or service) it belongs.

Table 2.1: ISO 9000/ Services and Manufacturing sectors

SERVICES and MANUFACTURING SECTORS			
	Country	Size of sample	Sector
Hudson and	Asia and	11,668 firms	Various sectors

Orviska (2013)	Eastern Europe		
Prajogo et al. (2012)	Australia	321 companies	Various industries, such as food, textiles, wood, printing, minerals
Ilkay and Aslan (2012)	Turkey	255 companies	Various industries, such as food industry, metal industry, machinery and equipment, media, transportation
Wu and Chen (2012)	Taiwan	332 companies	Various sectors
Prajogo (2011)	Australia	328 companies	Various industries, such as food, textile, wood, printing, mineral, machinery, engineering, consulting, health care, professional services, transportation
Feng et al. (2008)	Australia/ New Zealand	613 companies	Various sectors

Table 2.2: ISO 9000/ Manufacturing sectors

MANUFACTURING SECTORS			
	Country	Size of sample	Sector
Huo et al. (2014)	Australia	133 companies	Various industries, such as food, textile, wood, printing, mineral, metal and machinery
Kafetzopoulos et al. (2013)	Greece	169 companies	Food manufacturing industry
Lo et al. (2013)	U.S.	438 firms	The majority of the firms belonged to the electronic equipment, industrial machinery and instruments categories
Kammoun and Aouni (2013)	Tunisia	150 companies	Various industries, such as mechanical and electrical industry, chemicals, agro – food production
Psomas et al. (2013)	Greece	335 companies	Food manufacturing companies
Sampaio et al. (2012)	Portugal	6 case studies	Chemicals, chemical products and fibers, construction, machinery and equipment, textiles and textile products
Lafuente et al. (2010)	Spain	163 firms	
Lo et al. (2011)	China	193 companies	Electronics, electrical and mechanical industry
Singh et al. (2011)	Australia	416	Various industries, such as

		manufacturing plants	machinery and equipment and metal products
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Table 2.3: ISO 9000/ Services sectors

SERVICES SECTORS			
	Country	Size of sample	Sector
Melão and Guia (2015)	Portugal	Case study	Social service institutions
Heras-Saizarbitoria et al. (2014)	Spain	Case study	Residential care homes for elderly persons
Psomas et al. (2013), Psomas (2013)	Greece	100 companies	Various industries, such as e.g. wholesale/distribution, retail, banking/finance, communications, insurance, food and beverage catering
Abdullah et al (2013)	Malaysia	53 organizations	Local government organizations
Wu and Jang (2013)	Taiwan	Case study	Tourism industry
Yaya et al. (2013)	Spain	123 customers	Banking industry
Jorge Gamboa and Melão (2012)	Portugal	Case study	Vocational schools
Ab Wahid (2012)	Malaysia	Case study	One subsidiary of a major airlines company and one subsidiary of an expressway operator
Mak (2011)	China	Case study	Tour operators
Psomas et al. (2010)	Greece	93 companies	Various industries, such as wholesale/distribution, retail, banking/finance, communications, insurance
Hassan (2010)	Malaysia	230 employees from ten companies	A subsidiary of a major airlines company and a subsidiary of a company which manages and operates an expressway under concession from the Malaysian Government.
Pantouvakis and Dimas (2010)	Europe	18 European port authorities	Port industry

2.1.2 Motivations of adoption

Much of the current literature on quality management pays particular attention to the motivations that drive different organizations to pursue ISO 9000 accreditation. Generally, firms seek ISO certification driven by both internal and external motives (Kammoun and Aouni, 2013).

Several research studies conducted so far argue that internal related factors deal in general with systematization and operational improvements or efficient control execution. Specifically, Mak (2011), in his study of ISO certification in the tourism industry, supported that tour operators pursued ISO certification in order to correct for inefficiencies in the operation procedures and the management system. Moreover, Kim et al. (2011) argued that internal motivations can be comprised of three categories, namely quality-related, operations-related and competitiveness-related factors. More specifically, Kim et al. (2011) demonstrated that quality-related motives may include the development of standardized procedures and service quality improvement, while operations-related factors deal with cost reduction, establishment of control systems or productivity and efficiency increases. Also, they pointed out that competitiveness-related motives consist of differentiating from the competitors or expanding the market share. In their study, Heras-Saizarbitoria et al. (2011) attempted to evaluate the implementation of both ISO 9000 standards and the EFQM model and concluded, among other things, that internal reasons for certification deal with efficiency and systemization improvements or internal control aspects. Prajogo (2011), in his attempt to examine the role that firm's motives play in shaping the outcomes of ISO 9000 adoption, demonstrated that internal motives include different aspects, such as laying the foundation for continuous improvement and systematic management or ensuring better control of operations.

On the other hand, a great deal of previous research has focused on examining the external related motives of ISO standards certification, concluding that they mainly consist of building up corporate image or responding to external pressures. For instance, Mak (2011) claimed that image building, promotion and advertising can constitute important motives when implementing quality assurance processes in the tour operating sector. Melão and Guia (2015) noted that pressure from the Social Security and external image and prestige were the main motivations of ISO 9001 certification in social service institutions. Furthermore, Kammoun and Aouni (2013) analyzed 150 Tunisian manufacturing certified companies and noted that external driving forces of ISO 9000 certification include improvement of the relationships with the suppliers as well as market share increases. Bevilacqua et al. (2013) conducted an empirical study of ISO 9000 certification in the context of a company leader in the heating sector and its productive plants and concluded that the implementation of ISO

9000 was based mainly on external motives, such as reacting to customer requests, strengthening the company's image and attaining a competitive advantage. In their study, Heras-Saizarbitoria et al. (2011) contended that external motives are summarized in meeting customer demands and boosting the company's public image. In the same vein, Kim et al. (2011) argued that the external-driven motivation may include external pressure-related and organizational image-related factors, which encompass compliance with customers' demands, responding to external pressures, advancing corporate image and gaining marketing advantage. Finally, Prajogo (2011) stressed that external motives stem from complying with regulations, keeping up with competition, meeting customers' wants and improving company image.

2.1.3 Critical success factors

Various researchers have also focused on the critical success factors of ISO 9000 series implementation. Psomas et al. (2010), drawing evidence from ISO 9001:2000 certified Greek companies operating in the services sector, determined the critical factors for effective implementation of ISO 9001 standards. They concluded that the critical factors can be categorized in five dimensions, namely attributes of the company, employee attributes, attributes of the external environment, internal motivation of the company and requirements of the quality system. Ab Wahid (2012) analyzed two service organizations in Malaysia and proposed a framework for ISO 9000 maintenance. He supported that the critical success factors for ISO 9000 maintenance include top management commitment, employee involvement, recognition and reward, continuous improvement, teamwork, and quality culture. Moreover, Jorge Gamboa and Melão (2012) investigated the implementation of ISO 9000 in educational institutions in Portugal and remarked that the success factors are comprised of certain constructs such as quality team, management commitment and support, communication and involvement of all members and previous level of the organisation. Boiral (2011) attempted to examine how ISO management systems can influence in-house practices in various certified organizations operating in Canada and pointed out that the critical success factors of ISO implementation were merged in five main categories. These categories included managerial conviction and support, clearly defining the reason for certification, mobilization of employees and

knowledge, adapting the quality standard to the organisation and not the opposite, integration with the company's fundamental goals.

2.1.4 Measurement instruments

In the literature stream various measurement instruments have been utilized in order to evaluate the implementation of ISO 9000 quality standards. For instance, Psomas et al. (2013) attempted to develop and validate a measurement instrument of ISO 9001 effectiveness based on the standards' objectives in the Greek food manufacturing SMEs. They measured ISO 9001 effectiveness based on the three dimensions of continuous improvement, prevention of non-conformities and customer satisfaction focus. In a similar study, Psomas et al. (2013) utilized the same three principles in order to assess ISO 9001 effectiveness in service companies. They confirmed the multidimensional framework of ISO effectiveness identified in the literature and concluded that service companies concentrate highly on customer satisfaction, prevention of nonconformities and continuous improvement dimensions. More specifically, the dimension of continuous improvement included a number of items reflecting among others the development of an organizational structure supporting continuous improvement, the continuous monitoring and improvement of procedures and processes and the continuous improvement of employee work. The customer satisfaction focus factor was comprised of various elements which assessed the degree of meeting customer requirements, the existence of activities that increase customer satisfaction or the effective respond to customer complaints. Last but not least, the prevention of non-conformities dimension is characterized by efficient product, process and quality design as well as by the reduction of non-conformity problems through quality processing.

In an earlier study, Singh (2008) attempted to investigate the degree to which ISO related management practices can contribute towards gaining various performance results. In order to achieve this purpose, he utilized a measurement instrument consisted of six management practices associated with ISO 9000 standards. The theoretical framework was comprised of six dimensions representing management practices, namely top management leadership, focus on customers, employee capabilities, interactions with the suppliers, communication and information

system and process management, as well as three dimensions reflecting various organizational outcomes.

Moreover, Prajogo (2011) analyzed the role that firms' motives play in influencing the outcomes of ISO 9000 adoption in the context of Australian manufacturing and non-manufacturing organizations. In order to measure the implementation of ISO 9000 standards, he utilized five items which included employee training in total quality and ISO 9000 concepts, communicating the quality policy and objectives to all employees, documenting and continuously updating all procedures for quality management in a clear manner, complying with the documented processes based on ISO 9000 requirements and conducting regular internal audits for continuous improvement of procedures.

On the other hand, Feng et al. (2008) developed a theoretical framework of implementing ISO 9000 certification in order to examine its relationship with operational and business performance in Australian manufacturing and service companies. Their framework consisted of three parts, namely implementing procedures, organizational commitment and planning for ISO 9000 certification. The first component (implementation of procedures) contained various items, such as execution of periodic audits and establishment of corrective actions, whereas the second part (organizational commitment) described the commitment of all company's personnel, such as top management, middle management and workers. The third section (ISO certification planning) included several elements, such as documentation, training and definition of standard procedures.

Furthermore, Prajogo et al. (2012) proposed and empirically tested a model of different aspects of ISO 9000 implementation as well as their relationships with key supply chain management practices and operational performance. As far as the ISO implementation process is concerned, they developed three scales that described the degree to which a firm is committed to adopting and internalizing the quality standard. The three scales reflected the basic, advanced and supportive implementation of ISO standards. According to the authors, the first scale reflects the minimum level of ISO 9000 implementation and includes standard daily practices, such as employee involvement and training, documenting daily procedures and monitoring all processes. Advanced implementation is the highest level of ISO 9000

implementation and helps adopting organizations to move, beyond certification, towards fostering a shared culture and new directions regarding their quality management systems. More specifically, internal and external advanced implementations highlight the importance of internal multifunctional coordination and cooperation among different companies respectively. Finally, the third dimension of supportive implementation facilitates the existence of both basic and advanced ISO 9000 implementation through providing top management and resource support. In a more recent study, Huo et al. (2014) attempted to investigate the effect of ISO 9000 implementation on flow management based on the same conceptualization of basic, advanced and supportive implementation of ISO 9000.

Following the resource dependence theory, Singh et al. (2011) developed a model with three key constructs of ISO 9000, namely internal processes, relationships with the customers and relationships with suppliers. The first dimension of internal processes summarizes the need of meeting customer requirements through quality assurance processes, regularly inspecting and testing all procedures and maintaining the necessary equipment to facilitate the monitoring of processes. On the other hand, the second factor of relationships with the customers includes certain items that describe the ultimate goal of increasing customer satisfaction as well as effectively understanding customer requirements and developing systems that preclude the misconceptions of customer orders. Finally, the third construct incorporates all the supplier-related issues of ISO 9000, such as the quality assessment of suppliers' products and services, the task performance suitability of the subcontractors and the right placement of orders.

On the other hand, Quirós and Justino (2013) utilized a set of elements of a quality management system in order to evaluate which quality practices are associated to the possibility of a firm being certified to ISO 9000 standards. These elements covered the broader categories of customer relations, process management, human resources management, quality costs, strategic planning and supplier relations. In a slightly earlier study, Ilkay and Aslan (2012) investigated whether there is a difference between ISO 9001 certified and non-certified companies in terms of their performance and to do so, they were based on a set of quality practices which were organized in six categories, namely top management leadership, customer orientation,

quality system processes, human resources applications, supplier relations and process control and improvement.

2.1.5 Barriers during ISO 9000 implementation

Numerous studies conducted so far by various researchers have identified specific barriers that organizations are confronted with during the implementation of a quality management system according to ISO 9000 series standards. Specifically, Abdullah et al. (2013) attempted to determine the main barriers related to ISO 9000 implementation in the context of local government organizations and specifically in the country of Malaysia. After their literature review, they grouped the implementation barriers in four categories, namely organizational, resource, behavioural/ cultural and technical. They concluded that the main barriers which hindered the proper implementation of ISO standards belonged to the majority of the above mentioned categories and included the following: absence of cooperation among internal departments, negative perceptions or attitudes towards quality among employees, employees' culture toward quality, shortage of human resources, absence of involvement, cooperation and commitment from organization personnel, change of mayor and lack of an efficient quality management department, division or unit. In the same vein, Heras-Saizarbitoria et al. (2011) supported that the obstacles following ISO 9001 implementation are associated with the increased bureaucracy burden it generates for the organisations as well as the lack of motivation and involvement of human resources. Moreover, Kammoun and Aouni (2013) analysed 150 Tunisian manufacturing certified companies in order to identify the motives, barriers and impacts of ISO 9000 certification. As far as the hindrances of implementation process are concerned, they attested that these can be related to internal environment and organizational aspects. The first category includes the lack of efficient communication, the poor training of managers, the resistance to change and the absence of top management commitment, whereas the organizational barriers are comprised of the preparation of documentation, the process identification difficulties and the long implementation process.

2.1.6 ISO 9000 standards impacts

A great deal of previous research has focused on the determination and analysis of the benefits or generally the impacts derived from ISO 9000 series implementation. In their literature review, Tarí et al. (2012) postulated that the benefits most frequently encountered in the literature include efficiency increases, enhanced customer satisfaction and improvements in relations with employees. Moreover, other benefits associated with the implementation of ISO 9001 standard can be summarized in improved relationships with suppliers and other stakeholders, advanced employee results, systemization improvements and performance attainments (Tarí et al., 2012). Although the majority of the research studies argue for a positive link between ISO standards adoption and company performance, in general mixed results have been reported regarding this relationship (Heras-Saizarbitoria and Boiral, 2013). For example, Sampaio et al. (2012), after conducting six case studies in ISO 9001 Portuguese certified companies, remarked that quality certification does not necessarily lead to better financial performance. However, it seems that firms seeking ISO certification based on internal motives tend to present enhanced financial results (Sampaio et al., 2011). Furthermore, Ilkay and Aslan (2012) investigated whether there is a difference between ISO 9001 certified and non-certified small to medium-sized Turkish companies in terms of performance, using financial, internal business, customer and innovation and learning criteria. They concluded that in general, no significant differences were detected in terms of overall performance average.

2.1.6.1 Various company results

However, several recent studies conducted so far indicate that there is a positive relationship between ISO 9000 standards implementation and *various aspects of company performance*. Psomas et al. (2013) analyzed 100 ISO 9001:2008 certified Greek service companies in order to determine the impact of ISO 9001 effectiveness on different performance dimensions. They proved that product/service quality and operational performance are directly and positively influenced by ISO 9001 effectiveness. In their study, operational performance was comprised of certain items, such as company productivity and efficiency, whereas the product/service quality dimension referred to the consistency and reliability of services as well as to conformance to specifications. Moreover, Marín and Ruiz-Olalla (2011) attempted to

investigate the relationship between ISO 9000:2000 certification and business results in the context of the Spanish furniture industry. They indicated that ISO certified companies displayed better quality and operative results than their non-certified counterparts. Specifically, quality results included various aspects of customer satisfaction and loyalty or conformity and complaints issues, while operative results contained for example measures of cost and flexibility. Feng et al. (2008) attempted to explore the relationship between ISO 9000 certification practices and organizational performance in Australian and New Zealand – based manufacturing and service companies. They attested that planning for ISO certification, the implementation of procedures and organizational commitment exert a significant and positive impact on operational performance, such as cost reduction, productivity, improved internal processes or increased customer satisfaction.

In an earlier study, Sharma (2005) claimed that ISO 9000 certification is linked with financial performance improvements and specifically with increases in profit margin, sales growth and earnings per share. In the same vein, Lafuente et al. (2010) using a sample of 163 Spanish manufacturing firms concluded, among other things, that the adoption of ISO certification affects positively and significantly firm performance, in terms of ROA, ROE and labour productivity. Pantouvakis and Dimas (2010) examined the role of ISO 9000 certification on the financial performance of port authorities and advocated that the former exerts a positive impact on the latter. Specifically, they argued that the contribution of ISO certification on ports' profitability was bigger than that on total revenues.

Wu and Chen (2012) examined the degree to which ISO 9000 accreditation can enhance company performance based on financial, customer, internal process and learning and growth perspectives. They showed that ISO certification has a positive effect on overall performance both in the manufacturing and service industry. Melão and Guia (2015), following a multiple case study approach in small-and medium-sized social service institutions, concluded that ISO 9001:2008 implementation led to process improvements, employee motivation, internal communication and job design, as well as employees' ability to better adjust their work to the specific needs of the users in social service institutions, whereas Kammoun and Aouni (2013) supported that ISO 9000 adoption resulted in conflict reduction, as well as increased motivation

and communication among the employees in Tunisian manufacturing firms. Moreover, Jorge Gamboa and Melão (2012) advocated that ISO 9001 implementation improved the internal organization of vocational institutions, as it resulted in improvement and standardization of processes or increased involvement of people. Specifically, the internal benefits were labeled as process standardization and improvements, generation of dynamics of continuous improvement, provision of strategic focus and foundation for planning, as well as increased involvement of people. Also, ISO certification led to external benefits, such as improved market credibility and promotion of competitiveness.

Moreover, Kafetzopoulos et al. (2013) analyzed 169 private Greek food manufacturing companies certified to ISO 22000 and ISO 9001 standards and pointed out that the combined effective implementation of both standards are significantly and positively associated with the company's competitive performance. Mangiarotti and Riillo (2014) investigated the impact of ISO 9000 certification on innovation propensity in the context of both manufacturing and service companies. Generally, their results revealed that possibility of innovation is positively affected by quality certification when the focus is not on technological aspects. Also, Lo et al. (2011) analyzing data from Chinese manufacturing companies demonstrated that the operating cycle time of the certified companies is increased by ISO 9000 adoption when the latter is based on meeting market institutional expectations.

Heras-Saizarbitoria et al. (2011) asserted that the implementation of ISO 9001 standard leads to efficiency and decision-making process improvements, as well as to internal control enhancement. They also claimed that quality accreditation has noteworthy customer implications, such as satisfaction and trust, or can result in attaining commercial and competitive advantages from entrance in new markets. Prajogo et al. (2012) investigated the relationship between three aspects of ISO 9000 implementation (basic, advanced and supportive) and key supply chain management practices. Their study results indicated that advanced ISO implementation has a positive impact on internal, customer, and supplier process management, whereas supportive implementation is positively associated only with internal and customer process management. Furthermore, in a more recent study, Huo et al. (2014) confirmed that advanced ISO 9000 implementation is positively related to product

(product and logistics) and process (human, information and decision) flow management, while supportive implementation is positively related only to process flow management.

2.1.6.2 Human resource implications

A number of authors have analyzed the *human resource implications* of ISO 9000 standards certification and implementation. In an early study, Quazi and Jacobs (2004) conducted an exploratory study in different organizations operating in Singapore in order to determine the influence of ISO 9000 certification on training and development activities and specifically on training needs analysis, training design, training delivery methods, training evaluation and on HRD activities in general. They confirmed that quality certification significantly impacts the above mentioned activities. Moreover, Hassan (2010) attempted to compare ISO certified Malaysian SMEs with non ISO certified ones on various human resource practices and specifically on career, work, development, self-renewal and human resource development systems. He contended that few significant differences were revealed, since ISO certified firms displayed significantly higher ratings on various aspects of the career system (manpower planning, potential appraisal), on one dimension of work planning (contextual analysis) and on one component of the HRD system (quality orientation).

Levine and Toffel (2010) analyzed the degree to which ISO 9001 adoption affects certain employee outcomes, such as employment, total payroll, and workplace health and safety. The results obtained from California-based single-plant firms from various industries showed that ISO certified companies had lower organizational death rates than their non-certified peers, as well as higher growth rates for employment, total payroll and annual earnings per employee. Furthermore, Heras-Saizarbitoria (2014) focused on the quality of working life of direct attention employees in two residential care homes for elderly persons and how it is influenced by ISO 9001 adoption. They attested that quality certification had an impact on the work intensity, physical or mental collapse and loss of enthusiasm of employees, leading thus to a decrease in their quality of working life. Table 2.4 below presents the ISO 9000 certification consequences.

Table 2.4: ISO 9000 quality standards impacts

Organizational performance		Tarí et al. (2012), Wu and Chen (2012)
Operational performance		Psomas et al. (2013), Marín and Ruiz-Olalla (2011), Lo et al. (2011), Feng et al. (2008)
Financial performance		Lafuente et al. (2010), Pantouvakis and Dimas (2010), Sharma (2005)
Quality results, Product/service quality		Psomas et al. (2013), Marín and Ruiz-Olalla (2011)
Competitiveness		Kafetzopoulos et al. (2013), Jorge Gamboa and Melão (2012), Heras-Saizarbitoria et al. (2011)
Efficiency		Tarí et al. (2012), Heras-Saizarbitoria et al. (2011)
Customer satisfaction		Tarí et al. (2012), Heras-Saizarbitoria et al. (2011)
Employee results		Tarí et al. (2012), Levine and Toffel (2010)
	Improved employee relationships	Tarí et al. (2012)
	Employee motivation/ involvement	Melão and Guia (2015), Kammoun and Aouni (2013), Jorge Gamboa and Melão (2012)
	Internal communication	Melão and Guia (2015), Kammoun and Aouni (2013)
	Conflict reduction	Kammoun and Aouni (2013)
Human resource implications		
	Human resource practices	Hassan (2010)
	Training/ Development	Quazi and Jacobs (2004)
	Job design	Melão and Guia (2015)
	Quality of working life	Heras-Saizarbitoria (2014)
Improved supplier relationships/ Supply chain management		
		Tarí et al. (2012), Prajogo et al. (2012)
Flow management		
		Huo et al. (2014)
Process/ Systematization improvements		
		Melão and Guia (2015), Tarí et al. (2012), Jorge Gamboa and Melão (2012), Heras-Saizarbitoria et al. (2011)
Innovation		
		Mangiarotti and Riillo (2014)
Market credibility		
		Jorge Gamboa and Melão (2012)

2.2 International Safety Management (ISM Code) Code

An extended description of the International Safety Management (ISM) Code takes place, followed by the review of the research studies that concern the critical success factors of the Code's implementation, the evaluation of its effectiveness and the problems that arise during the efforts of the shipping companies to successfully respond to its requirements.

2.2.1 Generally

The International Safety Management (ISM) Code constitutes an international standard for the safe management and operations of ships and for pollution prevention (IMO, 2010). According to the International Maritime Organization (IMO), the explicit objectives of the ISM Code are *to ensure safety at sea, prevention of human injuries or loss of life, and avoidance of damage to the environment, in particular to the marine environment and to property* (IMO, 2010). Since its entry into force in 1998, the ISM Code provides a global legal framework and is comprised of different aspects, all aiming at promoting a broad and integrated safety management philosophy in the shipping industry (Batalden and Sydnes, 2014). Moreover, the Code forced shipping companies to redesign their management systems as well as their daily practices in order to achieve compliance with its mandatory requirements and fulfill its objectives. Although mandatory, the ISM Code gives shipping companies the flexibility to develop their own policies and safety procedures (Bhattacharya, 2012), which highlights the Code's self-regulating character.

Generally, the ISM Code consists of two parts, the first of which (Part A) deals with implementation issues whereas Part B covers various aspects of certification and verification procedures. The Part A first of all provides detailed definitions of certain maritime terms which apply to both Parts A and B of the ISM Code (clause 1), such as those of the safety management system, document of compliance, safety management certificate, non-conformity etc. Furthermore, the Part A states the safety management objectives that any shipping company must follow and specifically, it demonstrates that any shipping company should develop an effective safety management system that ensures inter alia that all the mandatory rules and regulations are followed, all risks are carefully evaluated and all company employees, both onshore and on-board continuously acquire safety management skills

(IMO, 2010). The functional requirements for the implementation and maintenance of a safety management system are explicitly elaborated, while the need for establishing and maintaining a safety and environmental protection policy throughout the shipping organization is also highlighted (clause 2). Moreover, the Part A of the ISM Code illustrates the responsibilities of the shipping company (clause 3), the designated person(s) (clause 4) and the master (clause 5). Specifically, it is imperative that any shipping company should define the responsibilities of the person(s) engaged in safety and pollution prevention – related activities and should designate a person or persons (designated person) who is/ are responsible for monitoring all the safety procedures for each ship and is/ are the link between the shipping company and the crew personnel on-board ships. Last but not least, the shipping company should also clearly define the master's responsibilities and authority, who should implement the safety and environmental protection policy of the shipping firm, ensure that the rest of the crew follows the safety procedures and report any potential deficiencies to the management onshore (IMO, 2010).

The Part A of the ISM Code pays particular attention to the resources and the quality of the personnel (clause 6) of a shipping organization. Any shipping company should guarantee that the ships' master as well as the seafarers are adequately competent, qualified and certificated to carry out their duties. Training should be provided to them when necessary and effective communication should be ensured. Moreover, the Part A stresses the importance of developing plans for shipboard operations (clause 7), being prepared for emergency situations (clause 8), as well as reporting and analyzing non-conformities, accidents and hazardous situations (clause 9) in order to avoid re-occurrence. According to Part A, a shipping company must also ensure that the ship and technical equipment are maintained in conformity with the relevant regulations (clause 10) and in order to achieve this objective, the shipping company should conduct regular inspections. Finally, the Part A of the ISM Code emphasizes the necessity of documenting all the data pertaining to the safety management system (clause 11) and be organized in a safety management manual, while any shipping company should carry out verification, review and evaluation procedures (clause 12) in order to assess the effectiveness of its safety management system, to assure compliance with the obligatory rules and to establish corrective actions (IMO, 2010).

On the other hand, the Part B of the ISM Code concerns certification (clauses 13 and 14) and verification (clause 15) issues. More specifically, the clause 13 mainly concerns the certification and verification of the document of compliance and of the safety management certificate, describing in detail the processes that should take place by the relevant regulatory authorities as well as the corresponding time frames. Since the ISM Code considers the possibility of newly established shipping companies, newly acquired vessels or flag changes, it allows the issuance of the interim document of compliance and the interim safety management certificate (clause 14), stating once again the responsibilities of the shipping companies and the regulatory bodies. Finally, the clause 16 of Part B provides the forms of the (interim) document of compliance as well as the (interim) safety management certificate (IMO, 2010).

2.2.2 Critical success factors and ISM Code effective implementation

As the International Maritime Organization emphasizes, the implementation of the ISM Code should be directed towards encouraging and fostering the development of a safety culture in the shipping industry (IMO, 2010). In order to accomplish this goal and to succeed in the effort of instilling this safety culture, the existence of commitment, values and beliefs on behalf of a shipping organization's human resource are deemed imperative, while the commitment of top management towards the formation of a good safety management strategy is also considered as an essential prerequisite for the efficient application of the ISM Code (IMO, 2010). In this vein, various authors have attempted to determine the specific factors that can lead to the successful implementation of the Code and to evaluate its intended purpose.

In their earlier study, Pun et al. (2003) proposed a 15 – stages strategy that can ensure the successful registration of the company's safety management system according to the mandatory requirements of the ISM Code. First of all, the authors stressed the importance of top management commitment in proceeding to changes and improvement efforts. Then the establishment of a safety management committee is required as well as the appointment of the designated person ashore and the provision of the necessary knowledge, expertise and skills to all the staff that is in charge of safety – related matters. The next steps include the execution of self – assessment processes, the development of a detailed action plan for the safety registration

process, the selection of the appropriate certification agency after taking into account its competency, experience and reputation, establishing standardized documentation procedures, the preparation of the safety management manual, as well as the allocation of the responsibilities among departments and employees. Finally, according to Pun et al. (2003), the safety strategy should also be characterized by the actual implementation and maintenance of the company's safety management system, the documentation of the corrective and improvement actions that follow the internal audits, the conduct of the registration audit by the classification agency and the pursuit of continuous improvement efforts.

Tunidau and Thai (2010) attempted to evaluate the critical success factors of the ISM Code effective implementation in some Pacific Islands states. The authors conducted a thorough literature review and proposed a model of 11 critical success factors for the Code's successful application. These factors include leadership and commitment of senior management, enforcement capability of flag state administration, reduced documentation as required by the ISM Code, cost of compliance, quality management principles embedded to the existing safety management system, positive attitude and motivated personnel towards the development of a safety culture, maritime safety awareness programs, employee involvement and empowerment, knowledge and expertise, lack of seafarer fatigue, financial resources for compliance (Tunidau and Thai, 2010). The authors concluded that all the above mentioned critical success factors receive utmost importance by the survey respondents. Moreover, the commitment from the top management is considered as a very important success factor for the successful implementation of the ISM Code, as well as maritime safety awareness, while the adoption of quality management principles and upgrading employees' skills through training activities are also vital in assuring the effectiveness of the ISM Code (Tunidau and Thai, 2010).

Lappalainen et al. (2012) evaluated the effectiveness of the ISM Code by targeting the Finnish shipping industry. The authors attempted to investigate if the ISM Code achieves its intended goals and so they focused on certain assessment criteria for an effective maritime safety policy. The criteria they utilized are the following: effectiveness and appropriateness, economic efficiency, acceptability, enforcement and finally incentive and innovation. According to their study findings, Lappalainen et al. (2012) demonstrated that the enforcement of the ISM Code, inter

alia, increased the safety levels in the shipping industry, resulted in increased safety awareness, improved communication channels, as well as better allocation of responsibilities and duties inside the maritime organizations. Despite some defects, the authors concluded that shipping companies have recognized that the ISM Code constitutes a valuable safety measure and the Finnish shipping industry has achieved to respond to its requirements in an effective manner.

Generally, it seems that the introduction of the ISM Code has led to the reduction of maritime accidents for which the human factor is primarily responsible, revealing thus the effectiveness of this specific maritime safety instrument. Specifically, Tzannatos and Kokotos (2009) examined all the accidents involving Greek – flagged ships in the period of 1993 – 2006. The authors found a remarkable reduction in shipping accidents in the post – ISM period, while in a similar study Tzannatos (2010) also found corroborating evidence for the same finding. Furthermore, Kokotos and Linardatos (2011) analyzed shipping accidents pertaining to Greek – flagged ships from 1995 to 2006 only in navigational restricted waters and concluded that in order to ensure shipping safety, the ISM Code can be regarded as an effective legislative measure. The authors reached this conclusion after observing that the implementation of the ISM Code led to a decrease of accidents mainly caused by the humans.

In order to enhance the safety standards in the shipping industry, some authors have recommended the establishment of integrated quality and safety management systems with the joint implementation of the ISM Code and the ISO 9000 quality standards. For example, Celik (2009) determined the compliance level of the requirements of the ISM Code with the ISO 9001:2000 standards and asserted that his proposed integrated management systems results in higher safety and reliability levels in the context of shipping companies and tackles the potential ineffectiveness of the ISM Code implementation. In order to confirm the applicability of the proposed management system, it was tested in the case of a propeller shaft misalignment problem. Celik (2009) attested that his proposed framework can act as a positive contributor in overcoming the shortfalls of the ISM Code.

All in all, it seems that developing an effective safety management shipping in accordance with the requirements of the ISM Code is a challenging task that demands

coordinated efforts by the leadership, the involvement of all employees as well as the development of safety attitudes in all parts of a shipping organization (Pun et al., 2003).

2.2.3 ISM Code defects

Although the above studies broadly substantiate the success of the ISM Code in providing higher safety levels in the shipping industry, other research studies have shown that the Code's true effectiveness is rather questionable. For instance, Bhattacharya (2012) contended that the formal objectives of the ISM Code and its actual implementation by the shipping companies do not converge. In his study, Bhattacharya (2012) followed the case – study approach and focused on workplace health and safety management in order to assess the effective implementation of the ISM Code by the shipping companies. Among other things, he found that there were differences in the understanding of the ISM Code's philosophy between seafarers and shipping managers, leading thus to the ineffectiveness of the Code. In the literature stream, other reasons associated with failures in successfully applying the Code's specificities in daily shipping operations may refer to excessive bureaucracy and documentation, absence of instructions regarding the application of the Code and safety performance and incompatibilities in the interpretation of the requirements (Lappalainen et al., 2012).

In an early study, Pun et al. (2003) argued that some problems that shipping companies face during the safety management system's certification processes – a mandatory requirement of the ISM Code – include the resistance to change on behalf of both shore – based personnel and crew, lack of employees to carry out all the safety – related duties, lack of knowledge of the safety procedures, inefficient communication among the organizational departments, low educational level of the crew, high crew turnover rate and stringent time frame to obtain certification.

Moreover, Batalden and Sydnes (2014) analyzed 94 maritime cases, which have been investigated by the UK's Maritime Accident Investigation Branch in order to reveal the underlying causes in maritime casualties and incidents in line with the functional requirements of the ISM Code. Batalden and Sydnes (2014) found, for example, that in some cases the seafarers did not possess the required knowledge to operate the ship safely, which can be considered as a lack of responsibility to assure

adequate training and qualifications on behalf of the shipping company. Moreover, they noted that the majority of the causal factors of the examined accidents were encountered in clauses 5, 6, 7 and 12 of the ISM Code. Specifically, it was found that the shipping companies have failed to provide all the necessary instructions and authorities to the ship masters, they were inefficient in detecting when the shipping practices were in contrast with the required standards, as well as they lacked the ability to organize shipboard operations efficiently.

2.3 Total Quality Management

The literature review on Total Quality Management (TQM) is presented in paragraph 2.3. Firstly, a general description on TQM issues is made along with reference to the main TQM definitions that are encountered in the literature. The review continues with an analysis of the main TQM practices as well as of the main barriers to TQM successful implementation. Special reference is also made to the various impacts of the TQM philosophy inside business organizations.

2.3.1 Definitions

The philosophy of total quality management (TQM) is now widely diffused in all kinds of business organizations, while its successful implementation leads to a variety of positive consequences or has important implications for the adopting companies, since it targets at continuous improvement with the participation of all employees in order to ensure internal and external customer satisfaction (Sitkin et al., 1994). The importance of TQM is highly revealed through the increasing number of academic studies emerging especially after the early 1990s, in a time period when Dean and Bowen (1994) viewed total quality as *“as a philosophy or an approach to management that can be characterized by its principles, practices, and techniques.”* (p. 394). According to Dean and Bowen (1994) the three principles of total quality are customer focus, continuous improvement and teamwork, while the practices facilitate the implementation of the principles and include the collection of customer information or process analysis. Finally, these practices are then supported by a certain number of techniques.

Moreover, the existence of certain critical success factors for the implementation of quality management systems, such as leadership, cooperation learning, process management, continuous improvement, employee fulfillment and customer satisfaction, has also been recognized long ago (Anderson et al., 1994), leading a great number of authors to carefully evaluate the unique practices that best characterize the complexities of a TQM system (i.e. Black and Porter, L. 1996, Ahire et al., 1996, Powell, 1996). The abstract nature of TQM has resulted in a variety of definitions, which are presented in the Table 2.5 below.

Table 2.5: Total Quality Management definitions

<i>(Total quality) as “as a philosophy or an approach to management that can be characterized by its principles, practices, and techniques.”</i>	Dean and Bowen (1994, p. 394)
<i>“A continuous quest for excellence by creating the right skills and attitudes in people to make prevention of defects possible and satisfy customers/users totally at all times.”</i>	Lakhe and Mohanty (1994, p. 9)
<i>“A management system consisting of three interdependent component, values, techniques and tools. Techniques and tools support the values and together they form a whole.”</i>	Hellsten and Klefsjö (2000, p. 243)
<i>“A holistic management philosophy that strives for continuous improvement in all functions of an organization, and it can be achieved only if the total quality concept is utilized from the acquisition of resources to customer service after the sale”</i>	(Kaynak, 2003, p. 406)
<i>“A company culture characterized by increased satisfaction through continuous improvements, in which all employees actively participate. Besides being a corporate culture we also emphasized above that TQM is a management philosophy. The aim of this management philosophy is to change corporate cultures from a passive and defensive culture to a pro-active and open culture where the basic TQM principles increased customer satisfaction, continuous improvement and everybody’s participation are applied everywhere in the organisation.”</i>	(Dahlgaard and Dahlgaard-Park, 2006, p. 266 p. 273).
<i>“The management approach of an organization centered on quality, based on the participation of all of its members and aiming at long-term success through customer satisfaction and benefits to all members of the organization and to society”</i>	The International Academy of the American Society for Quality as cited by Pantouvakis and Psomas (2016)

Moreover, various researchers have analyzed the philosophy of TQM in a wide range of business environments as displayed in the Tables 2.6, 2.7, 2.8 below.

Table 2.6: TQM / Services and Manufacturing sectors

SERVICES and MANUFACTURING SECTORS			
	Country	Size of sample	Sector
Ooi (2015), Ooi (2014)	Malaysia	203 valid responses	
Ng et al. (2014)	China	560 companies	Original Brand Manufacturers
Calvo-Mora et al. (2014), Calvo-Mora et al. (2014)	Spain	116 firms	Various sectors and activities are included in the study (services, manufacturing industry, consultancy firms, transport, education, aeronautics, chemical companies, information technologies, energy and mines, metals, mechanics, among others)
Yunis et al. (2013)	USA, Mexico, Korea, China	268 strategic business units	
Gimenez-Espin et al. (2013)	Spain	451 companies	
Duh et al. (2012)	Taiwan	209 firms	Various sectors are included, such as electronic parts and components, wire, cable and electrical machinery, chemicals and biotechnology, communications
Baird et al. (2011)	Australia	138 business units	
Fotopoulos and Psomas (2009)	Greece	370 companies	
Bou-Llusar et al. (2009)	Spain	446 companies	

Table 2.7: TQM/ Manufacturing sectors

MANUFACTURING SECTORS			
	Country	Size of sample	Sector
Muruganantham et al. (2016)	India		Automotive component manufacturing industry
Sinha et al. (2016)	India	120 quality managers	Auto component companies
Mehralian et al. (2016)	Iran	210 managers	Pharmaceutical sector
Jaeger and Adair (2016)	Kuwait	115 organizations	Companies carrying out exclusively projects, i.e. construction companies and companies engaged in

			manufacturing and project execution
Dubey and Gunasekaran (2015)	India	220 firms	Cement manufacturing industry
Ng et al. (2015)	China	330 firms	
Akgün et al. (2014)	Turkey	193 firms	
Herzallah et al. (2014)	Palestine	202 enterprises	Various industries, such as mining and quarrying and construction sector, textile, leather and shoe industry, metal industry
Ebrahimi et al. (2014)	Iran	410 employees	
Wiengarten et al. (2013)	Belgium, Italy, Ireland, United Kingdom	1894 plants	Various industries, such as automotive and aerospace, chemical, electrical/ electronic, mechanical
Ooi et al. (2013)	Malaysia	202 firms	Various industries, such as machinery, chemical, automotive manufacturing
Iyer et al. (2013)	India	293 firms	Auto component industry
Lee et al. (2012)	Malaysia	206 organisations	Various industries, such as electrical and electronics manufacturing, food manufacturing, automotive
Wickramasinghe (2012)	Sri Lanka	77 firms	Export-apparel manufacturing firms
Das et al. (2011)	Thailand	265 companies	Various manufacturing sectors, including agriculture, rubber and wood products sector, food products sector, chemical sectors
Martínez-Costa et al. (2009)	Spain	713 companies	
Boon et al. (2007)	Malaysia	377 employees	Semiconductor contract manufacturing organizations.

Table 2.8: TQM/ Services sectors

SERVICES SECTORS			
	Country	Size of sample	Sector
van Schoten et al. (2016)	Netherlands	398 organizations	Healthcare industry
Psomas and Jaca (2016)	Spain	151 companies	Various sectors, such as education, healthcare, wholesale/distribution, retail, banking/finance, consultancy,

			communications, insurance, public administration, food and beverage catering
Pantouvakis and Psomas (2016)	Greece	87 firms	Shipping industry
Aminbeidokhti et al. (2016)	Iran	253 valid responses	Education sector
Calabrese and Corbò (2015)	Italy	Case study	Consulting company
Benavides-Velasco et al. (2014)	Spain	141 hotels	Hotel industry
Lee and Lee (2014)	Taiwan	850 valid responses	Insurance industry
Cheng and Choy (2013)	Members of the world's two major international maritime associations (BIMCO and INTERTANCO)	161 companies	Shipping industry
Lam et al. (2012)	Malaysia	150 firms	Various industries, such as hotels, insurance companies, banking and finance
Wang et al. (2012)	China	588 hotels	Hotels
Lam et al. (2011)	Malaysia	146 firms	

2.3.2 Total quality management practices

It is worthwhile to be noted that different terminologies may be encountered in the literature stream, such as “practices”, “principles” or “critical success factors” in order to denote the unique factors that comprise the TQM construct. However, all the above terms have the same meaning and can be used interchangeably (Sinha et al. 2016). Generally, researchers have utilized a variety of different practices in order to operationalize the TQM construct. Acknowledging the diversity in the literature regarding the different TQM dimensions used in research studies, in their recent literature review Hietschold et al. (2014) attempted to synthesize the existing literature and to propose a holistic set of measurement scales or a number of critical success factors of TQM implementation. According to Hietschold et al. (2014) these include human resource management/ recognition/ teamwork, top management commitment/ leadership, process management, customer focus/ satisfaction, supplier

partnership, training and learning, information/ analysis/ data, strategic quality planning, culture/ communication, benchmarking, social and environmental responsibility.

Irrespective of their choice of the number or the nature of the TQM dimensions, some researchers differentiate between soft and hard TQM practices. Generally, the soft aspects of the TQM construct include various social and behavioral elements (Calvo-Mora et al., 2014) or management principles such as leadership or employee issues, whereas the hard elements of TQM are associated with the technical components of a quality management system (Calvo-Mora et al., 2014) and are mostly associated with tools and quality techniques (Fotopoulos and Psomas, 2009). For example, Herzallah et al. (2014) differentiated between soft and hard TQM practices and argued that management leadership, training, employee relationships, customer focus, supplier management constitute the soft TQM practices, whereas the dimensions of process management, quality data and reporting and product and service design belong to the hard TQM category. Below, an analysis of the literature regarding the various TQM measurement models is presented.

Duh et al. (2012) utilized a set of questions in order to determine the effect of TQM practices on performance. According to the authors, these questions are characterized by managers' rewarding for their commitment to quality management, employee training and rewarding for quality management, employee empowerment to inspect their own production and output, continuous efforts towards eliminating waste and activities that do not add value, continuous efforts towards reducing delays in product design and manufacturing, continuous efforts towards improving quality at all levels and finally continuous efforts towards improving supplier/customer relationships. Baird et al. (2011) attempted to investigate the relationships among organizational culture, TQM and operational performance, using four core TQM practices, namely quality data and reporting, supplier quality management, product/service design and process management, whereas Dubey and Gunasekaran (2015) operationalized soft TQM dimensions as consisting of human resource, quality culture, motivational leadership and external and internal partners' relationship.

On the other hand, Das et al. (2011) utilized a set of nine factors in order to describe TQM implementation, namely top management commitment, supplier

quality management, continuous improvement, product innovation, benchmarking, employee involvement, reward and recognition, education and training and customer focus, while Wiengarten et al. (2013) assessed the importance of innovativeness on the successful implementation of TQM, using visionary leadership, cooperation, learning, process management, continuous improvement, employee fulfillment and customer satisfaction as TQM practices. Calvo-Mora et al. (2014) utilized the five criteria that comprise the EFQM model in order to examine the relationship between soft – hard TQM factors and key business results. These criteria include the dimensions of leadership, policy and strategy, people, partnership and resources as well as processes. Yunis et al. (2013) used the Malcolm Baldrige National Quality Award (MBNQA) criteria in order to measure TQM. These criteria included top management and leadership, employee relations, customer/ supplier relations and product/process management.

In their study, Lam et al. (2012, 2011) adopted the dimensions of the MBNQA model in order to operationalize the TQM construct, which are leadership, customer focus, strategic planning, information and analysis, process management and human resource focus, whereas Wang et al. (2012) focused on the following TQM factors: customer focus, internal/external cooperation, continuous improvement, leadership, employee fulfillment, learning and process management. In the same line, Lee et al. (2012), in their attempt to examine the relationships between TQM and learning organization, utilized six distinct TQM practices which refer to human resource focus, strategic planning, leadership, customer focus, process management and finally information and analysis, whereas Lee and Lee (2014) chose only four variables in order to describe the TQM construct in their study. These variables are customer focus, continuous improvement, process management and service culture. On the other hand, Ooi (2015, 2014) and Ooi et al. (2013) conceptualized the TQM notion as being comprised of strategic planning, human resource management, leadership, customer focus, process management as well as information and analysis. Akgün et al. (2014) also utilized the dimensions of process management, leadership, customer focus, strategic planning, information and analysis and people management as constituents of their TQM measurement instrument, while Aminbeidokhti et al. (2016) followed a different approach from the before mentioned studies and selected the following criteria in order to evaluate TQM in the context of higher education

institutions: customer focus, continuous improvement, teamwork, learning and development, involvement in activities, top management commitment and identification, communication, assessment and feedback.

Benavides-Velasco et al. (2014) following the criteria of the EFQM Excellence Model utilized the TQM components of leadership, employees, strategy, partnership and resources, and processes, products and services. On the other hand, Ng et al. (2015, 2014) assessed TQM focusing on the MBNQA criteria (leadership, strategic planning, customer and market focus, information and analysis, human resource management and process management, while Herzallah et al. (2014) utilized a number of different TQM dimensions including management leadership, training, employee relationships, customer focus, supplier management (soft TQM practices), as well as process management, quality data and reporting, product and service design (hard TQM practices). In the study of Ebrahimi et al. (2014), the selected TQM practices included leadership, customer focus, process management, strategic planning, employee involvement, supplier management, information analysis and human resource focus, while Wickramasinghe (2012) opted for the TQM measurement scales which are based on leadership, information and analysis, strategic quality planning, human resource development, supplier relationship, customer orientation and quality assurance. van Schoten et al. (2016) focused on the EFQM model in order to assess TQM and specifically they utilized the criteria of leadership, policy and strategy, human resources, resources, process control.

Jaeger and Adair (2016) in their study of industrial organizations in Kuwait proposed that the TQM practices can be reduced in the following categories: management commitment, customer focus, management system related and employee involvement. In an also recent study, Mehralian et al. (2016) attempted to analyze and prioritize the critical success factors of TQM implementation and in order to achieve their objective they utilized the following TQM dimensions: management commitment, quality assurance, human resource management, process management, benchmarking, supplier relationship, customer focus, quality systems and finally information and analysis. According to Psomas and Jaca (2016) the factors that describe the notion of TQM are top management, employee quality management, process management, employee knowledge and education and last but not least customer focus. Sinha et al. (2016) identified seven TQM principles, namely,

leadership, people involvement, process approach, mutually beneficial supplier relationship, customer focus, continual improvement and factual approach to decision – making, whereas Yazdani et al. (2016) conceptualized the concept of TQM as consisting of the dimensions of leadership, strategic planning, human resource focus, customer focus (infrastructure practices), as well as process management and information and analysis (core practices). The Table 2.9 below presents the most commonly used TQM practices as presented above.

Table 2.9: TQM Practices

Top management commitment/ Leadership	Yazdani et al. (2016), Sinha et al. (2016), Psomas and Jaca (2016), Mehralian et al. (2016), Jaeger and Adair (2016), van Schoten et al. (2016), Aminbeidokhti et al. (2016), Dubey and Gunasekaran (2015), Herzallah et al. (2014), Akgün et al. (2014), Ooi (2015), Ng et al. (2015), Ebrahimi et al. (2014), Ng et al. (2014), Benavides-Velasco et al. (2014), Ooi (2014), Ooi et al. (2013), Hietschold et al. (2014), Calvo-Mora et al. (2014), Yunis et al. (2013), Wiengarten et al. (2013), Duh et al. (2012), Lam et al. (2012), Wickramasinghe (2012), Lee et al. (2012), Wang et al. (2012), Lam et al. (2011), Das et al. (2011),
Human resource management	Yazdani et al. (2016), Psomas and Jaca (2016), Mehralian et al. (2016), van Schoten et al. (2016), Dubey and Gunasekaran (2015), Ebrahimi et al. (2014), Ng et al. (2015), Ng et al. (2014), Akgün et al. (2014), Ooi (2015), Benavides-Velasco et al. (2014), Ooi (2014), Ooi et al. (2013), Hietschold et al. (2014), Calvo-Mora et al. (2014), Yunis et al. (2013), Lam et al. (2012), Lee et al. (2012), Wickramasinghe (2012) Lam et al. (2011)
<i>Recognition or reward</i>	Hietschold et al. (2014), Das et al. (2011)
<i>Teamwork</i>	Aminbeidokhti et al. (2016), Hietschold et al. (2014)
<i>Employee empowerment, involvement or fulfillment</i>	Jaeger and Adair (2016), Sinha et al. (2016), Aminbeidokhti et al. (2016), Ebrahimi et al. (2014), Wiengarten et al. (2013), Duh et al. (2012), Wang et al. (2012), Das et al. (2011)
Training/ Learning/ Education	Psomas and Jaca (2016), Aminbeidokhti et al. (2016), Herzallah et al. (2014), Hietschold et al. (2014), Wiengarten et al. (2013), Duh et al. (2012), Wang et al. (2012), Das et al. (2011),
Continuous improvement	Sinha et al. (2016), Aminbeidokhti et al. (2016), Lee and Lee (2014), Wiengarten et al. (2013), Duh et al. (2012), Wang et al. (2012), Das et al. (2011),
Customer focus/ satisfaction	Yazdani et al. (2016), Sinha et al. (2016), Psomas

	and Jaca (2016), Mehralian et al. (2016), Jaeger and Adair (2016), Aminbeidokhti et al. (2016), Ooi (2015), Ng et al. (2015), Ebrahimi et al. (2014), Herzallah et al. (2014), Ng et al. (2014), Akgün et al. (2014), Ooi (2014), Ooi et al. (2013), Lee and Lee (2014), Hietschold et al. (2014), Wiengarten et al. (2013), Lam et al. (2012), Wang et al. (2012), Wickramasinghe (2012), Lee et al. (2012), Lam et al. (2011), Das et al. (2011)
Policy/ strategy	van Schoten et al. (2016), Benavides-Velasco et al. (2014), Calvo-Mora et al. (2014)
Strategic (quality) planning	Yazdani et al. (2016), Ooi (2015), Ng et al. (2015), Ebrahimi et al. (2014), Ng et al. (2014), Akgün et al. (2014), Ooi (2014), Ooi et al. (2013), Hietschold et al. (2014), Lam et al. (2012), Lee et al. (2012), Wickramasinghe (2012), Lam et al. (2011)
Supplier management/ partnerships	Sinha et al. (2016), Mehralian et al. (2016), Dubey and Gunasekaran (2015), Ebrahimi et al. (2014), Herzallah et al. (2014), Hietschold et al. (2014), Yunis et al. (2013), Calvo-Mora et al. (2014), Benavides-Velasco et al. (2014), Baird et al. (2011), Das et al. (2011)
Internal/ External cooperation	Wang et al. (2012), Wickramasinghe (2012)
Process management	Yazdani et al. (2016), Sinha et al. (2016), Psomas and Jaca (2016), Mehralian et al. (2016), van Schoten et al. (2016), Ooi (2015), Ng et al. (2015), Ebrahimi et al. (2014), Herzallah et al. (2014), Ng et al. (2014), Akgün et al. (2014), Ooi (2014), Benavides-Velasco et al. (2014), Ooi et al. (2013), Lee and Lee (2014), Hietschold et al. (2014), Calvo-Mora et al. (2014), Wiengarten et al. (2013), Yunis et al. (2013), Lam et al. (2012), Wang et al. (2012), Lee et al. (2012), Lam et al. (2011), Baird et al. (2011)
Information and analysis, data reporting	Yazdani et al. (2016), Mehralian et al. (2016), Ooi (2015), Ng et al. (2015), Ebrahimi et al. (2014), Herzallah et al. (2014), Ng et al. (2014), Akgün et al. (2014), Ooi (2014), Hietschold et al. (2014), Ooi et al. (2013), Lam et al. (2012), Wickramasinghe (2012), Lee et al. (2012), Lam et al. (2011), Baird et al. (2011),
Product/ service design/ innovation	Herzallah et al. (2014), Baird et al. (2011), Das et al. (2011)
Communication/ culture	Aminbeidokhti et al. (2016), Dubey and Gunasekaran (2015), Hietschold et al. (2014), Lee and Lee (2014)
Benchmarking	Mehralian et al. (2016), Hietschold et al. (2014), Das et al. (2011)
Assessment and feedback	Aminbeidokhti et al. (2016)

Quality assurance/ systems	Mehralian et al. (2016), Wickramasinghe (2012)
Social and environmental responsibility	Hietschold et al. (2014)

2.3.3 Barriers to total quality management implementation

Other authors have focused on the specific barriers that may impede the successful implementation of TQM initiatives. For example, Mosadeghrad (2014) recognized that implementing TQM is not always an easy task and many difficulties arise during its implementation process. Thus, the author conducted a literature review in order to identify those barriers that can hinder the successful application of a TQM program inside organizations. Mosadeghrad (2014) argued that the primary reasons for TQM failure lie in an inappropriate TQM model, an ineffective TQM implementation method as well as an unsuitable environment for implementation. Moreover, the author categorized the TQM implementation obstacles in five categories, namely strategic, structural, human resources, contextual and procedural barriers. Certain examples of strategic barriers include poor management and leadership, lack of top management commitment, lack of vision and long – term view or inappropriate planning. On the other hand, the structural barriers relate to the lack of quality structures and resources, as well as the lack of an information management system. The “human resources barriers” category contains, among others, employee shortage, lack of commitment and involvement, lack of education and training, as well as employees’ resistance to change. The contextual category is comprised of lack of a quality – oriented culture and teamwork, lack of employee trust in senior management and poor communication. Finally, the procedural obstacles encompass bureaucracy, lack of an evaluation and self – assessment system, lack of proper process management and customer focus.

Talib et al. (2011), following the interpretive structural modeling approach, attempted to analyze the interaction among the barriers to TQM implementation and to distinguish between the driving and dependent barriers. As the authors state, the driving barriers have an impact on other barriers, whereas the dependent obstacles are mainly influenced by other barriers. Firstly, Talib et al. (2011) identified the major TQM barriers that can result in the unsuccessful implementation of TQM, which include lack of top management commitment, high turnover at management level, employee attitude towards quality, lack of proper training and education, lack of inter

– departmental coordination, human resource obstacles, absence of benchmarking, poor planning, employees’ resistance to change, lack of employee empowerment and teamwork, absence of a continuous improvement culture and finally lack of communication. The authors concluded that of the above mentioned barriers, lack of top-management commitment, inter- departmental coordination, communication, proper training and education, as well as employee attitude towards quality and poor planning are characterized as the major driving barriers, while the rest are strongly dependent on other barriers.

Jaeger and Adair (2016) demonstrated that the barriers of TQM implementation can be classified in the following categories: lack of customer focus, lack of planning, lack of employee involvement, lack of management commitment as well as lack of resources. Moreover, the authors concluded that the two most important obstacles which hinder the effective execution of a TQM program are the lack of employee involvement and the shortage of resources. Muruganatham et al. (2016) applied the interpretive structural modeling technique in order to analyze the interactions among the TQM barriers in the Indian automotive industry. For this purpose they utilized a set of 21 barriers and concluded that the most influential TQM obstacles include lack of top management commitment and other employee aspects such as lack of proper training and education, lack of incentives and human resources and lack of participative decision-making. Furthermore, according to the authors other barriers refer to poor planning, inadequate resources and high cost of implementing TQM.

2.3.4 Total quality management impacts

2.3.4.1 Direct impact on performance

Calvo-Mora et al. (2014) attempted to examine the relationship between TQM social and technical factors and business results, using the EFQM model as a reference framework. They concluded that TQM social factors have a direct and significant influence on organizational results and specifically customer, people, society and key results. These TQM social factors included a committed leadership, an open and flexible culture directed towards continuous improvement and the management of human resources. The authors also found that TQM hard factors (process management, strategic management of partners and resources) exert a direct

impact on company results. In a similar study, Calvo-Mora et al. (2014) analyzed the relations between soft – hard TQM factors and key business results with the use of the EFQM model and argued that the hard TQM dimension of process management can directly improve company results including financial, technological, innovation – related and other non – economic indicators.

Duh et al. (2012) investigated the determinants and performance effects of TQM practices and reached the conclusion that the extent of TQM implementation can lead to increases in non-financial performance, measured by customer satisfaction, employee morale, product defect rate, rework rate and lead time. Moreover, in their attempt to explore the relationships between soft and hard TQM factors and quality management results, Fotopoulos and Psomas (2009) proved that quality improvement and the consolidation of the company's market position are mainly affected by the implementation of the soft TQM dimensions. Dubey and Gunasekaran (2015) analyzed the impact of soft TQM factors on company's financial (ROI, EBIDTA) and non-financial (quality of goods, overstocks and defect control) performance and advocated that the relationships between external and internal partners, the quality culture, the visionary leadership and the human resource focus constitute significant predictors of firm performance. Lee and Lee (2014) investigated the relationships between TQM, learning orientation and business performance measured by financial (total premium revenues, profit after tax, and cost improvement) and non-financial (market share, customer satisfaction, and employee productivity) criteria. The authors confirmed the positive impact of TQM on company performance and specifically they claimed that continuous improvement, service culture and process management positively influence performance.

Corredor and Goñi (2011) utilized a set of indicators in order to measure company performance, such as productivity, profitability, the ability to raise long-term capital resources and the firm's investment in its future, and evaluated the cause and effect relationship between TQM and performance from different perspectives, i.e. within and between firms. The authors attested among other things that only pioneer TQM adopters exhibit performance gains because of TQM implementation, whereas the firms characterized as late implementers do not experience performance increases. Furthermore, Iyer et al. (2013) drawing evidence from the Indian auto component industry demonstrated that the implementation of TQM resulted in a high

productivity change in the award winning firms. Boulter et al. (2013) aimed at evaluating whether the implementation of a TQM philosophy positively influences the financial performance of European companies. To achieve their objective, the authors considered a variety of financial measures, such as share price, sales, total cost over sales, capital expenditure, total value of assets and operating income. Generally, they concluded that award winning companies outperform their non-award winning peers in terms of the examined financial measures.

Baird et al. (2011) analyzed the associations among organizational culture profile, TQM practices and operational performance, the latter of which was comprised of inventory management and quality performance. The authors demonstrated that the TQM dimensions of supplier quality management and process management are positively associated with inventory management performance. The positive effect of TQM on operational performance was also corroborated by Yunis et al. (2013). The authors focused on the MBNQA criteria in order to conceptualize TQM and on continuous improvement, effectiveness and efficiency in order to measure operational performance and concluded that both soft and hard TQM dimensions have a direct effect on company performance.

Wang et al. (2012) attempted to explore the links between TQM, market orientation and performance in the context of the hotel industry. The authors operationalised hotel performance as consisting of finance and customer criteria and supported that TQM has a positive effect on hotel performance. Moreover, Lam et al. (2011) attested that there is a positive and significant relationship between TQM and market performance. In their study, market performance was characterized by the degree to which the company exhibited positioning improvements, reductions in the number of complaints, an attainment of competitive based on the relationships with the customers and an increase in the number of loyal and satisfied customers. In their study, Ng et al. (2014) adopted the framework provided by the MBNQA as a means to measure TQM and investigated the joint impact of TQM and brand – building on business performance. The concept of business performance consisted of three categories, namely product quality, brand performance and customer satisfaction and loyalty. The authors noted that TQM positively influences the first and third above mentioned dimensions of performance.

Benavides-Velasco et al. (2014) argued that TQM and corporate social responsibility are relevant management philosophies and thus their simultaneous examination as antecedents of business performance should be pursued. The authors utilized a number of various elements in order to measure performance such as net income or net income growth, whereas they included certain variables in order to reflect the impacts to the stakeholders, such as the employee, customer and society results. Finally, they pointed out that leadership, employees, strategy, partnerships and resources as well as processes, products and services (TQM enablers) have a positive impact on employee and customer results. Also, TQM implementation positively influences the level of corporate social responsibility. On the other hand, Gimenez-Espin et al. (2013) attempted to investigate the link between organizational culture and TQM. The authors found among other things that TQM exerts a significant and positive influence on business performance.

In a more recent study, Jaeger and Adair (2016) analyzed a sample of industrial organizations in Kuwait and categorized the benefits of TQM implementation into employees' implications, productivity, quality effects, customer results, cost and competitiveness. Psomas and Jaca (2016) attempted to investigate the impact of TQM on company performance of service companies and found that certain TQM practices concerning employee, customer and top management aspects significantly influence company performance. In their study, the examined performance dimensions included financial performance, operational performance, customer satisfaction and product/service quality performance. Sinha et al. (2016) used a sample of auto component enterprises in India in order to examine the effect of TQM on organizational performance. The authors used a set of seven TQM dimensions and conceptualized company performance using three variables (customer, process and employee results), while they concluded that performance is significantly influenced by three TQM factors, which are process approach, mutually beneficial supplier relationship and factual approach to decision – making.

2.3.4.2 Mediating and moderating effects in the relationship between TQM and performance

Regarding the mediating variables, Calvo-Mora et al. (2014) attempted to test a mediation model among social and technical TQM factors and company results

using a sample of private Spanish firms belonging both to manufacturing and services sectors. The authors concluded that the TQM technical factors, such as process management and strategic management of partners and resources, partially mediate the relationship between TQM social factors and organizational results, including customer, people, society and key performance outcomes. In their study, the TQM social factors consisted of human resource management, leadership commitment and an open culture. Yunis et al. (2013) sought to investigate the interrelationships among TQM, strategy and performance and pointed out that the differentiation strategy mediated the relationship between soft TQM elements and operational performance which was described by various items related to continuous improvement, effectiveness and efficiency. Specifically, in their study, differentiation strategy was characterized by competitive aggressiveness, culture of innovation and risk taking tendency. Moreover, Herzallah et al. (2014) conducted a survey in the Palestinian industrial small and medium enterprises and concluded that financial performance is indirectly and positively influenced by hard TQM practices through competitive strategies (cost leadership and differentiation).

Furthermore, Wang et al. (2012) analyzed the influence of TQM and market orientation on hotel financial and customer performance. Among other things, the authors remarked that market orientation exerts a mediating effect on the liaison between TQM and overall hotel performance outcomes. On the other hand, Lee and Lee (2014), utilizing evidence from Taiwanese insurance companies, analyzed the extent to which TQM and organizational learning impact business performance described by both financial (i.e. revenues) and non – financial dimensions (i.e. customer satisfaction and market share). Their study results confirmed the mediating effects of organizational learning (learning, information and team orientation aspects) on the TQM – business performance association. Akgün et al. (2014) provided corroborating evidence on the mediating roles of organizational learning capability and business innovativeness between TQM and a firm's financial performance. The learning capability practices consisted of managerial commitment, systems perspective, openness and experimentation as well as knowledge transfer and integration. Moreover, Duh et al. (2012) analyzed the determinants and the performance effects of total quality management following an integrated model approach. The authors claimed that non – financial performance (product defect and

rework rate, production lead time, employee morale, and customer satisfaction) mediate the positive association between TQM and financial performance measured by ROA.

As regarding the moderating variables, in their study, Wiengarten et al. (2013) analyzed the successful implementation of TQM practices by taking into account the importance of innovativeness. The authors proved that the latter can moderate the relationship between TQM practices and manufacturing performance conceptualized as quality, product reliability, process capability, customer delivery, cycle time and market share and also that the above mentioned relationship is more obvious and strong in contexts characterized by increased levels of innovativeness. On the other hand, Wang et al. (2012) claimed that the association between financial and customer performance of hotels and the implementation of TQM is moderated by external environmental factors, which includes the market turbulence, the technological turbulence and the competitive intensity. As the authors point out, this moderating effect is more evident and stronger in the case of the low external environmental factors. Das et al. (2011) analyzed a number of ISO certified Thai manufacturing companies in order to identify the degree to which the level of certain leadership competencies alters the implementation of TQM principles. The authors utilized twenty one leadership competencies and demonstrated that the performance outcome of product quality is influenced by TQM implementation in a diverse way according to varying levels of leadership competencies. More specifically, the authors supported that in the case of high leadership competencies, product quality is predicted by continuous improvement, customer focus, employee involvement and supplier quality management, whereas in the context of low leadership competencies the predictors of product quality are top management commitment, product innovation and customer focus. Other moderating variables in the relationship among TQM and performance that were found in the literature include organizational structure (Douglas and Judge, 2001) or employees' perceived organizational and co – worker support (Joiner, 2007).

2.3.4.3 Innovation/ Innovativeness implications

In their attempt to investigate the relationships among the concept of TQM, organizational learning capability, business innovativeness and performance, Akgün et al. (2014) proved, among other things, that TQM can actually affect business

innovativeness, whereas Aminbeidokhti et al. (2016) proved that TQM leads to organizational innovation (administrative and technical) mediated by organizational learning in the context of higher education institutions.

2.3.4.4 Market orientation/ service quality implications

Lam et al. (2012) analyzed the relationship between TQM, market orientation and service quality in the Malaysian service industry. In their study, the TQM dimensions were signified by the Malcolm Baldrige National Quality Award (MBNQA) model and the authors indicated that TQM implementation affects positively and significantly both market orientation and service quality. Moreover, Wang et al. (2012) supported that TQM contributes positively to market orientation measured by information generation, dissemination, shared interpretation and organizational responsiveness.

2.3.4.5 Learning/ Knowledge management implications

Lam et al. (2011) investigated the impact of TQM on learning orientation and market performance and concluded that the implementation of TQM practices influences positively and significantly the learning orientation of the Malaysian service firms. The items that were utilized in order to measure the learning orientation construct reflected the company's commitment to share vision, learning and open – mindedness. Additionally, Lee et al. (2012) attempted to explore the linkage between TQM practices and learning organization and found that four of the six TQM dimensions, namely process management, human resource focus, leadership and information and analysis, exert a positive and significant impact on the learning organization construct. Lee and Lee (2014) focused on the Taiwanese insurance industry in order to explore the relationships between TQM, organizational learning and business performance. The authors supported that TQM has a positive and significant influence on organizational learning conceptualized as learning orientation, information orientation and team orientation.

Akgün et al. (2014) proved that TQM affects the organizational learning capability of a firm. Specifically, in their study the organizational learning capability practices included the managerial commitment, systems perspective, openness and experimentation as well as knowledge transfer and integration. Also, Aminbeidokhti

et al. (2016), using the four criteria of management commitment, systematic view, open space and experimentation, and transfer and unification of knowledge, argued that TQM affects organizational learning in a positive and significant way. On the other hand, Ooi (2015) demonstrated that TQM impacts knowledge management. The latter construct included the three dimensions of knowledge acquisition, distribution and application. In a similar study, Ooi (2014) found more specifically that certain dimensions of TQM, namely strategic planning, process management and human resource management, have a significant and positive effect on the three previously mentioned factors of knowledge management. Yazdani et al. (2016) attempted to analyze the association between TQM and organizational learning. The authors found that the TQM dimensions of human resource management and information and analysis exert a significant impact on organizational learning.

2.3.4.6 Strategy implications

Yunis et al. (2013) conducted a survey in order to investigate the relationships among TQM, strategy and performance. In their study, the competitive strategy measurement instrument contained “differentiation strategy” items, which represented competitive aggressiveness in the market, fostering a culture of innovation and the risk taking tendency. On the other hand, the “cost leadership” items measured the extent to which a company is a low price provider as well as taking decisions for price cutting, and whether the company has a cost control system involving employees’ participation. Their findings revealed that the soft TQM elements exert a stronger influence when it comes to competitive strategy choice, as they are positively related to both differentiation and cost leadership strategies. On the other hand, Herzallah et al. (2014), drawing data from the Palestinian industrial SMEs, examined the association between soft and hard TQM practices, competitive strategies and financial performance. The authors utilized two strategies, namely cost leadership and differentiation; the latter divided in innovation and marketing. Their study results showed that the hard TQM elements are positively and significantly associated with both competitive strategies.

2.3.4.7 Human resource implications

Ebrahimi et al. (2014) attempted to evaluate the influence of TQM practices on employees’ role stressors and specifically on role ambiguity, role conflict and role

overload. The authors provided interesting conclusions regarding the links between the specific dimensions of TQM and the previously mentioned role stressors. Specifically, the authors found that higher levels of supplier management, information analysis and process management contribute towards lower levels of role conflict. Moreover, lower levels of role ambiguity can be achieved through greater levels of process management, information analysis, employee involvement and strategic planning, whereas lower levels of role overload are achieved through higher levels of employee involvement, customer focus and supplier management. On the other hand, the authors postulated that the higher the level of leadership and human resource focus, the greater the level of the three role stressors.

Ooi et al. (2013) sought to investigate whether there is any positive impact of TQM implementation on employees' quality of work life. For this purpose, the conceptualization of quality of work life was based on four dimensions, which were job involvement, job satisfaction, career satisfaction and organizational commitment. Their study results indicated that contrary to human resource management and strategic planning, top management support, information and analysis, process management and customer focus positively and significantly lead to increased levels of work life quality among employees. In an earlier study, Karia and Asaari (2006) also explored whether employees' work – related attitudes, such as job involvement, job satisfaction, career satisfaction and organizational commitment, are influenced by TQM practices. Specifically, the authors demonstrated that the dimension of empowerment and teamwork had a significant and positive effect on the above work – related attitudes. Also, training and education positively impact job involvement, satisfaction and organizational commitment, while the “continuous improvement and problem prevention” factor only affects job satisfaction and organizational commitment. However, customer focus was not found to lead to work – related attitudes.

Furthermore, Wickramasinghe (2012) analyzed the impact of TQM implementation on a company's human resource function or practices and concluded that changes can occur in six human resource categories, such as performance management, rewards and recognition, competence development and career planning, recruitment and selection, human resource planning, and finally satisfaction and well-being. Wickramasinghe (2012) also supported that TQM initiatives led to

formalization of HRM activities, establishment of human resource department, increased focus in HRM issues as well as decentralisation of HRM activities to line management. In other words, the implementation of TQM influenced not only a series of HRM practices, but also the HR function, the role of HR professionals and finally led to a more strategic approach to human resource management.

Prajogo and Cooper (2010) aimed to explore the degree to which TQM practices affect employees' job satisfaction. In their study, two measures of job satisfaction were utilized, namely internal work satisfaction and high growth satisfaction. The authors concluded that TQM practices have a strong and positive relationship with job satisfaction. Boon et al. (2007) analyzed whether human resource management and TQM associate with employees' job involvement. Their study results corroborated that teamwork, empowerment, customer focus, reward and recognition and communication are positively related to job involvement.

The Table 2.10 below summarizes the most commonly encountered TQM results in the literature.

Table 2.10: TQM Results

Organizational results	Jaeger and Adair (2016), Sinha et al. (2016), Dubey and Gunasekaran (2015), Lee and Lee (2014), Benavides-Velasco et al. (2014), Gimenez-Espin et al. (2013), Calvo-Mora et al. (2014), Duh et al. (2012), Wang et al. (2012), Lam et al. (2011), Fotopoulos and Psomas (2009)
Operational performance	Yunis et al. (2013), Baird et al. (2011)
Financial performance	Boulter et al. (2013)
Productivity	Iyer et al. (2013)
Customer satisfaction	Ng et al. (2014)
Organizational learning implications	Yazdani et al. (2016), Aminbeidokhti et al. (2016), Akgün <i>et al.</i> (2014), Lee and Lee (2014), Lee et al. (2012), Lam et al. (2011)
Human resource implications	Ebrahimi et al. (2014), Ooi et al. (2013), Wickramasinghe (2012), Prajogo and Cooper (2010), Boon et al. (2007), Karia and Asaari (2006)
Strategy	Herzallah et al. (2014), Yunis et al. (2013)
Knowledge management	Ooi (2015), Ooi (2014)
Innovation/ Innovativeness	Akgün et al. (2014)
Corporate social responsibility	Benavides-Velasco et al. (2014)
Market orientation	Lam et al. (2012), Wang et al. (2012)
Product/ Service quality	Ng et al. (2014), Lam et al. (2012)

2.4 The simultaneous examination of ISO 9000 quality standards, ISM Code and Total Quality Management and their implications for the shipping industry

The paragraph 2.4 primarily concerns the simultaneous examination of ISO 9000 quality series standards, ISM Code and TQM. First of all, a general description of the quality concept in the context of the shipping industry is given. Then, a theoretical comparison of the three above mentioned quality management systems is attempted. The paragraph concludes with a brief summary.

2.4.1 Generally – Quality in Shipping

Ever since it was recognized that price alone is not the sole and primary factor in influencing a customer's decision regarding purchasing shipping services (Panayides and Cullinane, 2002), the concept of quality has begun to gain increased academic attention in the relevant literature. Shipping managers now recognize that offering high service quality to their customers and pursuing quality initiatives in their business operations will ultimately result in many benefits, such as more effectively adjusting operational procedures and strategies in order to meet the increasing demands of their customers regarding quality shipping services, obtaining a strong competitive advantage and improving their business performance.

As a result, an increased academic interest has emerged in order to conceptualize service quality in the maritime transportation sector and to provide rigorous evidence regarding its influences. Thai (2008) proposed and tested a conceptual model of service quality in maritime transport. The author concluded that service quality can be decomposed in the following dimensions: resources (i.e. equipment and physical infrastructures), outcomes (i.e. speed and reliability of service performance), processes (i.e. employees' behavior and immediate response to customers' demands), management (i.e. efficiency in operations and management), image/ reputation and finally social responsibility. The author also stressed the importance of the human element as the center in all quality systems. On the other hand, Kang and Kim (2009) conceptualized shipping service quality as consisting of three components, namely service outcome quality, service delivery quality and service capability quality.

In a more recent study, Thai et al. (2014) developed a reliable tool to measure service quality specifically in tramp shipping consisting of six dimensions of corporate image, customer focus, management, outcomes, personnel and technical factors. These dimensions emphasize the importance of company's image, quick response to customers' complaints, good management philosophy, on time cargo delivery, qualified crew and good vessel condition in enhancing service quality in the tramp sector. However, acknowledging the difference that may exist between the unique characteristics of the various sectors of the shipping industry, Yuen and Thai (2015) attempted to identify the dimensions of service quality in liner shipping. The authors concluded that liner service quality consists of the following dimensions: responsiveness, speed, value and reliability. Specifically, the factor of responsiveness involves, as the authors mention, the supporting attributes of a liner shipping service, whereas speed refers among other things to the frequency and transit time of transportation services. Moreover, Yuen and Thai (2015) argue that the value component of service quality refers to various cost features, while reliability denotes the ability of a liner shipping company to be consistent in service provision. Finally, the same authors demonstrated that all the previously mentioned service quality factors contribute towards increased customer satisfaction. Specifically, the main drivers of customer satisfaction in the liner shipping industry are reliability and speed (Yuen and Thai, 2015).

Yuen and Thai (2015b) carried out an evaluation of service quality attributes in the shipping industry and proved that service quality attributes have a synergistic or interactive impact on customer satisfaction, meaning that there exists a moderating effect of the perceived performance of various service quality elements in the relationship between a specific service quality attribute and customer satisfaction. In order to reach such a conclusion, the authors utilized five service quality features, which include value, transport service, customer service, tangibles and image. The value relates to various freight issues, whereas the transport service includes the service frequency, reliability, speed etc. The customer service deals with employees' attitudes, the physical surroundings of the service delivery process belong to the tangible characteristics of the service quality, while the company image is formed by customers' impressions about the shipping company and includes for example the company's reputation or the number of ISO certifications.

On the other hand, various authors have attempted to assess shipping service quality by employing the SERVQUAL instrument, which has been also widely used to measure service quality in different sectors of the economy. For instance, Chen et al. (2009) assessed the service quality in the shipping industry of Taiwan by using the SERVQUAL instrument but concluded that due to the absence of nomological and discriminant validity it is not an appropriate scale for measuring service quality in the maritime sector. Pantouvakis (2014) also employed the SERVQUAL instrument in order to operationalize service quality in the shipping sector. Durvasula et al. (2005) also utilized the SERVQUAL scale in order to measure service quality in ocean freight shipping lines and supported that it leads to service satisfaction through the mediating effect of customer perceptions of service encounters with interfacing departments. In an earlier study, Durvasula et al. (1999) tested the SERVQUAL scale in the context of ocean freight service organizations. The authors conducted a series of reliability and validity tests and found that service quality may be best described by the three dimensions of tangibles, reliability and a combination of responsiveness, assurance and empathy. However, Durvasula et al. (1999) stressed that the SERVQUAL instrument must be used with caution in a business to business context such as that of the shipping industry.

Lagoudis et al. (2006) evaluated the factors that contribute to higher performance in the ocean transportation industry. These factors included quality, service, cost and cycle time and more specifically the authors utilized a set of attributes in order to conceptualize quality in the maritime transport. So, according to Lagoudis et al. (2006), these attributes refer to different aspects of the human capital, such as top management creativity, skills and knowledge of personnel, but also to financial stability, reputation and reliability, good equipment condition as well as the establishment of good relationships with customers and suppliers. The authors concluded that the Greek shipping industry, which was the context of analysis, places a great emphasis on the quality dimensions deviating from the cost factors that dominated shipping operations in the past years. High level of quality is the primary factor for ensuring effective response to changing customer needs regarding shipping services (Lagoudis et al., 2006). Using the same quality factors and after examining a sample of Greek shipping companies, Lagoudis and Theotokas (2007) concluded that

the quality of the human capital or the company's personnel is the most important variable accounting for competitiveness, followed by reputation.

2.4.2 ISO 9000 quality standards versus ISM Code

The examination of ISO 9000 quality standards and their associations with the ISM Code have not been extensively studied in the literature stream. Below, an extensive review of the limited research studies that deal with the joint investigation of both management systems under consideration, as well as their similarities and differences is provided.

In an early study, Pun et al. (2003) attempted to provide a comparison of the mandatory ISM Code with the requirements of the ISO 9001:2000 quality management system. The authors demonstrated that both management systems share the same underlying philosophy regarding their general principles and objectives, they work in a similar way and they include a variety of internal and external elements that are comparable to each other. Moreover, Pun et al. (2003) provided a macro-level comparison of ISO 9001:2000 quality standards and the ISM Code in terms of the following dimensions: purpose, emphasis, eligibility, participants, evaluation, orientation and mechanics. Specifically, the authors argued that although the ISM Code addresses the operations of shipping companies and it is mandatory for all maritime organizations, the ISO 9001 standard certifies the implementation of a quality management system and has a voluntary character. The ISM Code concerns only the shipping industry, whereas the ISO 9001 quality standards are generic and can be applied in all types and sizes of business organizations. According to the ISM Code, a safety management system should be put in place by any shipping company as well as Documents of Compliance and Safety Management Certificates should be issued, whereas the ISO 9001 standard emphasizes the need for organizations to develop their own quality systems. Both management systems emphasize documents' reviewing and execution of audits and controls, as well as they stress the importance of quality assurance initiatives and conformity to regulations and rules. Furthermore, any shipping company has the discretion to select the appropriate agency for ISM Code certification, as well as any manufacturing or service organization is free to choose a registration/ certification agency in order to obtain an ISO 9000 certificate. Finally, the Designated Person Ashore, who is appointed by any shipping company in

order to be a liaison between the company and the crew, is responsible for similar tasks as the management representative in ISO 9001 (Pun et al., 2003).

In the same vein as Pun et al. (2003), Chen (2000) alleged that the ISM Code and the ISO 9000 series standards present many similarities as they ensure that a quality system and quality procedures are followed, but the author also stressed their differences, which once again can be summarized in their mandatory or voluntary adoption and their fields of application. However, Chen (2000) concluded that the two management systems are not substitutable, but are based upon related principles and proposed that it would be cost efficient to coordinate the ISM Code's and ISO 9000 standards' auditing procedures.

In a more recent study conducted in the context of shipping industry, Celik (2009) proposed an integrated quality and safety management system for the shipping industry by combining the ISM Code and the ISO 9001:2000 standards and utilizing the multi – attribute fuzzy axiomatic design (MA-FAD) as the suitable method of analysis. The author attempted to analyze the conformity levels between the clauses of the ISM Code and the principles of ISO 9001:2000 standards and advocated, for example, that the Clause 9 of the ISM Code (“Reports and analysis of nonconformities, accidents, and hazardous occurrences”) can be regarded as the most appropriate clause in order to structure the proposed integrated management system built on quality and safety aspects. Celik (2009) stressed that the implementation of generic quality standards during shipping operations will upgrade the reputation and competitiveness of shipping companies in the transportation sector and will result in significant benefits regarding the technical management of the fleet. Moreover, Celik (2009) advocated that the safety and quality levels in the shipping industry will also be enhanced as a result of the introduction of the integrated quality and safety management system in a shipping company's daily operations. Finally, the author conducted a real case scenario onboard a merchant ship in order to evaluate the potential benefits of the proposed integrated management system and concluded that this specific framework can contribute towards preventing certain technical failures onboard ships.

Moreover, in a similar study Celik (2009b) suggested that the traditional operations of shipping companies can be redesigned through the implementation of an

integrated process management system that is characterized by combining the requirements of various generic standards with the ISM Code. These generic standards include inter alia the quality standards ISO 9001:2000, as well as other standards that verify the existence of standardized management systems. The author utilized the methodologies of Fuzzy Axiomatic Design (FAD) and Analytic Network Process (ANP) in order to achieve his objective and to analyze their compliance levels with the clauses of the ISM Code.

Overall, the above discussion reveals, that both ISO 9000 quality series standards and the ISM Code present many similarities in their management philosophy, their core principles and objectives as well as the way of executing companies' processes. Although the two systems mainly differ in terms of the business field of application and level of enforcement, they broadly verify the presence of an implemented quality management system. Besides, the existence of a quality certification according to the ISO 9000 quality standards in shipping companies is associated with increased customer satisfaction (Huang et al., 2015), as the analytical documentation procedures during the execution of shipping operations, the existence of detailed manuals and the conduct of regular internal audits, which in general signify that the quality certification requirements are met, ensure customer satisfaction, as well as enhance a shipping company's reputation and business sustainability (Huang et al., 2015).

2.4.3 ISM Code versus Total Quality Management

As described in more detail in the previous paragraph (2.3), Total Quality Management (TQM) constitutes a broad management system or a holistic management philosophy that aims at promoting continuous improvement initiatives in all functions of a business organization (Kaynak, 2003). This approach to management is characterized by a set of both soft and technical factors, which cannot be performed in isolation but should form synergies and interrelations in order to yield the desirable results (Calvo-Mora et al., 2015). The underlying critical elements of the TQM concept promote the adoption of a more human – oriented management framework, since they emphasize the commitment of all employees and especially of top managers, promote employee involvement and empowerment as well as support continuous training and education. All these factors, supplemented with

improvements in the management of the daily processes and a strong customer focus, lead to the achievement of organizational goals (Pantouvakis and Psomas, 2016).

On the other hand, the ISM Code emphasizes a structural, formalized and process – oriented management of companies' operations characterized by rigid compliance to certain mandatory rules and guidelines. The management culture that is instilled through the implementation of the ISM Code is largely based on following the specifications of strictly specialized standards or guidelines and streamlining all company functions according to these rules and thus promotes a systematic approach to management. As a result, the ISM Code stands in stark contrast to the TQM philosophy; the latter fosters more flexibility and rapid adaptability in order to effectively manage daily company operations and constitutes a wider approach beyond just strict adherence to over – standardized management practices. Thus, the different management culture of both management systems (ISM Code and TQM) is largely revealed.

Although no research attempt has been made to simultaneously assess the implications of implementing the ISM Code along with propagating the TQM philosophy inside maritime organizations, there are a limited number of studies that focused on analyzing the TQM concept. Cheng and Choy (2007) attempted to evaluate the success factors of quality management in the shipping industry and concluded that these factors include top management commitment and participation, employee training and empowerment, quality information and performance measurement, and customer focus. A few years later, the same authors (Cheng and Choy, 2013) advocated that the previously mentioned four dimensions of quality management are positively associated with organizational performance in the shipping industry measured by financial, marketing and customer satisfaction indicators.

Perhaps, the most comprehensive study of TQM in the shipping industry is that of Pantouvakis and Psomas (2016). The authors noted that the underlying structure of TQM practices implemented by shipping companies is composed by the dimensions of top management commitment, process management improvement, employee quality management, customer focus and employee knowledge and education. The authors also identified four TQM results, namely customer

satisfaction, service quality performance, financial and market performance, as well as conformity to rules and established the relationships among the various TQM dimensions and results. For example, they argued that customer satisfaction is positively influenced by top management commitment, process management improvement and employee knowledge and education, while financial performance is positively associated with all TQM dimensions except from employee knowledge and education. Conformity to rules seems to be associated only with process management improvement, whereas process management improvement, employee quality management and employee knowledge and education impact service quality performance.

2.4.4 ISO 9000 quality series standards versus Total Quality Management

Although ISO 9000 quality series standards and TQM constitute two different management philosophies, various authors argue that there are some common dimensions between the two concepts primarily with regard to process management or statistical tools (Martinez-Costa et al., 2009). According to Martínez-Lorente and Martínez-Costa (2004), the similarities that can be identified between ISO 9000 standards and TQM are management of internal processes, collection of information on quality and the use of statistical tools. However, the differences between the two management systems are also highly emphasized as ISO 9000 standards encourage standardization and excessive bureaucracy, whereas the TQM concept offers more flexibility in the application of its principles inside business organizations. Specifically, ISO 9000 quality series standards encourage, among other things, the adoption of a systematic approach to management, through streamlining operations, conforming to formal rules as well as following stringent documentation procedures and promoting formal management operations. Contrarily, the TQM concept deviates from the ISO standards' formalized type of operations and encourages the development of flexible management systems that advance the level of employee involvement and target at a continuous pursuit of excellence.

There are two main views as regards the contribution of ISO 9000 to TQM (Gotzamani et al., 2006). On the one hand, the positive view advocates that the standards act a good step to TQM, as they constitute a set of well-defined and structured requirements. This has been also corroborated by Han et al. (2007) who

argued that ISO 9000 registration efforts augment TQM practices. On the other hand, the negative view supports that ISO 9000 standards overemphasize standardization and conformance to rules, imply an excessive level of bureaucracy, result in limited flexibility and thus lead the adopting organizations away from the total quality logic (Gotzamani et al., 2006). As a consequence, a number of scholarly efforts have been undertaken in order to assess the significance of both management systems as examined together in the same context.

For example, Martinez-Costa et al. (2009), using data from 713 Spanish industrial companies attempted to investigate the impact of ISO 9000:1994, ISO 9001:2000 and TQM on company performance. Their study provided a number of interesting findings, such as that ISO 9001:2000 certified companies apply the TQM philosophy at a higher degree than the ISO 9000:1994 certified ones, although in an earlier study conducted in the Australian context, Rahman (2001) concluded that there are not significant differences between ISO – certified companies and their non – certified peers with regard to the impact of TQM on organizational performance. Moreover, other studies underlined the superiority of TQM over ISO 9000 quality standards. For instance, Bayo-Moriones et al. (2011) proved that TQM is more advanced than ISO 9000 regarding the adoption of flexible work practices, whereas Martínez-Costa et al. (2008) claimed that firms that seek internal motivation for ISO 9000 certification experience a high level of TQM practices. Furthermore, Prabhu et al. (2000) stressed that companies which obtain an ISO 9000 certification and then proceed with the adoption of the TQM philosophy present significantly higher performance achievements.

In general, it seems that TQM and ISO 9000 quality standards, are complementary to each other and should be implemented together in order to ensure organizational success and increased performance (Magd and Curry, 2003). As Magd and Curry (2003) emphasize, business organizations should pursue ISO 9000 certification as a foundation for the much broader philosophy of TQM, since the ISO certification ensures organizational stability and internal consistency and then TQM leads to employee motivation and efficiency. It is obvious that ISO 9000 can act as a good first step towards TQM (Gotzamani et al., 2006) and positive results can be realized by incorporating and integrating ISO 9000 standards with the TQM philosophy and practices (Sun, 2000). However, it should also be noted, that the

literature is far from conclusive as it has been also demonstrated that the joint implementation of ISO 9000 standards and TQM does not necessarily lead to greater benefits than those encountered if these systems were applied separately (Martínez-Lorente and Martínez-Costa, 2004). Abusa and Gibson (2013), for example, evaluated the impact of ISO 9000 in TQM implementation in the context of Libyan manufacturing companies and indicated that no significant differences on TQM elements are exhibited between certified and uncertified companies. Similarly, Sila (2007) found that the TQM practices and their structural relationships with organizational results do not differ across ISO – certified and non – ISO – certified companies.

2.4.5 Summary

The above discussion aimed to synthesize the evidence in the literature with regard to the similarities and differences of the three quality management systems under examination; ISO 9000 quality series standards, ISM Code and Total Quality Management. In particular and as presented in Figure 2.1, the three quality concepts share some common elements, but a number of differences – especially when ISO 9000 series standards and the ISM Code are compared to the TQM logic – are also highly revealed. Generally, it seems that ISO 9000 quality series standards and the ISM Code share the same underlying quality principles and fundamentals which stand in contrast to the broader philosophy of TQM.

Figure 2.1: ISO 9000 series standards versus ISM Code versus TQM

ISO 9000 series standards	ISM Code	Total Quality Management
Generic application both in manufacturing and service sectors	Application only in the shipping industry	Generic application both in manufacturing and service sectors
Voluntary character	Mandatory compliance to the Code's requirements	Voluntary character
Process-oriented management system	Process-oriented management system	Holistic quality management philosophy

The review on the joint examination of the above mentioned quality management systems has also resulted in the emergence of some additional and interesting topics for the shipping industry. First of all, acknowledging the benefits

that arise from an ISO quality certification along with the implementation of the ISM Code (Celik, 2009) and due to the limited empirical evidence on these topics, a need emerges to evaluate the effectiveness of the Code, which largely regulates the shipping operations, as well as to investigate the role of ISO quality certification in the way the former yields the desirable results.

Moreover, due to the importance of TQM and the presence of only a limited number of TQM – related studies conducted in the maritime field, the examination of the mechanism by which TQM shapes a shipping company's performance needs further investigation. Finally, the interaction of the total quality principles in conjunction with the effective implementation of the mandatory ISM Code provides also an excellent opportunity to advance the understanding of the way they jointly impact a maritime firm's performance.

2.5 Talent and Talent Management

An extended literature review on talent and talent management – related issues is presented. This review includes some general descriptions of the concepts of talent and talent management in the context of business organizations, as well as their main definitions/ conceptualizations in the literature. Then, the main talent philosophies are analyzed, followed by a reference to the business contexts in which talent – related topics have been examined. An analytical reference is made to the talent management practices that are utilized by the organizations, as well as to the implications of talent management initiatives.

2.5.1 Generally

The concepts of talent and talent management (TM) constitute two rather novel notions in the human resource management literature and a huge increase of publications on TM has emerged since 2005 (Dries, 2013), highly indicating the ongoing academic and practitioners' interest on TM – related topics (Schuler, 2015), since attracting and retaining the right people constitutes nowadays the primary concern of top management executives (Cappelli, 2008). TM differs from the traditional human resource management, since it concerns the management of talented individuals and not the entire workforce of an organization (Meyers and van Woerkom, 2014), but falls under the umbrella of HRM (Meyers et al., 2013). However, TM differs from HRM since it has a narrower scope and focuses mainly on people and not on the functions (Iles et al., 2010).

TM is now directed towards tackling the uncertainties of the external business environment that all modern organizations face (Cappelli, 2008). The need for talented people inside business organizations is accentuated by various global or macroeconomic trends, such as changing employee demographics, more complex financial and economic conditions or new types of business growth (Ashton and Morton, 2005). Moreover, the increasing mobility of employees and organizations, workforce diversity (Beechler and Woodward, 2009), as well as the emergence of knowledge – based economies and the development of new markets (Vaiman et al., 2012) also amplify the necessity to attract and retain talented individuals. The effective implementation of a TM system can be impeded by a number of barriers, such as leadership problems, HRM development problems, strategic HR inefficiencies

etc. (Cooke et al., 2014). In order for TM systems to be effective, important elements should be omnipresent inside the adopting organizations, such as top management involvement and commitment, alignment with strategy goals as well as embodiment of its principles in the firm's culture (Stahl et al., 2007).

More specifically, as Schuler (2015) emphasizes there are various internal factors that can influence the effective implementation of a TM program, such as commitment from the leadership, corporate values and culture, organizational strategy and structure, whereas the external contextual variables that exert an impact on TM effectiveness are mainly summarized in the country's competitiveness status and culture, level of economic development as well as the specific industry characteristics.

The fields of talent and TM are still in their infancy with some steps towards adolescence (Thunnissen et al., 2013). Research endeavors have extensively and primarily focused on determining first of all what constitutes "talent".

2.5.2 Talent conceptualizations

In the human resource management literature, several attempts have been made to synthesize findings from other disciplines in order to best develop a definition, conceptualization or measurement of the talent in the context of business organizations. These research studies follow different approaches in operationalizing talent and provide various definitions that are analyzed below and reveal the lack of unanimity in providing a consistent meaning of talent (Gallardo-Gallardo et al., 2013).

Nijs et al. (2014) define talent as "*systematically developed innate abilities of individuals that are deployed in activities they like, find important, and in which they want to invest energy. It enables individuals to perform excellently in one or more domains of human functioning, operationalized as performing better than other individuals of the same age or experience, or as performing consistently at their personal best*" (p. 182). This definition is based on a certain operationalization of talent, which, according to (Nijs et al., 2014) consists of two constituents: an ability factor (innate abilities and systematic development) and an affective factor (motivation to invest energy and activities of interest). The two components serve as prerequisites for achieving excellence. In turn, this excellence can be operationalized as interpersonal and intrapersonal. The interpersonal excellence refers to the fact that

some people perform better than others, while the intrapersonal dimension of excellence describes the tendency of people to perform at one's personal best (Nijs et al., 2014).

Finally, the authors proposed different methods in order to measure the ability and affective components of talent as well as intrapersonal and interpersonal excellence. For example, they noted that the ability element of talent can be measured through achievement tests and evaluations of skills, whereas the affective component can be assessed through self – assessment tools. On the other hand, Nijs et al. (2014) postulated that interpersonal excellence can be evaluated with the use of general/ absolute benchmarks and cut – off points, while individual past performances can be utilized as a tool in order to measure intrapersonal excellence.

In their study, Gallardo-Gallardo et al. (2013) followed a different approach and proposed a framework for the conceptualization of talent by differentiating among talent as an object and as a subject. According to the authors, the object approach refers to talent as exceptional, personal characteristics. Thus, the most common terms of talent associated with this aspect include the talent as natural ability, mastery (superior performance), commitment to the work and the organization, and finally fit (between an employee's talent and his/ her position inside the organization). On the other hand, the subject approach views talent as people. In this sense, talent can be regarded as inclusive, meaning all people in a business organization, or as exclusive (talent seen as only a subgroup of a company's employees (Gallardo-Gallardo et al., 2013). Specifically, the latter notion refers to either high – performers (those who rank at the top of performance, A players) or high – potentials (those who have the potential to achieve high performance in the future).

The above described frameworks constitute two of the most recent and comprehensive research endeavors regarding the definition and conceptualization of talent. However, in the literature stream, additional talent definitions are encountered. In the same vein as the last mentioned exclusive notion of talent, Cooke et al. (2014) defined talent as *“those who are highly educated and (have the ability to be) high achievers/ performers in the organization”* (p. 234), while Stahl et al. (2007) on p. 4 argue that talent refers to *“a select group of employees – those that rank at the top in terms of capability and performance rather than the entire workforce”*. Lewis and

Heckman (2006) postulated that talent is “*a euphemism for people*” (p. 141). Cappelli and Keller (2014) claim that talent is regarded as “*those individuals who currently or have the potential to differentially contribute to firm performance by occupying strategic jobs*” (p. 309). Moreover, Schuler (2015) refers to talent as individuals who are special, have competencies valued by the company, behaviors aligned with the company’s values, are hard to find, are hard to replace, can add a great deal of value to the company, have options to leave at any time, and can help shape the future strategic directions of the company” (p. 48).

On the other hand, Ulrich and Smallwood (2012) noted that talent is the product of “*Competence x Commitment x Contribution*” (p. 60). According to the authors, competence includes all the necessary knowledge, skills and values, as well as possessing *the right skills, at the right place, at the right job and at the right time* (p. 60). Commitment refers to the willingness of employees to carry out their tasks, while contribution is all about discovering a purpose in the work. Williams (2000) postulate that “*talented people are those who do the following: Regularly demonstrate exceptional ability and achievement either over a range of activities and situations, or within a specialised and narrow field of expertise; consistently indicate high competence in areas of activity that strongly suggest transferable, comparable ability in situations where they have yet to be tested and proved to be highly effective*” (p. 35, as cited in Iles et al., 2010). The above discussion summarizes some of the most frequently conceptualizations of talent, which are also presented in Table 2.11.

Table 2.11: Talent definitions in the literature

Talent definitions in the literature		
Focus on the characteristics of people	<i>“Individuals who are special, have competencies valued by the company, behaviors aligned with the company’s values, are hard to find, are hard to replace, can add a great deal of value to the company, have options to leave at any time, and can help shape the future strategic directions of the company”</i>	Schuler (2015, p. 48)
	<i>“Systematically developed innate abilities of individuals that are deployed in activities they like, find important, and in which they want to invest energy. It enables individuals to perform excellently in one or more domains of human functioning, operationalized as performing better than other individuals of the same age or experience, or as performing consistently at their</i>	Nijs et al. (2014, p. 182)

	<i>personal best.</i> ”	
	“ <i>Competence x Commitment x Contribution</i> ”	Ulrich and Smallwood (2012, p. 60)
	“ <i>Talented people are those who do the following: Regularly demonstrate exceptional ability and achievement either over a range of activities and situations, or within a specialised and narrow field of expertise; consistently indicate high competence in areas of activity that strongly suggest transferable, comparable ability in situations where they have yet to be tested and proved to be highly effective</i> ”	Williams (2000, p. 35, as cited in Iles et al., 2010)
Focus on people	“ <i>Those who are highly educated and (have the ability to be) high achievers/ performers in the organization</i> ”	Cooke et al. (2014, p. 234)
	“ <i>Those individuals who currently or have the potential to differentially contribute to firm performance by occupying strategic jobs</i> ”	Cappelli and Keller (2014, p. 309)
	“ <i>A select group of employees – those that rank at the top in terms of capability and performance rather than the entire workforce</i> ”	Stahl et al. (2007, p. 4)
	“ <i>A euphemism for people</i> ”	Lewis and Heckman (2006 p. 141)
Focus on both the characteristics of people and people	Talent as natural ability, mastery, commitment to the work and the organization, fit or Talent as high performers/ high potentials or all employees	Gallardo-Gallardo et al. (2013)

2.5.3 Talent management conceptualizations

A variety of conceptualizations are encountered in the literature regarding the concept of talent management (TM) indicating that there is no consensus regarding its definition, aim or scope (Al Ariss et al., 2014). For example, Ashton and Morton (2005) view TM as “*a strategic and holistic approach to both HR and business planning or a new route to organizational effectiveness. This improves the performance and the potential of people – the talent – who can make a measurable difference to the organization now and in future. And it aspires to yield enhanced performance among all levels in the workforce, thus allowing everyone to reach his/her potential, no matter what that might be.*” (p. 30).

Collings and Mellahi (2009) define strategic TM as “*activities and processes that involve the systematic identification of key positions which differentially*

contribute to the organization's sustainable competitive advantage, the development of a talent pool of high potential and high performing incumbents to fill these roles, and the development of a differentiated human resource architecture to facilitate filling these positions with competent incumbents and to ensure their continued commitment to the organization." (p. 204), whereas Al Ariss et al. (2014) build upon this definition and conceptualize TM as *"activities and processes that involve the following: (1) systematic identification of positions that differentially contribute to an organization's sustainable competitive advantage; (2) the development of a diverse talent pool to fill these roles, and the development of a differentiated human resource architecture to facilitate filling them; and (3) continued commitment to the organization and to the well-being of societies, while taking local and national contexts into account."* (p. 177). In the same vein, Mensah (2015) defined TM as *"the identification of key strategic positions and the use of differentiated human resource architecture to recruit, manage and retain talented employees on the basis of their performance."* (p. 546).

Meyers and van Woerkom (2014) argue that TM is *"the systematic utilization of human resource management (HRM) activities to attract, identify, develop, and retain individuals who are considered to be 'talented' (in practice, this often means the high-potential employees, the strategically important employees, or employees in key positions)"* (p. 192), whereas Cappelli and Keller (2014) contended that TM is simply *"the process through which organizations anticipate and meet their needs for talent in strategic jobs"* (p. 307). Luna-Arocas and Morley (2015) view talent strategy as *"a systematic approach to the attraction, the development and retention of people with excellence competencies appropriate to the work context"* (p. 29) and thus they associate TM with competency – based management.

Cappelli (2008) sees TM as the anticipation of the need for human capital and the development of a plan to meet these needs. Finally, Swailes et al. (2014) defined fully inclusive talent management as *"the recognition and acceptance that all employees have talent together with the ongoing evaluation and deployment of employees in positions that give the best fit and opportunity (via participation) for employees to use those talents."* (p. 533). All the above mentioned definitions are summarized in the Table 2.12 below.

Table 2.12: Talent management definitions in the literature

Talent management definitions in the literature		
	<i>“The process through which organizations anticipate and meet their needs for talent in strategic jobs.”</i>	Cappelli and Keller (2014, p. 307)
	The anticipation of the need for human capital and the development of a plan to meet these needs.	Cappelli (2008)
	<i>“A strategic and holistic approach to both HR and business planning or a new route to organizational effectiveness. This improves the performance and the potential of people – the talent – who can make a measurable difference to the organization now and in future. And it aspires to yield enhanced performance among all levels in the workforce, thus allowing everyone to reach his/her potential, no matter what that might be.”</i>	Ashton and Morton (2005, p. 30)
	<i>“(Fully inclusive talent management is) the recognition and acceptance that all employees have talent together with the ongoing evaluation and deployment of employees in positions that give the best fit and opportunity (via participation) for employees to use those talents.”</i>	Swales et al. (2014, p. 533)
Focus on HRM practices	<i>“(Talent strategy is) a systematic approach to the attraction, the development and retention of people with excellence competencies appropriate to the work context.”</i>	Luna-Arocas and Morley (2015, p. 29)
	<i>“The systematic utilization of human resource management (HRM) activities to attract, identify, develop, and retain individuals who are considered to be ‘talented’ (in practice, this often means the high-potential employees, the strategically important employees, or employees in key positions).”</i>	Meyers and van Woerkom (2014, p. 192)
Focus on strategic jobs or key strategic positions	<i>“The identification of key strategic positions and the use of differentiated human resource architecture to recruit, manage and retain talented employees on the basis of their performance.”</i>	Mensah (2015, p. 546)
	<i>“Activities and processes that involve the following: (1) systematic identification of positions that differentially contribute to an organization’s sustainable competitive advantage; (2) the development of a diverse talent pool to fill these roles, and the development of a differentiated human resource architecture to facilitate filling them; and (3) continued commitment to the organization and to</i>	Al Ariss et al. (2014, p. 177)

	<i>the well-being of societies, while taking local and national contexts into account.”</i>	
	<i>“Activities and processes that involve the systematic identification of key positions which differentially contribute to the organization’s sustainable competitive advantage, the development of a talent pool of high potential and high performing incumbents to fill these roles, and the development of a differentiated human resource architecture to facilitate filling these positions with competent incumbents and to ensure their continued commitment to the organization.”</i>	Collings and Mellahi (2009, p. 204)

2.5.4 Talent philosophies/ Approaches to talent management

In order to more effectively determine the expected outcomes of talent management, a great emphasis should be placed on the underlying philosophies of talent, or stated differently, on the crucial assumptions and beliefs about the nature and the value of talent that subsequently determine managers’ approaches to TM (Meyers and van Woerkom, 2014). Below, the main research studies dealing with the categorizations of the different talent philosophies are presented.

2.5.4.1 Innate or developable talent philosophy

One of the main philosophies about the nature of human talent is built on the assumption that talent can be either an innate, genetically determined entity that is stable over time or that it is something which can be developed and cultivated during a person’s lifetime through training and education (Meyers et al., 2013). Meyers et al. (2013), based on the assumptions that talent can be an innate or an acquired construct, as well as that it may encompass both nature and nurture components, summarized the arguments that support each aspect and argued that these notions can influence the way an organization chooses its TM practices. For example, the authors advocated that researchers who argue in favor of the innate nature of talent mainly support that talent is synonymous with high intelligence which is genetically determined, that there are very few people who exhibit exceptional performance and that even with the same level of training the latter will always outperform their peers. In this case, TM activities should be centered on identifying, recruiting and retaining talented individuals.

On the other hand, the main arguments that support the acquired/ developable perspective on talent focus on the fact that constant practice leads to high performance or that talent can be augmented from experience (Meyers and van Woerkom, 2014). When talent is considered as a developable construct, an organization should place a particular emphasis on advancing employees' knowledge and skills through training programs, mentoring or development initiatives (Dries, 2013). Finally, those who advocate that talent is mainly the result of nature and nurture interactions claim that innate characteristics are a necessary but not sufficient condition for high achievements, that talents are influenced by contextual and individual characteristics and that talent is transferable among different domains through the use of training. In this case, the right talent is identified on the basis of the ability to learn what is required for a job and it is developed while adapting to the environmental context and the individual.

2.5.4.2 Exclusive or inclusive talent philosophy

An interesting debate also exists in the literature regarding the exclusivity or inclusivity of human talent (Dries, 2013). The exclusive talent philosophy implies that only a small number of people and subsequently only few employees possess talents (Meyers and van Woerkom, 2014) and these employees can be regarded as high – performers or high – potential (Collings and Mellahi, 2009). The exclusive perspective on talent promotes the work differentiation notion inside business organizations, while most organizational resources are mainly invested to those employees that have been identified as talented usually leading to higher returns on investment (Dries, 2013). On the other hand, the inclusive talent philosophy stands in stark contrast to the exclusive perception on talent, since the former approach advocates that everyone can be regarded as talented and that all employees should deploy their unique talents in the right organizational positions (Iles et al., 2010). As Dries (2013) mentions in her literature review, this approach that is based on the inclusivity of human talent has positive implications for the adopting organization, such as the establishment of prevalence of good working conditions.

2.5.4.3 Other talent philosophies

Apart from the innate/ developable and exclusive/ inclusive differentiations in talent philosophies, Dries (2013) identified three additional tensions in the relevant TM literatures, each of which implies a different operationalization of talent and subsequently is accompanied by diverse TM policies and practices. According to Dries (2013) the object/ subject tension brings forward the issue about who or what is talent. Specifically, the object approach advocates that the talent refers to the characteristics of talented people, and it stands in contrast with the subject approach which focuses on identifying and developing talented people. As a result, competence and knowledge management are regarded the most suitable TM practices in the object perspective, while career management and succession planning are deemed effective for organizations in which the subject approach is followed.

On the other hand, the next tension focuses on the input and output perspectives on talent. The discriminating characteristic lies in the center of talent assessment; in the first case the focus is on effort and motivation, whereas the output aspect focuses on evaluating output, performance and results. Finally, the final perspective (in line with Dries, 2013) takes into account the working environment and specifically it concerns whether talent is dependent on a specific context. The transferable perspective on talent implies that an individual talent will be evident in any working environment and requires that managers should identify the right people before they are employed in their organizations, while the context – dependent aspect on talent acknowledges the fact that there are synergies among employees and different contexts.

2.5.4.4 Combinations of various talent philosophies

Relying on the above mentioned talent philosophies, other authors have attempted to synthesize them in order to draw implication of TM strategies. For instance, Meyers and van Woerkom (2014) introduced four talent management philosophies that are formulated based on whether talent is a) exclusive or inclusive and b) innate or developable. The combination of the above tensions results in four talent philosophies that include: exclusive and stable, exclusive and developable, inclusive and stable and inclusive and developable. The authors explicitly analyzed

the four philosophies arguing that each of them has different effects on talent management practices and creates diverse opportunities and challenges for the adopting organization.

Specifically, according to Meyers and van Woerkom (2014) the first tension (exclusive and stable) sees talent as something that only a small number of employees (A players) possesses and that is merely a stable and innate entity. These assumptions led the authors to propose that the focus of organizations should be mainly on attracting, selecting and retaining a small number of talented individuals, which will assist them in gaining a strong competitive advantage, but may lead them in encountering difficulties towards selecting the right talented people. The second talent philosophy (exclusive and developable) also assumes that talent is limited to a small subgroup of employees, but in this case it can be developed and cultivated through proper training. As a result, organizations should now focus on selecting and developing their employees with the highest potential, which will lead to high returns on training investments but also poses difficulties in distinguishing individuals with potential.

The third approach to talent management according to Meyers and van Woerkom (2014), which differentiates itself from the previously mentioned tensions, implies that talent is inclusive, meaning that all employees have talents that can be used by the organization by deploying them in the right positions, as well as that talent is enduring and stable. Organizations should now focus on identifying these unique strengths of every individual and finding the right job for each employee. These practices will create an environment of high employee motivation and commitment but on the other hand the risk of attracting the wrong kind of people increases. Finally, the fourth talent philosophy is built on the premise that the entire workforce is encouraged to pursue personal growth. Thus, the organization should focus on the development of all employees but faces the problem of restricted monetary resources available for training programs.

Moreover, in their study, Iles et al. (2010) after distinguishing between the exclusivity versus inclusivity of talent as well as on whether talent is focused on organizational positions or people, proposed four different perspectives on talent management. The first one (exclusive – people) is based on the notion of workforce

differentiation, in the sense that the group of talented people should be treated in a different manner compared to their not talented peers. On other hand, the authors' second proposed approach (exclusive – positions) also follows a narrow or exclusive perspective on talent, but it is now closely associated with the identification of the key, strategic positions inside organizations. Contrary to the first perspective, the third or inclusive – people tension implies on the one hand that everyone has talent and on the other hand that every person can have a significant contribution to the fulfillment of organizational objectives. Last but not least, the final perspective sees talent as social capital and examines TM in each social and organizational context. The Table 2.13 below illustrates the above mentioned talent philosophies.

Table 2.13: Talent philosophies/ Approaches to talent management

Innate or developable?	Innate perspective	Talent is genetically determined, is a stable and innate entity	Meyers and van Woerkom (2014), Meyers et al. (2013), Dries (2013)
		Talent can be seen as high intelligence	
		Identification, recruitment and retaining talented individuals	
	Developable perspective	Talent evolves through practicing and experience	
		Talent is cultivated during a person's lifetime	
		Training programs, mentoring or development initiatives	
Exclusive or Inclusive?	Exclusive perspective	Talent is rare that only a few employees possess	
		Workforce differentiation	
		High performers/ High potentials	
	Inclusive perspective	Everyone has a certain talent	
Object or subject?	Object perspective	Characteristics of people	Dries (2013)
	Subject perspective	Identification/ development of talented people	
Input or output?	Input perspective	Focus on effort and motivation	
	Output perspective	Evaluation based on output, performance and results	
Transferable or context – dependent?	Transferable perspective	An individual talent will be evident in any working environment	
	Context dependent	Synergies among employees and different contexts.	

	perspective	
Combinations of the above philosophies		
Innate/ Developable and Exclusive/ Inclusive	Exclusive and innate Exclusive and developable Inclusive and innate Inclusive and developable	Meyers and van Woerkom (2014)
Exclusive/ Inclusive and Positions/ People	Exclusive – people Exclusive – positions Inclusive – people Social capital	Iles et al. (2010)

2.5.5 Sectors

The empirical research on talent management issues is rather limited leading thus to only a few number of studies that have attempted to investigate TM issues in various business environments. For instance, Cooke et al. (2014) examined the implementation of TM practices in India and China by using evidence from 178 managers from organizations belonging to a variety of industrial sectors, while Iles et al. (2010) drew evidence from seven multinational corporations in Beijing, China in order to analyze TM perspectives and practices. Their targeted companies belonged to the service sector and specifically included two IT companies, a health organization, an educational institution and three consulting firms. On the other hand, Hartmann et al. (2010) drew a research by using the case study approach in the context of multinational corporations from Europe and USA that operate in China and belong mainly to the manufacturing sectors, such as electronics or wood working machinery.

Moreover, Sonnenberg et al. (2014) utilized a sample of 2,660 employees from 21 large organizations in Europe that are engaged in international activities and belong to various sectors, such as logistics and transport, business services, life sciences, and financial services. Festing et al. (2013) examined TM issues in 700 small and medium – sized German companies and Festing et al. (2015) conducted two case studies in the German media industry in order to analyze gender inclusion in TM practices. On the other hand, Oltra and Vivas-López (2013) took a sample of 167 large Spanish firms in order to examine simultaneously the concepts of team – based talent management and organizational learning, while Luna-Arocas and Morley (2015) also focused on the Spanish region and specifically on 198 public and private sector employees working in various manufacturing and services sectors (i.e. construction, agriculture) in Valencia.

In his study of TM, Kontoghiorghes (2016) used a set of two different samples: the first one consisted of 556 automotive supply chain employees in the south-western United States and the second sample, which was used to test the generalizability of the model, included 600 employees of a telecommunications company in Cyprus. Latukha (2015) concentrated on the indigenous owned and foreign – owned manufacturing and services sectors (i.e. banking, IT and high-tech industries, construction, health care and energy sector) operating in Russia (60 HR managers), whereas Björkman et al. (2013) collected responses from 769 managers and professionals in nine Nordic multinational corporations with the aim to assess employees’ reactions to talent identification.

Tatoglu et al. (2016) compared the differences in TM activities among 201 multinational enterprises and local firms of various sectors (i.e. electrical equipment, chemical and pharmaceuticals, textile and apparel, wholesale and retail trade, financial services and consultancy) in Turkey, whereas Chami-Malaeb and Garavan (2013) used a sample of 238 high-potential employees and leaders in nine Lebanese organizations working in the banking, manufacturing, telecommunications, retail and healthcare sectors in order to analyze talent – related concepts. Furthermore, Tymon et al. (2010) focused on 28 firms and 4,811 individuals to explore TM in India, while Bhatnagar (2007) also used evidence from India and specifically from 344 employees from the information and technology industry to examine TM in conjunction with employee engagement. Dries et al. (2014) used a sample of 410 HR directors of different cultures working in multinational companies from various industries, such as manufacturing, financial and professional services. The Table 2.14 below summarizes the sectors in which various aspects of TM have been investigated.

Table 2.14: Examined sectors of talent – related issues in general

SERVICES and MANUFACTURING SECTORS			
	Country	Size of sample	Sector
Tatoglu et al. (2016)	Turkey	201 multinational enterprises and local firms	Various sectors, i.e. electrical equipment, chemical and pharmaceuticals, textile and apparel, wholesale and retail trade, financial services and consultancy
Kontoghiorghes	South-western	First sample: 556 employees	Automotive industry and

(2016)	United States and Cyprus	Second sample: 600 employees	telecommunications
Latukha (2015)	Russia	60 HR managers	Various manufacturing and services sectors, i.e. banking, IT and high-tech industries, construction, health care and energy sector
Luna-Arocas and Morley (2015)	Spain	198 employees	Various manufacturing and services sectors, i.e. construction, agriculture
Dries et al. (2014)	Various	410 HR directors of multinational companies	Various industries, such as manufacturing, financial and professional services
Cooke et al. (2014)	India and China	178 managers	A variety of industrial sectors
Chami-Malaeb and Garavan (2013)	Lebanon	238 high-potential employees and leaders in nine organizations	A variety of sectors, such as banking, manufacturing, telecommunications, retail and healthcare sectors
Björkman et al. (2013)	Nordic region	769 managers and professionals in nine Nordic multinational corporations	<i>Not mentioned in the study</i>
Festing et al. (2013)	Germany	700 small and medium – sized German companies	<i>Not mentioned in the study</i>
Oltra and Vivas-López (2013)	Spain	167 large firms	<i>Not mentioned in the study</i>
Tymon et al. (2010)	India	28 firms and 4,811 individuals	<i>Not mentioned in the study</i>
SERVICES SECTORS			
Festing et al. (2015)	Germany	Two corporations	Media industry
Sonnenberg et al. (2014)	Europe	2,660 employees from 21 large	Various sectors, such as logistics and transport, business services, life

		organizations	sciences, and financial services
Iles et al. (2010)	China	Seven multinational corporations	Two IT companies, a health organization, an educational institution and three consulting firms
Bhatnagar (2007)	India	344 employees	Information and technology industry
MANUFACTURING SECTORS			
Hartmann et al. (2010)	Multinational corporations from Europe and USA that operate in China		Mainly various manufacturing sectors, such as electronics or wood working machinery.

2.5.6 Talent management practices

In their critical review of the literature on talent management, Thunnissen et al. (2013) noted that the main TM practices include retention, staffing and succession planning, which are regarded as activities to attract talented people, as well as training and development (practices to develop talent) and last but not least retention management, which aims at retaining the talented people in the organization. Moreover, Cooke et al. (2014) analyzed responses from 178 managers of various organizations in India and China in order to investigate talent perceptions and to examine TM practices that are utilized by the organizations. The authors concluded that various TM practices were reported by the respondents, such as recruitment, training and development, performance management, financial motivations etc. According to Cooke et al. (2014), TM practices should be directed towards attracting and motivating to achieve superior performance. On the other hand, Sonnenberg et al. (2014) using a sample of various public and private organizations in Europe utilized set of eighteen TM practices which were based on the recommendation of the Chartered Institute of Personnel and Development. These practices included inter alia internal and external coaching, internal and external transfers to another job or position, job rotation, succession planning, development programs, assessment centers etc.

Furthermore, Festing et al. (2013) focused on a certain number of TM practices, such as recruitment, attraction and measures used to cope with the skills shortage in order to classify a number of small and medium – sized companies in Germany in terms of TM engagement. Moreover, the authors concluded that employees' retention and investments in training and development are considered as key priorities for German organizations in their efforts to tackle the skill shortage problem. Other human resource practices used in their study include, among others, succession planning, career planning, performance management, diversity management, compensation policies, development and planning. Iles et al. (2010), after following the case study approach and examining seven multinational corporation in Beijing, contended that TM mainly focuses on attracting, developing and retaining talented people, whereas Tymon et al. (2010) focused on six TM variables (intrinsic rewards, hygiene factors, performance management, pride in the organization, manager support and social responsibility) in order to explore TM in India.

Chami-Malaeb and Garavan (2013) utilized seven items in order to measure talent development practices in Lebanese organizations. These statements were associated with development plans, participation in conferences and seminars, learning programs, mentoring and coaching, e – learning as well as job rotation. On the other hand, Oltra and Vivas-López (2013) analyzed a number of Spanish companies and focused on team – based TM, the dimensions of which are three and specifically the following: talent – enhancing team composition, talent – enhancing team bonding and team – enhancing team bridging. The items that comprise the above mentioned dimensions describe various aspects of TM procedures. Moreover, Hartmann et al. (2010) aimed to assess the TM practices of multinational corporations in China by adopting the case study approach and focusing on seven business organizations. In order to achieve their objective, they relied on five different TM variables: identification and development of talented employees, contribution to the visibility of talents, employee succession planning, mentoring and ultimately building an organizational culture of leadership development.

Festing et al. (2015) conceptualized the TM practices as the ability of a business organization to attract, select, develop and retain key employees, whereas

Tatoglu et al. (2016) although initially utilized a set of twenty TM practices as proposed by the Chartered Institute of Personnel and Development, their factor analysis summarized them in in four categories, namely work-based systems, HRM-led systems, international systems and career portfolio building. Kontoghiorghes (2016) operationalized the TM construct as consisting of talent attraction and talent retention, when he attempted to test the validity of a model linking talent management, organizational culture and employee attitudes. The Table 2.15 below presents a summary of the most commonly used talent management practices.

Table 2.15: A selection of the most frequently used TM practices in the literature

Talent management practices	
Attraction, identification, recruitment	Kontoghiorghes (2016), Festing et al. (2015), Festing et al. (2013), Hartmann et al. (2010), Festing et al. (2015), Cooke et al. (2014), Thunnissen et al. (2013), Festing et al. (2013)
Development, training, coaching, mentoring, e – leaning	Festing et al. (2015), Sonnenberg et al. (2014), Cooke et al. (2014), Thunnissen et al. (2013), Festing et al. (2013), Chami-Malaeb and Garavan (2013), Hartmann et al. (2010)
Retention	Kontoghiorghes (2016), Festing et al. (2015), Thunnissen et al. (2013)
Succession planning/ career planning	Sonnenberg et al. (2014), Thunnissen et al. (2013), Festing et al. (2013), Hartmann et al. (2010)
Performance management	Cooke et al. (2014), Festing et al. (2013), Tymon et al. (2010)
Financial motivations/ compensations	Cooke et al. (2014), Festing et al. (2013)
Job transfers or rotations	Sonnenberg et al. (2014), Chami-Malaeb and Garavan (2013)
Assessment centers	Sonnenberg et al. (2014)
Diversity management	Festing et al. (2013)
Intrinsic rewards, hygiene factors, performance management, pride in the organization, manager support and social responsibility	Tymon et al. (2010)
Work-based systems, HRM-led systems, international systems and career portfolio building	Tatoglu et al. (2016)

2.5.7 Implications of talent or talent management – related initiatives

Various positive results can be yielded from applying a talent management strategy inside business organizations. Generally, as Ashton and Morton (2005)

emphasize talent management can take the form of a core competence inside an organization and thus improve strategy execution or lead to operational excellence. In fact, research studies have shown that TM can have positive consequences and can influence various organizational variables either directly or through mediating effects. For example, in their literature review, Thunnissen et al. (2013) concluded that there are many potential benefits arising from TM initiatives at the individual, HR – subsystem and organizational level. Although the main goal of adopting the TM philosophy is to increase company performance, positive outcomes in terms of competitive advantage (Ashton and Morton, 2005) or sustainability (Boudreau and Ramstad, 2005) can also be produced. A more analytical description regarding the consequences of TM follows in the next paragraphs.

Collings and Mellahi (2009) argued that the application of strategic TM systems inside business corporations leads to improved organizational performance. However, the authors mentioned that this is achieved through a number of mediating variables, which are work motivation, organizational commitment and extra – role behavior, highlighting thus the important role of talented employees' attitudes in accomplishing the intended organizational outcomes. Moreover, Latukha (2015) attempted to investigate the relationship between the ability to manage talent and subjective company performance measured by market share, customer satisfaction, profitability and revenue growth criteria. The author found corroborating evidence for a positive association among the two examined constructs.

Sonnenberg et al. (2014) contended that the number of perceived TM practices has a significant and positive association with psychological – contract fulfillment and that this relationship is partially mediated by talent – perception incongruence. Moreover, the mediated relationship is mainly evident in the case of a perceived exclusive talent strategy. On the other hand, Tymon et al. (2010) utilized six TM variables in order to investigate their interrelationships as well as their associations with certain outcomes. Among other findings, the authors' findings showed that the TM variable of intrinsic rewards is positively related to satisfaction with the organization and career success. Moreover, Chami-Malaeb and Garavan (2013) analyzed the interrelationships among talent, leadership development practices and two behavioral outcomes, namely affective commitment and intention to stay in the

organization. The authors found, *inter alia*, that talent development practices are directly and positively associated with both affective commitment and intention to stay and that affective commitment also acts as a partial mediator between talent development practices and intention to stay.

Oltra and Vivas-López (2013) developed a model linking team – based TM and organizational learning and concluded that the latter is influenced by the dimension of autonomous and creative team dynamic, while Luna-Arocas and Morley (2015) conceptualized TM practices as a competency named talent mindset and found that talent mindset competency impacts work performance through job satisfaction. All in all, it seems the value of TM can take an economic and non – economic form at three levels: individual, organizational and societal (Thunnissen et al., 2013b). As regards the economic perspective, the employee seeks financial rewarding and job security at the individual level, whereas at the organizational level TM leads to profitability, efficiency and effectiveness. Moreover, the economic value of TM at the societal level can be summarized in the international competitive position of an industry, region, or country (Thunnissen et al., 2013b). On the other hand, meaningful work, fair treatment and fulfillment of growth needs are considered as important non – economic outcomes of TM at the individual level, while legitimacy is derived from TM at the organizational level. Finally, the contribution to the social development of a society, in which people can live, constitutes the non – economic outcome of TM at a societal level. In a similar vein, Schuler (2015) also categorized the positive consequences from applying a TM program in three axes: individual, organizational and country. The first category contains several dimensions, such as satisfaction, career fulfillment, benefits and rewarding, while at the organizational level the benefits involve *inter alia* attracting the right employees and branding, retention rates, productivity and flexibility as well as knowledge sharing. At the country level, important implications are encountered regarding global competitiveness, educational advancements, job opportunities and sustainability (Schuler, 2015).

2.6 Performance

The general concept of business performance is presented along with a description of the main dimensions that comprise a shipping company's performance.

2.6.1 Generally

A lot of effort from researchers worldwide has been devoted in analyzing the unique components of company performance in order to best describe its complicated nature. In general, company performance can be conceptualized as the overall evaluation and measurement of management achievements (Duquette and Stowe, 1993), while it also reflects the complex interrelationships among various organizational outputs, such as effectiveness, efficiency, profitability or productivity (Psomas and Pantouvakis, 2015).

Traditionally, companies utilized certain financial measures, such as profit or revenue growth, in order to evaluate their performance. However, the complex business environment, in which modern organizations operate has forced them to use multiple financial and nonfinancial indicators, which better and more properly measure firm performance achievements and reflect both stakeholders' and shareholders' interests (Panayides, 2003). As a result, complex and sophisticated performance measurement instruments have emerged that allow researchers to effectively capture the dynamics of modern business organizations. In fact, Chow et al. (1994) argued that researchers often consider the proper measurement of firm performance as a challenging task, since they have to choose between hard (or objective) and soft (or subjective) measures of performance. The hard measures commonly include financial data or accounting measures, whereas the soft measures may be associated inter alia with customer criteria, service capabilities of a firm, as well as quality – related indicators.

The variety of the performance constructs that have been utilized by different authors is also revealed through recent studies. Specifically, a great number of academic studies have utilized a variety of dimensions in order to assess organizational performance, which mainly include product/ service quality performance (Dubey and Gunasekaran, 2015, Psomas and Pantouvakis, 2015), operational performance (Pantouvakis and Psomas, 2015, Yunis et al., 2013, Baird et

al., 2011), market performance (Pantouvakis and Psomas, 2015, Lee and Lee, 2014, Fotopoulos and Psomas 2009), customer results (Calvo-Mora et al., 2014, Lee and Lee, 2014, Duh et al., 2012), employee results (Lee and Lee, 2014, Duh et al., 2012), financial performance (Dubey and Gunasekaran 2015, Pantouvakis and Psomas, 2015, Lee and Lee, 2014, Boulter et al., 2013).

2.6.2 Shipping company performance

A great deal of previous research has focused on the use of various economic and non – economic data to appropriately assess the performance of shipping companies (Jenssen and Randy, 2006; Österman and Rose, 2015). The unique complexities and peculiarities of the shipping industry also render the use of various performance criteria imperative as they constitute an essential part in the shipping companies' evaluation procedure. The below discussion reviews some recent studies with regard to the performance dimensions selected by the authors.

In their study, Lun et al. (2014) utilized a variety of performance measures in order to evaluate shipping company performance. First of all, the authors differentiated between environmental and economic performance. Specifically, the economic performance reflected short – term (e.g. profit, sales volume, cost reduction) and long – term company results, such as customer satisfaction and problem – solving capability. In an earlier study, Yang et al. (2009) identified three categories of liner companies' performance, namely innovativeness, financial, and customer service performance. The first category (innovativeness) included certain items, such as new service development and employees' innovativeness, whereas the financial performance was mainly assessed using profit's and sales' growth rates as well as cost reduction as the main criteria. Finally, the customer service performance was comprised of satisfaction of the customers and the prompt response to their complaints, as well as service quality indicators.

Furthermore, Lai et al. (2013) operationalized the performance construct as comprising financial – in terms of profitability, sales growth and operation cost reduction – and service-related (customer satisfaction, problem solving ability and environmental criteria) measurement items, whereas Lirn et al. (2014) focused mainly on the financial and environmental performance of the container shipping industry. However, Jenssen and Randy (2006) took a different approach in their performance

assessment, since they focused on market position and bargaining power besides organizational results. All the above studies indicate the researchers tend to use a combination of diverse performance dimensions in the context of the shipping industry. The Table 2.16 below summarizes the before mentioned findings in the maritime context.

Table 2.16: Performance dimensions in the context of shipping companies

Customer satisfaction	Lun et al. (2014), Lai et al. (2013), Yang et al. (2009)
Service Quality	Yang et al. (2009)
Problem – solving capability	Lun et al. (2014), Lai et al. (2013)
Financial performance	Lun et al. (2014), Lirn et al. (2014), Lai et al. (2013), Yang et al. (2009)
Environmental performance	Lun et al. (2014), Lirn et al. (2014), Lai et al. (2013)
Innovativeness	Yang et al. (2009)

Chapter 3. Hypotheses development

Chapter 3 concerns the development of the research hypotheses under examination with reference to previous studies. Specifically, the hypotheses that are formulated address the structure of the ISM Code effectiveness, its impact on shipping company performance, as well as the moderating role of ISO certification in the before mentioned association. The next two hypotheses address the structure of TQM in shipping companies and its impact on a shipping company's performance. Then, the mediating role of ISM Code effectiveness in the relationship between top management commitment to quality and performance is investigated in the sixth hypothesis. Moreover, the structure of the main talent philosophies as perceived by the managers is examined, while their moderating role in the top management commitment – ISM Code effectiveness – performance relationship is also examined in the last two hypotheses.

3.1 The structure of ISM Code effectiveness (Research Hypothesis 1)

Although the proper implementation of the ISM Code is a major area of interest within the field of maritime discipline, the ability of shipping companies to effectively respond to the Code's mandatory requirements has gained considerable critical attention. The enforcement of the ISM Code has improved the safety levels in the maritime industry and has led to a decrease of human-induced shipping accidents (Tzannatos and Kokotos, 2009, Tzannatos 2010); however, its true effectiveness is rather debatable (Akhtar and Bouwer Utne, 2015). This was corroborated by Bhattacharya (2012), who argued that the different perceptions between shore-based managers and seafarers regarding the Code's objectives undermined its intended purpose. He concluded, among other things, that the failure of the ISM Code was caused by the fact that seafarers did not take part in managing workplace health and safety conditions, since their working conditions were far from perfect and their relationships with managers were characterized by low trust. Moreover, Batalden and Sydnes (2014) analyzed a number of casualties and maritime incidents and concluded, for example, that the absence of effective establishment of procedures, plans or checklists (Clause 7 of the ISM Code) was rather evident in the case of very serious accidents.

Acknowledging the shortfalls of the ISM Code, some authors have attempted to determine the specific factors that can lead to the successful implementation of the Code and to evaluate its intended purpose. In this vein, Tunidau and Thai (2010) demonstrated that the application of quality management principles to the existing safety management systems could lead to the successful implementation of the ISM Code in shipping companies in some Pacific Islands states. Specifically, they confirmed that the continuous improvement principle, embedded in the quality management systems, should be an integral part of a shipping company's safety philosophy during its onboard and ashore daily operations. Moreover, they highlighted the importance of senior management commitment and employee involvement as, among others, critical success factors of ISM Code implementation. Lappalainen et al. (2014) attempted to evaluate the effectiveness of the ISM Code based on certain qualitative criteria for an effective maritime safety policy, and verified the Code's successful application in the Finnish shipping industry, commenting that specific tools fostering continuous improvement should be utilized. In an earlier study, Celik (2009) stressed the need for designing an integrated quality and safety management system for shipping operations through the joint implementation of the ISM Code and ISO 9001:2000 standards in order to upgrade the safety and reliability levels of shipping operations and consequently strengthen the reputation of shipping companies.

In the literature stream, research studies that deal with ISM Code effectiveness are generally scarce and generally focus on analyzing accident numbers (Kokotos and Linardatos, 2011) or follow case study approaches conducted in a single context (Bhattacharya, 2012). Based on the recent study of Psomas et al. (2013) on ISO 9001 effectiveness and taking into account the recommendations for more research attention on the Code's effectiveness issues (Bhattacharya, 2012), in the current thesis a different approach is followed and ISM Code effectiveness is investigated through the use of the principles underlying ISO 9001 effectiveness in service companies.

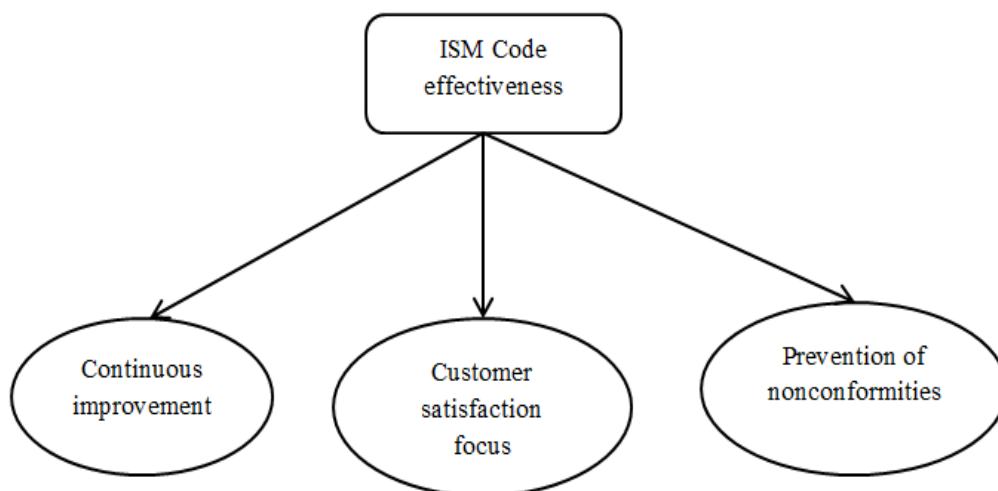
The three dimensions of continuous improvement, customer satisfaction focus, and prevention of nonconformities, which comprise ISO 9001 effectiveness in service companies (Psomas et al., 2013) form a comparable basis for evaluating ISM Code effectiveness, as both ISO 9000 series standards and the ISM Code consist of many principles which share a common, underlying philosophy (Pun et al., 2003) and

present many conceptual similarities since they verify the existence of an implemented quality system (Chen, 2000).

Both standards clearly highlight the importance of taking a systematic approach to management, streamlining all the companies' operations, rigidly applying formal rules, implementing strict documentation procedures, and executing frequent controls. Moreover, the commitment of top management and the principle of continuous improvement are emphasized in both standards. Both ISO standards and the ISM Code define the responsibilities and authorities of qualified personnel and stress the need for efficient communication among the company's members and for provision of adequate resources when requested. All in all, they build up systems that are fixed, adherent to routine operations, and controls and advance formal management operations. In view of all that has been mentioned so far, one may suppose that the measurement instruments that have been successfully used for evaluating ISO effectiveness in the context of service companies (Psomas et al., 2013) can be equivalently applied in the context of shipping companies in order to assess ISM Code effective implementation. Thus, the first research hypothesis is formulated as follows:

Research hypothesis 1 (H1): ISM Code effectiveness can be described by the three principles underlying ISO 9001 effectiveness (continuous improvement, customer satisfaction focus and prevention of nonconformities).

Figure 3.1: Research Hypothesis 1



3.2 The impact of ISM Code effectiveness on shipping company performance (Research Hypothesis 2) and the moderating role of ISO certification in the ISM Code effectiveness – performance relationship (Research Hypothesis 3)

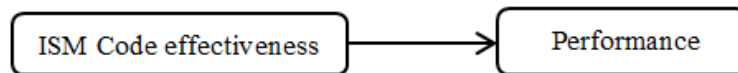
In the quality management literature, it has been demonstrated that implementing certain quality standards, like ISO 9000 series, can have important performance implications, such as a positive influence on the company's operational and business performance (Psomas and Fotopoulos, 2009). Specifically, ISO certification has been linked with financial performance improvements (Sharma, 2005), whereas Marín and Ruiz-Olalla (2011) concluded that there is a positive relationship between ISO 9000:2000 certification and quality and operative results. Pantouvakis and Dimas (2010) indicated that ISO 9000 certification exerts a positive influence on port financial efficiency, either in terms of profit or revenue. In a more recent study, Psomas et al. (2013) proved that the service quality and operational performances are directly and significantly influenced by ISO 9001 effectiveness in service companies.

Apart from assessing the impact of ISO certification on performance using certain economic and noneconomic criteria, much of the current literature pays particular attention to whether firms passing ISO certification display better performance results when compared to their noncertified peers. Generally, it seems that ISO and non-ISO-certified manufacturing and service companies exhibit significant differences in their financial and nonfinancial performances (Wu and Chen 2012, 2011), since Marin and Ruiz-Olalla (2011) proved that quality-certified companies present better quality and operative results than noncertified companies.

Bearing the above-mentioned studies in mind, in the current thesis the relationship between ISM Code effectiveness and shipping company performance is investigated and an attempt has been also made to differentiate between ISO and non-ISO-certified shipping companies. The second and third research hypotheses are therefore:

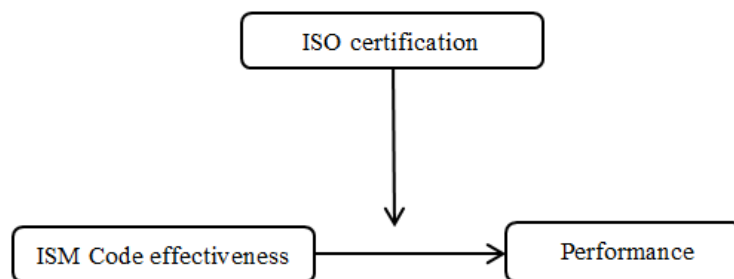
Research hypothesis 2 (H2): ISM Code effectiveness explains well shipping company performance.

Figure 3.2: Research Hypothesis 2



Research hypothesis 3 (H3): The ISM Code effectiveness – performance relationship is moderated by ISO certification or in other words ISO-certified shipping companies perform differently than their non-ISO-certified competitors.

Figure 3.3: Research Hypothesis 3



3.3 The structure of Total Quality Management practices in shipping companies (Research Hypothesis 4)

A lot of effort has been devoted towards revealing the underlying factors or practices that most effectively describe the nature of TQM. Although the number and composition of TQM dimensions may differ across academic studies, the majority of scholars has consented to certain practices that are deemed most suitable for characterizing the complexity of the TQM concept.

Thus, most TQM theoretical models emphasize the importance of top management commitment and leadership (Wiengarten et al., 2013, Das et al., 2011), process management (Baird et al., 2011) as well as strategic partnerships and resources (Benavides-Velasco et al., 2014). Moreover, unique human resource aspects, such as employee training, rewarding and employee empowerment (Duh et al., 2012) or employee knowledge and education (Pantouvakis and Psomas, 2016), have also been identified as strong constituents of TQM practices. In their recent literature review, Hietschold et al. (2014) developed a holistic set of eleven TQM

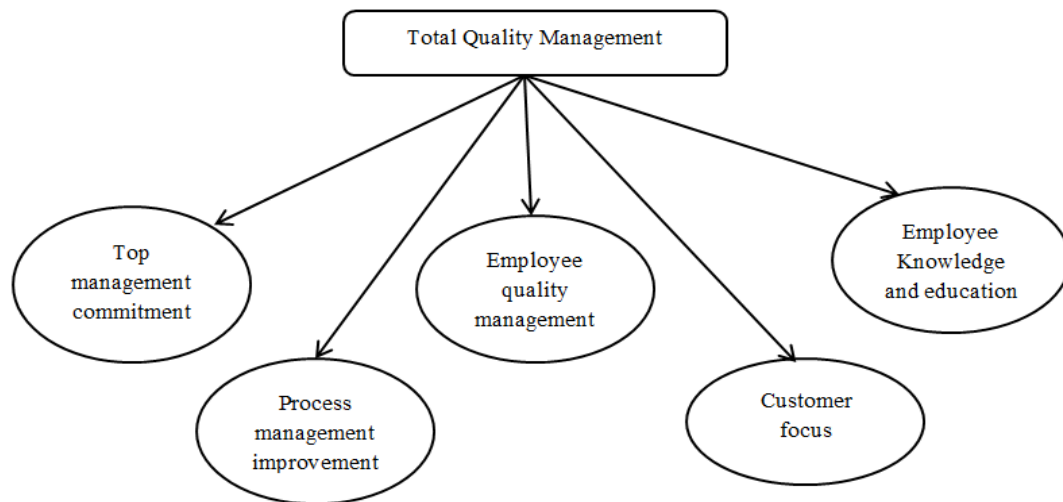
critical success factors, which additionally involve customer focus, information and analysis, strategic quality planning, culture and communication, benchmarking and social and environmental responsibility.

Some authors have analyzed the TQM factors from a soft – hard perspective. Soft or social factors may include those of management leadership, human resource management, culture towards quality, whereas hard or technical factors are comprised of certain dimensions, such as strategic management of partnerships and process management (Calvo-Mora et al., 2014). Other authors have argued that the soft factors encompass the main principles of TQM except from the ‘Quality tools and techniques’ dimension which forms the hard factors’ category (Fotopoulos and Psomas, 2009).

However, research related to TQM implementation in the shipping industry is rather limited. To the best of authors’ knowledge, only a small number of researchers have attempted to examine the TQM concept in the context of maritime firms. For example, Cheng and Choy (2013, 2007) identified four dimensions of quality management, namely top management commitment and participation, quality information and performance measurement, employee training and empowerment, and customer focus. Perhaps, the most comprehensive study of exploring total quality management applications in the shipping industry is that of Pantouvakis and Psomas (2016). The authors utilized evidence from 87 major shipping companies based in Piraeus (Greece) and among other findings they concluded that the structure of TQM practices in the shipping industry includes the dimensions of top management commitment, process management improvement, employee quality management, customer focus and employee knowledge and education. Based on the study of Pantouvakis and Psomas (2016), the fourth hypothesis intends to confirm the multidimensional nature of TQM in the shipping industry. Thus,

Research hypothesis 4 (H4): The structure of the TQM practices implemented by the shipping companies includes top management commitment, process management improvement, employee quality management, customer focus, employee knowledge and education.

Figure 3.4: Research Hypothesis 4



3.4 The impact of Total quality management on shipping company performance (Research Hypothesis 5)

Apart from identifying the specific dimensions that describe the TQM concept, several authors have also assessed the potential benefits that arise after the adoption of a TQM philosophy inside organizations. Although the successful implementation of the TQM concept has been associated with direct improvements in business innovativeness (Akgün et al., 2014), market orientation (Lam et al., 2012), organizational learning (Lee and Lee, 2014), knowledge management (Ooi, 2014), employees' job satisfaction (Prajogo and Cooper, 2010) or employees' quality of work life (Ooi et al., 2013), the vast amount of literature has focused on assessing the relationship between TQM and various aspects of company performance.

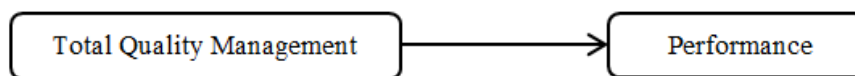
In fact, the direct and positive association between TQM and performance has been well – documented, since it has been proven that the former impacts the latter expressed either in financial or non – financial terms (Dubey and Gunasekaran, 2015). Various studies have shown that fostering the TQM philosophy inside organizations leads to enhanced business results measured generally by customer, people, society and key performance criteria (Calvo-Mora et al., 2014). More specifically, the extent of TQM implementation has been linked with increases in operational performance (Baird et al., 2011), market performance (Lam et al., 2011), product quality and customer satisfaction and loyalty (Ng et al., 2014). Certain financial gains, such as

increases in sales or operating income, can also be realized through applying a TQM strategy inside business organizations (Boulter et al., 2013).

To date there are few studies that have investigated the association between TQM and performance in the maritime transportation sector. Specifically, Cheng and Choy (2013) found that the dimensions of quality management, namely top management commitment and participation, quality information and performance measurement, employee training and empowerment, and customer focus are positively associated with operational performance, financial performance and customer satisfaction in the shipping industry. On the other hand, Pantouvakis and Psomas (2016) concluded that certain TQM practices can lead to various positive results in the shipping industry. For instance, their study results confirmed that top management commitment, process management improvement and employee knowledge and education contribute to increased customer satisfaction, while they also corroborated that there is a positive association between the TQM practices of top management commitment, process management improvement, employee quality management and customer focus and financial performance. Moreover, they proved that the performance constituents of service quality and conformity to rules are mostly affected by process management improvement. Consequently, the fifth hypothesis aims to confirm the relationship between TQM and shipping company performance.

Research hypothesis 5 (H5): TQM has an impact on shipping company performance.

Figure 3.5: Research Hypothesis 5



3.5 The mediating role of ISM Code effectiveness in the relationship between top management commitment (TMC) and shipping company performance (Research Hypothesis 6)

The maritime industry and especially the Greek shipping sector is strongly characterized by a family – owned organizational structure, in which the family members and social circle play an important role in the management of operations (Harlaftis and Theotokas, 2004). Specifically, the founder of the shipping firm is also

its strategic leader and he or she manages shipping operations in cooperation with other family members who usually occupy top and strategic organizational positions in the management pyramid (Theotokas, 2007). Since the shipping owner has an overriding control and authority over daily shipping operations and follows a centralized decision – making process (Theotokas, 2007), it is widely revealed that the operations of shipping companies are mainly centered around their top management team and its high leadership competences indicating the crucial role of senior executive officers in successfully forming and implementing the business strategy as well as in committing themselves towards providing high quality shipping services to their customers. The above arguments have led to the selection of the top management commitment (TMC) dimension as the sole indicator of the TQM construct for further analysis.

In the quality management literature, the dimension of top management commitment (or management leadership) has been extensively utilized as one of the most crucial components of the TQM philosophy (i.e. Yazdani et al., 2016, Sinha et al., 2016, Dubey and Gunasekaran, 2015, Herzallah et al., 2014, Akgün et al., 2014) and has been also considered as an important soft variable that is closely associated with other TQM variables (Herzallah et al., 2014). In order to foster a quality management philosophy inside maritime organizations, the commitment to quality on behalf of the top management assists companies to more effectively collect and analyze external customer information and internal quality data or ensure that the quality information is provided to all company employees leading thus to the success of any TQM initiative (Ahire and O'Shaughnessy, 1998).

Through their commitment to quality initiatives and programs, top managers can guide their business organizations to achieve excellence and promote an attitude of change towards “best quality practice” (Mokhtar and Yusof, 2010, p. 297). Moreover, a committed leadership has the ability to positively influence employee work attitudes (To et al., 2015) and lay the foundation for organizational performance achievements (Mokhtar and Yusof, 2010, Babakus et al., 2003). The success of any management program is dependent upon top management and its devotion to the program’s implementation and subsequently the latter plays a crucial role in positively influencing different organizational aspects, such as encouraging

continuous improvement efforts (Jung and Wang, 2006) and ensuring customer satisfaction (Pantouvakis and Psomas, 2016).

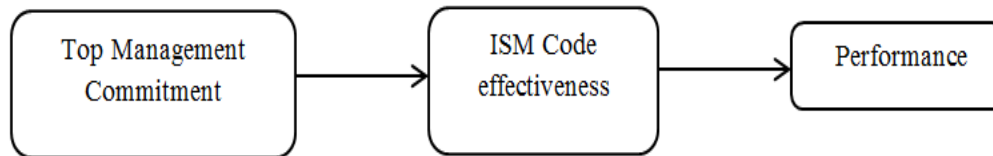
Specifically in the context of the shipping industry, the commitment of the top managers to support quality improvement efforts and to place the quality issues as a top priority in their meetings actually contributes to increased customer satisfaction and improved financial performance (Pantouvakis and Psomas, 2016). Moreover, top managers' support of and commitment to long – term quality improvement endeavors constitute the primary determinant of high employee productivity, increased safety and environmental awareness as well as effective compliance with the mandatory rules that regulate the shipping operations (ISM Code), or in other words contribute to positive operational results (Cheng and Choy, 2013).

It seems, thus, that since all the activities of the shipping companies are determined by the strict implementation of the ISM Code, it is very important for top managers to be committed to meeting all the Code's quality and safety standards during the running of shipping operations. Since it has already been proven that TMC impacts shipping company performance in a positive and significant way (Pantouvakis and Psomas, 2016, Cheng and Choy, 2013), in the current thesis an attempt is made to extent the knowledge on the TMC – performance relationship (Ahire and O'Shaughnessy, 1998) in the shipping sector by jointly analyzing for the first time the concept of TMC along with the effective implementation of the obligatory ISM Code.

The ISM Code is greatly linked to the “process management improvement” dimension of TQM (Pantouvakis and Psomas, 2016), which is regarded as a hard or technical component of a total quality management system (Calvo-Mora et al., 2015). Following evidence in the quality management literature which has supported that technical factors mediate the relationship between soft TQM dimensions – such as the dimension of top management commitment – and company results (Calvo-Mora et al., 2015), it seems that top management commitment is a necessary but not sufficient condition to improve shipping company performance and thus it is hypothesized that the effective implementation of ISM Code provides the means through which TMC contributes to performance achievements.

Research hypothesis 6 (H6): ISM Code effectiveness mediates the relationship between top management commitment and shipping company performance.

Figure 3.6: Research Hypothesis 6



3.6 Dimensions of talent philosophies as perceived by the managers in shipping companies (Research Hypothesis 7)

In recent years, there has been an increasing trend among academics in defining and analyzing the concepts of talent and talent management in modern business organizations. Although these topics lack a clear definition and a strong or universally accepted conceptual background, it is common perception that talent mostly refers to the high – potential employees or the employees of strategic importance, who usually occupy key positions inside an organization (Meyers and van Woerkom, 2014). As also described in Chapter 2 (paragraph 2.5.4) the ongoing research effort of accurately defining the term of talent in the field of business organizations has resulted in the development of two main tensions or talent philosophies in the relevant human resource management literature.

The first tension refers to the exclusiveness or inclusiveness of talent, whereas the second one deals with the innate or developable perception on talent (Meyers and van Woerkom, 2014). As far as the first tension is concerned, the discussion focuses on whether all people have a certain talent (inclusive talent philosophy) or whether some people are inherently more talented and more valuable than other people (exclusive talent philosophy) (Dries, 2013). In the latter case, talent is regarded as being rare and these people that possess it can be characterized as high potentials or high performers (Gallardo-Gallardo et al., 2013), who can contribute the most to the organization’s sustainable competitive advantage (Collings and Mellahi, 2009). As a result, the workforce is differentiated between talented and not talented (Dries, 2013). On the other side, other studies deviate from the work differentiation notion, which the exclusive approach entails, recognize that all employees are talented in a different

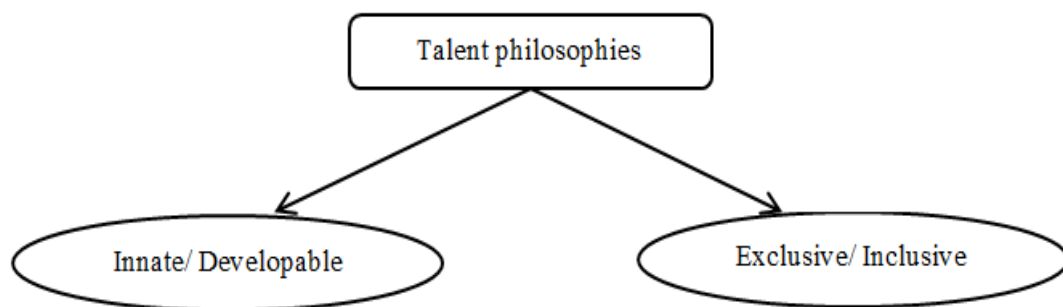
way and can create added value for the organization (Dries, 2013). Thus, all talents should be effectively deployed inside organizations (Swales et al., 2014). The inclusive philosophy implies a more egalitarian approach to talent management and may create a more pleasant working environment (Gallardo-Gallardo et al., 2013).

As regards the second tension, the locus of attention is now on whether the talent is mostly an innate or an acquired/ developable construct (Meyers et al., 2013). According to the innate philosophy, talent is genetically determined and stable over time (Meyers and van Woerkom, 2014) and this aspect is based on the notion that “people are who they are” (Dries, 2013). In this case, talent can be seen as personal characteristics or cognitive abilities (Meyers et al., 2013). On the other hand, the developable approach is built on the premise that talent can be taught and learned and emerges from knowledge, skills and experience (Meyers et al., 2013). The before mentioned perceptions of talent imply that different talent management practices should be pursued. For example, in the case of the innate talent philosophy, certain practices, such as talent identification, recruitment and retention should be emphasized, while the developable philosophy requires other practices directed towards development and training (Meyers et al., 2013).

Following the above discussion, the above different talent philosophies lead to the formulation of the seventh hypothesis:

Research hypothesis 7 (H7): Talent philosophies (as perceived by the managers) constitute a two – dimensional construct reflecting the innate/ developable and the exclusive/ inclusive perceptions on talent.

Figure 3.7: Research Hypothesis 7



3.7 The moderating role of talent philosophies in the Top management commitment – ISM Code effectiveness – performance relationship (Research Hypotheses 8 and 9)

In the maritime field, the primary and dominant contributor in assuring the safe and qualitative continuance of shipping operations as well as the minimization of management failures and subsequently maritime accidents is undoubtedly the human capital; that is the people that engage themselves in all aspects of daily activities in maritime companies and on vessels. Since technological advances have resulted in the reduction of machine-related errors that may cause an accident, the human factor has emerged as the main responsible for deficiencies' occurrence, not only on an individual but also collectively on an organizational level (Hetherington et al., 2006). This human factor may be characterized, inter alia, by non-technical competencies, such as certain interpersonal and cognitive skills on behalf of the on-board workforce as well as safety training to develop those skills (Hetherington et al., 2006). Moreover, the role of the human element in all quality management systems has been well documented in the relevant literature and the human factor is considered as a catalyst for influencing the successful implementation of any quality initiative as well as the continuance and proper management of a company's operations. Consequently, the dominant contributor in assuring the reliable performance of shipping service operations is undoubtedly the human capital.

On the one hand, the top management of any shipping organization should be committed in shaping a management culture which targets at providing consistent and qualitative shipping services. Although, this culture is initiated by top management, it is the specific competences of talented individuals at all levels of a maritime company that determine the end result of service operations (IMO, 2010). On the other hand, the ISM Code can be characterized as a people-focused management system which extensively emphasizes the criticality of the human element, either referring to people who belong to the highest levels of a shipping company's management hierarchy or concerning the lower levels of a ship's crew (IMO, 2010).

Acknowledging thus the criticality of competent human capital both on top and on lower organizational levels in determining the effective implementation of quality and safety management systems in the shipping industry, it becomes obvious

that the way the committed top management on quality contributes to high levels of performance through ISM Code effectiveness is influenced by the presence of high knowledge, skills and expertise among the employees as well as by the participation in training and development activities or intensive education programs in order to advance individual competences (IMO, 2010, Tunidau and Thai, 2010, Thai and Grewal, 2006), while the level of leadership competencies and abilities also moderate the association between quality management systems and quality results (Das et al., 2011).

All in all, the above discussion reveals the critical role of the competent human element in determining the proper implementation of quality management initiatives inside maritime business organizations. However, human failures arising from lack of knowledge or inadequate competences and skills still continue to be ubiquitous and threaten the proper execution of quality management strategies. One way to overcome these problems is by focusing on the identification and development of those high performing or high potential individuals who can contribute the most to the successful provision of services and subsequently to the achievement of organizational goals (Collings and Mellahi, 2009) or in other words by focusing on talented employees. Although the literature has recognized the necessity of human specific capabilities, expertise and qualities in order for performance benefits to be realized from quality management programs (Pantouvakis and Psomas, 2016), no attempt has been made so far to analyze how managers' perceptions/ philosophies regarding talented individuals (Meyers and van Woerkom, 2014) inside organizations can determine the performance outcomes of top management commitment to quality and the effective application of a safety management philosophy.

Moreover, it is also recognized that in order to improve their performance, organizations should orient the focus of their top managers and quality management systems into new ways of managing human resources, since employees have the most crucial role in affecting the company outcomes (Pantouvakis and Psomas, 2016). Organizations should concentrate their efforts in more flexible and innovative ways of managing daily operations, putting an emphasis on their competent human capital (Pantouvakis and Psomas, 2016). For any agile organization, recognizing, selecting and building on employees' talents, regardless if those employees are inherently talented or specifically trained (Dries, 2013, Meyers et al., 2013) should be constant

pursuit. This management approach which focuses on employees' talents challenges the common belief of quality management standards and applications where a more disciplined and hierarchical approach is expected and argues for the adoption of new innovative quality management methods (Pantouvakis and Psomas, 2016) targeting at achieving exceptional performance results through emphasizing, inter alia, employee involvement, competent human capital and continuous advancement of skills and knowledge.

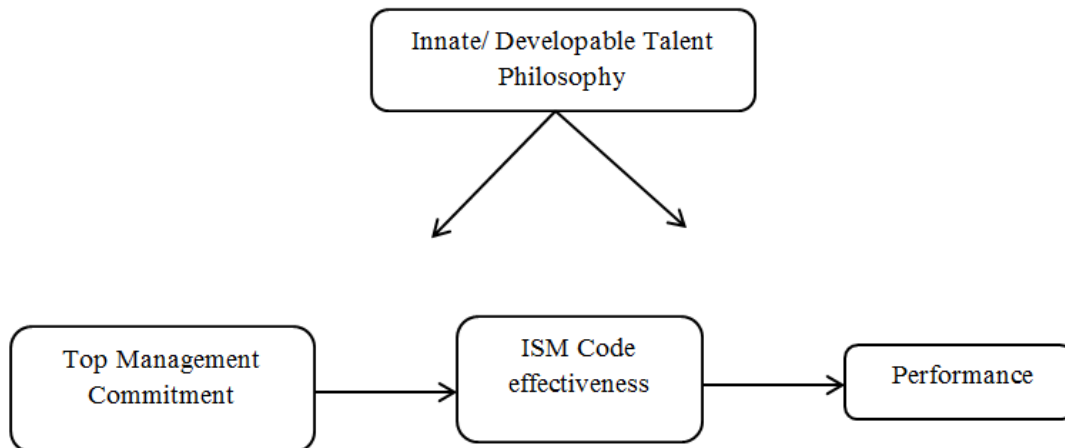
Following thus recommendations evident in the quality management literature regarding the need to focus on new employee management systems (Pantouvakis and Psomas, 2016), the hypotheses 8 and 9 investigate whether managers' different talent philosophies influence the way top management commitment and ISM Code effectiveness lead to improvements in shipping company performance. As described in paragraph 2.5.4, the different talent philosophies, or stated differently managers' perceptions regarding employees' talents, are mainly built upon the innate/developable and exclusive/ inclusive categorizations. These contradictory philosophies on talent impact upon the practices that are followed by the managers (Meyers and van Woerkom, 2014) and these talent management practices if structured correctly may alter how efficiently or effectively an organization's strategy is executed (Sparrow and Makram, 2015) or may impact its success.

For example and as far as the innate/ developable philosophy is concerned, if managers perceive talent as being mainly an innate construct, they will focus on identifying and recruiting talented individuals, whereas if managers feel that talent is primarily developed or acquired, they will invest in development and training activities (Meyers et al., 2013). This separation may in turn dominate the way they manage business and ultimately influence organizational results. In the same vein and regarding the exclusive/ inclusive philosophy on human talent, managers follow two ways in perceiving talent; in the first case they follow a narrow perspective on talent arguing that only a few people are talented, while in the second case they take a more holistic view and advocate that everyone is or can be talented (Thunnissen et al., 2013). These perceptions strongly characterize a shipping company's internal organizational environment and subsequently top managers' priorities, the effectiveness of any business strategy and finally company performance and competitive advantage (Thunnissen et al., 2013).

Following the above discussion, the Hypotheses 8 and 9 are formulated as follows.

Research hypothesis 8 (H8): Talent philosophies as perceived by the managers regarding the innate or developable distinction of talent moderate the TMC – ISM Code effectiveness – performance relationship.

Figure 3.8: Research Hypothesis 8



Research hypothesis 9 (H9): Talent philosophies as perceived by the managers regarding the exclusive or inclusive distinction of talent moderate the TMC – ISM Code effectiveness – performance relationship.

Figure 3.9: Research Hypothesis 9

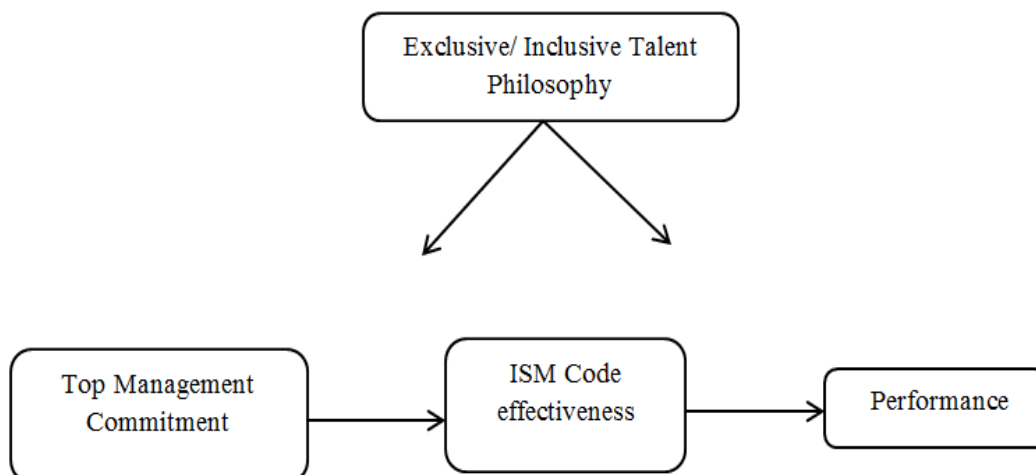


Table 3.1 summarizes the examined hypotheses.

Table 3.1: Hypotheses under examination

Research hypothesis 1 (H1): ISM Code effectiveness can be described by the three principles underlying ISO 9001 effectiveness (continuous improvement, customer satisfaction focus and prevention of nonconformities).
Research hypothesis 2 (H2): ISM Code effectiveness explains well shipping company performance.
Research hypothesis 3 (H3): The ISM Code effectiveness – performance relationship is moderated by ISO certification or in other words ISO-certified shipping companies perform differently than their non-ISO-certified competitors.
Research hypothesis 4 (H4): The structure of the TQM practices implemented by the shipping companies includes top management commitment, process management improvement, employee quality management, customer focus, employee knowledge and education.
Research hypothesis 5 (H5): TQM has an impact on shipping company performance.
Research hypothesis 6 (H6): ISM Code effectiveness mediates the relationship between top management commitment and shipping company performance.
Research hypothesis 7 (H7): Talent philosophies (as perceived by the managers) constitute a two – dimensional construct reflecting the innate/ developable and the exclusive/ inclusive perceptions on talent.
Research hypothesis 8 (H8): Talent philosophies as perceived by the managers regarding the innate or developable distinction of talent moderate the TMC – ISM Code effectiveness – performance relationship.
Research hypothesis 9 (H9): Talent philosophies as perceived by the managers regarding the exclusive or inclusive distinction of talent moderate the TMC – ISM Code effectiveness – performance relationship.

Chapter 4. Data and Methods

Chapter 4 describes the data and methods that are utilized in the present thesis. Specifically, the chapter starts with a description of the sample, while the measurement instruments of the constructs under examination (ISO 9000 standards certification, ISM Code effectiveness, total quality management, shipping company performance, talent philosophies) follow. The chapter concludes with a description of the statistical methods that are used in order to analyze the data and test the hypotheses.

4.1 Sample

A large – scale survey of the Greek shipping industry was conducted. According to the Review of the Maritime Transport of the United Nations Conference on Trade and Development (UNCTAD, 2015), Greece is the largest ship – owning country followed by Japan, China, Germany and Singapore, while more than half of the world’s total tonnage is collectively controlled by these countries. As of January 2015, the Greek fleet consisted of 4.017 vessels, corresponding to 16.11% of the world’s total fleet (UNCTAD, 2015).

The random sampling methodology was employed and a structured questionnaire was administered to almost 700 shipping companies in Greece, assuring confidentiality. The target respondents were mainly the Safety and Quality managers of the shipping companies or other managers and senior executives of the applied policies. Especially, in the case of very large shipping companies, the questionnaire was addressed to at least two different senior members of the staff. The questionnaires were collected through personal interviews in two different time frames. The first data collection occurred from December 2014 to February 2015 and during this period 123 completed questionnaires suitable for further use were collected. The second data collection took place from December 2015 to February 2016 and in this time period 76 completed questionnaires were obtained. The questionnaire is displayed in the Appendix C.

In order to ensure that the answers of the first period’s respondents were not different from those of the second period’s respondents and to be able to combine the two questionnaire batches, t – tests were performed in all of the questionnaire items

(Appendix A). In general, the test results indicated no significant differences in the mean responses among the two time periods, resulting in a total of 199 usable questionnaires, which correspond to 183 shipping companies. Moreover, in order to ensure that the sample is representative of the population of the shipping companies, the sample was randomly split in two parts and t – tests were run in all the variables under examination. In general, the t – tests resulted in the absence of significant differences in the mean responses between the two subgroups of the sample (Appendix B). Also, the calculations that are presented in Appendix D indicate that the sample size is considered adequate with regard to the population size. It should also be noted, that the vast majority (43%) of the sample companies belong to the dry bulk sector, which is traditionally the most popular sector in Greece occupying as of September 47.43% of the entire fleet tonnage (Petrofin, 2015). Table 4.1 displays the demographics of the respondents.

Table 4.1: Profile of the respondents

ISO certification	YES	53%
	NO	46%
	Missing	1%
Subjective size compared to major competitors	Very small	16%
	Medium	60%
	Large	14%
	Very large	10%
Number of employees (shore based and crew)	0-20	16%
	21-40	7%
	41-80	14%
	81-100	9%
	101-200	18%
	201-500	17%
	500+	19%
Type of vessels	Various types of vessels	20%
	Dry bulk	43%
	Liquid bulk	16%
	Dry and Liquid bulk	13%
	Containerships	3%
	LPG/ LNG	5%
Average number of operating ships (during the last year)	1-3	17%

	4-7	24%
	8-12	17%
	13-20	14%
	21-35	14%
	>35	14%
Deadweight tonnage of operating ships (during the last year) (in tonnes)	0 – 80.000	19%
	81.000 – 160.000	16%
	161.000 – 300.000	16%
	301.000 – 800.000	18%
	> 800.000	26%
	Missing	5%
Average age of operating ships (in years)	<5	15%
	5-10	50%
	11-15	19%
	16-20	10%
	>20	6%
Position in the company	Quality and Safety department	41
	Operations department	26
	Technical department	11
	Claims department	2
	Chartering department	3
	Other	17
Gender	Male	80
	Female	18
	Missing	2

4.2 Measurement instruments

4.2.1 ISO 9000 standards certification

One item was utilized in order to verify whether the participating shipping companies are certified according to the ISO standards or not. The question was formulated as follows: “Do you implement any quality management system (besides ISM Code) in your company (for example ISO 9000)? If yes, which one?” Respondents were asked to indicate whether their companies have received an ISO 9000 certification (YES/NO).

4.2.2 ISM Code effectiveness

In order to measure the effective implementation of the ISM Code, the measurement instrument of ISO 9001 effectiveness developed by Psomas et al. (2013) was utilized. The instrument is comprised of 14 items which are organized in three axes, namely continuous improvement (6 items), customer satisfaction focus (5 items) and prevention of non-conformities (3 items). All items were measured on a seven – point Likert – type scale ranging from “Strongly disagree” to “Strongly agree”.

4.2.3 Total Quality Management

The measurement instrument of TQM was adopted by the study of Pantouvakis and Psomas (2016), who examined the TQM concept in the shipping sector. In their study, the TQM construct includes 23 items which form the five TQM dimensions of top management commitment, process management improvement, employee quality management, customer focus and employee knowledge and education. All items were scored on a seven – point Likert – type scale from “Strongly disagree” to “Strongly agree”.

4.2.4 Shipping company performance

Shipping company performance was assessed using 7 items (Pantouvakis and Psomas, 2016, Psomas et al. 2013). Three of the items reflected customer satisfaction, whereas four items were used in order to measure service quality performance. These dimensions were specifically selected as they have been extensively used for performance evaluation in the shipping industry (i.e. Yang et al., 2009, Lun et al., 2014). Performance measurement items were measured on a subjective scale following contentions evident in the literature on their use (Panayides, 2003). For each item, company performance was assessed using a seven – point Likert – type scale (1 = minimum level, 7 = maximum level).

4.2.5 Talent philosophies

In order to measure whether managers follow an innate or developable talent philosophy and whether they have an exclusive or a more inclusive perception on human talent, the instrument proposed by Dries et al. (2014) was utilized.

As regards the conceptualization of the innate or developable philosophy of talent, the scale draws upon the implicit person theory (Heslin et al. 2005). The implicit person theory is built on the assumptions that people make about the malleability of personal attributes (Dweck et al., 1995); so people may assume that a personal attribute is a fixed entity or it can be changed and developed. The measurement scale includes eight items, four of which measure entity beliefs and the remaining ones measure incremental beliefs about human nature (Levy and Dweck, 1997 as cited in Dries et al., 2014). The four items that represent the incremental or developable talent philosophy had their values reversed in order to be consistent with the overall scoring system. Specifically, the four items that measure the innate talent philosophy include: “The kind of person someone is, is something very basic about them and it can’t be changed very much”, “Everyone is a certain kind of person and there is not much that can be done to really change that.”, “As much as I hate to admit it, you can’t teach an old dog new tricks. People can’t really change their deepest attributes.” and “People can do things differently, but the important parts of who they are can’t really be changed.”. On the other hand, the four remaining reverse-scored items include “No matter what kind of a person someone is, they can always change very much.”, “Everyone, no matter who they are can significantly change their basic characteristics.”, “People can substantially change the kind of person they are.” and “People can change even their most basic qualities.”.

On the other hand, the measurement of the exclusive/ inclusive talent philosophy was based on three items and adapted from Dries et al. (2014) and Iles et al. (2010). The exclusive approach entails that some people are inherently more talented than other people (Dries, 2013), while people who hold the more inclusive perception on human talent in the organizational context advocate that all employees have talents and (Swales et al., 2014). The items used to form this scale include “A talent is not something everyone possesses, but just the lucky few.”, “A talent is a special individual that can make a significant difference to a company.” and “It is a logical choice that developmental assignments and resources are only invested in the most promising talent.”.

All items were scored on a seven – point Likert – type scale ranging from “Strongly disagree” to “Strongly agree”.

4.3 Methodology

Confirmatory Factor Analyses (CFA) using the IBM SPSS AMOS software (version 21) were performed in order to refine the scales of ISM Code effectiveness, Total quality management and Shipping company performance. CFA was utilized as the measurement instruments of the above mentioned constructs have been widely used in the literature and their applicability has been confirmed by various researchers (eg. Pantouvakis and Psomas, 2016, Psomas et al., 2013). Moreover, Exploratory Factor Analysis (EFA) using the IBM SPSS (version 22) software was conducted in order to reveal the structure of the different talent philosophies as perceived by the managers. Since there are hardly any empirical studies that investigate the pattern of the talent philosophies, EFA was chosen in order to identify the underlying factors of the variables that comprise the talent construct (Hair et al., 2016). Moreover, in order to further validate the EFA results, CFA was also performed in the talent construct.

The impact of ISM Code effectiveness on shipping company performance as well as the moderating role of ISO certification in this relationship were tested through regression analyses. The impact of the TQM dimensions on performance was also examined through multiple regression analysis. The mediating effect of ISM Code effectiveness in the relationship between top management commitment and performance (three – steps procedure proposed by Baron and Kenny, 1986), as well as the moderating role of talent philosophies in the before mentioned association were also tested through regression analyses.

Chapter 5. Results and Discussion

Chapter 5 begins with the results of the univariate analysis of the variables, followed by the examination of the research hypotheses in the subsequent paragraphs. Specifically, the results of the examination of each hypothesis are presented in detail, while the discussion of the findings also takes place.

5.1 Univariate analysis

The means and standard deviations of individual items, which characterize the examined constructs, are presented in Appendix E. As far as the items comprising the innate/ developable talent philosophy are concerned, it is apparent that their mean values are between 4.04 and 4.83, while their standard deviations range from 1.201 to 1.658. The item “People can do things differently, but the important parts of who they are can’t really be changed.” has the highest mean value (4.83), followed by “The kind of person someone is, is something very basic about them and it can’t be changed very much.” (4.68). The lowest mean value (4.04) is reported by the item “Everyone is a certain kind of person and there is not much that can be done to really change that.”. Moreover, the item “As much as I hate to admit it, you can’t teach an old dog new tricks. People can’t really change their deepest attributes.” has the highest standard deviation (1.658), followed by “People can change even their most basic qualities. (r)” (1.503). As regards the items that describe the exclusive/ including talent philosophy, the highest mean value (5.23) and the highest standard deviation (1.856) are found in the items “A talent is a special individual that can make a significant difference to a company.” and “A talent is not something everyone possesses, but just the lucky few.” respectively.

Regarding the construct of Total Quality Management and specifically its first dimension (top management commitment), it seems that the mean values of the items range from 5.27 (“Top management gives the authority to employees to manage quality problems.”) to 6.14 (“Top management supports the quality improvement efforts by providing resources.”), while the standard deviations fluctuate from 0.780 (“Top management supports the quality improvement efforts by providing resources.”) to 1.269 (“Top management gives the authority to employees to manage quality problems.”). Furthermore, the “process management improvement” dimension of TQM consists of seven items with mean values ranging from 5.22 (“Mistakes are

precluded in the process design.”; this item also reports the highest standard deviation with a value of 1.288) to 5.95 (“Quality data is taken into consideration from managers in the planning and control processes.”; this item also reports the lowest standard deviation with a value of 0.802). Turning now to the TQM dimension of “employee quality management”, it is obvious that the item “Employees are evaluated.” reports the highest mean value (6.10) and the lowest standard deviation (0.838), whereas the item “Employees participate in the decision making process and in setting quality objectives.” reports the lowest mean value (5.23) with a standard deviation of 1.136. The mean values of the three items of the “customer focus” TQM dimension range from 5.93 to 6.09 and their standard deviations from 0.892 to 0.945. Finally, with regard to the last examined TQM dimension (employee knowledge and education), the item “The company’s managers/employees are in close contact with customers.” has the largest mean value (5.88), whereas the item “Educational subjects are absorbed by employees.” has the largest standard deviation (1.028).

The ISM Code effectiveness construct is described by a set of items, which have mean values that range from 5.60 to 5.97 and standard deviations that range from 0.830 to 1.050. Specifically, the highest mean value (5.97) among the items that characterize the first dimension (continuous improvement) is encountered in the items “The company continuously monitors and improves its processes, procedures and services.” and “The company develops and supports an organizational structure supporting continuous improvement.”, while the largest value of standard deviation (1.004) is reported in the item “Employees continuously improve their work.”. As far as the “customer satisfaction focus” dimension is concerned, the item “The company assures that its services meet customer requirements.” reports both the largest mean value (5.94) and the lowest standard deviation (0.830), whereas the item “Quality auditing leads to reduced nonconformity problems.” has both the largest mean value (5.76) and standard deviation (1.050) when examining the third aspect of ISM Code effectiveness (prevention of nonconformities).

Finally, the item “The conformance of the services to customer specifications” presents the highest mean value (5.64) among the items that measure the service quality performance, while the item “Customer retention and loyalty” has the largest mean value (5.56) among the items that refer to the “customer satisfaction” aspect of a shipping company’s performance. The standard deviations vary between

0.808 and 0.934 (“Customer retention and loyalty”), as well as between 0.847 and 0.931 (“The on time service provision”) for the items addressing the customer satisfaction and service quality performance respectively.

5.2 The structure of ISM Code effectiveness (Research Hypothesis 1)

In order to test the first hypothesis and to yield the factors of the ISM Code effectiveness, CFA was performed using the Maximum Likelihood Estimation. The Cronbach’s alpha value corresponds to 0.921, indicating a very satisfactory level of construct reliability. The structure of the refined scale resulted in two factors, namely continuous improvement and customer satisfaction focus. Table 5.1 exhibits the standardized regression weights between each variable and its corresponding latent construct.

Table 5.1: CFA of ISM Code effectiveness

Factors	Standardized regression weight*
<p>Continuous improvement</p> <p>Employees continuously improve their work.</p> <p>The company develops and supports an organizational structure supporting continuous improvement.</p> <p>The company continuously monitors and improves its processes, procedures and services.</p> <p>The company continuously collects information for processes and service improvement.</p> <p>The company achieves measured-explicit quality goals.</p> <p>The company applies an effective plan for continuous quality improvement.</p>	<p>0.642</p> <p>0.868</p> <p>0.913</p> <p>0.724</p> <p>0.768</p> <p>0.776</p>
<p>Customer satisfaction focus</p> <p>Customer complaints constitute a major company priority.</p> <p>The company focuses on customer requirements.</p> <p>The company assures that its services meet customer requirements.</p>	<p>0.584</p> <p>0.644</p> <p>0.894</p>

*p<0.001

As Table 5.1 displays, all standardized regression weights are greater than 0.5 and statistically significant, confirming the convergent validity of the measurement model. The goodness of fit statistics, which are shown in Table 5.2, are highly satisfactory and thus signify a very good fit, while the standardized residual covariances are also below the acceptable limits of 2.5 (Hair et al., 2006). The chi-square/df ratio equals 2.216 which falls within the acceptable range of 0 – 5 (Tatoglu et al., 2016), while the GFI and CFI values are also very close to 1.

Table 5.2: Goodness of fit statistics for ISM Code effectiveness

	ISM Code effectiveness
Chi-square	50.976
df	23
p-value	0.001
Chi-square/df	2.216
GFI	0.944
AGFI	0.891
PGFI	0.483
NFI	0.955
TLI	0.960
CFI	0.974
PNFI	0.610
PCFI	0.623
RMSEA	0.078
AIC	94.976

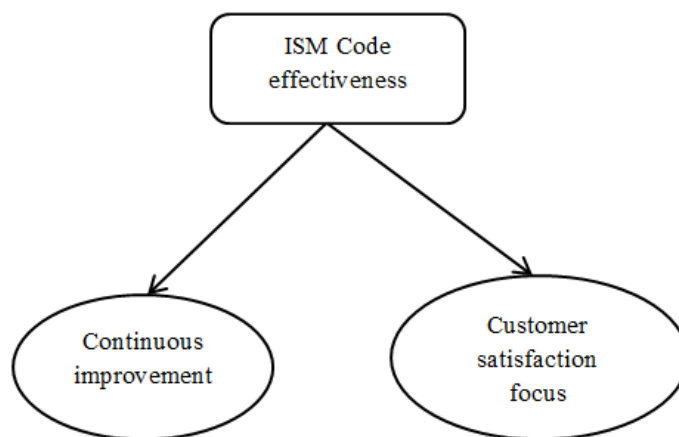
The CFA results reveal that the ISM Code effectiveness is described by two factors, namely “continuous improvement” and “customer satisfaction focus” (*partial support of Hypothesis 1*), contrary to the initial structure of ISO 9001 effectiveness, which is comprised of three distinct dimensions. It is obvious that in the case of shipping companies and after the CFA, the “prevention of nonconformities” dimension does not appear to be a constituent part of ISM Code effectiveness. However, this result needs to be interpreted with caution, since it is not implied that the importance of this specific dimension is unacknowledged, but may be attributed to the fact that the implementation of the ISM Code by all shipping companies is mandatory, contrary to the voluntary character of ISO adoption.

The specific design and implementation of procedures as well as the establishment of measures, which ensure that nonconformities to rules are investigated and analyzed by the company and the relevant classification societies, constitute a specific clause of the ISM Code that any shipping company must follow.

Moreover, the intended purposes of control execution and implementation of corrective actions are to verify that a shipping company is at any time ready to respond to emergency situations and hazards as well as to prevent their recurrence (Clauses 8 and 9 of the ISM Code). The “prevention of nonconformities” dimension of ISO 9001 effectiveness in service companies is replaced by the above-mentioned mandatory specificities of the ISM Code.

The two factors describe explicitly the principles of continuous improvement and customer satisfaction focus and represent the effective implementation of the ISM Code by the shipping companies. The collection of quality, processes, and service improvement information, the development of the company’s organizational structure and the application of effective plans are directed toward fostering a continuous improvement philosophy. Moreover, focusing on customer requirements, successfully responding to their specific demands, and executing all the company’s activities with the ultimate goal of enhancing customer satisfaction characterize the ISM Code effectiveness.

Figure 5.1: ISM Code effectiveness



5.3 Shipping company performance

CFA was employed using the Maximum Likelihood Estimation in order to confirm the structure of shipping company performance. The Cronbach’s alpha value equals 0.928, denoting a very satisfactory level of construct reliability. CFA resulted

in two factors of shipping company performance: service quality performance and customer satisfaction. Table 5.3 presents the standardized regression weights between each variable and its corresponding latent construct.

Table 5.3: CFA of shipping company performance

Factors	Standardized regression weight*
Service quality performance The conformance of the services to customer specifications. The on time service provision. The reliability of the services provided (the maintenance of the quality characteristics in a long period of time). The service quality of the company compared with its major competitors.	0.933
	0.908
	0.841
	0.725
Customer satisfaction Customer satisfaction from the services. Customer satisfaction from after sales services. Customer retention and loyalty.	0.934
	0.944
	0.865

*p<0.001

The results in Table 5.3 show that all standardized regression weights are greater than 0.5 and statistically significant, confirming the convergent validity of the measurement model, while Table 5.4 illustrates that the goodness of fit statistics are highly satisfactory and thus indicate a good fit. Moreover, the standardized residual covariances are also below the acceptable limits of 2.5 (Hair et al., 2006). The chi-square/df ratio equals 1.887 which falls within the acceptable range of 0 – 5 (Tatoglu et al., 2016), while the GFI and CFI values are also very close to 1.

Table 5.4: Goodness of fit statistics for shipping company performance

	Shipping company performance
Chi-square	22.639
df	12
p-value	0.031
Chi-square/df	1.887
GFI	0.969
AGFI	0.929
PGFI	0.415
NFI	0.982
TLI	0.985
CFI	0.992

PNFI	0.561
PCFI	0.567
RMSEA	0.067
AIC	54.639

The above findings reveal that shipping company performance can be conceptualized as consisting of two components, namely service quality performance and customer satisfaction. The service quality performance is characterized by a number of very important attributes especially when examining the context of the shipping industry. These attributes include the conformance of the services to customer specifications and the on time service provision both of which are considered extremely indicative of the successful operation of shipping services. Generally the service quality and the reliability of the services are also crucial elements of a shipping company's service quality performance. On the other hand, the features of customer satisfaction and loyalty are included in the second aspect of the performance construct; that of customer satisfaction.

5.4 The impact of ISM Code effectiveness on shipping company performance (Research Hypothesis 2)

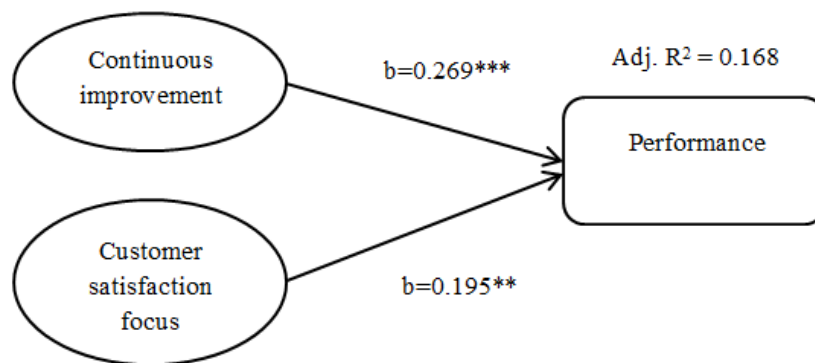
Regression analysis was utilized in order to assess the impact of ISM Code effectiveness on shipping company performance and to test the second hypothesis. The dependent variable is shipping company performance, as expressed by an aggregated measure after summing the two dimensions of service quality performance and customer satisfaction, while the summated scales of the two components of ISM Code effectiveness are used as independent variables. According to the results, which are exhibited in Table 5.5 and Figure 5.2, the regression is statistically significant (p-value = 0.000, F-value = 21.013, Adj. R^2 = 0.168), as well as the tolerance and VIF values are greater than 0.1 and less than 10 respectively (Hair et al., 2006), denoting the absence of multicollinearity. Estimating the regression model, the results show that shipping company performance is directly and positively affected by continuous improvement (p-value= 0.001 and b = 0.269) and customer satisfaction focus (p-value = 0.020 and b = 0.195).

Table 5.5: Regression analysis results for the ISM Code effectiveness – performance relationship

Dependent variable: Performance				
<i>Adj. R² = 0.168</i> <i>F-value = 21.013</i> <i>p-value = 0.000</i>	b	Sig.	Tolerance	VIF
Continuous improvement	0.269	0.001	0.608	1.644
Customer satisfaction focus	0.195	0.020	0.608	1.644

The results demonstrate that a shipping company’s performance can be directly improved by increasing ISM Code effectiveness, and *thus the second hypothesis (H2) is confirmed*. Secondly, the absolute values of the b coefficients indicate that the aspect of continuous improvement plays the most decisive role in enhancing a shipping company’s performance.

Figure 5.2: ISM Code effectiveness – performance relationship



5.5 The moderating role of ISO certification in the ISM Code effectiveness – performance relationship (Research Hypothesis 3)

In order to investigate potential moderating differences in the ISM Code effectiveness – performance relationship between ISO and non-ISO-certified shipping companies (Hypothesis 3), two different subsamples were employed. The first one contains all ISO certified companies, whereas the second one includes only those that are not ISO certified. It is again noted that all shipping companies are ISM certified by the relevant regulatory authorities. Two separate regression analyses were run for every subsample. Table 5.6 and Figures 5.3, 5.4 summarize the dependent and

independent variables, as well as the summary regression statistics for ISO and non-ISO certified shipping companies.

Table 5.6: ISO versus non-ISO certified shipping companies – Regression results

Dependent variable: Performance								
	ISO certified (n = 105)				Non-ISO certified (n = 92)			
	<i>Adj. R² = 0.283</i> <i>F-value = 21.562</i> <i>p-value = 0.000</i>				<i>Adj. R² = 0.086</i> <i>F-value = 5.279</i> <i>p-value = 0.007</i>			
	b	Sig.	Tolerance	VIF	b	Sig.	Tolerance	VIF
Continuous improvement	0.469	0.000	0.617	1.621	0.073	n.s.	0.616	1.623
Customer satisfaction focus	0.112	n.s.	0.617	1.621	0.276	0.034	0.616	1.623

n.s.: non-significant

Figure 5.3: ISO certified shipping companies (n=105)

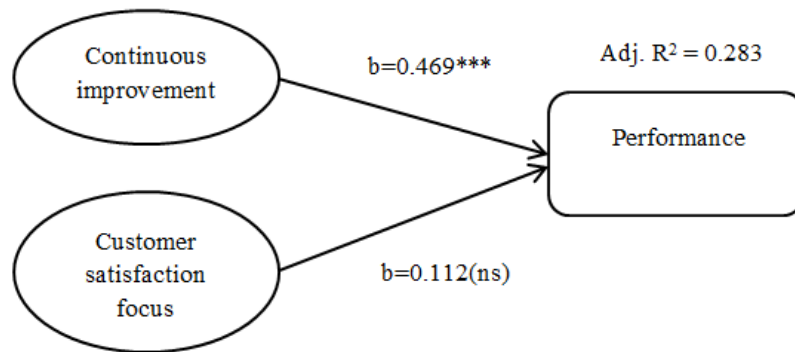


Figure 5.4: Non-ISO certified shipping companies (n=92)

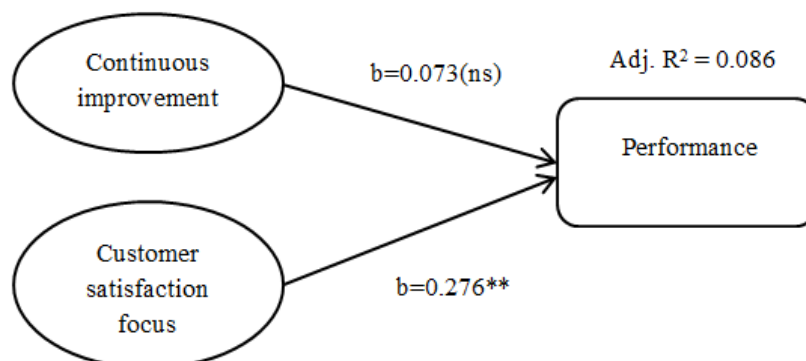


Table 5.6 is quite revealing in several ways. As far as the ISO certified shipping companies are concerned, the regression analysis resulted in a high value of

Adj. R^2 (0.283), demonstrating thus the high explanatory ability of the examined model. The values of the b coefficients show that ISM Code effectiveness contributes positively and significantly to performance increases, and that this can be achieved by focusing mainly on the continuous improvement dimension. Interestingly, if we now turn on examining the analysis results of non-ISO certified companies, it can be seen that a very low value of Adj. R^2 (0.086) was reported, indicating a weak or non-existing explanatory power of ISM Code effectiveness to company performance.

This may be appointed to a number of reasons. The first reason may be problems connected with the questionnaire itself, or the data collection. However, the results from reliability analysis confirm that the data stand as collected and lead us to reject this assumption. The second reason may be owed to the possibility of existence of a nonlinear relationship between the two dimensions of ISM Code effectiveness and company performance. Following this, additional statistical analyses were carried out, but no nonlinear (e.g. logarithmic, quadratic, exponential) relationship was revealed. Overall, the regression results in Tables 5.5 and 5.6 indicate that the ISM Code effectiveness explains performance well when examining the total sample of shipping companies as well as the ISO certified companies, but not the uncertified firms (*support of Hypothesis 3*).

The above findings can be interpreted in various ways. ISO standards certification and implementation constitute voluntary procedures that a shipping company has the discretion to follow in order to establish the existence of a sound quality management system. On the other hand, the ISM Code requires all shipping companies to fulfill certain regulatory requirements and implement strict safety policies, emphasizing thus its mandatory character. It seems that those shipping companies which have chosen to be engaged in maintaining and supporting the implementation of a quality management system based on ISO quality standards have also managed to internalize more efficiently all the obligatory specifications of the Code into their daily operations. Through quality certification, they have reaped all the benefits associated with the implementation of ISO quality standards and have shifted their management philosophy from simply adopting process-oriented safety approaches towards a broader and more effective safety management system supporting continuous improvement and creating a culture which targets customer

satisfaction. Thus, they have accomplished higher levels of effective implementation of the ISM Code, which subsequently leads to performance gains.

On the other hand, the ISM Code effectiveness – performance relationship in the case of non-ISO certified shipping companies was not revealed. A likely explanation is that these companies have adopted a more mechanistic and routine-driven way of action viewing the implementation of the ISM Code merely as an obligatory burden imposed to them. Hence, it may be that they have been unable to ensure correct application of process management techniques or have experienced a failure on behalf of the shore based personnel and crew to properly implement the companies’ safety management systems in practice, contrary to the quality-certified companies in which the ISO accreditation has resulted in continuously improving all company’s procedures and effectively serving the customer. Moreover, the majority of the companies, which are not certified according to ISO standards, belong to the smaller size categories, a fact that further strengthens our argument on the ineffectiveness of the Code to yield desired performance results. The number of ISO certified shipping companies that employ less than 7 vessels is 27, while this number equals 54 in the case of non-ISO certified companies (Table 5.7). It is possible that smaller, uncertified shipping companies are not able to systematize their daily operations according to the Code’s objectives and do not manage to exhibit performance increases through the Code’s effective implementation. This finding echoes other studies in the quality management literature, which claim that larger companies achieve greater benefits from ISO 9000 in terms of performance than smaller companies (Feng et al., 2008).

Table 5.7: Number of ships of ISO and non-ISO certified shipping companies

	ISO certified shipping companies	Non-ISO certified shipping companies
Number of ships		
1-3	8	25
4-7	19	29
8-12	17	16
13-20	18	10
21-35	22	6
>35	21	5

5.6 The structure of Total Quality Management practices in shipping companies (Research Hypothesis 4)

CFA was employed using the Maximum Likelihood Estimation in order to confirm the structure of the TQM construct. The Cronbach's alpha value equals 0.923, denoting a very satisfactory level of construct reliability. The structure of the refined scale resulted in three TQM dimension, namely top management commitment, employee quality management and employee knowledge and education (Figure 5.5). Table 5.8 presents the standardized regression weights between each variable and its corresponding latent construct.

Table 5.8: CFA of Total Quality Management

Factors		Standardized regression weight*
Top management commitment	The company sets quality objectives for managers and employees.	0.738
	Top management supports the quality improvement efforts by providing resources.	0.718
	Top management sets the quality issues on the agenda of the managers' meetings.	0.559
	Top management actively participates in quality improvement efforts.	0.619
Employee quality management	Employees take initiatives.	0.667
	Employees are evaluated.	0.604
	Employees who improve quality are awarded.	0.775
	Employees are motivated to improve their performance.	0.760
Employee knowledge and education	The employees have knowledge and know-how.	0.733
	The company's managers/employees are in close contact with customers.	0.661
	Educational subjects are absorbed by employees.	0.700

*p<0.001

As Table 5.8 illustrates, all standardized regression weights are greater than 0.5 and statistically significant, signifying the convergent validity of the measurement

model. The goodness of fit statistics, which are displayed in Table 5.9, are highly satisfactory and thus confirm the good measurement properties of the instrument, while the standardized residual covariances are also below the acceptable limits of 2.5 (Hair et al., 2006). The chi-square/df ratio equals 2.127 which falls within the acceptable range of 0 – 5 (Tatoglu et al., 2016), while the GFI and CFI values are also very close to 1.

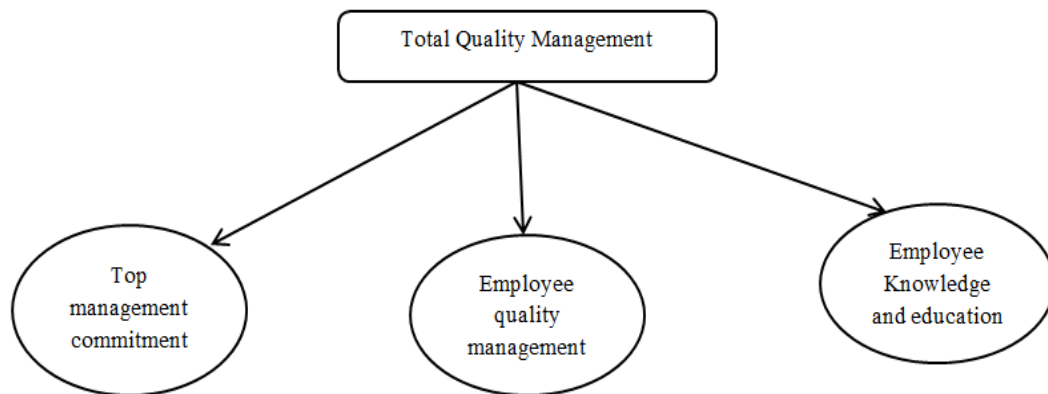
Table 5.9: Goodness of fit statistics for Total Quality Management

	Total Quality Management
Chi-square	87.198
df	41
p-value	0.000
Chi-square/df	2.127
GFI	0.931
AGFI	0.889
PGFI	0.578
NFI	0.896
TLI	0.921
CFI	0.941
PNFI	0.668
PCFI	0.701
RMSEA	0.075
AIC	137.198

The above findings indicate that TQM is composed of three distinct dimensions (*partial support of Hypothesis 4*). The first one (top management commitment) emphasizes the critical role of senior executives of shipping firms in developing a total quality philosophy inside their organizations, as well as their active participation and commitment to all quality improvement efforts. Moreover, top management should always and promptly provide resources and support that are absolutely necessary for the successful application of any quality initiative. On the other hand, the second dimension of TQM (employee quality management) focuses on the crucial role of the human capital. In shipping companies, employees should be encouraged to take initiatives and be motivated to constantly improve their performance. Apart from that, evaluation and awarding programs should be in place as they constitute an indispensable part of a TQM strategy. Last but not least, it is obvious that employee knowledge and education are integral components of the TQM philosophy. Thus, the third dimension of TQM incorporates this notion and signifies the essential presence of educational programs that assist employees in upgrading their knowledge and know – how.

It is somewhat surprising that the refined scale of TQM as resulted from CFA did not include the TQM dimensions of process management improvement and customer focus. However, it is not implied that the importance of these specific dimensions is underestimated. This finding may be explained by the fact that the two before mentioned factors are incorporated in the main philosophy of the ISM Code which is mandatory for all shipping companies. Specifically, the conduct of internal audits to prevent nonconformities in process and service design, the preclusion of mistakes during service operations, as well as the evaluation of critical processes are very similar to the primary objectives of the ISM Code (Pantouvakis and Psomas, 2016). Furthermore, the close contact with customers also belongs to the Code's philosophy and is a prerequisite of its successful implementation. Therefore, the absence of process management improvement and customer focus from the resulting TQM construct may be explained in this way.

Figure 5.5: Total Quality Management



5.7 The impact of Total quality management on shipping company performance (Research Hypothesis 5)

The influence of TQM on shipping company performance was examined through regression analysis. The dependent variable is shipping company performance, as expressed by an aggregated measure after summing the two dimensions of service quality performance and customer satisfaction, while the summated scales of the three dimensions of TQM (top management commitment, employee quality management, employee knowledge and education) are used as

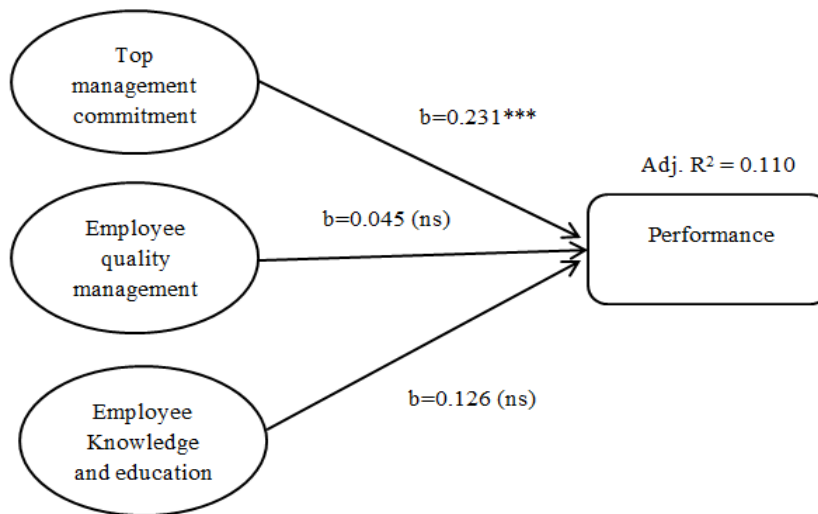
independent variables. Table 5.10 and Figure 5.6 present the regression analysis results. As it can be seen, the regression is statistically significant (p-value = 0.000, F-value = 9.131, Adj. R² = 0.110), as well as the tolerance and VIF values are greater than 0.1 and less than 10 respectively (Hair et al., 2006), signaling the absence of multicollinearity.

Table 5.10: Regression analysis results for the Total Quality Management – performance relationship

Dependent variable: Performance				
<i>Adj. R² = 0.110</i> <i>F-value = 9.131</i> <i>p-value = 0.000</i>	b	Sig.	Tolerance	VIF
Top management commitment	0.231	0.007	0.617	1.621
Employee quality management	0.045	n.s.	0.526	1.900
Employee knowledge and education	0.126	n.s.	0.522	1.914

n.s.: non-significant

Figure 5.6: TQM – performance relationship



The results in Table 5.10 show that shipping company performance is positively and significantly affected only by the TQM dimension of top management commitment (p-value = 0.007 and b = 0.231) (*partial of Hypothesis 5*). Both the commitment of senior managers and the effective leadership focused on disseminating a quality culture inside shipping organizations significantly contribute to the achievement of positive performance results.

5.8 The mediating role of ISM Code effectiveness in the relationship between top management commitment (TMC) and shipping company performance (Research Hypothesis 6)

The mediating role of the effective implementation of the ISM Code in the liaison between TMC and shipping company performance was examined following the three – step process proposed by Baron and Kenny (1986). According to Baron and Kenny (1986), in order to test for mediation, three separate regression analyses should be performed:

- In the first regression equation, the mediator (ISM Code effectiveness) is regressed on the independent variable (TMC).
- In the second regression equation, the dependent variable (shipping company performance) is regressed on the independent variable (TMC).
- In the third regression equation, the dependent variable (shipping company performance) is regressed on both the independent variable (TMC) and the mediator (ISM Code effectiveness).

In order for mediation to be established, the following conditions must be fulfilled (Baron and Kenny, 1986):

- In the first regression equation, the mediator (ISM Code effectiveness) must be affected by the independent variable (TMC).
- In the second regression equation, the dependent variable (shipping company performance) must be influenced by the independent variable (TMC).
- In the third regression equation, the mediator (ISM Code effectiveness) must affect the dependent variable (shipping company performance). If the independent variable (TMC) has no longer an effect on the dependent variable (shipping company performance), then full mediation is supported.

The summated scale of TMC is utilized as the independent variable. The effective implementation of the ISM Code acts as the mediating variable and it is described by the total summated scale of its two components, namely continuous improvement and customer satisfaction focus. Finally, the summation of the service quality performance and customer satisfaction forms the shipping company

performance (dependent variable). The correlation coefficients among the constructs of interest are shown in Table 5.11, while the results of the above described regression equations are presented in Tables 5.12, 5.13, 5.14.

Table 5.11: Correlations among TMC, ISM Code effectiveness and shipping company performance

	TMC	ISM Code effectiveness	Performance
TMC	1	0.656	0.327
ISM Code effectiveness	0.656	1	0.419
Performance	0.327	0.419	1

All correlations are significant at the 0.01 level.

Table 5.12: First regression equation of the mediation analysis

Dependent variable: ISM Code effectiveness		
<i>Adj. R² = 0.427</i> <i>F-value = 148.585</i> <i>p-value = 0.000</i>	b	Sig.
TMC	0.656	0.000

Table 5.13: Second regression equation of the mediation analysis

Dependent variable: Performance		
<i>Adj. R² = 0.103</i> <i>F-value = 23.658</i> <i>p-value = 0.000</i>	b	Sig.
TMC	0.327	0.000

Table 5.14: Third regression equation of the mediation analysis

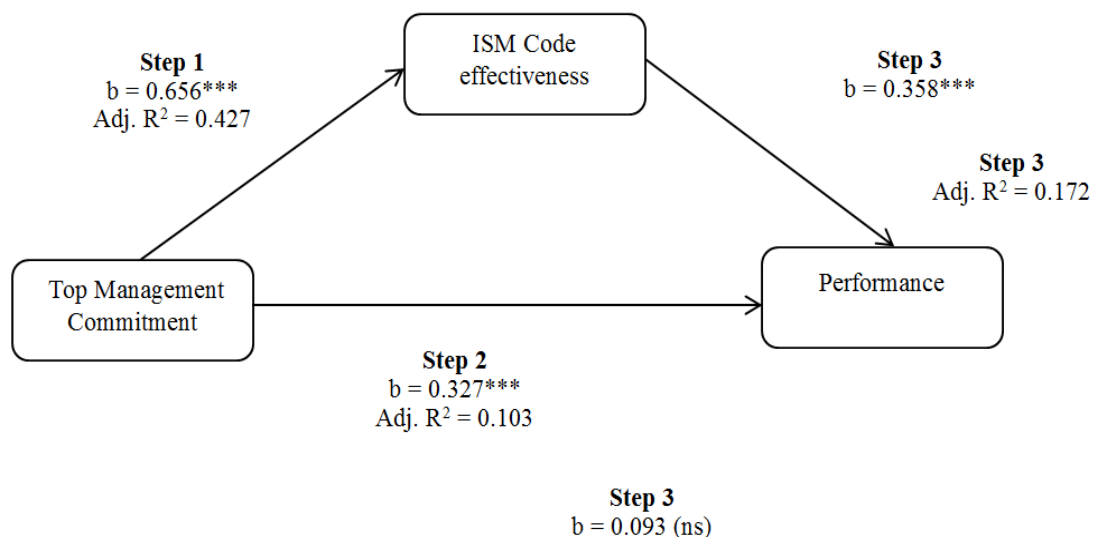
Dependent variable: Performance				
<i>Adj. R² = 0.172</i> <i>F-value = 21.563</i> <i>p-value = 0.000</i>	b	Sig.	Tolerance	VIF
TMC	0.093	n.s.	0.570	1.754
ISM Code effectiveness	0.358	0.000	0.570	1.754

n.s.: non-significant

The results in Table 5.11 reveal that there are statistically significant correlations between the three examined constructs, so there is justification to proceed with testing for mediation analysis. It is apparent that after estimating the three regression models, the full mediating role of ISM Code effectiveness in the relationship between TMC and shipping company performance is largely revealed, *providing support for hypothesis 6* (Figure 5.7). Specifically, all three conditions of Baron and Kenny (1986) hold true:

- In the first regression equation (Table 5.12), ISM Code effectiveness is affected by TMC (Adj. $R^2 = 0.427$ and $b = 0.656$).
- In the second regression equation (Table 5.13), TMC has an impact on shipping company performance (Adj. $R^2 = 0.103$, $b = 0.327$).
- In the third regression equation, ISM Code effectiveness affects shipping company performance in a positive and significant way ($b = 0.358$), while TMC exerts no effect on the dependent variable (shipping company performance). Tolerance and VIF values are within accepted thresholds. As a result, full mediation is supported.

Figure 5.7: TMC – ISM Code effectiveness – performance relationship



The results of the mediation analysis indicate that top management commitment lays the foundation for the effective implementation of the ISM Code as well as the proper and successful execution of its mandatory requirements. The ISM Code effectiveness in turn helps to improve shipping company performance in terms of service quality and customer satisfaction. The strong commitment of senior executives in top managerial positions regarding the cultivation of a management culture based on quality principles is an essential prerequisite to achieve not only high levels of compliance to the obligatory ISM Code but also to effectively correspond to its intended purposes and ultimately to conform to its quality and safety specifications in an efficient and prosperous manner. The successful implementation of the ISM Code can then act as a catalyst for maritime organizations in experiencing high

customer satisfaction or augmented service quality results, such as reliable and timely shipping services; or stated differently achieve superior performance outcomes. Findings demonstrate that top management commitment supports the ability of firms to achieve high levels of ISM Code effectiveness to positively contribute to a firm's performance advancements. It seems that the increases in shipping company performance are not a direct consequence of TMC; rather it is the role of ISM Code effectiveness that transfers the influence of top management commitment to performance or that bridges the relationship between top management commitment and performance.

5.9 Dimensions of talent philosophies as perceived by the managers in shipping companies (Research Hypothesis 7)

In order to reveal the underlying dimensions of talent philosophies, EFA was applied on its 11 items (8 items measure the innate/ developable and 3 items measure the exclusive/ inclusive talent philosophies) using the method of Principal Component Analysis (PCA) to yield the factors and a varimax rotation to improve the interpretation. The value of Cronbach's alpha is 0.761, which suggests good reliability according to Hair et al. (2006).

After the deletion of one item that exhibited cross loading behavior, the remaining ten items collapsed in two distinct factors with an eigenvalue greater than one, which explain the 50.421% of the total variance (Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy = 0.781). Table 5.15 shows that all factor loadings are >0.50 (convergent validity is thus revealed), which are generally considered necessary for practical significance (Hair et al., 2006). Moreover, loadings of >0.40 are considered statistically significant for sample sizes of around 200 (Hair *et al.*, 2006).

Table 5.15: Exploratory Factor Analysis of talent philosophies

<i>KMO measure of sampling adequacy</i>	0.781	
<i>Bartlett's Test of Sphericity Approx. Chi-Square</i>	481.658	
<i>df</i>	45	
<i>Sig.</i>	0.000	
<i>Total variance explained</i>	50.421%	
	Factor 1 – Innate/	Factor 2 – Exclusive/

	Developable talent philosophy	Inclusive talent philosophy
No matter what kind of a person someone is, they can always change very much. (r*)	0.759	
People can substantially change the kind of person they are. (r*)	0.752	
Everyone, no matter who they are can significantly change their basic characteristics. (r*)	0.732	
People can change even their most basic qualities. (r*)	0.696	
The kind of person someone is, is something very basic about them and it can't be changed very much.	0.672	
Everyone is a certain kind of person and there is not much that can be done to really change that.	0.575	
People can do things differently, but the important parts of who they are can't really be changed.	0.502	
A talent is a special individual that can make a significant difference to a company.		0.758
A talent is not something everyone possesses, but just the lucky few.		0.688
It is a logical choice that developmental assignments and resources are only invested in the most promising talent.		0.643
r*: reversed-scored		

Moreover, in order to validate the EFA results and to confirm and generalize the two-dimensional structure of talent philosophies as perceived by the managers (Hair et al. 2006), confirmatory factor analysis (CFA) was further employed using the maximum likelihood estimation and an acceptable fit was revealed as shown in Table 5.16 (the standardized residual covariances are also below 2.5).

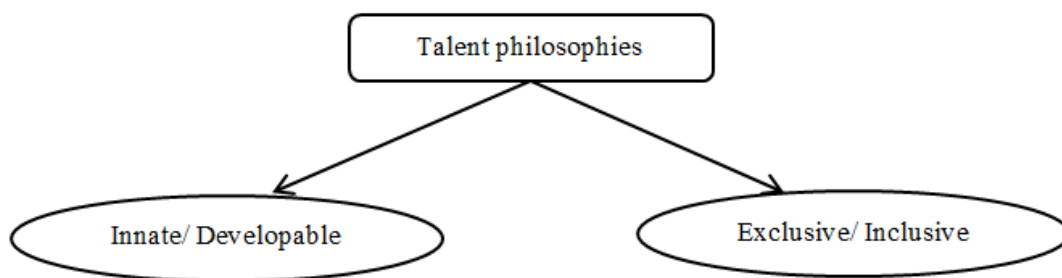
Table 5.16: Goodness of fit statistics for talent philosophies

	Talent philosophies as perceived by the managers
Chi-square	62.306
df	32
p-value	0.001
Chi-square/df	1.947
GFI	0.940
AGFI	0.897
PGFI	0.547
NFI	0.873
TLI	0.905
CFI	0.932

PNFI	0.621
PCFI	0.663
RMSEA	0.069
AIC	108.306

The results in Table 5.15 reveal that talent philosophies are composed of two dimensions, namely the Innate/ Developable approach and the Exclusive/ Inclusive approach (*support of Hypothesis 7*) (Figure 5.8). In the first case, certain items, such as “The kind of person someone is, is something very basic about them and it can’t be changed very much.” imply a fixed or entity belief about the human nature (Heslin et al., 2005) and subsequently about the human talent. On the other hand, other items, such as “People can change even their most basic qualities.” (which have been reversed coded in order to form a single scale) express the notion that talent is something that can be taught and learned during an individual’s lifetime. As regards the second derived dimension, it is obvious that certain statements, such as “A talent is not something everyone possesses, but just the lucky few.” (Dries et al., 2014) uncover the strong belief that only a few people inside a business organization should be considered talented, strongly departing from the notion that all people are gifted and thus should be treated like this in their working environment.

Figure 5.8: Talent philosophies (as perceived by managers)



5.10 The moderating role of talent philosophies (as perceived by the managers) in the top management commitment – ISM Code effectiveness – performance relationship (hypotheses 8 and 9)

In order to examine whether there is a difference in the nature of the TMC – ISM Code effectiveness – performance association after taking into account the different talent philosophies, two different sets of groups were developed. First of all, the summated scale of the Innate/ Developable philosophy (the first factor as extracted by the EFA) was calculated and after excluding the median value two distinct subgroups were formulated. The first subgroup represents the more developable talent philosophy, whereas the second subgroup incorporates the more innate perceptions about talent. Similarly, the summated scale of the Exclusive/ Inclusive philosophy (the second factor as extracted by the EFA) was created and two separate subgroups were also developed after omitting the scale's median value. As a result, the first subgroup corresponds to the more inclusive philosophy and contrarily the second subgroup represents the more exclusive mindset about human talent. The three regression analyses for testing mediation (Baron and Kenny, 1986) were performed for each of the four subgroups described above (Sonnenberg et al., 2014). The results when examining the innate/ developable philosophy are presented in Table 5.17 and Figures 5.9, 5.10, while the corresponding results for the exclusive/ inclusive talent philosophy are shown in Table 5.18 and Figures 5.11, 5.12.

As far as the results of the innate/ developable talent philosophy are concerned (Table 5.17), it is apparent that the fully mediating role of ISM Code effectiveness in the TMC – performance link is primarily evident in the case where the managers of the shipping companies hold a developable perception on talent (Figure 5.9). Specifically, TMC was found to influence ISM Code effectiveness in the first equation ($b = 0.632$, $\text{Adj. } R^2 = 0.393$), while TMC impacts shipping company performance in the second equation ($b = 0.408$, $\text{Adj. } R^2 = 0.158$). Finally, when both TMC and ISM Code effectiveness enter the equation, it was revealed that only the latter has a significant effect on performance ($b = 0.353$, $\text{Adj. } R^2 = 0.225$), which confirms the fully mediating role of ISM Code effectiveness in the TMC – performance relationship when managers perceive human talent as being developable.

It is noted that in the third regression equation, multicollinearity is not present since the tolerance and VIF values are 0.601 and 1.665 respectively.

If we now turn on the regression results in the case of the innate talent philosophy (Table 5.17, Figure 5.10), it was shown that TMC has a significant impact on ISM Code effectiveness ($b = 0.697$, $\text{Adj. } R^2 = 0.480$), but the value of $\text{Adj. } R^2$ is very low ($\text{Adj. } R^2 = 0.055$) when TMC is regressed on company performance, indicating the absence of a strong relationship between the two constructs. However, when both ISM Code effectiveness and TMC are regarded as independent variables, the regression results reveal that only ISM Code effectiveness positively and significantly exerts an effect on shipping company performance ($b = 0.377$, $\text{Adj. } R^2 = 0.118$, tolerance = 0.514, VIF = 1.945). Since there are variations in the results of the three regression equations between the two subgroups, it becomes evident that the different perceptions of managers regarding the innate/ development nature of human talent (or in other words their different approaches to talent management) alter the nature of the TMC – ISM Code – performance relationship (*support of Hypothesis 8*).

Table 5.17: Innate/ Developable talent philosophy

First regression equation of the mediation analysis						
Dependent variable: ISM Code effectiveness						
	Developable (n=98)			Innate (n=86)		
	<i>Adj. R² = 0.393</i> <i>F-value = 63.835</i> <i>p-value = 0.000</i>	b	Sig.	<i>Adj. R² = 0.480</i> <i>F-value = 79.345</i> <i>p-value = 0.000</i>	b	Sig.
TMC		0.632	0.000		0.697	0.000
Second regression equation of the mediation analysis						
Dependent variable: Performance						
	Developable (n=98)			Innate (n=86)		
	<i>Adj. R² = 0.158</i> <i>F-value = 19.164</i> <i>p-value = 0.000</i>	b	Sig.	<i>Adj. R² = 0.055</i> <i>F-value = 5.906</i> <i>p-value = 0.017</i>	b	Sig.
TMC		0.408	0.000		0.256	0.017
Third regression equation of the mediation analysis						
Dependent variable: Performance						
	Developable (n=98)			Innate (n=86)		
	<i>Adj. R² = 0.225</i> <i>F-value = 15.098</i> <i>p-value = 0.000</i>	b	Sig.	<i>Adj. R² = 0.118</i> <i>F-value = 6.683</i> <i>p-value = 0.002</i>	b	Sig.
TMC		0.185	n.s.		-0.006	n.s.
ISM Code effectiveness		0.353	0.003		0.377	0.010

n.s.: non-significant

Figure 5.9: Relationships when perceiving the developable talent philosophy (n=98)

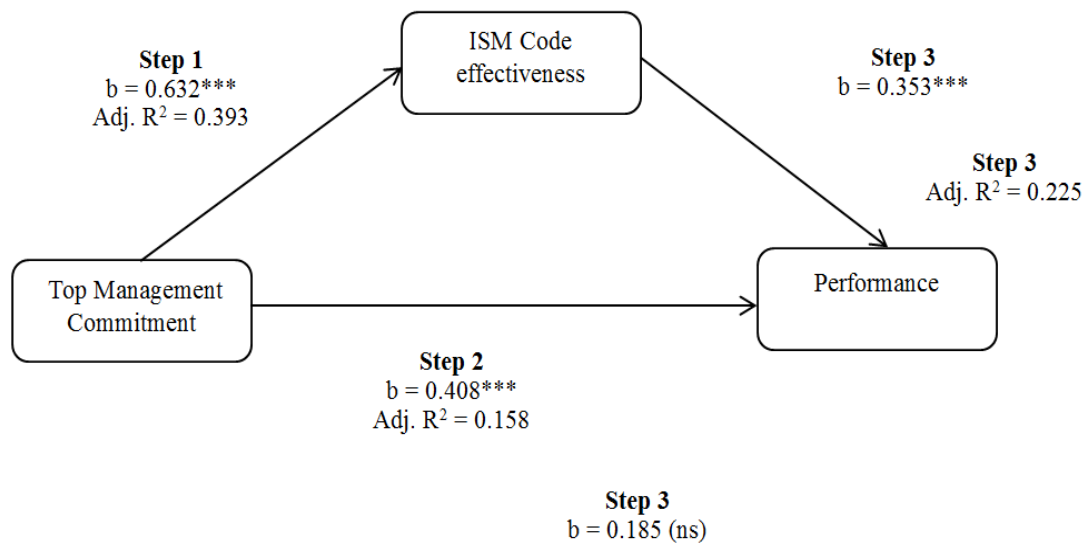
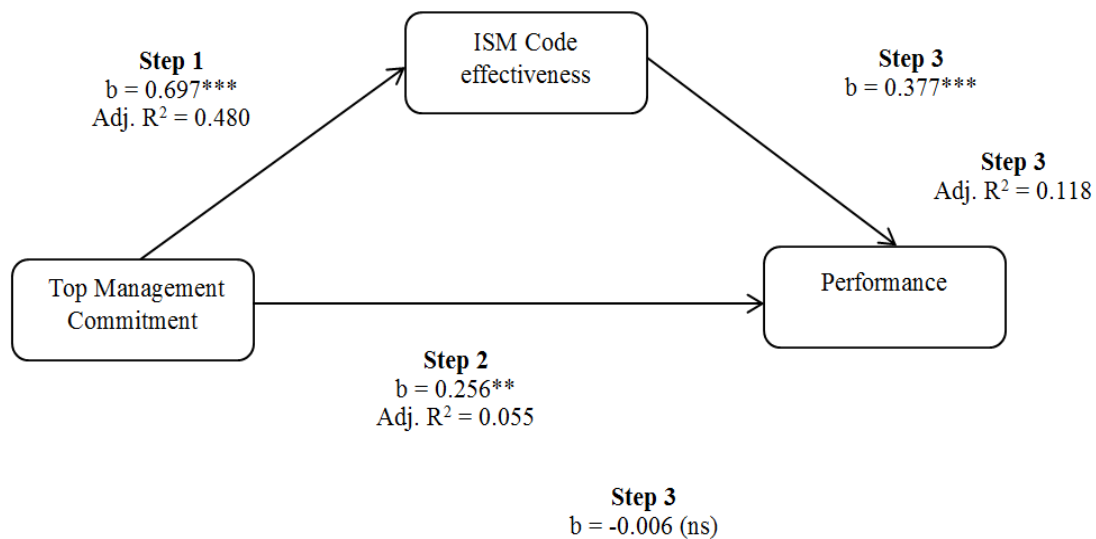


Figure 5.10: Relationships when perceiving the innate talent philosophy (n=86)



The above findings reveal that in order for quality and safety management systems to be successfully implemented in the shipping industry and to yield superior performance outcomes, the key is to realize that the human talent is something that can be developed and cultivated during a person's lifetime. The focus of managers' attention should be on providing constant development of the human capital, strengthening its unique skills and abilities through certain programs, investing in training initiatives and boosting their employees' potential for building career – specific advancement opportunities. These approaches should be a constant concern

of top management, while the ISM Code also emphasizes the adaptation of human capital's potential to the specific objectives of a shipping organization as well as employees' knowledge accumulation, education and training. When shipping executives adopt the developable or acquired talent philosophy, they believe that their employees' latent talents can grow and be developed through training, personal effort, individual development plans, task assignments, coaching, mentoring and undertaking challenging assignments (Meyers et al., 2013). This perception will create the appropriate environment in order to successfully direct top management's efforts and commitment to undertake quality projects and through the capability of effectively implementing the mandatory requirements of the ISM Code, the ultimate aim of improving a shipping company's performance will be achieved.

On the other hand, it seems that the mediating role of ISM Code effectiveness in the relationship between TMC and performance is not obvious in the case in which shipping managers hold an innate mindset about human talent. In this case, their innate talent philosophy is characterized by the notion that talent is strictly genetically determined and stable over time and thus managers' emphasis should not be on developing their workforce but on identifying and recruiting talented people. Quality and safety management systems, such as the ISM Code, may not be applied successfully when natural talents are believed to not be developed but rather to be fixed. In the shipping industry, in which the process – oriented logic largely dominates the execution of operations, the implementation of a mechanism which leads TMC to performance through ISM Code effectiveness may fail to produce the desirable outcomes, when managers perceive that talented people do not have to pursue developmental opportunities, but are who they are (Dries et al., 2014).

Table 5.18 and Figures 5.11, 5.12 present the regression analysis results, which were conducted for the two subgroups formed on the basis of the inclusivity or exclusivity of the human talent. With respect to the inclusive perception on human talent (Figure 5.11), it seems that TMC positively and significantly leads to the effective implementation of the ISM Code ($b = 0.708$, $\text{Adj. } R^2 = 0.496$) and that TMC also contributes to performance increases ($b = 0.422$, $\text{Adj. } R^2 = 0.169$). Moreover, the results from the third regression equation support that only ISM Code effectiveness positively influences shipping company performance ($b = 0.402$), whereas the impact

of TMC is not significant. Tolerance (0.499) and VIF (2.005) values lie between the accepted limits (Hair et al., 2006). As a consequence, it can be concluded that ISM Code effectiveness mediates the relationship between TMC and performance when managers adopt then inclusive talent philosophy.

However, this situation is quite different when the regression results for the second subgroup are analyzed (Figure 5.12). On the one hand, it was found that TMC exerts a strong influence on ISM Code effectiveness ($b = 0.603$, $Adj. R^2 = 0.355$), but interestingly no strong or significant relationships were observed in the second and third regression equations (Table 5.18). Specifically, the regression results of the relationship between TMC and performance reported a rather low value of $Adj. R^2$ (0.072), while neither the betas of TMC nor of ISM Code effectiveness were statistically significant at the 0.05 level in the third regression equation (tolerance = 0.637, $VIF = 1.570$). Overall, these results differ from those obtained when the first subgroup (inclusive talent philosophy) was taken into account (*support of Hypothesis 9*) and indicate the absence of mediating role of ISM Code effectiveness in the TMC – performance relationship for the second subgroup of respondents.

Table 5.18: Exclusive/ Inclusive talent philosophy

First regression equation of the mediation analysis						
Dependent variable: ISM Code effectiveness						
	Inclusive (n=93)			Exclusive (n=84)		
	<i>Adj. R² = 0.496</i> <i>F-value = 91.489</i> <i>p-value = 0.000</i>	b	Sig.	<i>Adj. R² = 0.355</i> <i>F-value = 46.749</i> <i>p-value = 0.000</i>	b	Sig.
TMC		0.708	0.000		0.603	0.000
Second regression equation of the mediation analysis						
Dependent variable: Performance						
	Inclusive (n=93)			Exclusive (n=84)		
	<i>Adj. R² = 0.169</i> <i>F-value = 19.699</i> <i>p-value = 0.000</i>	b	Sig.	<i>Adj. R² = 0.072</i> <i>F-value = 7.479</i> <i>p-value = 0.008</i>	b	Sig.
TMC		0.422	0.000		0.289	0.008
Third regression equation of the mediation analysis						
Dependent variable: Performance						
	Inclusive (n=93)			Exclusive (n=84)		
	<i>Adj. R² = 0.242</i> <i>F-value = 15.684</i> <i>p-value = 0.000</i>	b	Sig.	<i>Adj. R² = 0.104</i> <i>F-value = 5.836</i> <i>p-value = 0.004</i>	b	Sig.
TMC		0.137	n.s.		0.134	n.s.
ISM Code effectiveness		0.402	0.002		0.258	0.051

n.s.: non-significant

Figure 5.11: Relationships when perceiving the inclusive talent philosophy (n=93)

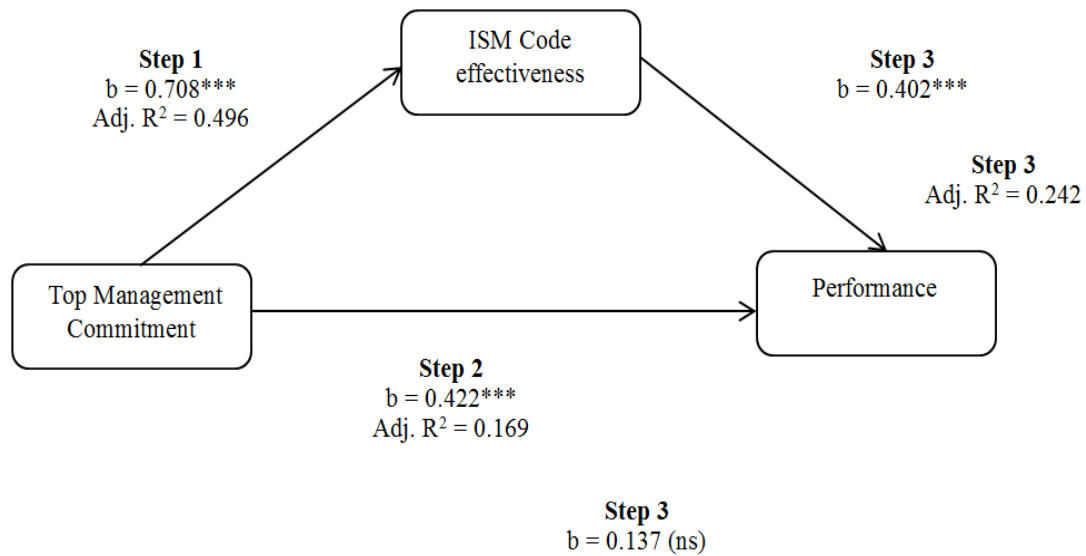
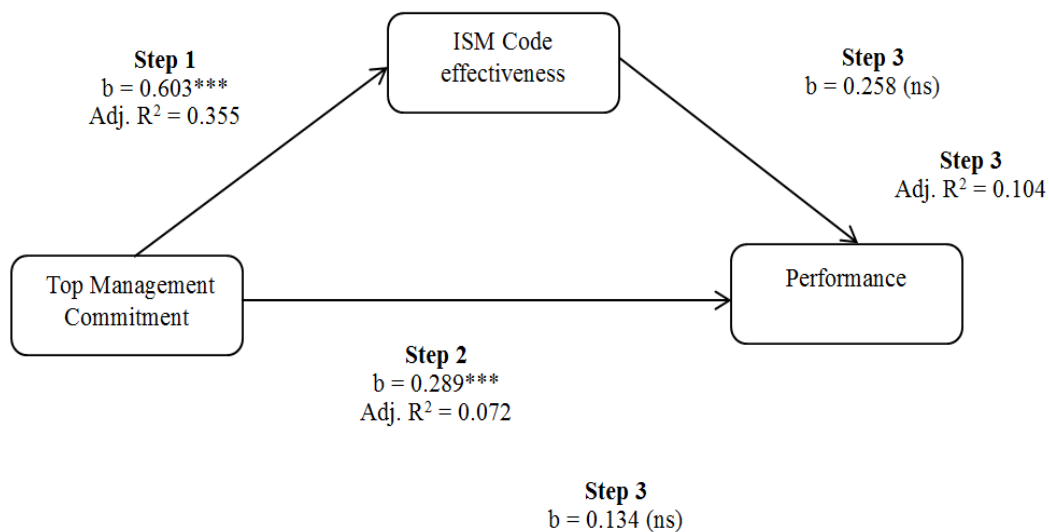


Figure 5.12: Relationships when perceiving the exclusive talent philosophy (n=84)



The above findings uncover the fully mediating role of ISM Code effectiveness in the association among TMC and performance when managers adopt a more inclusive talent philosophy. It is obvious that the strong commitment of top executives in executing quality and safety management programs, as well as the effective response of a shipping company to the ISM Code's specificities, are linked with positive performance outcomes when all employees of a shipping company, irrespective of their position in the company or their field of expertise, are treated as

possessing unique capabilities or talents that can contribute to the successful continuance of shipping business operations. In this case, strengthening the focus and commitment of the leadership to the cultivation of a quality culture can successfully result in enhancing organizational performance outcomes through the effective implementation of the ISM Code due to the fact that everyone is given the opportunity to show his/ her potential and everyone's talent is identified and deployed in the suitable roles inside a maritime firm (Swailes et al., 2014). When managers follow an inclusive talent philosophy, they are able to diffuse a positive belief among their employees, i.e. that each of them is regarded as high – performer, high – valuable or talented, and in turn they manage to deploy them in the right positions inside an organization that will help them achieve the best of themselves (Meyers et al., 2013). Under these circumstances, the effective implementation of quality and safety management systems is facilitated and performance benefits are thus realized, especially in service companies where all business operations are centered around all the people employed so the inclusive philosophy (or approach to talent management) may be more suitable (Gallardo-Gallardo et al., 2013).

However, the role of ISM Code effectiveness as a mediator in the examined relationship is not evident when managers embrace the exclusive perception on human talent. When it is assumed that talent is something rare that only few people possess and that these talented people constitute a small percentage of the total human capital of a shipping company, top management commitment cannot lead to positive performance returns. This finding may be attributed to the fact that the segmentation of the workforce in two groups, namely talented and not talented, – as the exclusive philosophy entails – possibly results in negative consequences that may explain why the strong commitment of top managers in maritime organizations does not lead to performance improvements through the effective implementation of the ISM Code. In their comprehensive study of the meaning of “talent” in the context of business organizations, Gallardo-Gallardo et al. (2013) conducted, among other things, a synthesis of the main critiques of the exclusive philosophy. The authors mentioned that considering only a small number of employees as talented may harm organizational morale and cause negative feelings, such as dissatisfaction, indignation or resentment. This situation hinders company – wide personal development, teamwork and cooperation (Pfeffer, 2001, Gallardo-Gallardo et al., 2013) and may

undermine management initiatives which in general require employee involvement and commitment to quality.

Table 5.19 summarizes the results of the examined hypotheses.

Table 5.19: Results of the Hypotheses under examination	Result
Research hypothesis 1 (H1): ISM Code effectiveness can be described by the three principles underlying ISO 9001 effectiveness (continuous improvement, customer satisfaction focus and prevention of nonconformities).	Partially Supported
Research hypothesis 2 (H2): ISM Code effectiveness explains well shipping company performance.	Supported
Research hypothesis 3 (H3): The ISM Code effectiveness – performance relationship is moderated by ISO certification or in other words ISO-certified shipping companies perform differently than their non-ISO-certified competitors.	Supported
Research hypothesis 4 (H4): The structure of the TQM practices implemented by the shipping companies includes top management commitment, process management improvement, employee quality management, customer focus, employee knowledge and education.	Partially supported
Research hypothesis 5 (H5): TQM has an impact on shipping company performance.	Partially supported
Research hypothesis 6 (H6): ISM Code effectiveness mediates the relationship between top management commitment and shipping company performance.	Supported
Research hypothesis 7 (H7): Talent philosophies (as perceived by the managers) constitute a two – dimensional construct reflecting the innate/ developable and the exclusive/ inclusive perceptions on talent.	Supported
Research hypothesis 8 (H8): Talent philosophies as perceived by the managers regarding the innate or developable distinction of talent moderate the TMC – ISM Code effectiveness – performance relationship.	Supported
Research hypothesis 9 (H9): Talent philosophies as perceived by the managers regarding the exclusive or inclusive distinction of talent moderate the TMC – ISM Code effectiveness – performance relationship.	Supported

Chapter 6. Conclusions

Chapter 6 summarizes the main conclusions of the thesis, presents the managerial implications and concludes with the limitations and suggestions for future research.

A shipping company's ability to survive in the current fast changing business environment relies to a great extent on fostering an "effective quality and safety management philosophy" as well as developing "excellent human capital". Specifically, the key challenges, that modern maritime organizations face, lie in the provision of high quality shipping services, as well as in the effective implementation of quality management systems, in order to obtain significant performance outcomes. The way to achieve this objective is to place a great emphasis on a highly competent or "talented" human resource pool.

One of the most significant contributions of the present thesis was the empirical assessment of the applicability of the novel talent philosophies as perceived by the managers in the context of the shipping industry. The findings added further evidence to the rather limited amount of empirical research on talent – related issues, since the main dimensions of talent philosophies were identified, while their role in the effective implementation of quality management systems was also evaluated. All in all, the current thesis attempted to analyze a number of very crucial topics addressed to the maritime industry, such as the effective implementation of quality management systems (ISO 9000 standards, ISM Code, TQM), their links to organizational outcomes, as well as the evaluation of the role of the human talent.

The first purpose of the current thesis was to evaluate the effective implementation of the ISM Code and to determine the main dimensions that may describe it. The findings revealed that the ISM Code effectiveness is characterized by two distinct dimensions, namely continuous improvement and customer satisfaction focus. This result broadly emphasizes the dissemination of a continuous improvement culture in all organizational departments and the focus on customer satisfaction principles in order to effectively respond to the ISM Code's mandatory requirements. This thesis also set out to assess the impact of the ISM Code effectiveness on shipping company performance and to differentiate between shipping firms that

received an ISO certification. The results showed that a shipping company's performance can be directly improved by pursuing the effective employment of the ISM Code's clauses and especially by seeking continuous improvement opportunities. However, this relationship is primarily evident in the case of the ISO certified shipping companies, broadly uncovering the potential benefits that may arise from the application of other (except from the ISM Code) standardized quality management systems inside maritime firms.

This thesis also attempted to confirm the applicability of the TQM concept in the shipping industry and to investigate the degree to which it explains shipping company performance. The results lend further credence to the view that the TQM philosophy can be successfully diffused inside maritime organizations, since its dimensions of top management commitment, employee quality management and employee knowledge and education were found to be dominant constituents of the TQM constructs. However, only the TQM factor of top management commitment was found to significantly contribute to shipping company performance.

Furthermore, *an objective of the current thesis was to analyze how top managers' commitment to quality initiatives and the effective implementation of quality and safety management systems, such as the ISM Code, form synergies in order to jointly contribute to improvements in shipping company performance.* This thesis tested and found corroborating evidence for the fully mediating role of ISM Code effectiveness in the relationship between top management commitment and firm performance. Top management commitment to quality requires shipping firms to effectively implement the ISM Code, which in turn manifests itself in performance increases. Maritime organizations whose senior management teams are dedicated to promote quality improvement initiatives and consider the quality issues as a top priority in their decision – making process tend to emphasize the effective management of rules/ procedures/ documentation of ISM Code which in turn results in higher performance in terms of customer satisfaction and increased service quality performance.

A further aim of the present thesis was *to evaluate the applicability of the main talent philosophies encountered in the literature in the context of shipping companies.* According to the findings, the two dominant talent philosophies as

perceived by the managers reflect on the one hand the innate or developable perception on talent and on the other hand, the exclusive or inclusive talent philosophy. These two notions are congruent with the main tensions in the talent management literature, since they specifically address the debates on the stability (innate philosophy) or malleability (developable philosophy) of human talent as well as they deal with the contention regarding the percentage of talented employees inside an organization; are only a few employees talented (exclusive philosophy) or does everyone possess talents (inclusive philosophy)?







Finally, *the current thesis intended to investigate how the above mentioned different talent philosophies as perceived by the managers may condition the way top management commitment and ISM Code effectiveness impact shipping company performance*. The empirical findings largely enlightened how managers' different perceptions regarding talent philosophies determine the success or failure of quality management efforts to yield the desirable results. This finding also implies that higher levels of ISM Code effectiveness, spurred by a strong commitment to quality on behalf of the executives on top managerial positions, develops into improved organizational outcomes when managers espouse the developable and inclusive talent philosophy. Conversely, adopting the innate and exclusive perceptions is not beneficial for shipping companies, since the effective implementation of the ISM Code, as induced by top management commitment, does not lead to high performance.

6.1 Managerial Implications

The findings of the current thesis also provide a number of useful implications at a managerial level. First of all, the findings represent a clear business case for applying quality principles and pursuing the effective implementation of quality management systems inside shipping companies. Managers in maritime organizations should focus not only on mechanistically following the imposed rules and regulations; they should be committed at fostering a quality culture as well as they should constantly target at achieving the true effectiveness of the implemented quality management systems. The extent to which a shipping organization is able to reach these objectives will determine its performance in terms of improved service quality output and increased customer satisfaction.

Most importantly, the findings provide valuable insights to the managers of shipping companies with regard to recognizing, using and developing the unique talents of their employees. In practice, whatever the size, field of operations or type of ships of maritime companies, it is recommended to the managers firstly to identify the unique, special competencies and talents of each individual employee, secondly to deploy their employees in the right organizational positions in which the latter can use their talents in order to successfully execute the company’s management plans and last but not least to promote coaching and mentoring programs and to invest in development and training activities in order to advance the skills and talents of their entire workforce. Bearing in mind that in the case of shipping companies the sole reliance on the natural and inherent talents of an elite subset of the working population does not guarantee the success of quality management systems even if the company’s executives are highly committed to quality, managers should aim at developing the special skills of all employees as this attitude is necessary for accomplishing quality management projects. Having fact – based understanding into the role of talented employees is crucial if managers are to optimize the benefits from effectively implementing quality management systems. The use of this thesis’ findings is proposed in order to improve the decision – making in the area of quality management. A summary of the above described managerial implications are also presented below.

Table 6.1: Managerial implications

Focus of managers on	TOP MANAGEMENT COMMITMENT TO QUALITY	ISM CODE EFFECTIVENESS	PERFORMANCE
ALL EMPLOYEES	High 	High 	High
SUBSET OF EMPLOYEES	High 	High	
DEVELOPING TALENTS	High 	High 	High
IDENTIFYING NATURAL TALENTS	High 	High	

6.2 Limitations and Suggestions for future research

A couple of limitations to this research should be acknowledged. First of all, the research was conducted only in the Greek context and responses were collected from respondents of the Greek nationality. Thus, taking responses from managers of different nationalities will be a valuable future research direction, since there are culture – specific variations in the meaning of “talent” (Tansley, 2011). An additional limitation is that responses were mainly administered to the director of the Quality and Safety department, whose view may not be representative of what is happening in the entire shipping organization. Future studies could also survey individual employees or people in managerial positions of various departments and compare the results.

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Appendix A: t – test for the mean responses between the two time periods of data collection

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
The kind of person someone is, is something very basic about them and it can't be changed very much.	Equal variances assumed	3,200	,075	-1,772	197	,078	-,367	,207	-,776	,041
	Equal variances not assumed			-1,802	167,399	,073	-,367	,204	-,769	,035
No matter what kind of a person someone is, they can always change very much. (r)	Equal variances assumed	,092	,762	-,608	197	,544	-,129	,212	-,548	,290
	Equal variances not assumed			-,611	161,406	,542	-,129	,211	-,546	,288
Everyone is a certain kind of person and there is not much that can be done to really change that.	Equal variances assumed	,011	,915	-,586	197	,558	-,127	,217	-,555	,300
	Equal variances not assumed			-,590	162,382	,556	-,127	,215	-,552	,298
As much as I hate to admit it, you can't teach	Equal variances assumed	2,011	,158	-1,663	197	,098	-,401	,241	-,876	,074

an old dog new tricks. People can't really change their deepest attributes.	Equal variances not assumed			-1,688	166,586	,093	-,401	,237	-,869	,068
Everyone, no matter who they are can significantly change their basic characteristics. (r)	Equal variances assumed	,091	,763	-,223	197	,823	-,046	,207	-,455	,362
	Equal variances not assumed			-,225	161,607	,823	-,046	,206	-,454	,361
People can do things differently, but the important parts of who they are can't really be changed.	Equal variances assumed	1,700	,194	-1,904	197	,058	-,331	,174	-,675	,012
	Equal variances not assumed			-1,938	168,153	,054	-,331	,171	-,669	,006
People can substantially change the kind of person they are. (r)	Equal variances assumed	,405	,525	-,940	197	,349	-,197	,209	-,609	,216
	Equal variances not assumed			-,939	158,858	,349	-,197	,209	-,610	,217
People can change even their most basic qualities. (r)	Equal variances assumed	,064	,800	-,253	197	,801	-,056	,220	-,489	,378
	Equal variances not assumed			-,253	160,043	,800	-,056	,219	-,489	,378
A talent is not something everyone	Equal variances assumed	,350	,555	-,812	197	,418	-,220	,271	-,755	,314

possesses, but just the lucky few.	Equal variances not assumed			-,824	166,561	,411	-,220	,267	-,747	,307
A talent is a special individual that can make a significant difference to a company.	Equal variances assumed	,839	,361	-,169	197	,866	-,037	,217	-,465	,392
	Equal variances not assumed			-,172	168,604	,863	-,037	,213	-,458	,384
It is a logical choice that developmental assignments and resources are only invested in the most promising talent.	Equal variances assumed	,004	,952	1,087	197	,278	,243	,224	-,198	,684
	Equal variances not assumed			1,077	154,079	,283	,243	,226	-,203	,689
Top management actively participates in quality improvement efforts.	Equal variances assumed	,245	,621	,761	197	,447	,118	,156	-,188	,425
	Equal variances not assumed			,774	167,558	,440	,118	,153	-,184	,420
Top management sets the quality issues on the agenda of the managers' meetings.	Equal variances assumed	,707	,402	,530	197	,597	,088	,166	-,240	,416
	Equal variances not assumed			,551	178,393	,582	,088	,160	-,228	,404
Top management supports the quality improvement efforts by providing resources.	Equal variances assumed	2,044	,154	1,835	197	,068	,208	,113	-,016	,431
	Equal variances not assumed			1,843	161,253	,067	,208	,113	-,015	,430

The quality policy is taken into consideration in strategic planning.	Equal variances assumed	3,089	,080	1,840	197	,067	,248	,135	-,018	,514
	Equal variances not assumed			1,813	151,169	,072	,248	,137	-,022	,518
The quality policy and objectives are communicated throughout the company.	Equal variances assumed	1,711	,192	1,227	197	,221	,159	,130	-,097	,416
	Equal variances not assumed			1,262	173,309	,209	,159	,126	-,090	,409
The company sets quality objectives for managers and employees.	Equal variances assumed	,794	,374	1,319	197	,189	,158	,120	-,078	,395
	Equal variances not assumed			1,366	176,631	,174	,158	,116	-,070	,387
Top management gives the authority to employees to manage quality problems.	Equal variances assumed	2,148	,144	1,656	197	,099	,305	,184	-,058	,669
	Equal variances not assumed			1,601	141,967	,111	,305	,191	-,072	,682
Process and service nonconformities are detected through internal audits.	Equal variances assumed	,102	,749	,204	197	,838	,032	,155	-,274	,338
	Equal variances not assumed			,211	175,622	,833	,032	,150	-,265	,328
The critical processes are determined-evaluated.	Equal variances assumed	,001	,971	,834	197	,405	,107	,128	-,146	,360
	Equal variances not assumed			,856	172,528	,393	,107	,125	-,139	,353

Mistakes are precluded in the process design.	Equal variances assumed	,238	,626	,188	197	,851	,035	,188	-,336	,407
	Equal variances not assumed			,193	170,931	,847	,035	,184	-,328	,399
Specific organizational structure has been formulated to support quality improvement.	Equal variances assumed	1,142	,287	1,240	197	,217	,171	,138	-,101	,443
	Equal variances not assumed			1,236	157,453	,218	,171	,138	-,102	,444
Quality data is taken into consideration from managers in the planning and control processes.	Equal variances assumed	2,257	,135	1,859	197	,065	,216	,116	-,013	,446
	Equal variances not assumed			1,727	123,793	,087	,216	,125	-,032	,464
Customers are encouraged to submit complaints and proposals for quality improvement.	Equal variances assumed	,071	,790	-,216	197	,829	-,030	,138	-,303	,243
	Equal variances not assumed			-,213	152,640	,832	-,030	,140	-,306	,247
The employees are educated in quality management and problem solving techniques.	Equal variances assumed	,408	,523	,277	197	,782	,044	,159	-,270	,358
	Equal variances not assumed			,287	177,333	,775	,044	,154	-,259	,347
Educational programs are evaluated.	Equal variances assumed	,930	,336	,511	197	,610	,082	,159	-,233	,396

	Equal variances not assumed			,503	151,239	,615	,082	,162	-,238	,401
Educational subjects are absorbed by employees.	Equal variances assumed	,298	,586	,240	197	,811	,036	,150	-,260	,332
	Equal variances not assumed			,247	174,629	,805	,036	,146	-,252	,324
Employees are motivated to improve their performance.	Equal variances assumed	,688	,408	1,561	197	,120	,214	,137	-,056	,485
	Equal variances not assumed			1,588	167,518	,114	,214	,135	-,052	,481
Employees who improve quality are awarded.	Equal variances assumed	,063	,802	,174	197	,862	,031	,180	-,324	,386
	Equal variances not assumed			,174	158,643	,862	,031	,180	-,324	,387
Employees are evaluated.	Equal variances assumed	,010	,921	-,477	197	,634	-,058	,123	-,300	,183
	Equal variances not assumed			-,495	178,205	,621	-,058	,118	-,291	,174
Employees take initiatives.	Equal variances assumed	1,253	,264	,656	197	,512	,087	,132	-,174	,348
	Equal variances not assumed			,645	149,720	,520	,087	,135	-,179	,353
Employees participate in the decision making	Equal variances assumed	,616	,433	-1,084	197	,280	-,180	,166	-,506	,147

process and in setting quality objectives.	Equal variances not assumed			-1,128	179,029	,261	-,180	,159	-,493	,134
The company's managers/employees are in close contact with customers.	Equal variances assumed	4,784	,030	-,826	197	,410	-,123	,149	-,417	,171
	Equal variances not assumed			-,898	194,351	,370	-,123	,137	-,394	,147
The employees have knowledge and know-how.	Equal variances assumed	3,407	,066	1,859	197	,064	,256	,138	-,016	,527
	Equal variances not assumed			1,870	161,810	,063	,256	,137	-,014	,526
The company applies an effective plan for continuous quality improvement.	Equal variances assumed	1,205	,274	1,097	197	,274	,148	,135	-,118	,413
	Equal variances not assumed			1,097	158,728	,274	,148	,135	-,118	,414
The company achieves measured-explicit quality goals.	Equal variances assumed	,607	,437	,816	197	,416	,107	,131	-,151	,364
	Equal variances not assumed			,857	182,975	,393	,107	,124	-,139	,352
The company continuously collects information for processes and service improvement.	Equal variances assumed	,002	,966	,885	197	,377	,110	,124	-,135	,354
	Equal variances not assumed			,898	166,187	,371	,110	,122	-,131	,351
The company continuously monitors	Equal variances assumed	,197	,657	,999	197	,319	,130	,130	-,126	,386

and improves its processes, procedures and services.	Equal variances not assumed			1,007	162,785	,316	,130	,129	-,125	,384
The company develops and supports an organizational structure supporting continuous improvement.	Equal variances assumed	,028	,868	1,401	197	,163	,172	,123	-,070	,414
	Equal variances not assumed			1,435	171,064	,153	,172	,120	-,065	,409
Employees continuously improve their work.	Equal variances assumed	,040	,842	,825	197	,411	,121	,147	-,168	,410
	Equal variances not assumed			,826	159,958	,410	,121	,146	-,168	,410
The company's activities increase the level of customer satisfaction.	Equal variances assumed	,000	,999	1,338	197	,182	,170	,127	-,081	,421
	Equal variances not assumed			1,352	164,376	,178	,170	,126	-,078	,419
The company assures that its services meet customer requirements.	Equal variances assumed	,276	,600	2,084	197	,038	,250	,120	,013	,487
	Equal variances not assumed			2,055	151,711	,042	,250	,122	,010	,491
The company focuses on customer requirements.	Equal variances assumed	,119	,731	,748	197	,455	,094	,125	-,153	,341
	Equal variances not assumed			,728	145,231	,468	,094	,129	-,161	,348

Customer complaints constitute a major company priority.	Equal variances assumed	1,524	,218	-,909	197	,365	-,133	,146	-,420	,155
	Equal variances not assumed			-,926	168,429	,356	-,133	,143	-,415	,150
Services always conform to specifications according to internal audits.	Equal variances assumed	,190	,663	,095	197	,924	,013	,136	-,255	,281
	Equal variances not assumed			,095	158,352	,924	,013	,136	-,256	,282
Quality auditing leads to reduced nonconformity problems.	Equal variances assumed	2,310	,130	1,615	197	,108	,246	,153	-,055	,547
	Equal variances not assumed			1,551	138,661	,123	,246	,159	-,068	,561
The design of services and processes is efficient.	Equal variances assumed	4,028	,046	1,110	197	,268	,146	,131	-,113	,405
	Equal variances not assumed			1,047	130,167	,297	,146	,139	-,130	,422
The service quality of the company compared with its major competitors is at the:	Equal variances assumed	,117	,733	-,695	197	,488	-,092	,132	-,353	,169
	Equal variances not assumed			-,703	164,447	,483	-,092	,131	-,351	,167
The reliability of the services provided (the	Equal variances assumed	5,229	,023	,132	197	,895	,016	,124	-,228	,261

maintenance of the quality characteristics in a long period of time) is at the:	Equal variances not assumed			,126	134,802	,900	,016	,130	-,241	,274
The on time service provision is at the:	Equal variances assumed	,000	1,000	-,368	197	,713	-,050	,136	-,319	,218
	Equal variances not assumed			-,370	161,025	,712	-,050	,136	-,318	,218
The conformance of the services to customer specifications is at the:	Equal variances assumed	,416	,520	,566	197	,572	,073	,128	-,180	,325
	Equal variances not assumed			,562	155,635	,575	,073	,129	-,182	,327
Customer satisfaction from the services is at the:	Equal variances assumed	,613	,435	,159	197	,874	,020	,126	-,228	,268
	Equal variances not assumed			,154	142,905	,878	,020	,130	-,236	,277
Customer satisfaction from after sales services is at the:	Equal variances assumed	,021	,886	,056	197	,956	,007	,118	-,227	,240
	Equal variances not assumed			,055	155,081	,956	,007	,119	-,229	,242
Customer retention and loyalty is at the:	Equal variances assumed	,000	,994	,216	197	,829	,030	,137	-,240	,299
	Equal variances not assumed			,212	148,861	,832	,030	,139	-,246	,305

Note: Only one item exhibits statistically significant differences

Appendix B: t – test for the mean responses between two randomly split groups

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
The kind of person someone is, is something very basic about them and it can't be changed very much.	Equal variances assumed	1,786	,183	,894	197	,373	,181	,202	-,218	,580
	Equal variances not assumed			,894	192,749	,372	,181	,202	-,218	,580
No matter what kind of a person someone is, they can always change very much. (r)	Equal variances assumed	1,137	,288	-,263	197	,793	-,054	,206	-,462	,353
	Equal variances not assumed			-,263	196,598	,793	-,054	,206	-,461	,353
Everyone is a certain kind of person and there is not much that can be done to really change that.	Equal variances assumed	,699	,404	,095	197	,924	,020	,211	-,396	,436
	Equal variances not assumed			,095	195,991	,924	,020	,211	-,396	,436

As much as I hate to admit it, you can't teach an old dog new tricks. People can't really change their deepest attributes.	Equal variances assumed	4,782	,030	-1,112	197	,267	-,261	,235	-,725	,202
	Equal variances not assumed			-1,113	194,620	,267	-,261	,235	-,724	,202
Everyone, no matter who they are can significantly change their basic characteristics. (r)	Equal variances assumed	2,580	,110	,733	197	,464	,147	,201	-,249	,544
	Equal variances not assumed			,733	195,619	,464	,147	,201	-,249	,544
People can do things differently, but the important parts of who they are can't really be changed.	Equal variances assumed	,297	,587	,540	197	,590	,092	,171	-,244	,428
	Equal variances not assumed			,541	195,150	,589	,092	,170	-,244	,428
People can substantially change the kind of person they are. (r)	Equal variances assumed	1,191	,276	-,656	197	,512	-,134	,203	-,535	,268
	Equal variances not assumed			-,656	196,402	,512	-,134	,203	-,535	,268
People can change even their most basic qualities. (r)	Equal variances assumed	5,356	,022	-1,207	197	,229	-,257	,213	-,677	,163
	Equal variances not assumed			-1,208	195,207	,229	-,257	,213	-,676	,163

A talent is not something everyone possesses, but just the lucky few.	Equal variances assumed	,180	,672	-,605	197	,546	-,159	,264	-,679	,360
	Equal variances not assumed			-,605	196,992	,546	-,159	,264	-,679	,360
A talent is a special individual that can make a significant difference to a company.	Equal variances assumed	1,985	,160	1,365	197	,174	,287	,210	-,127	,701
	Equal variances not assumed			1,364	191,617	,174	,287	,210	-,128	,702
It is a logical choice that developmental assignments and resources are only invested in the most promising talent.	Equal variances assumed	2,815	,095	-,329	197	,742	-,072	,218	-,501	,358
	Equal variances not assumed			-,330	193,986	,742	-,072	,218	-,501	,358
Top management actively participates in quality improvement efforts.	Equal variances assumed	,108	,743	,069	197	,945	,011	,151	-,288	,309
	Equal variances not assumed			,069	195,495	,945	,011	,151	-,288	,309
Top management sets the quality issues on the agenda of the managers' meetings.	Equal variances assumed	1,346	,247	-,606	197	,545	-,098	,162	-,417	,221
	Equal variances not assumed			-,606	194,832	,545	-,098	,162	-,416	,221
Top management supports the quality	Equal variances assumed	,010	,921	-,181	197	,856	-,020	,111	-,239	,199

improvement efforts by providing resources.	Equal variances not assumed			-,181	196,621	,856	-,020	,111	-,239	,199
The quality policy is taken into consideration in strategic planning.	Equal variances assumed	,358	,550	,615	197	,540	,081	,132	-,179	,341
	Equal variances not assumed			,614	190,549	,540	,081	,132	-,179	,342
The quality policy and objectives are communicated throughout the company.	Equal variances assumed	,003	,956	,549	197	,584	,069	,127	-,180	,319
	Equal variances not assumed			,548	191,550	,584	,069	,127	-,181	,320
The company sets quality objectives for managers and employees.	Equal variances assumed	,169	,681	,942	197	,348	,110	,117	-,120	,341
	Equal variances not assumed			,941	191,832	,348	,110	,117	-,121	,341
Top management gives the authority to employees to manage quality problems.	Equal variances assumed	,687	,408	-1,317	197	,189	-,237	,180	-,591	,118
	Equal variances not assumed			-1,318	196,683	,189	-,237	,180	-,591	,118
Process and service nonconformities are detected through internal audits.	Equal variances assumed	3,031	,083	,814	197	,417	,123	,151	-,174	,419
	Equal variances not assumed			,813	188,666	,417	,123	,151	-,175	,420
The critical processes are determined-	Equal variances assumed	,498	,481	-,484	197	,629	-,060	,125	-,306	,186

evaluated.	Equal variances not assumed			-,483	196,474	,629	-,060	,125	-,306	,186
Mistakes are precluded in the process design.	Equal variances assumed	,412	,522	,305	197	,761	,056	,183	-,305	,417
	Equal variances not assumed			,305	195,198	,761	,056	,183	-,305	,417
Specific organizational structure has been formulated to support quality improvement.	Equal variances assumed	6,817	,010	1,609	197	,109	,215	,134	-,049	,479
	Equal variances not assumed			1,607	188,475	,110	,215	,134	-,049	,479
Quality data is taken into consideration from managers in the planning and control processes.	Equal variances assumed	,370	,544	,538	197	,591	,061	,114	-,163	,286
	Equal variances not assumed			,538	195,620	,591	,061	,114	-,163	,286
Customers are encouraged to submit complaints and proposals for quality improvement.	Equal variances assumed	4,497	,035	1,815	197	,071	,242	,133	-,021	,505
	Equal variances not assumed			1,813	189,285	,071	,242	,133	-,021	,505
The employees are educated in quality management and problem solving techniques.	Equal variances assumed	,327	,568	,775	197	,440	,120	,155	-,185	,425
	Equal variances not assumed			,774	195,844	,440	,120	,155	-,185	,425

Educational programs are evaluated.	Equal variances assumed	,003	,955	,740	197	,460	,115	,155	-,191	,420
	Equal variances not assumed			,740	196,857	,460	,115	,155	-,191	,420
Educational subjects are absorbed by employees.	Equal variances assumed	2,269	,134	,972	197	,332	,142	,146	-,146	,429
	Equal variances not assumed			,971	188,253	,333	,142	,146	-,146	,429
Employees are motivated to improve their performance.	Equal variances assumed	2,114	,148	,910	197	,364	,122	,134	-,142	,386
	Equal variances not assumed			,909	191,620	,364	,122	,134	-,143	,386
Employees who improve quality are awarded.	Equal variances assumed	,103	,748	,997	197	,320	,174	,174	-,170	,518
	Equal variances not assumed			,997	196,984	,320	,174	,174	-,170	,518
Employees are evaluated.	Equal variances assumed	,116	,734	1,950	197	,053	,230	,118	-,003	,463
	Equal variances not assumed			1,948	183,289	,053	,230	,118	-,003	,463
Employees take initiatives.	Equal variances assumed	,355	,552	-,239	197	,812	-,031	,129	-,285	,223
	Equal variances not assumed			-,239	196,836	,812	-,031	,129	-,285	,223

Employees participate in the decision making process and in setting quality objectives.	Equal variances assumed	2,838	,094	-,513	197	,609	-,083	,161	-,401	,235
	Equal variances not assumed			-,513	194,667	,608	-,083	,161	-,401	,235
The company's managers/employees are in close contact with customers.	Equal variances assumed	1,201	,274	2,181	197	,030	,313	,143	,030	,595
	Equal variances not assumed			2,181	196,620	,030	,313	,143	,030	,596
The employees have knowledge and know-how.	Equal variances assumed	,370	,544	-,435	197	,664	-,059	,135	-,324	,207
	Equal variances not assumed			-,434	192,016	,665	-,059	,135	-,325	,207
The company applies an effective plan for continuous quality improvement.	Equal variances assumed	,012	,913	,860	197	,391	,113	,131	-,146	,371
	Equal variances not assumed			,861	194,559	,390	,113	,131	-,145	,371
The company achieves measured-explicit quality goals.	Equal variances assumed	3,868	,051	-,517	197	,606	-,066	,127	-,316	,185
	Equal variances not assumed			-,518	190,379	,605	-,066	,127	-,316	,185
The company continuously collects information for processes and service improvement.	Equal variances assumed	1,027	,312	1,364	197	,174	,164	,120	-,073	,400
	Equal variances not assumed			1,363	192,664	,175	,164	,120	-,073	,400

The company continuously monitors and improves its processes, procedures and services.	Equal variances assumed	,073	,787	1,686	197	,093	,212	,126	-,036	,460
	Equal variances not assumed			1,685	191,491	,094	,212	,126	-,036	,460
The company develops and supports an organizational structure supporting continuous improvement.	Equal variances assumed	,107	,744	,928	197	,354	,111	,120	-,125	,347
	Equal variances not assumed			,928	196,997	,354	,111	,120	-,125	,347
Employees continuously improve their work.	Equal variances assumed	,280	,597	,268	197	,789	,038	,143	-,243	,319
	Equal variances not assumed			,268	196,204	,789	,038	,143	-,243	,319
The company's activities increase the level of customer satisfaction.	Equal variances assumed	,784	,377	-,876	197	,382	-,109	,124	-,353	,136
	Equal variances not assumed			-,876	196,394	,382	-,109	,124	-,353	,136
The company assures that its services meet customer requirements.	Equal variances assumed	,112	,738	-,412	197	,681	-,049	,118	-,281	,184
	Equal variances not assumed			-,412	196,387	,681	-,049	,118	-,281	,184
The company focuses on customer	Equal variances assumed	2,208	,139	,268	197	,789	,033	,122	-,208	,273

requirements.	Equal variances not assumed			,268	188,132	,789	,033	,122	-,208	,273
Customer complaints constitute a major company priority.	Equal variances assumed	3,869	,051	1,725	197	,086	,243	,141	-,035	,521
	Equal variances not assumed			1,723	192,106	,086	,243	,141	-,035	,522
Services always conform to specifications according to internal audits.	Equal variances assumed	,201	,654	,462	197	,644	,061	,132	-,200	,322
	Equal variances not assumed			,463	196,275	,644	,061	,132	-,199	,322
Quality auditing leads to reduced nonconformity problems.	Equal variances assumed	,806	,370	,572	197	,568	,085	,149	-,209	,379
	Equal variances not assumed			,572	192,118	,568	,085	,149	-,209	,379
The design of services and processes is efficient.	Equal variances assumed	4,969	,027	-,415	197	,679	-,053	,128	-,306	,200
	Equal variances not assumed			-,415	181,089	,678	-,053	,128	-,306	,199
The service quality of the company compared with its major competitors is at the:	Equal variances assumed	,193	,661	1,312	197	,191	,168	,128	-,085	,422
	Equal variances not assumed			1,312	196,939	,191	,168	,128	-,085	,422

The reliability of the services provided (the maintenance of the quality characteristics in a long period of time) is at the:	Equal variances assumed	,126	,723	-,003	197	,997	,000	,120	-,238	,237
	Equal variances not assumed			-,003	196,993	,997	,000	,120	-,238	,237
The on time service provision is at the:	Equal variances assumed	,024	,877	,330	197	,741	,044	,132	-,217	,305
	Equal variances not assumed			,330	196,965	,741	,044	,132	-,217	,305
The conformance of the services to customer specifications is at the:	Equal variances assumed	,663	,417	1,168	197	,244	,145	,124	-,100	,390
	Equal variances not assumed			1,168	194,420	,244	,145	,124	-,100	,390
Customer satisfaction from the services is at the:	Equal variances assumed	,786	,376	1,029	197	,305	,125	,122	-,115	,366
	Equal variances not assumed			1,029	195,931	,305	,125	,122	-,115	,366
Customer satisfaction from after sales services is at the:	Equal variances assumed	,070	,792	,954	197	,341	,109	,115	-,117	,335
	Equal variances not assumed			,954	196,686	,341	,109	,115	-,117	,335
Customer retention and loyalty is at the:	Equal variances assumed	,104	,748	,203	197	,840	,027	,133	-,235	,289

	Equal variances not assumed			,203	196,876	,840	,027	,133	-,235	,289
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Note: Only one item exhibits statistically significant differences

Appendix C: Questionnaire



UNIVERSITY OF PIRAEUS
Department of Maritime Studies

Dear Sir/ Madam,

You are kindly requested to participate in a strictly academic survey organized and performed by the Department of Maritime Studies, University of Piraeus. We have initiated this research endeavor attempting to investigate how the implementation of people – oriented and quality management systems are likely to contribute towards increased safety awareness and performance increases.

We support that a shipping company’s ability to survive in the current fast changing environment relies to a great extent on fostering an “integrated quality and safety management philosophy” as well as developing “excellent management teams”. Specifically, we have identified that the key challenge that modern maritime organizations face, lies in the provision of high quality shipping services through the attraction, development and retention of a high competent or “talented” human resource pool.

The survey is designed not to take more than 15 minutes of your time. Your *participation* as well as the results of the survey is only for academic purposes, anonymous and totally *confidential*.

If you have any questions or requests, please feel free to send them at mariakar@webmail.unipi.gr

Thank you very much for your time and your attention.

On behalf of the University of Piraeus

The Survey Team

University of Piraeus

Department of Maritime Studies

Part 1: Management of “talented” employees

The aim of Part 1 is to assess a shipping company’s attitude towards managing “talented” or high competent employees.

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
The kind of person someone is, is something very basic about them and it can’t be changed very much.	0	0	0	0	0	0	0
No matter what kind of a person someone is, they can always change very much.	0	0	0	0	0	0	0
Everyone is a certain kind of person and there is not much that can be done to really change that.	0	0	0	0	0	0	0
As much as I hate to admit it, you can’t teach an old dog new tricks. People can’t really change their deepest attributes.	0	0	0	0	0	0	0
Everyone, no matter who they are can significantly change their basic characteristics.	0	0	0	0	0	0	0
People can do things differently, but the important parts of who they are can’t really be changed.	0	0	0	0	0	0	0
People can substantially change the kind of person they are.	0	0	0	0	0	0	0
People can change even their most basic qualities.	0	0	0	0	0	0	0
A talent is not something everyone possesses, but just the lucky few.	0	0	0	0	0	0	0
A talent is a special individual that can make a significant difference to a company.	0	0	0	0	0	0	0
It is a logical choice that developmental assignments and resources are only invested in the most promising talent.	0	0	0	0	0	0	0

Part 2: Quality and Safety management practices

The aim of Part 2 is to evaluate the effective implementation of quality and safety management practices.

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
Top management actively participates in quality improvement efforts.	0	0	0	0	0	0	0
Top management sets the quality issues on the agenda of the managers' meetings.	0	0	0	0	0	0	0
Top management supports the quality improvement efforts by providing resources.	0	0	0	0	0	0	0
The quality policy is taken into consideration in strategic planning.	0	0	0	0	0	0	0
The quality policy and objectives are communicated throughout the company.	0	0	0	0	0	0	0
The company sets quality objectives for managers and employees.	0	0	0	0	0	0	0
Top management gives the authority to employees to manage quality problems.	0	0	0	0	0	0	0
Process and service nonconformities are detected through internal audits.	0	0	0	0	0	0	0
The critical processes are determined-evaluated.	0	0	0	0	0	0	0
Mistakes are precluded in the process design.	0	0	0	0	0	0	0
Specific organizational structure has been formulated to support quality improvement.	0	0	0	0	0	0	0
Quality data is taken into consideration from managers in the planning and control processes.	0	0	0	0	0	0	0
Customers are encouraged to submit complaints and proposals for quality improvement.	0	0	0	0	0	0	0

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
The employees are educated in quality management and problem solving techniques.	0	0	0	0	0	0	0
Educational programs are evaluated.	0	0	0	0	0	0	0
Educational subjects are absorbed by employees.	0	0	0	0	0	0	0
Employees are motivated to improve their performance.	0	0	0	0	0	0	0
Employees who improve quality are awarded.	0	0	0	0	0	0	0
Employees are evaluated.	0	0	0	0	0	0	0
Employees take initiatives.	0	0	0	0	0	0	0
Employees participate in the decision making process and in setting quality objectives.	0	0	0	0	0	0	0

The company's managers/employees are in close contact with customers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The employees have knowledge and know-how.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
The company applies an effective plan for continuous quality improvement.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The company achieves measured-explicit quality goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The company continuously collects information for processes and service improvement.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The company continuously monitors and improves its processes, procedures and services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The company develops and supports an organizational structure supporting continuous improvement.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employees continuously improve their work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The company's activities increase the level of customer satisfaction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The company assures that its services meet customer requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The company focuses on customer requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer complaints constitute a major company priority.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Services always conform to specifications according to internal audits.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality auditing leads to reduced nonconformity problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The design of services and processes is efficient.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 3: Performance

Please make the appropriate choice below.

	Minimum level	Very low level	Low level	Medium level	High level	Very high level	Maximum level
The service quality of the company compared with its major competitors is at the:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The reliability of the services provided (the maintenance of the quality characteristics in a long period of time) is at the:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The on time service provision is at the:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The conformance of the services to customer specifications is at the:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please make the appropriate choice below.

	Minimum level	Very low level	Low level	Medium level	High level	Very high level	Maximum level
Customer satisfaction from the services is at the:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer satisfaction from after sales services is at the:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer retention and loyalty is at the:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 4: Company information

Do you implement any quality management system (besides ISM Code) in your company (for example ISO 9000)?

If yes, which one?

Please, determine the size of your company compared with your major competitors:

- Very small
- Medium
- Large
- Very large

Which is the number of employees in your company (shore based and crew)?

- 0 – 20
- 21 – 40
- 41 – 80
- 81 – 100
- 101 – 200
- 201 – 500
- 500 +

Please indicate the type of operating ships:

- Dry bulk
- Liquid bulk
- Containerships
- Other.....

Please indicate the average number of operating ships during the last year:

- 1 – 3
- 4 – 7
- 8 – 12
- 13 – 20
- 21 – 35
- >35

Please indicate the deadweight tonnage of operating ships during the last year:

- 0 – 80.000 tonnes
- 81.000 – 160.000 tonnes
- 161.000 – 300.000 tonnes
- 301.000 – 800.000 tonnes
- > 800.000 tonnes

Please indicate the average age of operating ships (in years):

- < 5
- 5 – 10
- 11 – 15
- 16 – 20
- >20

Please indicate your position in the company:

- Quality and safety department
- Operations department
- Technical department
- Claims department
- Other

Gender:

- Male
- Female

Thank you very much for your participation

Appendix D: Sample size

Slovin's Formula of sample size

$$n = N / (1 + N * e^2)$$

n = sample size

N = population size

e = desired margin of error

Number of Greek shipping companies (year: 2015): 648 (Petrofin, 2015)

$$648 / (1 + 648 * 0.10^2) = 87$$

The sample size of the present thesis (199) exceeds the above value.

Number of Greek shipping companies with less than 8 vessels in their fleet (year: 2015): 526 (Petrofin, 2015)

$$526 / (1 + 526 * 0.10^2) = 84$$

In the sample of the present thesis, the number of shipping companies with less than 7 vessels in their fleet has a value of 82.

Number of Greek shipping companies with more than 8 vessels in their fleet (year: 2015): 122 (Petrofin, 2015)

$$122 / (1 + 122 * 0.10^2) = 55$$

In the sample of the present thesis, the number of shipping companies with more than 8 vessels in their fleet has a value of 116, which exceeds the above calculated value.

Appendix E: Descriptive statistics

	Mean	Std. Deviation
Talent philosophies (Dries et al., 2014)		
<i>Innate/ Developable talent philosophy</i>		
The kind of person someone is, is something very basic about them and it can't be changed very much.	4.68	1.427
No matter what kind of a person someone is, they can always change very much.(r)*	4.41	1.453
Everyone is a certain kind of person and there is not much that can be done to really change that.	4.04	1.483
As much as I hate to admit it, you can't teach an old dog new tricks. People can't really change their deepest attributes.	4.58	1.658
Everyone, no matter who they are can significantly change their basic characteristics. (r)	4.33	1.417
People can do things differently, but the important parts of who they are can't really be changed.	4.83	1.201
People can substantially change the kind of person they are. (r)	4.29	1.433
People can change even their most basic qualities. (r)	4.56	1.503
<i>Exclusive/ Inclusive talent philosophy</i>		
A talent is not something everyone possesses, but just the lucky few.	4.14	1.856
A talent is a special individual that can make a significant difference to a company.	5.23	1.485
It is a logical choice that developmental assignments and resources are only invested in the most promising talent.	4.14	1.533
*(r): reversed scored		
Total Quality Management (Pantouvakis and Psomas, 2016)		
<i>Top management commitment</i>		
Top management actively participates in quality improvement efforts.	5.95	1.065
Top management sets the quality issues on the agenda of the managers' meetings.	5.74	1.138
Top management supports the quality improvement efforts by providing resources.	6.14	0.780
The company sets quality objectives for managers and employees.	6.05	0.824
Top management gives the authority to employees to manage quality problems.	5.27	1.269
<i>Process management improvement</i>		
Process and service nonconformities are detected through internal audits.	5.81	1.061

The critical processes are determined-evaluated.	5.87	0.878
Mistakes are precluded in the process design.	5.22	1.288
Specific organizational structure has been formulated to support quality improvement.	5.80	0.946
Quality data is taken into consideration from managers in the planning and control processes.	5.95	0.802
The employees are educated in quality management and problem solving techniques.	5.54	1.090
Educational programs are evaluated.	5.60	1.091
<i>Employee quality management</i>		
Employees are motivated to improve their performance.	5.87	0.944
Employees who improve quality are awarded.	5.70	1.230
Employees are evaluated.	6.10	0.838
Employees take initiatives.	5.69	0.906
Employees participate in the decision making process and in setting quality objectives.	5.23	1.136
<i>Customer focus</i>		
The quality policy and objectives are communicated throughout the company.	6.09	0.892
Customers are encouraged to submit complaints and proposals for quality improvement.	5.93	0.945
The quality policy is taken into consideration in strategic planning.	5.93	0.929
<i>Employee knowledge and education</i>		
The company's managers/employees are in close contact with customers.	5.88	1.021
The employees have knowledge and know-how.	5.83	0.949
Educational subjects are absorbed by employees.	5.30	1.028
ISM Code effectiveness (Psomas et al., 2013)		
<i>Continuous improvement</i>		
The company applies an effective plan for continuous quality improvement.	5.89	0.923
The company achieves measured-explicit quality goals.	5.77	0.895
The company continuously collects information for processes and service improvement.	5.91	0.848
The company continuously monitors and improves its processes, procedures and services.	5.97	0.890
The company develops and supports an organizational structure supporting continuous improvement.	5.97	0.843
Employees continuously improve their work.	5.60	1.004
<i>Customer satisfaction focus</i>		
The company's activities increase the level of customer satisfaction.	5.80	0.874
The company assures that its services meet customer requirements.	5.94	0.830

The company's managers/employees are in close contact with customers.	5.88	1.021
The company focuses on customer requirements.	5.87	0.858
Customer complaints constitute a major company priority.	5.80	1.000
<i>Prevention of nonconformities</i>		
Services always conform to specifications according to internal audits.	5.64	0.930
Quality auditing leads to reduced nonconformity problems.	5.76	1.050
The design of services and processes is efficient.	5.64	0.902
Performance (Psomas et al., 2013, Pantouvakis and Psomas, 2016)		
<i>Service quality performance</i>		
The service quality of the company compared with its major competitors	5.41	0.907
The reliability of the services provided (the maintenance of the quality characteristics in a long period of time)	5.51	0.847
The on time service provision	5.55	0.931
The conformance of the services to customer specifications	5.64	0.877
<i>Customer satisfaction</i>		
Customer satisfaction from the services	5.49	0.859
Customer satisfaction from after sales services	5.44	0.808
Customer retention and loyalty	5.56	0.934