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Motives behind the implementation of Occupational
Health and Safety practices in logistics operations

A study of Greek companies

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ABSTRACT

Corporate Social Responsibility (CSR) is a concept of high relevance for business in general, and within logistics in particular (Seuring *et al.*, 2008), and represents a set of actions that extend beyond the legal obligations and the explicit monetary interests of the company, aiming to benefit the society (McWilliams and Siegel, 2001). An important dimension of CSR is Occupational Health and Safety (OHS) (Wokutch, 1990; Montero, Araque and Rey, 2009; Koskela, 2014).

The objective of this thesis is to shed light on the motives behind the implementation of OHS practices in logistics operations. More in detail, the author aims to identify the motives, evaluate their importance, and classify them in a CSR motivation framework.

To achieve the research objective a mixed-method approach is adopted, combining qualitative and quantitative methods of data collection. More in detail, the research utilizes the Delphi method where a virtual panel of experts is formed. Ten logistics experts involved in OHS practices participated in three rounds, identifying in total ten motives. Three series of questionnaires were distributed, and thirty questionnaires were in total collected.

The findings reveal that reduction/avoidance of accidents, compliance with legislation, protection of employees, protection of investment, improvement of service reliability, and monitoring of operations, are some of the motives that drive companies to apply OHS practices in their logistics operations.

The analysis of the findings suggests that the most important motives behind the implementation of OHS practices can be mainly viewed as a defensive mechanism of damage control, rather than an ethical responsibility to act as a socially responsible citizen.

The major contribution of the thesis is that it examines a topic where relevant research is scarce. Additionally, it provides to logistics practitioners a clear picture of how different companies are motivated to implement OHS practices in their logistics operations.

Keywords: Logistics, Corporate Social Responsibility, CSR, Occupational Health and Safety, OHS, OH&S, OSH, H&S, Work Health and Safety, WHS, Delphi method, Greece.

ABBREVIATIONS

3PL	Third-Party Logistics
CSR	Corporate Social Responsibility
ILO	International Labor Office
LSP	Logistics Service Providers
LSR	Logistics Social Responsibility
NGO	Non-Governmental Organization
OHS	Occupational Health and Safety
SCM	Supply Chain Management
SME	Small-Medium Enterprise
SSCM	Sustainable Supply Chain Management

1. INTRODUCTION

“Business has become, in the last century, the most powerful institution on the planet. The dominant institution in any society needs to take responsibility for the whole. Every decision that is made, every action taken has to be viewed in the light of, in the context of, that kind of responsibility”

(Hawken, 1992, p.93)

1.1 Background

Regulatory interventions, fatal accidents around the globe, pressures from non-governmental organizations (NGOs), societal pressures, and customer complaints, contributed to the introduction of more responsible business policies, expressed in the context of Corporate Social Responsibility (from now on abbreviated as CSR) (Panapanaan *et al.*, 2003; Idowu and Louche, 2011). CSR is a multi-dimensional concept that can potentially affect the entire spectrum of business operations (Cheah *et al.*, 2011). According to the Ministry of Foreign Affairs of Norway (2008), CSR pinpoints what enterprises do on a voluntary basis beyond complying with the current legislation in the country in which they are doing business. At the heart of CSR lies the impact of corporate decision-making upon an extensive array of associated parties such as employees, customers, investors, unions, communities, supply chain members, governments, NGOs and the media (Maloni and Brown, 2006).

Even though CSR is a topic of constantly increasing interest in the business world (Blowfield and Murray, 2011), not all corporate functions have been researched to the same extent (Murphy and Poist, 2002). CSR in the field of logistics has received little attention compared to functions such as marketing and accounting (Murphy and Poist, 2002).

Logistics is the management of in motion and at rest inventory, aiming to achieve the lowest level of inventory investment, while at the same time maintaining efficient production and ensuring customer service (Delaney, 2002). According to Poist (1989), the history of logistics can be classified into three major eras. In the first era, ‘*prelogistics*’, emphasis was placed on the design of efficient transportation systems. The second era, ‘*logistics*’, emphasized in designing logistics systems instead of simply transportation systems. The third era, ‘*neologistics*’, is further divided into two phases. In the first neologistics phase, organizations started to incorporate logistics into the company’s mission, emphasizing on the contribution of logistics to company’s financial growth. In the second phase of neologistics era, decisions regarding logistics operations are driven by corporate and societal implications. There is no doubt that societal considerations should be interwoven in today’s logistics practices.

One of these practices is Occupational Health and Safety (from now on abbreviated as OHS) (Poist, 1989), that deals with conditions and factors that affect, or could affect, the health and safety of employees or other workers (including temporary workers and contractor personnel), visitors, or any other person in the workplace (British Standards Institution, 2007). OHS is a distinct characteristic of a responsible organization (Amponsah-Tawiah and Dartey-Baah, 2012), and an important dimension of CSR (Wokutch, 1990; Montero, Araque and Rey, 2009; Koskela, 2014).

1.2 Purpose and research question

The present thesis is set up to cast light on the motives behind the implementation of OHS practices in logistics operations. The driving force for selecting the particular research topic is the findings of the article of Granerud (2011), with title: *'Social responsibility as an intermediary for health and safety in small firms'*. In the aforementioned article, Granerud (2011) points out that CSR initiatives in small and medium-sized enterprises (SMEs) are mainly directed in OHS, and are mainly motivated by ethical reasoning. More in detail, Granerud (2011) selected as research sample Danish firms from the industries of hotels and restaurants, transportation and manufacturing. At this point, the author of this thesis wondered whether the same ethical reasoning is behind the implementation of OHS practices in logistics operations.

Research focusing on the social aspects of logistics is recent and limited (Ciliberti, Pontrandolfo and Scozzi, 2008). Initially, attention has been given to the financial aspects of logistics operations and subsequently on the environmental impact of logistics operations, such as pollution or fuel consumption (Aronsson and Brodin, 2006; Seuring and Müller, 2008; León and Juan, 2014). A literature review conducted by Seuring and Müller (2008) comprising 191 articles, revealed that 140 articles were addressing environmental aspects, and only 20 were dealing with the social dimension of logistics. Hence, social aspects have not received as much emphasis in the logistics literature (Nikolaou, Evangelinos and Allan, 2013). Focusing on OHS, De Koster, Stam and Balk (2011) and Di and Lo (2012) highlight the fact that research on OHS is underdeveloped and overlooked in the operation management literature. Considering the intention to examine whether Granerud's (2011) findings are valid within logistics, and the fact that research on the motives behind applying OHS practices is overlooked, led the author to explore the following research question for a sample of Greek companies engaged in logistics operations:

RQ: *What are the motives behind the implementation of OHS practices in logistics operations?*

Based on the aforementioned discussion, the aim of this thesis is threefold. Initially, to identify the motives behind the implementation of OHS practices in logistics operations. Subsequently, to evaluate the importance of each of these motives. Lastly, to link the motives to a CSR motivation framework, in order to examine whether the findings of Granerud (2011) also apply in the logistics domain. More specifically, to examine whether companies engaged in logistics operations are also motivated by ethical reasoning to apply OHS practices.

This thesis aims to shed light upon one of the most important activities in our lives, the work, and to uncover the motives that drive companies to implement practices that affect the health and safety of the most essential element of any business; its employees. Every employee spends approximately eight hours per day in the working environment. Thus, it is essential for the workforce to experience healthy and safe conditions, something that is not granted for far too many employees (Montero, Araque and Rey, 2009). Unfortunately, there is a number of employers who are not concerned about their employees' health and safety at work, or even worse, they fail to realize that the protection of their workforce is an ethical and often legal responsibility (Cioca and Moraru, 2010).

1.3 Thesis structure

The thesis consists of five chapters. Following the introduction, the remainder of the thesis has the following structure.

Chapter two establishes the theoretical foundations of the research. More in detail, the chapter begins with the concept of CSR, its evolution through the years, the motives behind its implementation, and the benefits from engaging in CSR. Subsequently, the concept of OHS is introduced, its linkage with CSR is explained, OHS benefits are discussed, and OHS standards and guidelines are briefly presented. Then the concept of logistics is introduced to the reader, and its links with the concepts of CSR and OHS are established. The summary of the theory chapter recapitulates and concludes the chapter.

Chapter three outlines and justifies the methodological approach adopted by the author. The chapter begins with the research approach and reasoning. Then, the research method is presented, and the research process is elaborated. Subsequently, the discussion is shifted towards ethical considerations, followed by the evaluation of the quality of the thesis. For each of these sections a detailed discussion takes place, aiming to inform the reader regarding the way the research topic was approached. The chapter is concluded with the provision of the summary of the research methodology.

Chapter four is devoted to the empirical findings of the research, through the different stages of the research process. OHS motives are initially presented and later analyzed in light of the extant literature, to provide a crystal-clear view of the motives behind the implementation of OHS practices in logistics operations, and provide answer to the research question.

Chapter five is the concluding chapter of the thesis. The chapter begins with a concluding discussion, presenting the research purpose, the research gap, and the logic for selecting the specific research topic. Results are briefly presented and contributions to academia and industry are discussed. Lastly, limitations and suggestions for future research conclude the last chapter of the thesis.

Appendix I includes the invitation for participating in the research, as it was communicated to several firms engaged in logistics activities.

Appendix II presents the questionnaire for the first round of the Delphi method.

Appendix III presents the questionnaire for the second round of the Delphi method.

Appendix IV, presents the questionnaire for the third, and last, round of the Delphi method.

2. THEORETICAL FRAMEWORK

“Theory consists of plausible relationships produced among concepts and sets of concepts”

Silverman (2013, p.112)

2.1 Overview of the Chapter

The purpose of the theoretical framework chapter is to elaborate the concepts of CSR and OHS, and present their association with the logistics domain. More in detail, the chapter begins with the evolution of the concept of CSR, the motives for engaging in CSR initiatives and the benefits from engaging. Subsequently, the discussion is shifted towards the concept of OHS. Consequently, the concept of logistics is defined, and its connections with the concepts of CSR and OHS are established. In the last section of the chapter, the theoretical framework is summarized. Figure 1 provides a schematic overview of the theory chapter.

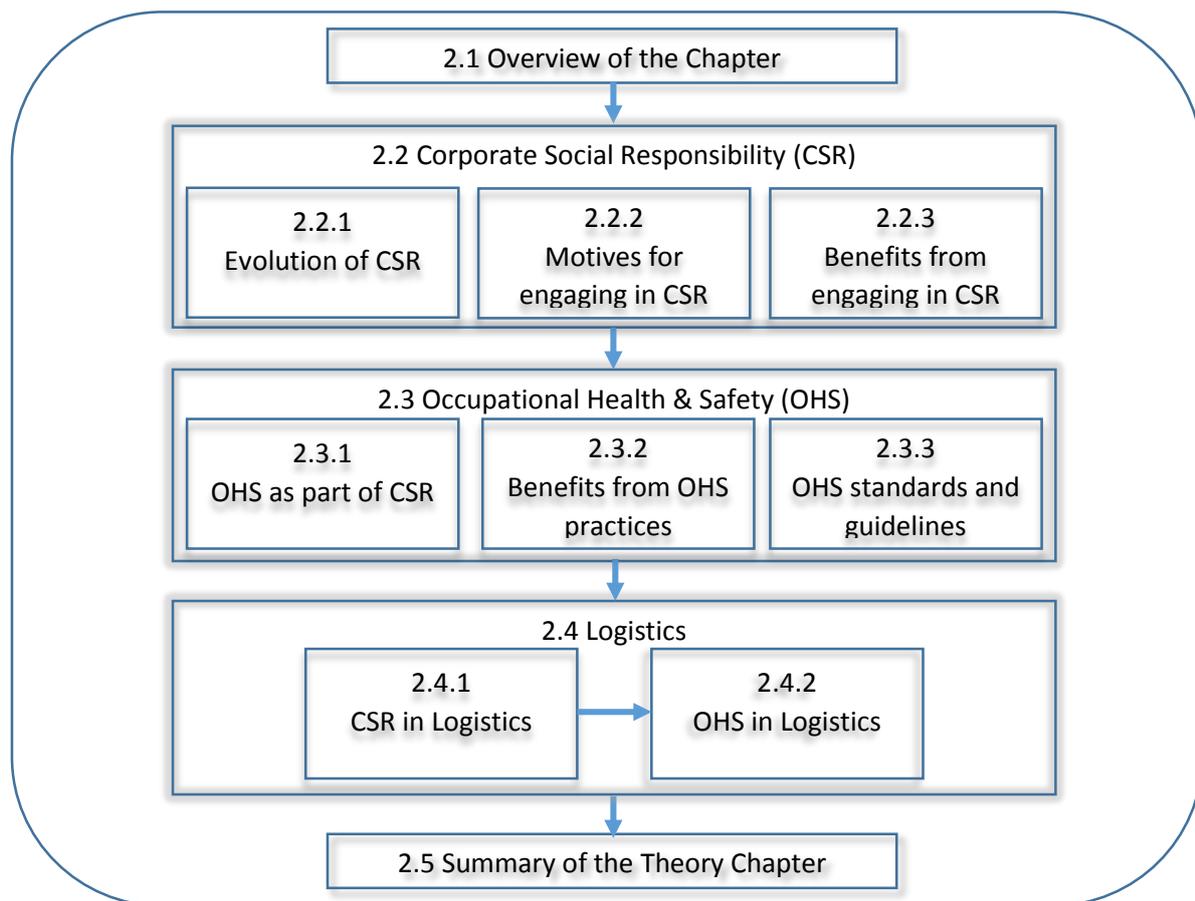


Figure 1: Structure of the Theory Chapter

2.2 Corporate Social Responsibility (CSR)

2.2.1 Evolution of CSR

CSR has a long history (Ciliberti, Pontrandolfo and Scozzi, 2008), has no universal definition (Carroll, 1991), has evolved over time (Carroll, 1999), has been presented as “the talk of the town in corporate circles” (Mees and Bonham, 2004, p.11) and as “the hot business issue of the noughties” (Blyth, 2005, p.30). In addition, it can drive people to employ, promote and defend different interpretations (Kakabadse, Rozuel and Lee-Davies, 2005), and is a concept with many conflicting objectives and goals (McWilliams and Siegel, 2001).

The idea that organizations should be responsible for the social impact of their activities goes back centuries (Anner, 2012). According to Nikolaou, Evangelinos and Allan (2013) the genesis of the concept of CSR took place in the first half of the 20th century, with the debate between Berle (1932) and Dodd (1932). Berle (1932) stated that a business is responsible only towards its shareholders, while Dodd (1932) contended that a business has responsibilities to society, in addition to the economic responsibilities towards its shareholders. Through the years the concept of CSR has been defined, redefined, evolved, and extended in different ways (Taneja, Taneja and Gupta, 2011; Sharma and Shravani, 2013).

Bowen (1953, p.6) presents CSR as a social obligation, “to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of the society”. Davis (1960, p.70) defines CSR as “businessmen’s decisions and actions taken for reasons at least partially beyond the firm’s direct economic or technical interest”. Friedman (1970) states that the only social responsibility of a business is to increase its profits, and decisions regarding ethical and discretionary considerations may pose a threat to company’s financial performance. According to Davis (1973, p312), the concept of CSR refers to “the firm’s consideration of, and response to, issues beyond the narrow economic, technical, and legal requirements of the firm”. Moreover, he sets as the starting point of CSR, the point where the law ends, by stating that “a firm is not being socially responsible if it merely complies with the minimum requirements of the law, because this is what any good citizen would do (Davis, 1973, p313). A couple of years later, he stressed that firms have the “managerial obligation to take action to protect and improve both the welfare of society as a whole and the interest of organizations” (Davis and Blomstrom, 1975, p.6). Carroll (1979), proposed a four-part definition of CSR including economic responsibilities (i.e. generate profits, a must-do responsibility), legal responsibilities (i.e. obey laws, a have-to-do responsibility), ethical responsibilities (i.e. perform business in a fair and reasonable manner beyond legal responsibilities, a should-do responsibility) and philanthropic responsibilities (i.e. activities guided by business’s discretion, a might-do responsibility). These four responsibilities are also referred to as Carroll’s pyramid.

In parallel with the evolution of CSR, a wide range of tightly or loosely associated terms emerged, such as corporate sustainability, corporate social investment, corporate citizenship, corporate governance, corporate social responsiveness, business sustainability, business ethics, responsible business, socially responsible investment, social performance, stakeholder engagement and triple bottom line (Panapanaan *et al.*, 2003; Idowu and Louche, 2011; Taneja, Taneja and Gupta, 2011; Nikolaou, Evangelinos and Allan, 2013). In the extant literature, many

of the aforementioned terms have been used interchangeably (Sarkis, Helms and Hervani, 2010). According to Keijzers (2002, as cited in Ciliberti, Pontrandolfo and Scozzi, 2008), the concepts of CSR and Sustainability have followed separate evolution paths, and only recently have started to converge. This mainly has to do with the fact that initially CSR was addressing social issues, while sustainability was referred to environmental parameters. This is evidenced in a number of CSR definitions that fail to incorporate the environmental dimension (Dahlsrud, 2008). This can be explained by the fact that the environmental dimension was not contained in early definitions, possibly influencing contemporary definitions to not include it either (Carroll, 1999). For the purposes of this thesis, only the concept of CSR will be discussed and direct references to alternative terminologies will be avoided. Therefore, CSR will be the dominant and primary concept to present the responsibility of a firm to care for, support and look after society.

From the so far discussion, the following question instantly emerges: ‘to whom companies are responsible to?’ The answer is: ‘to stakeholders’ (Vos, 2003). Stakeholders are “those groups who can affect and/or are affected by the achievement of an organization’s purposes” (Freeman, 1984, p.49). Stakeholders of an organization are employees, shareholders, creditors, suppliers, customers, governmental bodies and society in general (Roberts, 1992). Such stakeholders have the ability to equip private companies with ‘social licenses’ which may have a substantial impact on companies’ business performance (Gunningham, Kagan and Thornton, 2004). According to Clarkson (1995), stakeholders can be categorized in primary (i.e. employees, suppliers, customers and government) and secondary ones (i.e. the media and non-governmental organizations). The former group of stakeholders is essential for the survival of the firm, in contrast to the latter group of stakeholders. However, all these stakeholders can have an influence on the firm’s license to operate, therefore, companies need to manage the relationships with them (Commission of the European Communities, 2001).

Despite the growing interest in the academic circles, the specific connotation of the term still remains unresolved and elusive (Metaxas and Tsavdaridou, 2013). In the extant literature, CSR definition is debatable (Rahman, 2011), ranges from narrow to broad, and from simple to complex (Faisal, 2010; Taneja, Taneja and Gupta, 2011), and derives from researchers, various organizations and governmental bodies (Sharma and Shrivani, 2013). As we have noticed in the first paragraphs of this section, early definitions of CSR can be characterized as somewhat contradictory (Carter and Jennings, 2004). The variety and ambiguity of CSR definitions is reflected on the CSR definition provided by the British Department of Trade and Industry, which ranges the scope of CSR activities from finite to infinite (Taneja, Taneja and Gupta, 2011). According to the Commission of the European Communities (2001, p. 6), “CSR is a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis”. In 2011, the European Commission updated the CSR definition, stating that CSR is “the responsibility of enterprises for their impacts on society.” In order for companies to fully meet their corporate social responsibility, they “should have in place a process to integrate social, environmental, ethical and human rights concerns into their business operations and core strategy in close collaboration with their stakeholders” (European Commission, 2011). The updated definition lays emphasis on the following aspects: the importance of core business strategy, the creation of shared value, and the explicit recognition of human rights and ethical considerations, in parallel with the social, environmental and consumer considerations. The updated definition of

CSR provided by the European Commission (2011) will be used as a background to discuss the motives behind the implementation of OHS practices. From the author of this thesis point of view, this is one of the most complete definitions, fully reflecting the needs of our modern society. One of this needs is the health and safety of the place we spend approximately eight hours per day; the workplace.

After defining CSR, the discussion centers on the CSR initiatives which can have an impact upon the entire spectrum of business operations, but they mainly address issues related to OHS, human rights, training, business standards and corporate governance, economic development and human disaster relief (Christie, 2009). CSR focuses on the impact that a company generates upon human beings from two different standpoints: the direct and the indirect (Koskela, 2014). The former refers to OHS initiatives and personnel policies. OHS describes actions that contribute to a healthy and safe workplace, while personnel policies include employee training, trade union freedom and lack of discrimination. Regarding the indirect CSR, it can be divided between local and global based on the characteristics of the company. Local and global CSR consist of actions to guarantee product safety, actions within the supply chain network and actions within the local community. For the purposes of this thesis, emphasis will be placed on direct CSR, and more specifically on the aspect of OHS.

Prior to discussing health and safety in the workplace, the discussion will be revolved around the motives for engaging in CSR activities. These motives are a cornerstone for the research continuum.

2.2.2 Motives for engaging in CSR

Paine (2003) categorizes the motives for engaging in CSR into five areas: (a) risk management, (b) organizational functioning, (c) market positioning, (d) civil positioning, and (e) the better way. To begin with, companies introduce CSR initiatives as a *risk management* procedure. This can be viewed as a defensive mechanism of damage control. Through the communication of certain organizational values, unpleasant situations such as accidents, misconducts and scandals can be prevented. Leaving the risk management area, we find the organizational functioning area. *Organizational functioning* is a more proactive tactic compared to risk management, which places more emphasis on organizational building, rather than preventing missteps. It is based on internal relations, cooperation, and on the creation of an equal and respectful corporate culture, to build a well-functioning organization that encourages employee involvement and engagement. When companies are motivated by organizational functioning, internal reputation can be enhanced and attractive working environments can be created. The third area in Paine's (2003) model is *market positioning*, which reflects motivation stemming from the expressed concerns from clients and competitors. Market positioning has received increased attention due to the increasing awareness of customers regarding the story behind the production of products. This third motive focuses on the importance of values for shaping the firm's reputation and identity, building the brand image, and earning the trust of customers and business partners. The fourth area in Paine's (2003) model regarding CSR motivation is *civil positioning*. Civil positioning lays emphasis on the establishment of good relations with local communities, rather than in attracting new customers. Lastly, the fifth area is *the better way*, in which values and ethical concerns are the cornerstones of the decision making of the

organization. This motive is based on the logic that any manager or employee has an ethical obligation to contribute to the improvement of society. When companies are motivated by the better way approach, they are reflecting honesty and fairness in their business operations, and act as a responsible citizen. Companies are viewed as humanistic entities, rather than profit machines.

Inspired by Carroll's (1979) pyramid, Paine's (2003) model will be schematically illustrated in a pyramidal shape. The pyramid is a structure known for its paramount stability and can symbolically be used to demonstrate the overall significance of a social responsible firm (Jayaram *et al.*, 2012). Therefore, Figure 2 depicts the previously mentioned motives for engaging in CSR initiatives, in a pyramid-structure framework.



Figure 2: CSR motivation framework (adapted from Paine, 2003, inspired by Carroll, 1979)

2.2.3 Benefits from engaging in CSR

In the previous section the discussion was centered on the motives that drive companies to engage in CSR activities. In this section the focus is shifted towards the benefits that derive from engaging in CSR activities.

To begin with, CSR can *increase firm's financial performance and profitability* (Burke and Logsdon, 1996; Holme and Watts, 2000; Bevan *et al.*, 2004; Markley and Davis, 2007), *reduce operating costs* (Bevan *et al.*, 2004; Carroll and Shabana, 2010), *increase the operational efficiency of the firm* (Perry and Towers, 2013), *provide better risk management* (Bevan *et al.*, 2004; Carroll and Shabana, 2010), and *better crisis management* (Panapanaan *et al.*, 2003; Bevan *et al.*, 2004).

Focusing on employees, CSR can *motivate employees* (Perry and Towers, 2013), *increase employees' productivity* (Burke and Logsdon, 1996; Manis-Anderson, 2014) *improve employees' morale* (Burke and Logsdon, 1996), *employees' satisfaction* (Manis-Anderson,

2014), *increase employees' commitment and involvement* (Burke and Logsdon, 1996; Bevan *et al.*, 2004), *increase employees' loyalty* (Panapanaan *et al.*, 2003), *increase employees' retention* (Burke and Logsdon, 1996; Panapanaan *et al.*, 2003; Manis-Anderson, 2014), *improve the quality of life of the workforce* (Holme and Watts, 2000), and *attract potential employees* (Panapanaan *et al.*, 2003; Carter and Rogers, 2008).

In addition, CSR can *attract and retain support from consumers* (Devinney, 2009), *help to develop closer links with firm's customers and increase awareness regarding their needs* (Bevan *et al.*, 2004), *enhance the firm's reputation* (Burke and Logsdon, 1996; Bevan *et al.*, 2004; Carter and Rogers, 2008; Hsueh and Chang, 2008; Carroll and Shabana, 2010), *improve brand value* (Bevan *et al.*, 2004), *become a criterion for supplier selection* (Panapanaan *et al.*, 2003), *improve relationships with investors* (Bevan *et al.*, 2004), *with government* (Bevan *et al.*, 2004), and *communities* (Bevan *et al.*, 2004), *improve the quality of life of the local community* (Holme and Watts, 2000) *contribute to a cleaner environment* (Cierniak-Emerych and Zięba, 2014), *become a strategic competitive advantage over the competition* (Porter and Kramer, 2006) and *deliver benefits to the society at large* (McWilliams and Siegel, 2001).

Table 1 incorporates of the benefits deriving from engaging in CSR initiatives, as they have been identified in the literature review.

Benefits	Authors	Burke & Logsdon, 1996	Holme & Watts, 2000	McWilliams & Siegel, 2001	Panapanaan et al., 2003	Bevan et al., 2004	Porter & Kramer, 2006	Markley & Davis, 2007	Carter & Rogers, 2008	Hsueh & Chang, 2008	Devinney, 2009	Carroll & Shabana, 2010	Perry & Towers, 2013	Cierniak-Emerych & Zięba, 2014	Manis-Anderson, 2014
1. Improve profitability		✓	✓			✓		✓							
2. Reduce operating costs						✓						✓			
3. Increase operational efficiency													✓		
4. Better risk management						✓						✓			
5. Better crisis management					✓	✓									
6. Increase employees' motivation													✓		
7. Increase employees' productivity		✓													✓
8. Improve employees' morale		✓													
9. Improve employees' satisfaction															✓
10. Increase employees' involvement		✓				✓									
11. Increase employees' loyalty					✓										
12. Increase employees' retention		✓			✓										✓
13. Improve employees' quality of life			✓												
14. Attract potential employees					✓				✓						
15. Attract support from customers											✓				
16. Retain support from customers											✓				
17. Develop closer links with customers						✓									
18. Increase awareness regarding customers' needs						✓									
19. Increase firms' reputation		✓				✓			✓	✓		✓			
20. Improve brand value						✓									
21. Become a criterion for supplier selection					✓										
22. Improve relationships with investors						✓									
23. Improve relationships with government						✓									
24. Improve relationships with communities						✓									
25. Improve the quality of life of the local community			✓												
26. Contribute to a cleaner environment														✓	
27. Strategic competitive advantage							✓								
28. Deliver benefits to the society at large				✓											

Table 1: Benefits from engaging in CSR

The discussion of benefits from engaging in CSR initiatives concludes the section of CSR. Even though the major concept of this thesis is OHS, the author felt that it is important to discuss in depth the concept of CSR. The rationale behind this decision is threefold. First of all, to provide a solid background of CSR, the broader concept that incorporates OHS. Secondly, the CSR motivation framework of Paine (2003) will be used to classify the identified motives for implementing OHS practices. Lastly, to facilitate the analysis of the empirical findings, considering that research in OHS is limited and underdeveloped (De Koster, Stam and Balk, 2011; Di and Lo, 2012), as opposed to CSR literature which is quite extended, providing an additional tool for the analysis of the thesis' findings.

The subsequent section of the theoretical framework is devoted to OHS, an integral element of CSR (Wokutch, 1990; Montero, Araque and Rey, 2009; Koskela, 2014).

2.3 Occupational Health and Safety (OHS)

2.3.1 OHS as part of CSR

The management of health and safety in the workplace is not a 21st century phenomenon, but its roots are stretching back to the 19th century, and more specifically at the center of UK's industrial history ('OS&H history online', 2014) as a social measure in order to counterbalance the undesirable effects of Industrial Revolution (Froneberg, 2006). Through the following 200 years, a number of legislating acts came into the industrial scene, established and sustained by national and international labor laws (Froneberg, 2006). These regulations were grounded on the principle that "workers can go home to their families safe and healthy at the end of each day" ('OS&H history online', 2014, p.12).

During the last decades, the workplace has been subjected to major changes concerning the age of retirement, the daily and weekly working time, the employment contracts and the working conditions (Papadopoulos *et al.*, 2010). Working conditions should be healthy and safe, something that is not always granted for a great number of employees around the globe (Cioca and Moraru, 2010). There are various ways to deal effectively with OHS concerns such as, legislative acts, regulation, safety guidelines, safety standards, safety audits and accident investigations (Aneziris, Papazoglou and Doudakmani, 2010). However, Montero, Araque and Rey (2009) place emphasis on the fact that health and safety at the workplace should go beyond legal requirements. This thesis is built upon the CSR definition provided by the European Commission (2011) that for companies to fully meet their corporate social responsibility, they should have in place a process to integrate social, environmental, ethical and human rights concerns into their business operations and core strategy, in close collaboration with their stakeholders. According to the International Labor Office (ILO, 2007), OHS is a fundamental right and a vital element of a 'decent work' agenda, and employees are viewed as the most important primary internal stakeholders for these issues. OHS should be a right that all workers must enjoy, taking into account that it is the primary driver of human rights inside the working environment. Thus, OHS is a distinct characteristic of a responsible organization (Amponsah-Tawiah and Dartey-Baah, 2012), and a highly important aspect of an organization's CSR activities (Koskela, 2014). The provision of a healthy and safe working environment and the

promotion of a risk prevention culture, are two essential social responsibilities of a firm, making OHS an integral element of CSR (Montero, Araque and Rey, 2009). The tight bond between CSR and OHS has been confirmed by a series of case studies conducted by the European Agency of Safety and Health at Work (2004). According to the Agency (2004, p.10), companies “cannot be good externally, while having a poor social performance internally”. Therefore, “safe and sound working conditions and good worker health belong to the social responsibilities of companies and can be regarded as an integral part of CSR” (European Agency of Safety and Health at Work, 2004, p7).

OHS is a broad discipline (Erickson, 1996) that focuses on the following three objectives: (a) to maintain and promote employees’ health and working capacity; (b) to improve the workplace and work to become conducive to health and safety; and (c) to develop work organizations that support OHS (Kendall, 2006). The prime beneficiaries of OHS initiatives are the workforce and all stakeholders who are present or directly linked to the working environment (Amponsah-Tawiah and Dartey-Baah, 2012).

According to British Standards Institution (2007, p19):

“Occupational health and safety deals with conditions and factors that affect, or could affect, the health and safety of employees or other workers (including temporary workers and contractor personnel), visitors, or any other person in the workplace”.

The aforementioned definition suits the purposes of this master thesis, considering that it covers not only employees but everyone who is present in workplace activities, following the notion of CSR, incorporating various stakeholders. Following the OHS definition, the discussion is focused on the different corporate approaches regarding OHS. More in detail, OHS approaches can be clustered into three categories: reactive, managed and proactive (Freibott, 2014). Companies adopting a reactive approach, focus mainly on complying with state legislation, and applying in their operations experience gained from their OHS failures. In reactive approach, risk controls are dependent on individuals (Bottomley, 1999). Companies adopting a managed approach leverage procedures, policies and systems in an attempt to prevent accidents. Accidents in the managed approach are viewed as natural consequences of operations. Lastly, companies with proactive approach strive for a zero-incident work environment, by introducing proactive health and safety management systems, as well as behavior-based OHS strategies. Proactive companies have the most mature OHS approach and do not accept any kind of avoidable risk and danger to threaten their employees. Proactive companies operate under the principle that all corporate functions should share the same OHS objectives, and everyone in the company should be part of the health and safety culture (Freibott, 2014).

Figure 3 illustrates the three approaches.

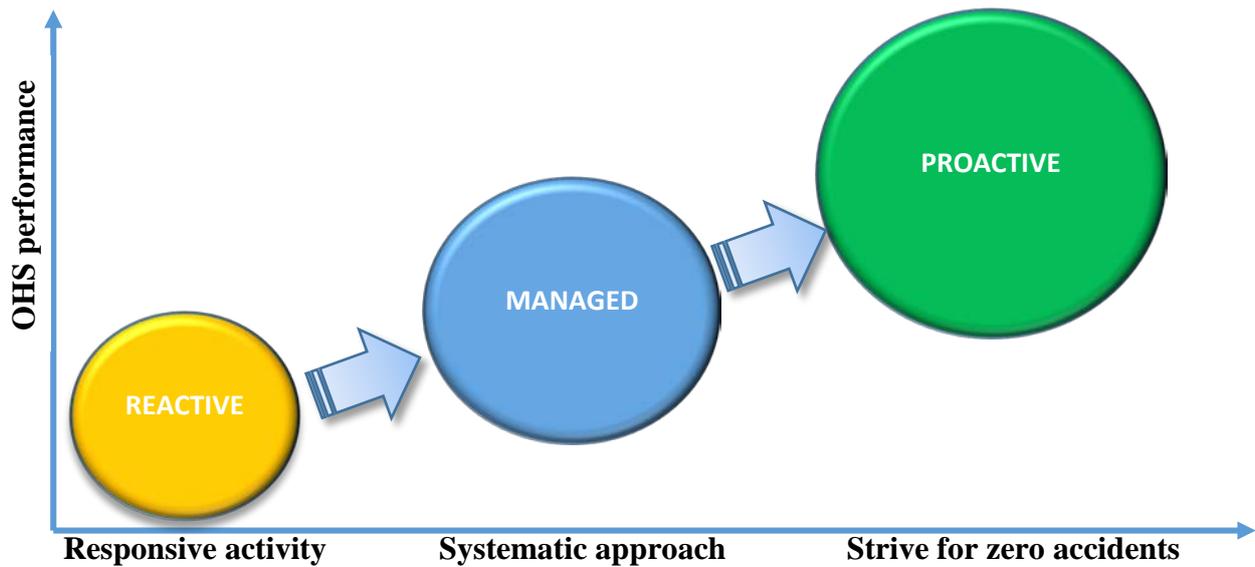


Figure 3: Evolution of OHS approaches (adapted from Freibott, 2014)

In the following section, the benefits from implementing OHS practices are discussed.

2.3.2 Benefits from OHS practices

Based on the literature review, there are various benefits from implementing OHS practices in firm's operations.

Focusing on employees, OHS practices can *protect employees* ('CSHS Report', 2013), *improve employee satisfaction* (Ogilvie, Carlson and Chizzonite, 2002; Biquand and Zittel, 2012), *enhance employee morale*, (Christie, 2009; Biquand and Zittel, 2012), *demonstrate commitment to the business* (Biquand and Zittel, 2012), *retain existing workforce* and *attract potential employees* (Biquand and Zittel, 2012). *Internal reputation* of the company can be improved with the use of OHS policies (Ogilvie, Carlson and Chizzonite, 2002; Ranängen, Zobel and Bergström, 2014).

Furthermore, it can *enhance health and safety performance* ('CSHS Report', 2013; Koskela, 2014; Moussu and Ohana, 2014), and *increase productivity* (Biquand and Zittel, 2012; Moussu and Ohana, 2014), because a healthy employee is considered to be a better employee (Edington and Schultz, 2008). In addition, commitment to OHS can *preserve and maintain pre-established working standards* (Drakopoulos, Economou, and Grimani, 2012). The implementation of OHS practices helps organizations to *create attractive workplaces* (Ogilvie, Carlson and Chizzonite, 2002; Granerud and Rocha, 2011, 'CSHS Report', 2013; Koskela, 2014), and provide the opportunity to a firm to *enhance the accuracy of benchmarking*, and consequently *increase the overall effectiveness of the company* ('CSHS Report', 2013).

Regarding the financial aspect, OHS conducts can secure higher and more *consistent revenue streams*, can *optimize budget allocation* (Ogilvie, Carlson and Chizzonite, 2002), and decrease *health related costs* due to the reduction of accidents in the workplace, which can take the form

of higher salaries in order to compensate for the high levels of risk at the workplace, and penalties imposed by the government for not abiding the laws (Edington and Schultz, 2008; Moussu and Ohana, 2014). Moreover, it can contribute to the *reduction of costs of health coverage* provided by employees (Moussu and Ohana, 2014), as well as to the *reduction of cost capital from investors*, owing to low exposure to risk (Christie, 2009).

The implementation of OHS practices *indicates commitment to meet legislative requirements* (Kornfeldová and Myšková, 2012). Kornfeldová and Myšková (2012) point out that OHS policies can act as a *marketing tool* in order to promote more effectively the firm's offerings over the competition. The existence of more precise, meaningful and extensive indicators for OHS will assist stakeholders and investors to make more *accurate comparisons between companies of the same sector* ('CSHS Report', 2013), and *enhance shareholders' satisfaction* (Ogilvie, Carlson and Chizzonite, 2002; Christie, 2009; Biquand and Zittel, 2012). Additionally, it can *improve relationships with government* (Ogilvie, Carlson and Chizzonite, 2002; Christie, 2009; Biquand and Zittel, 2012), *with partners* (Ogilvie, Carlson and Chizzonite, 2002; Biquand and Zittel, 2012), *with donors and sponsors* (Biquand and Zittel, 2012), *with other companies* (Biquand and Zittel, 2012), *with the media* (Biquand and Zittel, 2012), *with company's customers* (Biquand and Zittel, 2012) and *with local communities* (Christie, 2009; Biquand and Zittel, 2012). In addition, OHS practices can minimize the likelihood of *state intervention* (Christie, 2009). When a working environment reflects health, safety, and absence of accidents, *the overall corporate image can be enhanced* (Christie, 2009; Biquand and Zittel, 2012; Koskela, 2014), *the right corporate image can be communicated* to its stakeholders (Ranängen, Zobel and Bergström, 2014), and *consistency to the core aspects of the business* can be disseminated (Ranängen, Zobel and Bergström, 2014). The *external reputation* of the company can be improved with the application of OHS policies (Ranängen, Zobel and Bergström, 2014), and such policies can turn into a *competitive advantage* over the rivals (Christie, 2009; Amponsah-Tawiah and Dartey-Baah, 2012). Lastly, it can *attract and retain customers* (Biquand and Zittel, 2012).

Table 2 outlines all the benefits identified in the literature review.

#	OHS Benefits	Amponsah-Tawiah & Dartey-Baah, 2012	Biquand & Zittel, 2012	Christie, 2009	CSHS Report, 2013	Drakopoulos, Economou & Grimani, 2012	Edington & Schultz, 2008	Granerud & Rocha, 2011	Kornfeldová & Myšková, 2012	Koskela, 2014	Moussu & Ohana, 2014	Ogilvie, Carlson & Chizzonite, 2002	Ranängen, Zobel & Bergström, 2014
1	Protect employees				✓								
2	Improve employee satisfaction		✓									✓	
3	Improve employees' moral		✓	✓									
4	Demonstrate Business commitment		✓										
5	Retain workforce		✓										
6	Attract workforce		✓										
7	Increase Internal reputation											✓	✓
8	Improve H&S performance				✓					✓	✓		
9	Improve productivity		✓								✓		
10	Preserve working standards					✓							
11	Create attractive workplaces				✓			✓		✓		✓	
12	Improve benchmarking				✓								
13	Increase firm's overall effectiveness				✓								
14	Consistent revenue streams											✓	
15	Optimize budget allocation											✓	
16	Reduce health-related costs						✓				✓		
17	Reduce health coverage costs										✓		
18	Reduction of cost capital from investors			✓									
19	Indicates commitment to legislation								✓				
20	Marketing tool								✓				
21	Accurate company comparison				✓								
22	Increase shareholder satisfaction		✓	✓								✓	
23	Improve relationships with government		✓	✓								✓	
24	Improve relationships with partners		✓									✓	
25	Improve relationships with donors and sponsors		✓										
26	Improve relationships with other companies		✓										
27	Improve relationships with the media		✓										
28	Improve relationships with company's customers		✓										
29	Improve relationships with local communities		✓	✓									
30	Minimize the likelihood of state intervention			✓									
31	Improve corporate image		✓	✓						✓			
32	Communicate the right corporate image												✓
33	Communicate consistency to core values												✓
34	Improve external reputation												✓
35	Competitive advantage	✓		✓									
36	Attract customers		✓										
37	Retain customers		✓										

Table 2: Benefits from implementing OHS practices

2.3.3 OHS standards and guidelines

An OHS certificate can provide support to the claims of an organization of being responsible to the whole spectrum of its stakeholders (Cierniak-Emerych and Zięba, 2014). More in detail, an OHS certificate can assist the documentation of certain patterns of an organization's working conditions. The purpose behind this documentation is to demonstrate these patterns to the public in general and to the firm's customers in specific, in an attempt to show that the company acts in accordance with established standards (Granerud and Rocha, 2011). According to Duijm *et al.* (2008), two of the most important international standards regarding OHS are BS8800:2004 and OHSAS 18001:2007. The former, BS8800:2004, is a guide to OHS systems that clarifies how the different elements in developing an OHS management system can be dealt with and incorporated into daily management arrangements (Occupational health and safety standards, 2015). The latter, OHSAS 18001:2007 is the most popular international standard for health and safety at work (Di and Lo, 2012), applicable to companies of all types and sizes (Kornfeldová and Myšková, 2012), which is compatible with the quality standards ISO 9000 and ISO 14001. ISO 9000 is a generic management systems standard, providing the basic layer for other ISO standards, while ISO 14001 is an international standard for environmental management (Duijm *et al.*, 2008). The notion of the OHSAS 18001:2007 certificate is to offer guidance to organizations to propose and introduce measures, so as to reduce, eliminate or isolate occupational hazards (Kornfeldová and Myšková, 2012). Beyond these two aforementioned certificates, there are also some widely-applied guidelines or voluntary schemes for OHS (Duijm *et al.*, 2008). Two of these are the ILO-OSH 2001 guideline from the International Labor Office (ILO, 2001), and the HSE guideline for "successful health, safety and environment management" (HSE, 1997).

However, the trustworthiness of certification is increasingly criticized by consultants, organizations and members of communities related to certifications (Castka, and Balzarova, 2008). Certification should be accompanied by transactional and transformational changes. In case such changes do not occur, certification will not be able to guarantee high-performance outcomes (Abraham *et al.*, 2000; Castka *et al.*, 2004). Blewett and O'Keefe (2011) pinpoint that OHS certificates do not necessarily mirror the commitment of organizations towards OHS practices. This is stemming from the fact that social audits, including auditing of OHS, might fail due to deliberate fraud, unintentional errors, influence from personal relationships between the client and the auditor and financial interests (Blewett and O'Keefe, 2011). Empirical evidence for the lack of credibility of OHS certification can be found in the case of Ali Enterprises garment plant in Karachi, Pakistan (Brown, 2013). Three weeks after the issue of OHS certification, 258 employees were killed in a fire when they were trapped behind locked doors and barred windows.

The discussion regarding OHS certification concludes the section of health and safety at the working environment. In the following section, the concept of logistics is introduced and its associations with the concepts of CSR and OHS are established.

2.4 Logistics

The early form of structured trade, which can be considered as a logistics activity, is thousands of years old (Grant *et al.*, 2006). The word 'logistics' derives from the Greek words 'logistikos', 'logos' and 'logizesthai' which mean "skilled in calculating", "reason", and "to calculate", respectively, and the Latin word 'logisticus' which means "calculation" (Van Wassenhove, 2006). Logistics is a strategic function that can have an impact on the success of an organization (Karagülle, 2012). In the extant literature there are many available accepted definitions of logistics (Politis, Giovanis and Binioris, 2014). According to the glossary of the Council of supply chain management professionals (2013, p.117), logistics is:

"The process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. This definition includes inbound, outbound, internal, and external movements".

To put it more plainly, logistics is about getting the right product, in the right way, in the right quantity and at the right condition, in the right place at the right time, for the right customer, at the right price (Mangan, 2012).

According to Mangan (2012), logistics is part of the Supply Chain. A supply chain is defined as: "the network of organizations that are involved through upstream (supplier end of the supply chain) and downstream (customer end of the supply chain) linkages, in the different processes and activities that produce value" (Mangan, 2012, p.10). Supply chain management is comprised of sourcing and procurement, assembly and packaging, warehouse and inventory management, inbound and outbound transportation management, management of third-party logistics service providers (LSP), and customer service (Idowu and Louche, 2011). Thus, supply chain is a much broader, intercompany concept compared to logistics (Mangan, 2012).

This distinction between the two concepts is necessary because there is the misconception that the terms of logistics and supply chain are synonymous (Emmett and Sood, 2010). As a result, these two terms are used interchangeably, without being the same. This clarification will shed light at the following section of the theoretical framework chapter, where discussion is shifted towards social responsible logistics.

2.4.1 CSR in Logistics

Over the past years, researchers have encouraged the introduction of social responsibility into logistics operations (Bowersox, 1998; Poist, 1989; Stock, 1990). In logistics, "societal considerations frequently have been given only implicit or lip-service treatment rather than the explicit and prominent treatment proposed under a responsibility approach" (Poist, 1989, p.37), where "few individuals have as yet examined the relationship of logistics with issues such as consumerism, social welfare and other societal concerns" (Stock, 1990, p.5), when "the logistical mission of yesterday is being replaced by a broader concept driven by social responsibility" (Bowersox, 1998, p.2). CSR is a concept of high relevance for business in

general, and within logistics in particular (Seuring *et al.*, 2008). Despite the history of CSR, research in the field of social responsible logistics has emerged during the last years (Carter and Jennings, 2004; Ciliberti, Pontrandolfo and Scozzi, 2008; Seuring and Müller, 2008).

In response to the limited research in social responsible logistics, applications of CSR to logistics activities, functions and decisions have emerged during the last years (Björklund, 2010) with the introduction of the term ‘Logistics Social Responsibility’ (LSR) (Carter and Jennings, 2002). Logistics Social Responsibility (LSR) is the application of CSR in the logistics domain and it is defined as the management of logistics in a socially responsible manner (Carter and Jennings, 2002). Closely related to the concept of LSR is the concept of Sustainable Supply Chain Management (SSCM), which is defined as the strategic, transparent integration and achievement of an organization’s social, environmental, and economic goals in the systemic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual company and its supply chains (Carter and Rogers, 2008, p.368). However, considering that the intention of the author is to avoid direct references to alternative terminologies, terms such as supply chain will not be examined in the present thesis. Thus, the discussion will be revolved only around the concept of LSR.

Shun, Zhaowei and Di (2011) state that the importance of socially responsible logistics has been highlighted by several academics. However, there is a lack of consensus regarding the practices associated with socially responsible logistics (León and Juan, 2014). Poist (1989) identifies as the most important practices, employee education and training, corporate philanthropy, environmental and ecological control, urban renewal and development, civil rights and equal opportunity, OHS, and community concerns such as hunger and homelessness. Carter and Jennings (2002) propose environment, ethics, diversity, working conditions and human rights, safety, and philanthropy and community involvement. Murphy and Poist (2002), suggested that environment and workplace diversity are the primarily practices of social responsible logistics. Ciliberti, Pontrandolfo and Scozzi (2008), identified 47 different types of practices in socially responsible logistics. Finally, Miao, Cai and Xu (2012), consider as the most important practices, the selection of supplier, the product delivery to customers, the environmental protection, humanity to employees and philanthropy/ community. For the purposes of this thesis, the classification suggested by Poist (1989) is adopted. The rationale behind this selection is that Poist (1989) explicitly mentions OHS, compared to the other proposals. Thus, his categorization regarding the practices of social responsible logistics will serve as a background for the thesis continuum. Figure 4 illustrates the practices of social responsible logistics, as suggested by Poist (1989).

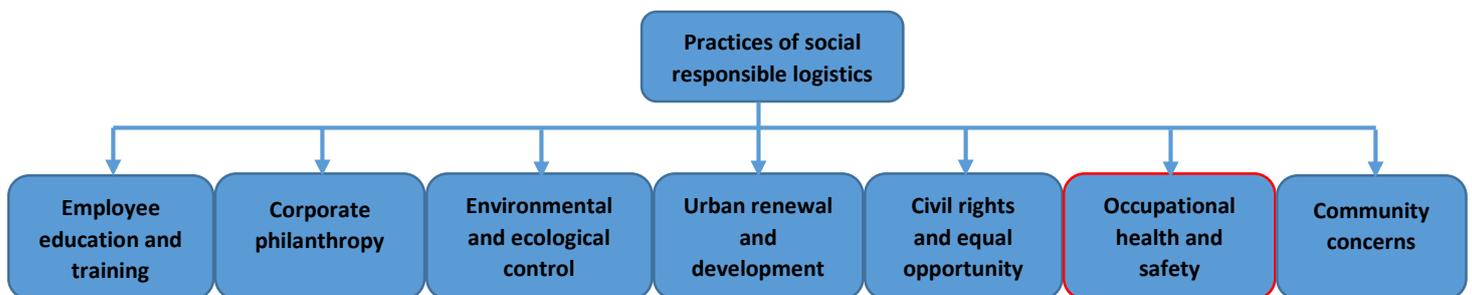


Figure 4: Practices of Logistics Social Responsibility (adapted from Poist, 1989)

Practices of social responsible logistics conclude the section of CSR in logistics. In the following section, the concept of OHS and its association with logistics is discussed.

2.4.2 OHS in Logistics

According to Johnson and Holley (2012), health and safety is a key aspect in order to run successfully a logistics business. However, that was not reflected in the literature search, where articles linking the concepts of logistics and OHS are limited and outdated. Golbe (1986) examined the relationship between safety and profitability in airline transportation, while Bruning (1989) examined the relationship between safety and profitability in motor carriers. Henriksson (1992) examined drug and alcohol tests for employees in transportation industry, and Crum and Dooley (1995) studied the effect of government regulation on safety in railroads. Swartz (1998) examined employees' training for safely operating forklifts, while Mejza *et al.* (2003) examined safety performance in motor carriers. However, caution should be given to the fact that the lack of relevant articles may be attributed to the selection of keywords in the literature search, a topic that will be covered in greater detail in the subsequent chapter. The absence of relevant literature will be discussed further in the last chapter of this thesis, where conclusions are drawn and further research is proposed. In the next section, an overview of the theoretical framework chapter is provided.

2.5 Summary of the theoretical framework chapter

The purpose of this chapter was to discuss the concepts of CSR and OHS, and establish their association with logistics. CSR refers to the responsibility of enterprises for their impacts on society. In order to fully meet their corporate social responsibility, "enterprises should have in place a process to integrate social, environmental, ethical and human rights concerns into their business operations and core strategy, in close collaboration with their stakeholders" (European Commission, 2011). There are different motives for companies to engage in CSR initiatives. Initially, it starts as risk management, then organizational functioning, then market positioning, then civil positioning, and the last motive is the better way (Paine, 2003). The engagement in CSR initiatives can deliver multiple benefits to the company or to the society at large. One important dimension of CSR is OHS (Montero, Araque and Rey, 2009), that "deals with conditions and factors that affect, or could affect, the health and safety of employees or other workers (including temporary workers and contractor personnel), visitors, or any other person in the workplace" (British Standards Institution, 2007, p19). After discussing in detail the concepts of CSR and OHS, the focus is set on logistics, the third major concept of this thesis, which is about getting the right product, in the right way, in the right quantity and at the right condition, in the right place at the right time, for the right customer, at the right price (Mangan, 2012). The theory chapter ends with the discussion regarding the linkages of logistics with the concepts of CSR and OHS. Initially, the concept of Logistics Social Responsibility (LSR) is introduced, which is the management of logistics in a socially responsible manner (Carter and Jennings, 2002). Then, the link between logistics and OHS is discussed, highlighting the limited and outdated relevant research in the extant literature. Table 3 incorporates the

definitions of the three major concepts of the current chapter, as they have been discussed in the above sections.

Corporate Social Responsibility (CSR)
<p>“The responsibility of enterprises for their impacts on society”.</p> <p>”To fully meet their corporate social responsibility, enterprises should have in place a process to integrate social, environmental, ethical and human rights concerns into their business operations and core strategy in close collaboration with their stakeholders.”</p> <p style="text-align: right;">(European Commission, 2011)</p>
CSR Motivation
<p style="text-align: right;">(Paine, 2003)</p>
Occupational Health and Safety (OHS)
<p>“Occupational health and safety deals with conditions and factors that affect, or could affect, the health and safety of employees or other workers (including temporary workers and contractor personnel), visitors, or any other person in the workplace”</p> <p style="text-align: right;">(British Standards Institution, 2007, p19)</p>
Logistics
<p>Getting the right product, in the right way, in the right quantity and at the right condition, in the right place at the right time, for the right customer, at the right price (Mangan, 2012).</p>

Table 3: Summary of the Theoretical Framework Chapter

3. RESEARCH METHODOLOGY

The noun ‘research’ derives from the prefix *re* which means again, and the verb *search* which means thorough and careful examination (Kumar, 2014). The *Oxford English Dictionary* online (2015) defines research as “a careful study of a subject, especially in order to discover new facts or information about it”. Methodology refers to the way the researcher is approaching the topic under investigation (Silverman, 2013). The aim of this chapter is to provide a detailed view of the research methodology, adopted for the purposes of the thesis.

3.1 Overview of the Chapter

Following the chapter’s overview, the second section of the chapter is divided into two sub-sections; the first one presents the research approach, which is a mixed-methods approach, while the second section describes the research reasoning, which is abductive reasoning. Subsequently, in the third section the research method is presented, which is the Delphi technique. In the fourth section, the research process of the Delphi method is discussed. The fifth section sheds light on the ethical considerations, while the sixth section serves as a quality valuation instrument. The seventh, and last section, summarizes the research methodology chapter. The structure of the present chapter is schematically depicted in Figure 5.

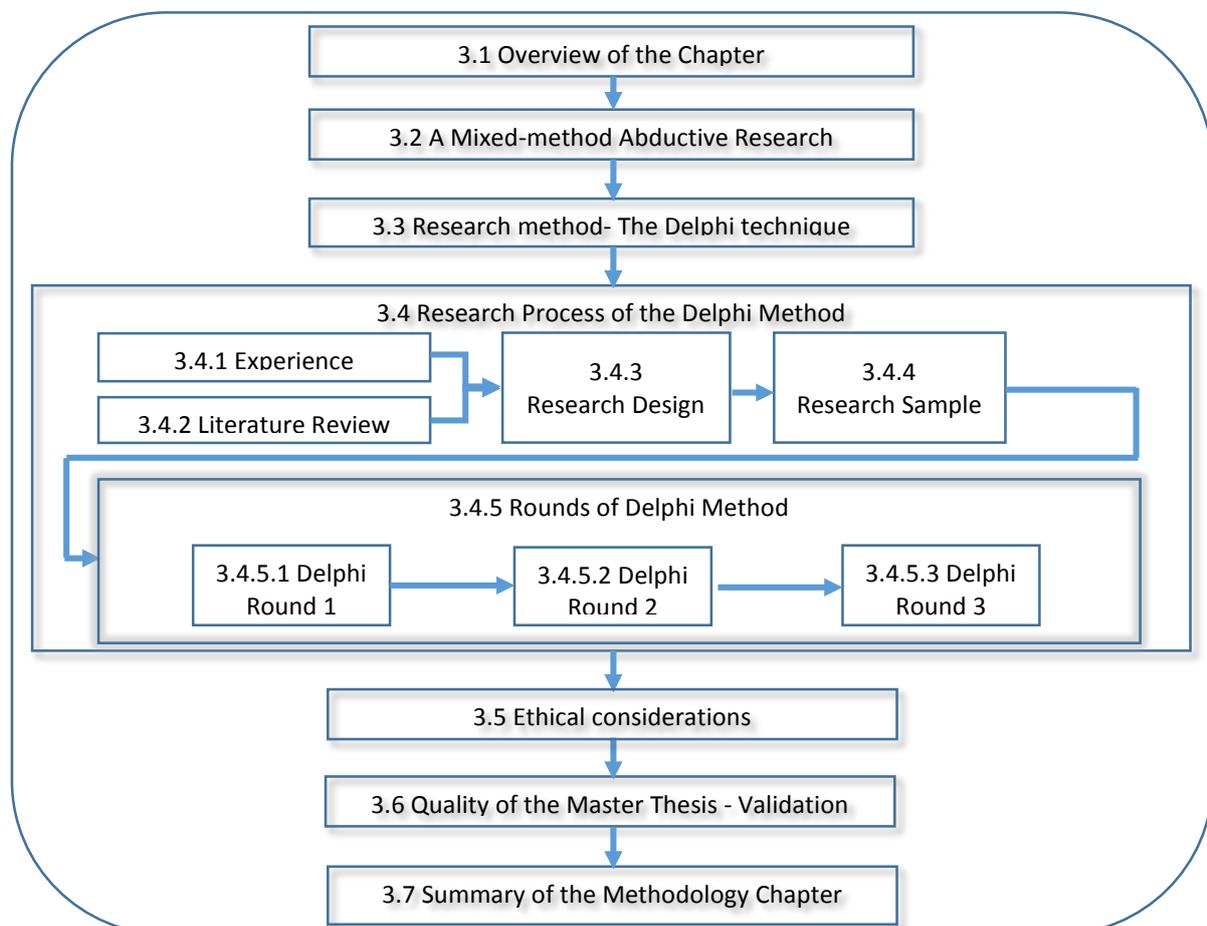


Figure 5: Structure of the Methodology Chapter

3.2 Research approach

This section of the methodology chapter aims to provide a detailed picture of the research approach and the reasoning upon which the research is based. Initially, the mixed-methods approach is presented, followed by the abductive reasoning adopted by the author.

3.2.1 A mixed-methods research approach

According to Bryman (2012), research can be distinguished between qualitative and quantitative. For the purposes of the thesis, qualitative and quantitative methodologies are combined. Consequently, this type of research is considered to be a mixed-methods research (Tashakkori and Teddlie, 2003).

In qualitative research, the researcher investigates how phenomena are “experienced” or “constructed” in people’s everyday activities (Silverman, 2013, p.103). In the first stages of this thesis, the author aimed to discover ‘what is going on here’, without making any early hypotheses (Silverman, 2013, p.103). Qualitative research is characterized by its unstructured and exploratory approach. The absence of structure, imparts flexibility to the research design, giving researchers the opportunity to access significant aspects, which may otherwise be omitted (Bryman, 2004). In addition, the lack of structure allows the researcher to shift direction, in case an unexpected but fascinating aspect of the research setting comes to surface. Qualitative researchers view a predetermined theoretical framework as deleterious, as it may confine the researcher (Bryman, 2004). Data deriving from a qualitative research is characterized as deep and rich (Bryman, 2004).

In quantitative research, data collection is triggered by theoretical interests. Therefore, theorizing comes before the initiation of the research (Bryman, 2004). Research topics are analyzed with the use of statistical methods. As opposed to qualitative research, quantitative research is heavily structured, with a predetermined and rigid methodology (Kumar, 2014). Data deriving from a quantitative research is characterized as hard and reliable (Bryman, 2004).

In this thesis, the author decided to adopt a mixed-methods approach combining elements from qualitative and quantitative methodologies. A mixed-methods research is defined as:

“the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration” (Johnson, Onwuegbuzie and Turner, 2007, p.123).

The rationale behind this selection is that the combination of different methods can provide a holistic understanding of real life situations, something that it is hard to be accomplished with the use of a single-method approach (Mingers and Gill, 1997). Furthermore, the combination of qualitative and quantitative methodologies can enhance the confidence of the researcher to his/her findings, as these two approaches can be viewed as “useful correctives to each other”

(Bryman, 2004, p165). In the following section, the reasoning upon which the research is based is discussed.

3.2.2 Abductive reasoning

Qualitative research is generally associated with inductive reasoning, while quantitative research is mainly related to deductive reasoning (Bryman, 2004). In inductive reasoning, theories are generated from the resultant data, while in deductive reasoning the researcher formulates a research hypothesis based on the existing theoretical framework, and after the collection of data he/she confirms or rejects the research hypothesis. This thesis is based on abductive reasoning, which refers to the constant back and forth movement between inductive and deductive reasoning (Morgan, 2007). Abductive reasoning treats theory and practice in an iterative manner during the examination of the research topic. According to Ivankova, Creswell and Stick (2006), abductive reasoning is often used in researches that combine qualitative and quantitative methods of data collection. Inductive findings from qualitative research are used as inputs to the deductive objectives of the quantitative research and the other way around (Morgan, 2007).

After the literature review, a number of possible motives to implement OHS practices had been identified. That gave to the author the opportunity to have a general idea regarding the implementation of OHS practices. After the end of the first phase of the research process, empirical findings were compared to the so far established theoretical framework and further literature review was conducted. This process was repeated through the whole research process. The 'aftermath' of this procedure is Table 1 and Table 2 in pages 10 and 15 that present the benefits from engaging in CSR initiatives and OHS practices, respectively. Tables 1 and 2 were not built at once. When the first findings emerged, there was a constant movement between theory and findings to examine whether empirical findings can be linked to the literature review. Theory and practice were treated not in isolation but in an iterative manner.

In the subsequent section, the Delphi method is presented that blends qualitative and quantitative methods of data gathering.

3.3 Research method- The Delphi technique

In order to identify the motives behind the implementation of OHS practices, the author utilized the Delphi method. Delphi is a commonly used technique for data collection from participants within their area of expertise (Sandford and Chia-Chien, 2007). It is based on the logic that "n heads are better than one" (Dalkey, 1969, p.411). Delphi is defined as "an iterative process used to collect and distill the judgments of experts using a series of questionnaires interspersed with feedback" (Skulmoski, Hartman and Krahn, 2007, p2).

There are different variations of the Delphi method. It can be used to forecast future trends, to assess the importance of past events, to gather current and historical information, to identify priorities of personal values and social goals, and to distinguish and clarify human motivations

(Linstone and Turoff, 2002). Taking into account that the purpose of the thesis is to identify the motives behind the implementation of OHS practices in logistics operations, makes the Delphi technique suitable for this study. Moreover, the Delphi technique is particularly useful in situations where there is insufficient or contradictory information, because all the ideas derive from participants who have knowledge on the topic under examination (Hasson, Keeney and McKenna, 2000). Considering the lack of research on motives behind implementation of OHS practices in logistics, makes the Delphi technique an appropriate method for this type of research.

The Delphi method is characterized by four distinct traits (Linstone and Turoff, 2002):

- a) Anonymity of the participants: Delphi participants (also referred to as ‘panelists’, ‘panel of experts’ or simply ‘experts’) are expressing their ideas freely, without being obliged to agree with the ideas of the other participants in the research.
- b) Iteration: Participants have the opportunity to refine their opinions, in light of the progress of the panel’s work, through the different stages of the Delphi method.
- c) Controlled feedback: The responses of the panel of experts are distributed among each participant, providing them the opportunity to change or clarify their perspectives.
- d) Statistical aggregation of participants’ responses: Delphi method can be used for quantitative analysis and interpretation of data.

In the subsequent section, the process of the Delphi method is presented. Considering that the thesis is based upon the Delphi method, the research process is identical with the process proposed by the Delphi technique.

3.4 Research process

According to Skulmoski, Hartman and Krahn (2007), the process of a typical Delphi research consists of various stages as depicted in Figure 6.

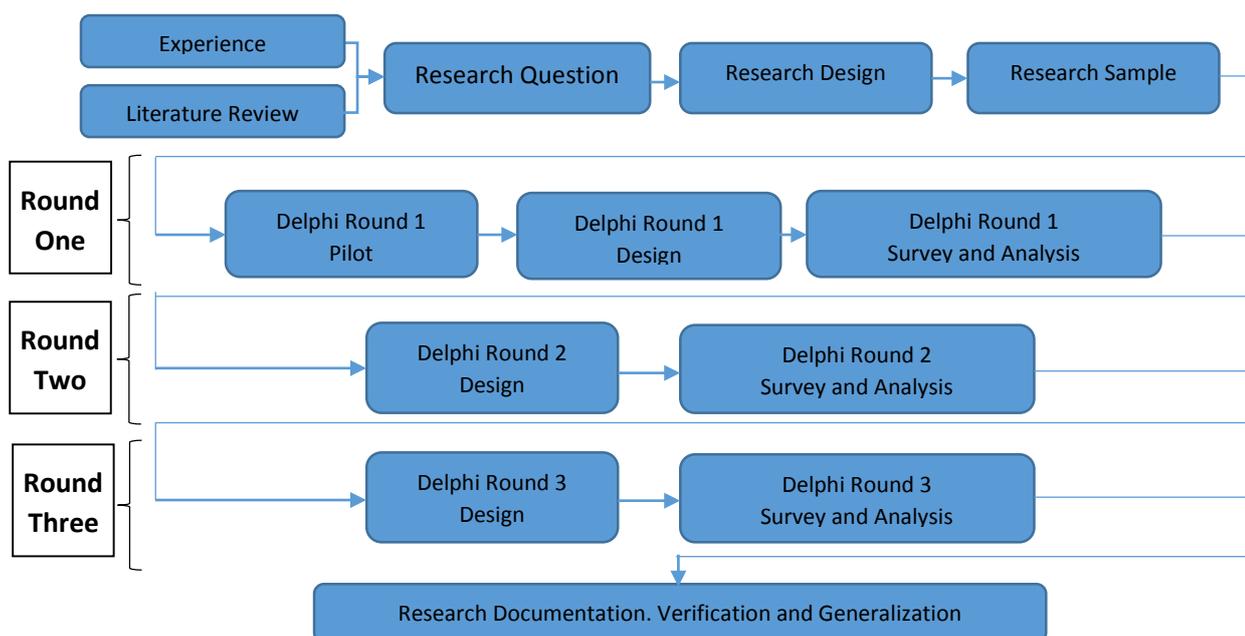


Figure 6: Delphi research process (adapted from Skulmoski, Hartman and Krahn, 2007)

In the following paragraphs each step of the Delphi method is presented, in an attempt to provide a clear view of the research process followed by the author.

3.4.1 Experience

Entering the research field without having any prior experience or at least some pre-established ideas, is considered to be unrealistic (Silverman, 2013). The working experience of the author in logistics companies as well as his academic background in the logistics domain, shaped a picture regarding OHS that led to the selection of the thesis' topic. Nevertheless, having an opinion about the topic under examination is the starting point of the research and not its end-point (Bryman, 2004). Thus, in order to gain a deeper insight into the field of OHS, as a part of CSR, a literature review is required. The next paragraph of the research process is devoted to the literature review conducted by the author.

3.4.2 Literature review

A rigorous research starts with concrete foundations in the relevant literature (Eisenhardt and Graebner, 2007). Thus, in order to understand the notions of the concepts of CSR and OHS, a literature review was performed which is a systematic and reproducible procedure (Fink, 2005), that aims to identify related ideas and abstract them "in a systematic fashion" (Salamone, 1993, p.73). In the following paragraphs, the steps of how the author approached the literature review are presented.

In order to perform a literature review, it is important to select the sources of the knowledge search and the most appropriate keywords to conduct the search. Regarding the sources of knowledge, the search engine of the library of the University of Lund was used, which incorporates a wide range of databases. For completeness, the library search was combined with a search of academic and corporate sources, utilizing Google Scholar. Regarding the keywords for the literature, those were: CSR, Corporate Social Responsibility, Occupational Health and Safety, OHS, OH&S, OSH, H&S, Work Health and Safety, WHS, and Logistics. Different combinations of the previously mentioned terms were tried, to collect published materials. Additionally, the search was confined to publications written in English language, and the timeframe of the search was set from 2000 to 2015 to grasp a contemporary view of the concepts of CSR and OHS.

The use of the aforementioned keywords, over the chosen timeframe, produced a number of seemingly relevant publications. These academic works covered a wide range of written materials, such as journal articles, books, reports, theses, magazines, and conference proceedings. These publications were used as a basis for further analysis. Initially, duplicates were removed, and several written materials were discarded after the reading of the titles, keywords and abstracts. Following the first shorting, materials that were not relevant to the purpose of the thesis were discarded. This process left a number of publications, eligible for the next phase of the shorting procedure. Academic works were read in full and their references were cross-checked. The latter aimed to capture relevant works that were omitted from the

literature search, mainly due to the selected timeframe. As a result, several seminal articles that were published prior to the year 2000 were included in the pool of articles. Next, the collected source of knowledge was assorted into three main categories, covering the topics of CSR, OHS, and Logistics, in an attempt to facilitate the development of the theoretical framework. In parallel, thorough analysis was performed, aiming to uncover patterns and divergences between the publications.

At this point it should be noted that although considerable amount of time was invested to collect relevant literature, there is a likelihood that topic-related academic works may have been omitted. This mainly has to do with the selection of keywords and their combinations. After the end of the literature review, the research setting became more familiar, revealing a large number of benefits from OHS practices, which can potentially be motives behind the implementation of OHS practices in logistics operations.

As a result, the author of the thesis formulated the following research question:

R.Q: *What are the motives behind the implementation of OHS practices in logistics operations?*

3.4.3 Research design

Research design acts as a roadmap for data collection and analysis (Churchill, 1995). After the formulation of an achievable research question, the design of the research, from a macro to a micro perspective, took place. Different qualitative and quantitative methods of data gathering were reviewed, with the rationale to select the most appropriate for answering the research question. As it was discussed in the previous section, the Delphi technique is performed exclusively with the use of questionnaires. The researcher can select between questionnaires with solely closed questions, or questionnaires combining open-ended and closed questions. In the first option, the research is characterized as purely quantitative, while in the second option it is a combination of qualitative and quantitative methodologies. As it was stated in the beginning of the methodology chapter, the author employed a mixed-method approach. The lack of literature regarding the motives behind OHS application in logistics, led the author to select the second option and utilize questionnaires with open-ended and closed questions. The following sub-section discusses the questionnaire as an instrument of data collection.

3.4.3.1 Questionnaire as a mean of data collection

According to Kuman (2014), a questionnaire is a list of written questions, the answers to which are recorded by the respondents. In total, there are three types of questionnaires: (a) mail or online questionnaire, (b) telephone survey, and (c) face-to-face interview schedule (Bryman, 2012). The option of online questionnaire was selected, bearing in mind that it is the cheapest and fastest option, it can be distributed to different geographical locations, it can allow the respondents to select when they will fill it in, and it can ensure anonymity. Moreover, it can free people that experience difficulties in meeting face-to-face, and provide the opportunity to send reminders when specific deadlines are approaching (Bryman, 2012). The latter feature

was used in this thesis, in order to inform the panel of experts for delays in responses, and communicate information regarding forthcoming distribution of questionnaires.

However, the absence of the researcher can have an impact on the research process, because the participant is not able to ask clarifying questions (Bryman, 2012). Therefore, it is of great importance to design the questionnaires in an as much as possible comprehensive way. Following Bryman's (2012) recommendations, the construction of the questionnaires was based on the following set of criteria:

- a) The questionnaires were written in English language.
- b) The simplest language available was used, abbreviations were avoided, as well as technical expressions.
- c) The questionnaires' layout was designed to be easy to read and pleasant.
- d) Subheadings were used to ensure clarity and provide extra help.
- e) Biasing and unambiguous words, as well as words with different several meanings were avoided.
- f) Questions were arranged in such an order, to make the questionnaire easy to follow.
- g) Questions were intended to be complete, precise and purposive.
- h) Leading questions, 'two questions in one', and negative questions were avoided.

The aforementioned set of criteria was applied in every distributed questionnaire. The questionnaires were designed in Typeform, which is an online professional platform for designing and analyzing online questionnaires. The links for the questionnaires were distributed to the panel of experts via email. At the following section, the research sample (i.e. the participating companies and the panel of experts) is discussed.

3.4.4 Research sample

The purpose of this section is to present the logic for contacting specific companies and inviting OHS experts to join the rounds of the Delphi method. Thus, the first sub-section is devoted to the participating companies, while the second sub-section is devoted to the panel of experts.

3.4.4.1 Selection of organizations

The selection of companies was performed via a sampling procedure (Patton, 2002). According to Bryman (2004), there are two groups of sampling; the probability sampling and the non-probability sampling. The fundamental difference between these two types of sampling is whether the participants are selected randomly, or there is an underlying motive for their selection (Bryman, 2012). In probability sampling, every member of the population of interest has an equal probability to participate in the sample. On the contrary, when there is an underlying purpose for sampling selection, the sample is called non-probability sampling (Bryman, 2004). For the purposes of this thesis, the option of a non-probability sampling was employed. A non-probability sampling can be classified into three major categories; the convenience sampling, the snowball sampling, and the purposive sampling (McIntyre, 2005). Convenience sampling is used when availability and accessibility are more important than

representativeness. In snowball sampling, the researcher identifies an individual or a group of people that are related to the topic under examination, and it is requested from them to indicate further people who are aware of the research topic, or are experienced in the specific domain. Lastly, purposive sampling is used when there is an underlying motive behind the selection of participants (Bryman, 2012). For the purposes of the thesis, a combination of purposive and snowball samplings was used. Initially, the author contacted several companies that are engaged in logistics activities. The research invitation is available in Appendix I. However, the number of companies that responded positively to the research invitation was not sufficient to cover the minimum requirement posed by the author. More in detail, the intention of the author was to include approximately ten companies. The rationale for setting the bar at number ten is closely related to the number of experts, a topic that will be covered in greater depth in the following sub-section. Thus, a snowball sampling was additionally used, by requesting participating companies to provide contacts that may be willing to help.

In both purposive and snowball samplings, a set of two criteria was applied to enhance the rigour of the research. These two criteria are the following:

- a) Diversity of activities, i.e. Logistics Service Providers (LSPs), retailers, wholesalers, logistics departments of firms
- b) Variety of firm sizes (in terms of employees)

Initially, the intention of the author was to include companies from different geographic locations, in order to create a heterogeneous sampling. The rationale behind this intention is that in group decision-making, heterogeneous groups are more creative compared to homogeneous ones (Okoli and Pawlowski, 2004). However, the acceptance rate of the research invitations from companies around the globe was disappointing. Therefore, the author decided to include only Greek companies which were more easily accessible.

Table 4 provides information regarding the companies that accepted to participate in the thesis.

Company	Country	Logistics operations	Certificate
Company 1	Greece	3PL	ISO 9001
Company 2	Greece	Domestic road transportation, warehousing	ISO 9001
Company 3	Greece	Domestic road transportation, warehousing	n/a
Company 4	Greece	International air freight shipping, warehousing	ISO 9001, ISO 14001
Company 5	Greece	Domestic road transportation, warehousing	n/a
Company 6	Greece	Road transportation in 5 countries, warehousing	ISO 9001, ISO 14001, ISO 50001, OHSAS 18001
Company 7	Greece	Domestic road transportation, warehousing	ISO 9001
Company 8	Greece	Domestic road transportation, warehousing	ISO 9001

Table 4: Participating companies

In the subsequent section, the discussion is focused on the logic behind the formation of the panel of experts.

3.4.4.2 Selection of panel of experts

After the selection of the companies that were going to participate in the thesis ended, it was time to select the participants who would constitute the panel of experts. Thus, companies were requested to point out the person who is responsible for OHS practices, to whom the questionnaires would be delivered. To ensure that the participants are the most appropriate informants, the suggestion of Carter and Jennings (2004) was adopted. On the one hand, the appointed from the company experts should possess a management organizational position, related to OHS. On the other hand, the questionnaires included two questions to assess the relevance of the respondent to the topic of the thesis. The first question refers to the years of experience in logistics operations. The second question refers to the degree of involvement in OHS practices on a 7-point Likert scale, where 1= not at all involved and 7=extremely involved. However, attention should be given to the self-rating question, as “different people have very different ways of rating their own expertise” (Pill, 1971, p. 62).

In the previous sub-section the number of participating companies was linked to the size of the panel of experts. In this paragraph the logic for this linkage is discussed. The panel size of a Delphi study varies across the extant literature (Sandford and Chia-Chien, 2007). According to Skulmoski, Hartman and Krahn (2007), the number of experts in published researches varies between 3 and 345. Linstone (1978) states that the minimum panel size is seven. Regarding the optimal panel size, Linstone and Turoff (2002) recommend between 10 and 50, while Cavalli-Sforza and Ortolano (1984) recommend between 8 and 12 experts. Ludwig (1997) pinpoints that in the majority of researches conducted with Delphi, a number between 15 and 20 respondents was used. The variance in panel size derives from the fact that the panel of experts does not depend on statistical power, but on the dynamic of the panel to reach consensus among the panelists (Okoli and Pawlowski, 2004). For the purposes of the thesis, it was decided to include at least ten experts, which is the lowest limit of a recommended panel, as suggested by Linstone and Turoff (2002). Hence, in order to include ten experts in the research, approximately ten companies would have to accept the research invitation. To achieve this number, approximately 250 research invitations were communicated. From these 250 invitations, only 14 experts accepted to participate in the thesis. The low acceptance rate may be attributed to the sensitive nature of the research topic. However, after the distribution of the first questionnaire, 6 of them stopped any type of communication. To achieve the lowest number of recommended panel size (i.e. 10), the author asked the participating companies whether they can forward the first questionnaire to a person relevant to the research topic. As a result, 2 more experts participated in the thesis, as part of the snowball sampling.

Table 5 outlines the ten participants who constitute the panel of experts.

Expert	Company	Country	Organizational Position	Years of experience	Degree of involvement
Expert 1	Company 1	Greece	Operations and Quality Manager	9	Extremely involved (7/7)
Expert 2	Company 2	Greece	Logistics Executive	10	Extremely involved (7/7)
Expert 3	Company 3	Greece	Logistics and Quality Assurance Manager	7	Extremely involved (7/7)
Expert 4			Inventory Controller	5	Extremely involved (7/7)
Expert 5	Company 4	Greece	Total Quality Manager	10	Extremely involved (7/7)
Expert 6	Company 5	Greece	Co-owner & Logistics and Quality Manager	2	Extremely involved (7/7)
Expert 7	Company 6	Greece	Technical & Regulatory Manager	7	Extremely involved (7/7)
Expert 8	Company 7	Greece	Founder and CEO	20	Extremely involved (7/7)
Expert 9			Logistics Manager	6	Extremely involved (7/7)
Expert 10	Company 8	Greece	Quality Manager	12	Extremely involved (7/7)
Average				8.8	Extremely involved (7/7)

Table 5: Panel of experts

The following section introduces to the reader the different rounds of the Delphi method.

3.4.5 Rounds of Delphi method

Skulmoski, Hartman and Krahn (2007) state that in Delphi there is no predefined number of rounds. The research process ends when the research question is answered i.e. when consensus has been reached, when theoretical saturation is established, or when sufficient information for the research continuum has been exchanged (Skulmoski, Hartman and Krahn, 2007). According to Ludwig (1997), three rounds are in most of the cases enough, not only for data collection, but most importantly to achieve consensus among the experts.

For the purposes of the thesis it was decided to perform three rounds and then evaluate whether additional rounds are required, taking note that further rounds may cause attrition and fatigue to the participants (Whitman, 1990). In the following sub-sections, the actions associated with the different rounds are presented.

3.4.5.1 Round one of Delphi method

In the first round of the Delphi method, the panel of experts is requested to identify the motives behind the implementation of OHS practices in logistics operations. To achieve this, the author was based on a questionnaire utilizing six classification questions and one open-ended question. The questionnaire can be found in Appendix II.

Classification questions constitute the “personal” section of the questionnaire, aiming to gather data regarding the company and the participant. The use of classification questions is twofold. On the one hand, to verify that the participant is closely associated with OHS practices. On the other hand, to put experts at their ease, by introducing questions that are easier to be answered.

After the sixth classification question, one open-ended question was introduced. The open-ended question aimed to uncover the motives behind the implementation of OHS policies. Open-ended questions are used when the researcher is interested in gathering unparticipating answers (Fink, 2003).

When the design of the first questionnaire was finished, a pre-test was performed with the help of one OHS expert, who is a member of the panel of experts participating in the Delphi rounds. The feedback from the pre-test was overall positive, leading to only one alteration. In the pre-test, the online questionnaire was communicated via an internet link. The expert stressed the importance to include a document version of the questionnaire, so the participants can print it and fill it in whenever they want. Therefore, in the Appendix II the reader can find the online questionnaire, as well as the document version of it. When the questionnaire was ready for distribution, it was communicated via email to the 14 experts that initially accepted the invitation. The first questionnaire was communicated on June, 15 and the last day of the first round was set on July, 5. After the end of the second week, the author sent a reminder to the experts, informing them that at the end of the following week the first round will end. Six of the experts did not reply to the reminder. At this point, and taking into account that the author wanted to include at least ten experts, six days before the deadline the author asked the participating experts whether they can communicate the questionnaire to a person relevant to the research topic. As a result, two of the companies included a second expert, leading to a panel of ten experts who participated in the first round of the Delphi method.

The first round of the Delphi method is of high importance, since it is the lynchpin for the design of the second questionnaire, which is distributed in the second round of the Delphi method (Iqbal and Pison-Young, 2009). Therefore, when the responses of the experts are collected, they are initially converted into closed questions and later into a structured questionnaire. Lastly, they are distributed to the panelists as part of the second round of the Delphi technique.

3.4.5.2 Round two of Delphi method

The completion of the first round signaled the construction of the questionnaire for the second round of the Delphi method which uses solely closed questions. Closed questions are more effective and reliable than the open-ended ones, because they are defining what is expected from the participants in a more clear way (Fink, 2003). To measure the importance of the motives identified in the first round, an attitudinal scale was used to measure the opinions of the respondents. More in detail, the type of attitudinal scale that was utilized is the Likert scale. The logic for selecting this particular type of scale is the easiness of construction compared to the other types of attitudinal scales, whose difficulty and complexity exceeds the scope of the thesis (Kumar, 2014). The Likert scale used in the second questionnaire includes numerical values ranging from zero to seven. The number zero was added in case an item is not relevant. Usually the Likert scale includes either a five or a seven-point rating scale (Fink, 2003). The selection of a seven-point rating scale is based on the intention to capture in more depth the intensity of the attitude in question (Kumar, 2014). Table 6 provides an explanation of the seven-point Likert scores, as proposed by Vagias (2006).

Score	Explanation
0	Not relevant
1	Relevant but not important
2	Low importance
3	Slightly important
4	Neutral
5	Moderately important
6	Very important
7	Extremely important

Table 6: Explanation of Likert scale scores (adapted from Vagias, 2006)

Moreover, attention was given on the way the closed questions were listed. The reason is that a response may affect the response on the next question. This is known as the “halo effect” (May, 2011).

When the design of the second questionnaire finished, the questionnaire was distributed to the panel of experts, asking from them to rank the items according to their importance and verify that their opinions from the first round are mirrored in the closed questions. The link to the second questionnaire and the document version of it are available in Appendix III. Similar to the first round, a timeframe was set to ensure that deadlines will not be missed. More in detail, the timeframe for the second round was set between July, 6 and July, 19. The ten experts that participated in the first round, also participated in the second round. When the responses of the second questionnaire were available, their analysis was initiated. More specifically, data analysis included the calculation of the median score (Mdn) as a measure of central tendency, and the interquartile range (IQR) as a measure of the level of dispersion (Hasson, Keeney and McKenna, 2000). The calculation of the median score aims to identify the importance of each motive, while the calculation of the interquartile range aims to reveal the degree of consensus among the panel of experts, regarding the importance of each motive. The use of median was favored instead of the mean, because it is more suitable when Likert-type scale is used (Jamieson, 2004).

In Table 7 (Aron, Coups and Aron, 2014), the most important statistical terms of the thesis are presented, in an attempt to make the analysis of data comprehensive and easy to follow.

Name	Symbol	Mathematical formula	Definition
Percentage	%		Is a number or ratio expressed as a fraction of 100
Median	Mdn		The middle score, when we line up all the scores from lowest to highest
Mean	M or \bar{x}	$M = \frac{\sum x}{N}$	Also known as average. It is the sum of the scores divided by the number of scores
Interquartile Range	IQR	IQR= Q3-Q1	Is a measure of statistical dispersion, being equal to the difference between the upper (Q3) and lower (Q1) quartiles. Q1 is the "middle" value in the first half of the rank-ordered data set, while Q3 is the "middle" value in the second half of the rank-ordered data set.

Table 7: Key statistical terms (adapted from Aron, Coups and Aron, 2014)

Regarding consensus, higher scores of the IQR indicate a smaller degree of consensus among panelists. High levels of consensus are achieved when IQR values are lower than 1 (Jander *et al.*, 2015).

In parallel with the analysis of the data stemming from the second questionnaire, the construction of the third questionnaire begins.

3.4.5.3 Round three of Delphi method

The objective of the third round is to communicate to the panel of experts the individual and the group results, and request the re-evaluation of the second round responses, in the light of the panel's responses. The questionnaire of round three was distributed on July, 20 and the last day was set on August, 1. All the experts who participated in the first two rounds, also participated in the third round. The third questionnaire is available in Appendix IV. Individual scores were communicated only to the corresponding experts and not to the entire panel. In this round, experts have the choice to change any of their scores. In case of alterations, the researcher has to reanalyze the data (i.e. medians and interquartile ranges). In case the mean score of an item is changed more than 15 per cent between two rounds, the specific item is characterized as unstable. In that case, a fourth round is required for clarification (Stitt-Gohdes and Crews, 2004). In case an opinion is outside the consensus, and the owner of the score insists on his/her opinion, then it is requested from him/her to mention the rationale for remaining outside the consensus (Pfeiffer, 1968, as cited in Sandford and Chia-Chien, 2007). The end of round three signals the pursuance of consensus, through the calculation of summary statistics and the examination of deviant and dissenting opinions.

3.4.5.4 Overview of the Delphi rounds

Figure 7 provides an overview of the three stages of the Delphi method, by illustrating the most important information of each round.

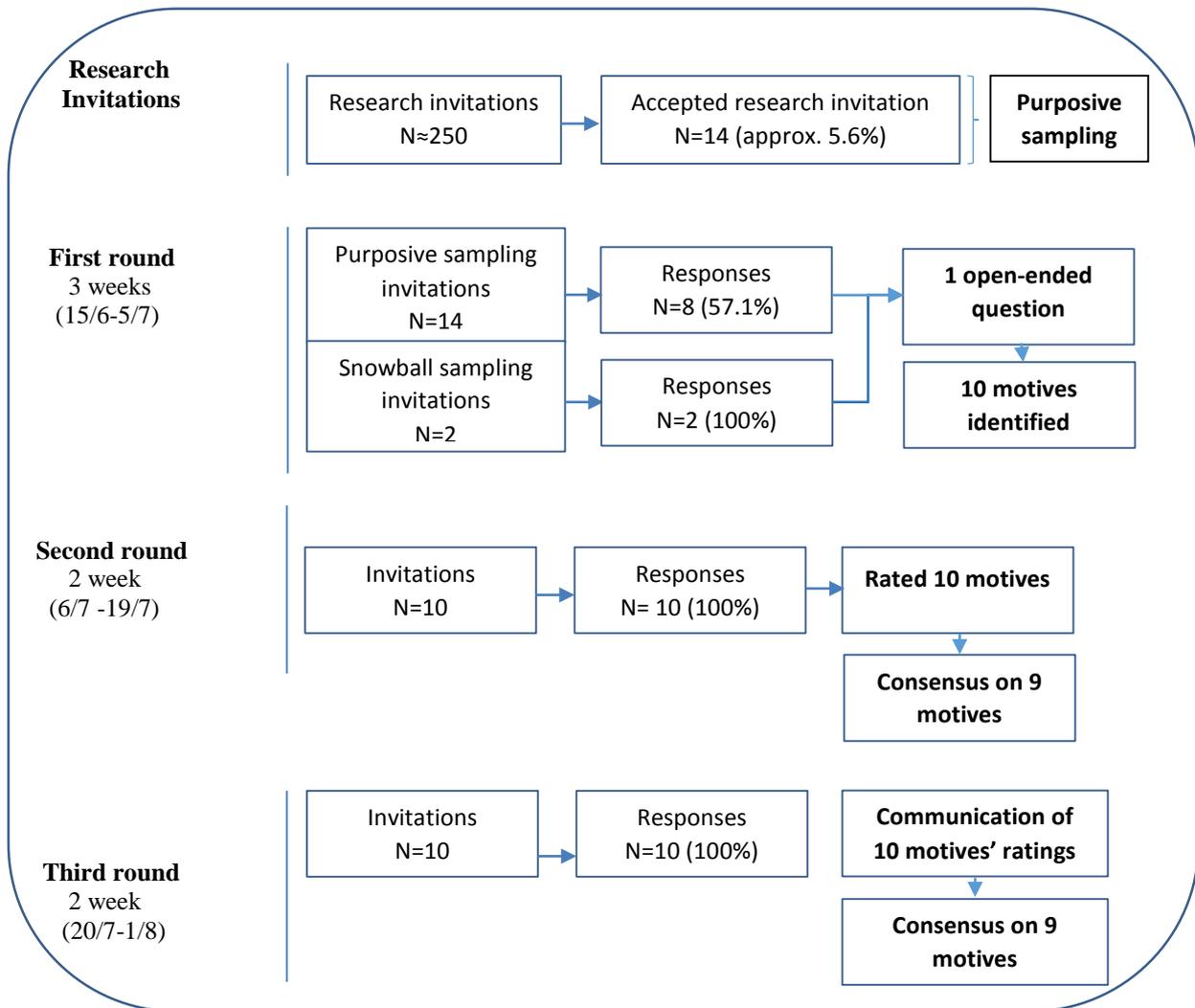


Figure 7: Overview of Delphi rounds

3.5 Ethical considerations

In this section, ethical considerations are discussed. According to Linstone and Turoff (2002), Delphi is a method that guarantees anonymity to the participants. The promise of anonymity enables participants to be open and truthful about their opinions on certain issues, which in turn provides to the researcher insightful data (Keeney, Hasson and McKenna, 2010). In addition, anonymity can reduce the likelihood participants to be “influenced by peer pressure or other extrinsic factors” (Goodman, 1987, p.730), since anonymity is a device to reduce the influence of the socially dominant individual (Dalkey, 1969). From the very first phases of communication with the participating companies and experts, the author minutely informed the participants about the purposes of the research and the methods of data collection, assuring all parties that total anonymity and confidentiality of information will be provided. For the author of this thesis, ethical considerations are a matter of high priority for the research process. This

has to do with the sensitive nature of OHS that may make participants hesitant to truly express their opinions and disseminate organizational practices related to OHS.

In the subsequent section, the discussion is shifted to the quality of the master thesis.

3.6 Quality of the master thesis - Validation

In social sciences, validation of research mirrors the rigor and the quality of the research process (Shadish, Cook and Campbell, 2002). The concept of research validation originates in the natural sciences (Ritchie *et al.*, 2014). In quantitative research there is a convergence of opinions among researchers regarding validation principles. In contrary, there is a lack of consensus regarding validation in qualitative research (Mentzer, 2008). The rationale behind this discordance is that qualitative and quantitative researches have a fundamental incompatible epistemological base. The former type of research aims to generate theories, while the latter aims to test explicitly formulated theories (Bryman, 2004). Therefore, decisions regarding validation in qualitative research should be taken with caution.

Considering the above discussion, quality of the research will be approached independently in the qualitative and in the quantitative sections, following the suggestion of Venkatesh, Brown and Bala (2013).

3.6.1 Quality in qualitative research

In qualitative research, the concept of validation is viewed as unclear and contentious (Ridenour and Newman, 2008). Several authors propose that the use of validation principles such as validity and reliability, should be avoided in qualitative research (Denzin and Lincoln, 2011). Other authors recommend the use of different terms, instead of validity and reliability, in order to distinguish quality between qualitative and quantitative research (Patton, 2002). According to Miles and Huberman (1994), quality in qualitative research should to be approached in qualitative terms. In an attempt to assure quality in the qualitative section of the thesis, two sets of trustworthiness criteria are examined. The first set is suggested by Hirschman (1986) and includes credibility, transferability, dependability, confirmability and integrity. The second set is suggested by Strauss and Corbin (1998) and includes fit, understanding, generality and control. More specifically:

Credibility examines whether research findings are credible to the readers and to those who participated in the research. Credibility to the readers is established with the use of direct quotations in the presentation of the findings of the first round of the Delphi method. Credibility to the participants is established by communicating to the panel, all the explanations/justifications from the first round.

Transferability examines whether research findings can be applied in other contexts. In order to establish transferability, the author included a diverse research sampling. Regarding companies, the research sampling includes Logistics Service Providers (LSPs), retailers, wholesalers and logistics departments of various sized firms. Regarding participating experts,

the research sampling includes various organizational positions from inventory controller to Chief Executive Officer.

Dependability examines the consistency of the research across various methods, over time. To establish dependability, the author formulated an unambiguous research question, presented in as much detail the employed methodological approach and included in Appendices all the formal communication with the experts.

Confirmability examines the impartiality of the researcher. Undoubtedly, leaving the personal biases and prejudices outside the research setting is a challenging task for every researcher. In this thesis, the author used his opinions, stemming from his experiences in logistics operations, as a guide for the research continuum, striving not to influence the research process.

Integrity examines whether research findings are affected by low quality data from the participants. To establish integrity, the author assured total anonymity and confidentiality to the panel of ten experts, in an attempt to collect as much true information, as possible.

Fit examines whether research findings are relevant to the topic under investigation. The fact that all the motives identified by the panel of experts are deemed relevant to implement OHS practices, indicates that the empirical findings of the thesis are relevant to the research purpose. In addition, there is a close link between the identified motives and the literature review, strengthening the above statement, that fit was achieved.

Understanding examines whether findings are truly representing participants' responses. To establish understanding, clarification emails were sent in case of vague responses, or responses that required further explanation.

Generality examines whether findings mirror the complexity of the research topic. To establish generality, the author included ten logistics practitioners highly involved in OHS practices, a number that is considered to be lowest limit of a recommended panel size (Linstone and Turoff, 2002).

Control examines the influence of participating firms/experts on findings. In this thesis control was minimal, due to the fact that neither any financial transaction was performed, nor any of the participating firms and experts tried to influence the findings of the thesis.

These nine criteria were taken into account in the first round of the Delphi method, which is characterized by its qualitative nature. In the following section, the discussion is revolved around the quantitative section of the research and its validation.

3.6.2 Validation in quantitative research

In quantitative research two primary validation principles have been identified i.e. reliability and validity of measures (Straub, Boudreau and Gefen, 2004). Reliability refers to the level of measurement quality (Straub, Boudreau and Gefen, 2004). A measure is reliable "to the extent that repeat measurements made by it under constant conditions, will give the same result" (Kumar, 2014, p156). To ensure reliability of the study, the author verified each round, by asking the participants whether their opinions are mirrored in the questionnaires (Skulmoski,

Hartman and Krahn, 2007). In addition, the questionnaires were designed under specific criteria, aiming to develop an as much reliable measure as possible. Also, the performed pretesting of the questionnaire is an important reliability assurance for a Delphi study (Okoli and Pawlowski, 2004).

The second validation principle, validity, discusses the legitimacy of findings. In other words, demonstrates how accurately the research findings reflect “the truth in the objective world” (Venkatesh, Brown and Bala, 2013, p.32). According to Shadish, Cook and Campbell (2002), there are three broad categories of validity in quantitative research i.e. measurement validity, design validity and inferential validity.

Measurement validity examines whether an instrument measures what it is supposed to measure and encompasses *content validity* and *construct validity*. Content validity in a questionnaire refers to whether items and questions cover the full spectrum of the issue being measured (Kumar, 2014). To establish content validity, the author invited experts who have knowledge and interest to contribute to the research topic (Goodman, 1987). Construct validity assesses how well the researcher has translated his/her ideas or theories into measures (Social research methods, 2015). To ensure construct validity, the author asked the experts to verify that their opinions in the first and second round were mirrored in the second and third questionnaire, respectively (Okoli and Pawlowski, 2004).

Design validity encompasses internal validity and external validity. Internal validity is the extent to which research findings can be interpreted accurately. It gives to the researcher the confidence to conclude that what he/she did in the research caused what he/she observed to happen (Campbell and Stanley 1963). External validity refers to the extent to which the findings of the research can be generalized to other research settings. The author is aware that this is a study of Greek companies only, but nonetheless can provide a valuable insight of the motives behind OHS application.

Inferential validity refers to the use of most appropriate statistics for the analysis of the findings. In this thesis, to assure inferential validity the author used the median score for the calculation of central tendency, and the interquartile range as a measure of the level of dispersion. These choices assure inferential validity because the median score and the IQR are the most appropriate statistics when a Likert scale is used.

3.7 Summary of the Methodology Chapter

The aim of the methodology chapter was to present the research methodology and the rationale behind every methodological selection within this thesis. Initially, an overview of the research methodology was presented before the introduction of the mixed-method approach and the abductive reasoning employed by the author. The mixed-method approach was selected in order to obtain a holistic understanding of a real life situation, such as OHS (Mingers and Gill, 1997), while the abductive reasoning facilitated the use of the inductive findings from the qualitative research as inputs to the deductive objectives of the quantitative research, treating theory and practice in an iterative manner (Morgan, 2007). To provide answers to the research question, the Delphi method was selected, that combines qualitative and quantitative methods of data collection. The Delphi method was chosen considering that it is suitable for

distinguishing and clarifying human motivations and assessing the importance of past events (Linstone and Turoff, 2002), especially when insufficient information about the research topic is available (Hasson, Keeney and McKenna, 2000). The Delphi technique was performed through the use of three series of questionnaires, combining open-ended and closed questions. A virtual panel of ten experts from eight companies was formed, combining purposive and snowball samplings. All the experts were highly involved in OHS practices and accepted to participate in three rounds, filling in 30 questionnaires in total. In the first round, the mission of the experts was to identify the motives behind the implementation of OHS practices in logistics operations. In the second round, the panelists had to rate the importance of the previously identified motives, while in the third, and last round, the results of the research were finalized. Coming to the end of the methodology chapter, ethical considerations were discussed and more specifically anonymity, an important feature of the Delphi technique (Linstone and Turoff, 2002). Lastly, to evaluate the quality of the thesis, qualitative and quantitative sections were assessed separately, following the suggestion of Venkatesh, Brown and Bala (2013). In the qualitative section, two sets of trustworthiness criteria were applied as proposed by Hirschman (1986) and Strauss and Corbin (1998), and in the quantitative section reliability and validity were examined. Table 8 provides a summary of the most important methodological selections of the thesis, as they were discussed in the above sections. The subsequent chapter is devoted to the empirical findings of the research, as they were extracted from the three rounds of the Delphi method.

Research approach
A mixed-method approach
Research reasoning
Abductive reasoning
Research method
Delphi technique – 3 rounds
Sampling selection
Combination of purposive and snowball samplings - 8 companies and 10 experts
Data collection instrument
Three series of online questionnaires
Data analysis
Use of statistical procedures to reach consensus – Median scores and Interquartile ranges
Quality of the thesis
<ul style="list-style-type: none"> • Qualitative section: Application of two sets of quality criteria (Hirschman, 1986; Strauss and Corbin, 1998) • Quantitative section: Evaluation of reliability and validity

Table 8: Summary of the Methodology Chapter

4. EMPIRICAL FINDINGS AND ANALYSIS

“The mind is but a barren soil; a soil which is soon exhausted, and will produce no crop, or only one, unless it be continually fertilized and enriched with foreign matter.”

(Reynolds, 1778, p.211)

4.1 Overview of the Chapter

The purpose of this chapter is to provide a detailed account of the findings of the thesis. The results are presented according to the structure of the Delphi process. Therefore, the first round of Delphi method uncovers the motives behind OHS implementation in logistics operations, as they are identified by the panel of experts that participated in the thesis. In round two of the Delphi method, the evaluation of the motives according to their significance takes place. In the third round of the Delphi the findings are finalized. In the last section of this chapter, the identified motives are analyzed in light of the literature review. An overview of the Findings Chapter is illustrated in Figure 8.

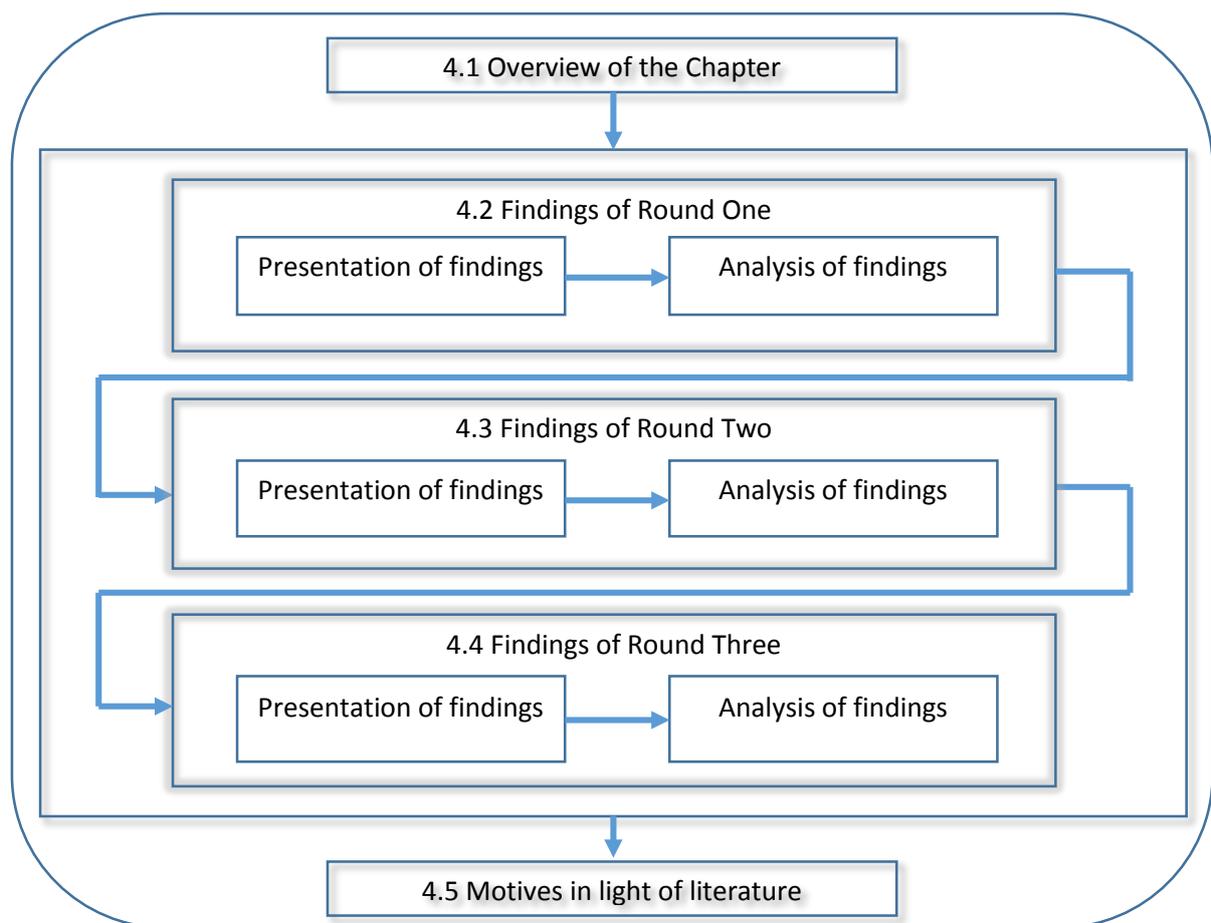


Figure 8: Structure of the Findings Chapter

4.2 Findings of Round One

At this section, the findings from the first round of the Delphi method are presented and subsequently analyzed. The purpose of this round is to identify the motives behind the implementation of OHS practices in logistics operations. To achieve this, the author utilized a questionnaire containing six classification questions, regarding the company and the expert's organizational position, and one open-ended question. The objective of the open-ended question is to identify the reasons that drive companies to implement OHS practices in their logistics operations. The open-ended question used in the first round is the following: *What are the motives to implement Occupational Health and Safety practices in logistics operations?* In addition, the experts were requested to provide a brief explanation/justification for their selection. The questionnaire for the first round is available in Appendix II.

In this round, ten experts participated in total. Nine experts used the link to the online questionnaire, while one expert chose to respond via the document version. Regarding the organizational positions, there is a diversity ranging from inventory controller to CEO. The average of years of experience in logistics operations is 8.8 years. Moreover, all experts have been self-rated as extremely involved with OHS practices. These findings were expected, considering that the questionnaires were distributed to participants who are responsible for OHS practices. As it was pointed out in the methodology chapter, different people self-rate themselves in different ways (Pill, 1971). For the present thesis, the self-rating of the experts is considered to be accurate, bearing in mind that all the organizational positions of the experts are related to OHS practices.

Regarding the motives, in total there were identified twenty-one. However, a number of them is identical. More in detail, the experts have identified as motives the *reduction of accidents* and the *avoidance of accidents*. These motives were unified in the motive 'reduction/avoidance of accidents'. In addition, the experts identified *compliance with legislation*, *follow the law*, *obey the law*, and *law abidance* as motives for OHS application. These motives were unified in the motive 'compliance with legislation'. Lastly, the motives of *protection of employees* and *protection of the workforce* were unified in the motive 'protection of employees'. The remaining motives are unique and therefore they are used as they have been stated by the corresponding expert. After the unification of terminology and the removal of duplicate entries, ten unique motives were uncovered. In parallel, the construction of the second questionnaire began. In the subsequent paragraphs the motives are presented and analyzed, based on the frequency of their occurrence. Motives with higher frequency of occurrence are presented first.

The first motive for implementing OHS practices in logistics operations is *reduction/avoidance of accidents*. More in detail, five experts among a panel of ten experts, mentioned that reduction/avoidance of accidents is a motive for OHS application. However, it should be noted that none of the experts provided any further explanation/justification regarding their selection, even though they were requested to do so. Taking into account that the implementation of OHS practices can increase the health and safety performance of the firm (CSHS Report, 2013; Koskela, 2014; Moussu & Ohana, 2014), as well as the firm's overall effectiveness (CSHS Report, 2013), the emergence of this motive can be theoretically grounded and was totally expected. An accident can have multidimensional consequences, from causing a short delay up to become the reason for suspension of operations.

The second motive identified by the experts is *compliance with legislation*. Similar to the first motive, half of the panel stated that compliance with legislation is one of the motives to implement OHS practices. Furthermore, none of the experts provided any further explanation/justification, to provide a more detailed picture for the selection. Implementation of OHS practices can demonstrate commitment to legislation (Kornfeldová & Myšková, 2012), can improve relationships with the government (Ogilvie, Carlson & Chizzonite, 2002; Christie, 2009; Biquand & Zittel, 2012), and minimize the likelihood of state intervention (Christie, 2009). Therefore, there is a strong motivation for companies to apply OHS practices, in order to comply with state's legislation. In case of non-compliance, an organization may be forced to cease operations, or to face severe penalties that can cause a disharmony to firm's operations.

The third motive identified in the first round of the Delphi process is *protection of employees*. In total, four experts view the protection of employees as a motive for applying OHS practices in logistics operations. However, only one expert provided a short description to justify the logic behind this selection. The explanation provided by the expert is:

“To protect the most valuable asset of the business” (Eighth expert)

According to CSHS Report (2013), the ultimate goal of OHS practices is to protect employees. The emergence of this motive among the most frequently stated motives is quite reasonable and it was something expected. Employees are the most important asset of the business. Therefore, it is important for companies to provide a healthy and safe working environment. From the aforementioned explanation/justification, employees are viewed as an essential gear for running the business.

The fourth motive revealed in the first round of the Delphi process is *monitoring of operations*. More in detail, this motive was identified by one expert, who did not initially include any explanation. After contacting the corresponding expert and requesting to provide a short description, the expert stated:

“Occupational Health and Safety practices can detect unsafe working behaviours and the roots of accidents. That gives us the opportunity to provide better solutions.” (Second expert)

According to Drakopoulos, Economou & Grimani (2012), one of the benefits of OHS practices is the preservation and maintenance of working standards. Thus, OHS practices can act as a monitoring mechanism to detect unsafe, alternative approaches, which can potentially pose a threat to the operations of the firm.

The fifth motive behind the implementation of OHS practices is *increase of service reliability*. More in detail, this motive was mentioned by one expert, who provided the following justification:

“Occupational Health and Safety practices can increase service reliability through the reduction of delays, damages and accidents. Especially an accident can harm our service reliability because safety checks will have to be performed.” (Fifth expert)

When a company carries out OHS practices, it can improve productivity (Biquand & Zittel, 2012; Moussu & Ohana, 2014), improve benchmarking (CSHS Report, 2013), and increase

firm's overall effectiveness (CSHS Report, 2013). Therefore, a company can increase the reliability of the service provision, through the implementation of OHS practices.

Protection of investment is the sixth motive to apply OHS practices in logistics operations. More in detail, this motive was identified by one expert who initially did not provide any further explanation. After contacting the corresponding expert, he responded as follows:

“OHS practices can minimize or eliminate the misuse of equipment and keep our facilities intact.” (Sixth expert)

Following the same logic with the protection of employees, OHS practices can protect not only humans, but lifeless assets of the business as well, such as equipment and facilities.

The seventh motive revealed in this round is *protection of environment*. More specifically, this motive was identified by one expert who did not initially provide a short description. After contacting the corresponding expert and requesting to justify his opinion, he replied as follows:

“An accident can severely pollute the environment. We make a lot of efforts to reduce our carbon footprint. We will not let an accident cancel our green efforts.” (Seventh expert)

Through the literature review, protection of environment was not mentioned as a benefit of OHS practices application. However if we see it more broadly, the workplace can be viewed as a subdivision of the environment. In addition, various companies have organizational positions regarding the management of Environment, Health and Safety. The latter indicates a strong connection between these three concepts. Lastly, in order for companies to fully meet their corporate social responsibility, they should have in place a process to integrate environmental concerns into their business operations (European Commission, 2011). Hence, the emergence of protection of environment as motive for implementing OHS practices is quite reasonable.

The eight motive identified in this phase is the development of employees' responsibility. This motive was identified by one expert, who provided the following explanation:

“It is not a secret that health and safety begins at a personal level. Chiefly health and safety is everyone's responsibility, not only management's. OHS practices rest responsibility with employees. That enables our employees not only to detect unsafe operations as soon as possible, but also to provide suitable solutions.” (Eighth expert)

Such a motive indicates a proactive and mature OHS approach, where everyone in the company should be part of the health and safety culture (Freibott, 2014).

Standardization of procedures is the ninth motive revealed in this round. One expert stated that standardization of procedures is a motive to implement OHS practices in logistics operations and provided the following explanation:

“Occupational Health and Safety practices guarantee a standardized process in the workplace. Our employees are following a specific guideline. Alternative approaches that can potentially cause injuries are strictly forbidden. Every task has to be performed based on our OHS practices.” (Eighth expert)

Similar to the motive of monitoring operations, OHS practices can contribute to the creation of a ‘chart’ that dictates how every task should be approached.

The tenth, and last motive identified in this round is to foster innovation. This motive was mentioned by one expert, who justified her selection as follows:

“Occupational Health & Safety practices can create an appropriate environment for innovation. Implementation of OHS practices can improve the absorptive capacity of the firm.” (Eighth expert)

At this point, the author contacted the corresponding expert to provide more information regarding the ‘absorptive capacity’. The reply of the expert is the following:

“Absorptive capacity is a set of organizational routines and processes by which firms acquire, assimilate, transform and exploit knowledge to produce a dynamic organizational capability. Acquisition and assimilation of knowledge consist the potential absorptive capacity of the firm, and transformation and exploitation of knowledge consist the realized absorptive capacity of the firm. When new knowledge is applied to our company, OHS practices make sure that new knowledge is assimilated in our operations and exploited the way it should be done. This is closely connected to the standardization of procedures, the motive I previously sent you”

Direct references of fostering innovation as a benefit of OHS implementation were not found in the literature review. OHS practices can improve employee satisfaction (Ogilvie, Carlson & Chizzonite, 2002; Biquand & Zittel, 2012), can improve employees’ moral (Christie, 2009; Biquand & Zittel, 2012), can retain and attract workforce (Biquand & Zittel, 2012), can improve internal reputation (Ogilvie, Carlson & Chizzonite, 2002; Ranängen, Zobel & Bergström, 2014), can improve productivity (Biquand & Zittel, 2012; Moussu & Ohana, 2014), and can create attractive workplaces (Ogilvie, Carlson & Chizzonite, 2002; Granerud & Rocha, 2011; CSHS Report, 2013; Koskela, 2014). Taking into note the above, OHS practices have the potential to set the base to foster innovation.

Figure 9 schematically depicts the identified motives in the first round of the Delphi process and the frequency of their occurrence.

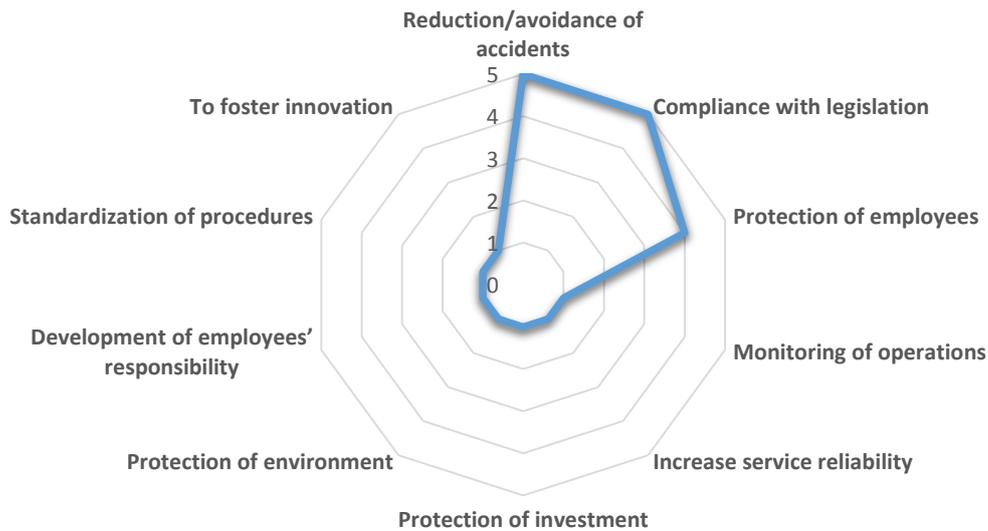


Figure 9: Motives and their frequency of occurrence

In Figure 9 we can instantly see that the most frequently mentioned motives to apply OHS practices are reduction/avoidance of accidents, compliance with legislation, and protection of employees. These motives indicate that for the majority of the experts, OHS implementation is mainly viewed as a defensive mechanism to avoid potential risk that can put the company in a 'crisis'. However, a detailed discussion regarding the classification of these motives in the CSR motivation framework proposed by Paine (2003) will take place in the following pages. In the next phase of the study, these ten motives will be evaluated according to their importance, as part of the second round of the Delphi method.

4.3 Findings of Round Two

In this section, the findings of the second round of Delphi are presented and analyzed. In parallel with the analysis of the findings, the construction of the questionnaire that will be distributed in the third round of Delphi takes place.

In the second round of the Delphi process, the ten identified motives from the first round were communicated to the panel of experts in the form of closed questions. The experts had to evaluate the importance of each motive using a Likert scale, ranging from 'not relevant' to 'extremely important'. In the following lines an example is provided, to make the process more clear. One of the motives identified in the first round is "protection of investment". The explanation/justification of the corresponding experts is: "OHS practices can minimize or eliminate the misuse of equipment and keep the facilities intact". The evaluation of the importance of the motive 'protection of investment' was performed through the following closed question, as seen in Figure 10.

How important is the "protection of investment" to implement OHS practices?

"OHS practices can minimize or eliminate the misuse of equipment and keep the facilities intact."



Figure 10: Example of Round 2

The questionnaire for this round is available in Appendix III. All the experts that participated in the first round, also participated in the second round of Delphi, establishing a response rate of 100%. Moreover, all the experts used the online version of the questionnaire instead of the document version, and agreed that the items in the second questionnaire truly mirror their opinions as they were expressed in the first questionnaire.

When the responses were collected, the calculation of the median scores and the inter quartile ranges was initiated. Table 9 includes the ratings for all of the identified motives, as they have been provided by the panel of experts.

Expert										
	1	2	3	4	5	6	7	8	9	10
Motive										
1. Reduction of accidents	7	7	7	7	7	7	7	7	7	7
2. Compliance with legislation	7	7	7	7	7	7	7	7	7	7
3. Protection of employees	7	7	7	7	7	7	7	7	7	7
4. Monitoring operations	7	7	7	7	7	7	7	7	7	7
5. Increase service reliability	7	7	7	7	7	7	7	7	7	7
6. Protection of investment	7	7	7	5	7	7	6	7	7	7
7. Protection of environment	6	6	5	6	7	5	7	6	6	5
8. Development of employees responsibility	7	7	6	7	7	7	7	7	7	7
9. Standardization of procedures	7	7	6	7	7	7	6	7	6	7
10. To foster innovation	3	4	1	5	4	0	3	7	4	6

Table 9: Responses of Round 2

The purpose of this round is to not only to identify the importance of each motive, but also to examine whether there is a convergence of opinions among the panelists for the importance of each motive. The importance of each motive is identified with the use of the median score, while the degree of consensus with the use of the IQR. In parallel with the analysis of the findings, the construction of the third questionnaire is initiated. Table 10 provides an overview of the statistical analysis performed in this round.

Motive	Mean	Median	Importance	Q1	Q3	IQR	Consensus
1. Reduction/avoidance of accidents	7.0	7.0	Extreme	7	7	0.0	Yes
2. Compliance with legislation	7.0	7.0	Extreme	7	7	0.0	Yes
3. Protection of employees	7.0	7.0	Extreme	7	7	0.0	Yes
4. Monitoring operations	7.0	7.0	Extreme	7	7	0.0	Yes
5. Increase service reliability	7.0	7.0	Extreme	7	7	0.0	Yes
6. Protection of investment	6.7	7.0	Extreme	7	7	0.0	Yes
7. Protection of environment	5.9	6.0	Very important	5	6	1.0	Yes
8. Development of employees responsibility	6.9	7.0	Extreme	7	7	0.0	Yes
9. Standardization of procedures	6.7	7.0	Extreme	6	7	1.0	Yes
10. To foster innovation	3.7	4.0	Neutral	3	5	2.0	No

Table 10: Analysis of Round 2 findings

To begin with, the panel of experts has reached consensus for the importance of nine motives. More specifically, eight motives have been evaluated as ‘extremely important’ to implement OHS practices, and one motive was evaluated as ‘very important’. The only motive that failed to reach consensus is ‘to foster innovation’, which was rated as a motive of neutral importance. Five motives out of the eight motives which have been rated as extremely important, achieved the higher rating by all participants. All the experts rated reduction/avoidance of accidents, compliance with legislation, protection of employees, monitoring of operations, and increase of service reliability, as extremely important motives to implement OHS practices in logistics operations. This high degree of consensus confirms the first thoughts generated, when looking at Figure 9 in round one. In the logistics domain, when companies implement OHS practices are not motivated by ethical reasoning, but from the desire to identify, assess, control, and reduce risks. However, these findings have to be finalized, something that takes place in the third round of the Delphi.

4.4 Findings of Round Three

In this section, the findings of the third round are presented and subsequently analyzed. The end of round three signals the end of the Delphi process, leading to the finalization of the findings.

In this phase, the individual scores, as well as the scores of the panel of experts, are communicated to each expert individually, and each expert is asked whether he/she wants to perform an alteration in his/her ratings. Alterations in scores automatically lead to recalculation of the median score and the inter-quartile range. In addition, the experts were requested to provide a short explanation/justification in case they wanted to perform an alteration in their changes. To provide a clear picture of the design of this questionnaire, an example is provided.

In the second questionnaire, the motive of ‘protection of investment’ was ranked as extremely important to implement OHS practices. More in detail, eight experts ranked this motive as extremely important, one expert as very important, and the last expert as moderately important. This motive achieved a median score of 7, therefore, it can be characterized as a motive of extreme importance. In the third questionnaire, which is available in Appendix IV, the protection of investment was listed as seen in Figure 11.

<p>Importance of "protection of investment" to implement OHS practices.</p> <p>Your answer: Individual score</p> <p>Panel's answer: 7</p> <p>Would you like to change your selection? YES<input type="checkbox"/> NO<input type="checkbox"/></p> <p>If you selected yes, please select the new rating.</p> <p>● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7</p> <p>Please, justify your alteration.</p> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
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Figure 11: Example of Round 3

In the third round of the Delphi, all the experts agreed that their opinions from the second questionnaire are truly mirrored in the items of the third questionnaire. Moreover, all the experts that participated in the second round, also participated in the third round, establishing a response rate of 100%. In addition, all the experts filled in the online questionnaire. However, two of the experts did not fill in the questionnaire within the agreed timeframe. A reminder was sent to these two experts, who responded positively and filled in the questionnaire of the third round.

Regarding alterations, only one expert made a change in one score. More in detail, the sixth expert changed his rating in the evaluation of the motive ‘to foster innovation’, from ‘Not relevant’ to ‘Neutral’. The justification of the expert for his decision was:

“Seems reasonable. Further search is required” (Sixth expert)

Table 11 presents the final ratings of the experts, after the completion of the third round of the Delphi method.

Expert										
Motive	1	2	3	4	5	6	7	8	9	10
1. Reduction of accidents	7	7	7	7	7	7	7	7	7	7
2. Compliance with legislation	7	7	7	7	7	7	7	7	7	7
3. Protection of employees	7	7	7	7	7	7	7	7	7	7
4. Monitoring operations	7	7	7	7	7	7	7	7	7	7
5. Increase service reliability	7	7	7	7	7	7	7	7	7	7
6. Protection of investment	7	7	7	5	7	7	6	7	7	7
7. Protection of environment	6	6	5	6	7	5	7	6	6	5
8. Development of employees responsibility	7	7	6	7	7	7	7	7	7	7
9. Standardization of procedures	7	7	6	7	7	7	6	7	6	7
10. To foster innovation	3	4	1	5	4	4	3	7	4	6

Table 11: Responses of Round 3

As it was mentioned before, changes in scores automatically lead to recalculation of the median scores and the inter quartile ranges. In addition, the differences of the means of the motives between round three and round two are calculated, to examine whether an item behaves unstably (i.e. when the difference of the means is higher than 15%). The fact that all the experts have agreed that the third questionnaire truly mirrors their opinions as they were expressed in the second questionnaire, validates the second round of the Delphi method.

Table 12 provides a comparison between the second round and the third round.

ROUND 2

ROUND 3

Motives	Mean	Median	IQR	Mean	Mean Differ (%)	Median	Importance	IQR	Consensus
1. Reduction/avoidance of accidents	7.0	7.0	0.0	7.0	0.0%	7.0	Extreme	0.0	Yes
2. Compliance with legislation	7.0	7.0	0.0	7.0	0.0%	7.0	Extreme	0.0	Yes
3. Protection of employees	7.0	7.0	0.0	7.0	0.0%	7.0	Extreme	0.0	Yes
4. Monitoring operations	7.0	7.0	0.0	7.0	0.0%	7.0	Extreme	0.0	Yes
5. Increase service reliability	7.0	7.0	0.0	7.0	0.0%	7.0	Extreme	0.0	Yes
6. Protection of investment	6.7	7.0	0.0	6.7	0.0%	7.0	Extreme	0.0	Yes
7. Protection of environment	5.9	6.0	1.0	5.9	0.0%	6.0	Very important	1.0	Yes
8. Development of employee responsibility	6.9	7.0	0.0	6.9	0.0%	7.0	Extreme	0.0	Yes
9. Standardization of procedures	6.7	7.0	1.0	6.7	0.0%	7.0	Extreme	1.0	Yes
10. To foster innovation	3.7	4.0	2.0	4.1	10.8%	4.0	Neutral	2.0	No

Table 12: Analysis of Round 3 findings

From Table 12 we can deduce that the alteration of the sixth expert did not affect either the stability of the motive or the lack of consensus regarding its importance. As a result, the findings from the second round remained unchanged. Figure 12 illustrates all the motives that have been emerged in the first round, and their importance, as evaluated in the second round and finalized in the third round of the Delphi method.

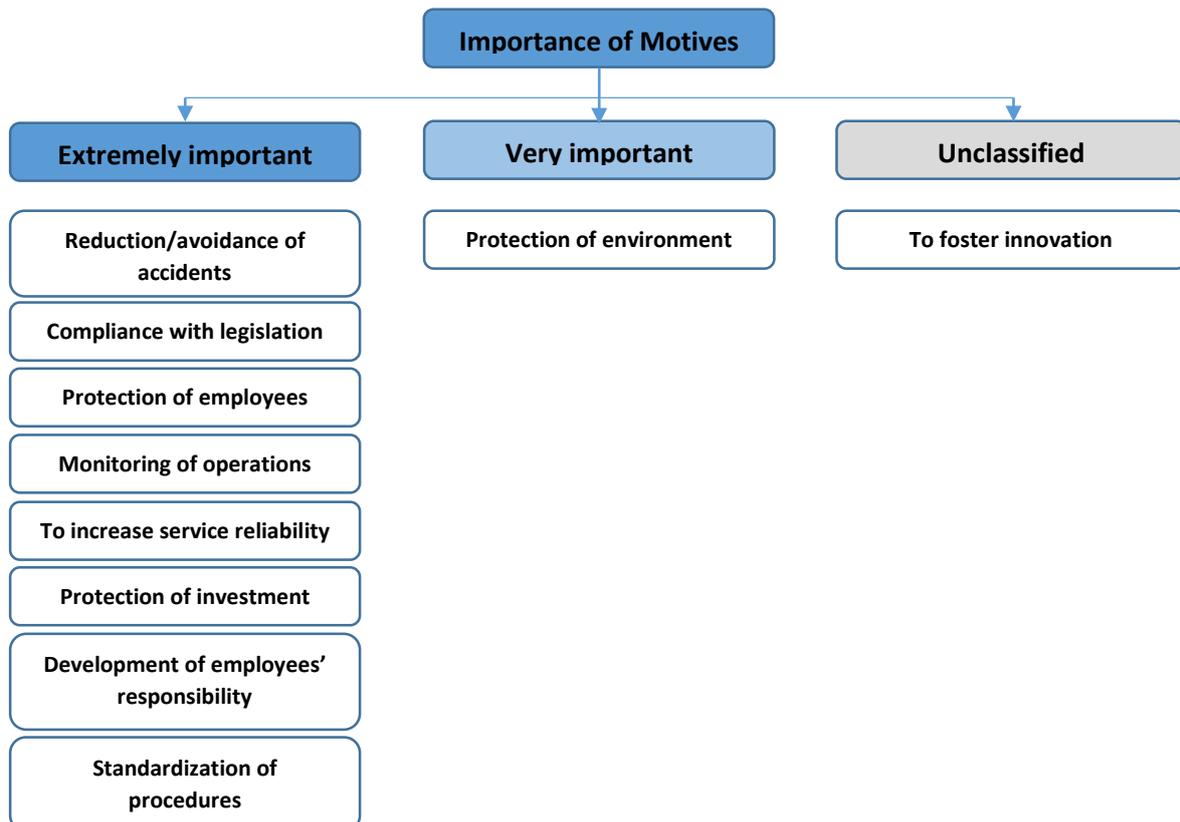


Figure 12: Importance of motives

4.5 Motives in light of literature

In the conducted literature review a large number of benefits, stemming from engaging in CSR initiatives and implementing OHS practices, was identified. More specifically, 28 and 37 benefits were found regarding CSR and OHS practices, respectively, covering various business aspects. A benefit can potentially be a motive. In the first round of the Delphi method, 10 motives were identified by the panel of experts. The purpose of this section is to examine whether the findings of this study are in line with the extant literature. To facilitate this process, five broad categories are created: employees, operations, law, investment, and environment.

4.5.1 Category 'employees'

In the first category, 'employees', we can include the motives of 'protection of employees' and the 'development of employees' responsibility'. According to Clarkson (1995), employees are considered to be primary stakeholders for an enterprise, and their role is essential for the survival of the firm. For companies, it is of high importance to manage the relationships with employees, since they can influence the firm's license to operate (Commission of the European Communities, 2001). Therefore, the emergence of the category 'employees' is something quite reasonable.

Starting with *protection of employees*, four out of the ten experts, identified in the first round 'protection of employees' as a motive for applying OHS practices. In the second round of the Delphi, the ten experts ranked this motive as of extreme importance to implement OHS practices. In logistics operations, employees are often operating heavy machinery, such as forklifts or even cranes, and deal with freight which size and weight can be difficult to handle. In addition, logistics personnel may handle materials that are returning to the manufacturer for waste, as part of the reverse logistics process. Moreover, employees may be even engaged in organizing the delivery of supplies during natural disasters and emergency situations, as part of humanitarian logistics. Involved in logistics operations can be dangerous, making the application of OHS practices an imperative. When a company introduces OHS practices in its business operations, it adopts a managed approach regarding OHS, since it aims to leverage processes and systems to avoid accidents (Freibott, 2014). In the conducted literature review, CSR initiatives can improve employees' quality of life (Holme and Watts, 2000), while OHS practices can offer protection to employees including everyone who is present in the working environment (CSHS Report, 2013). Both benefits share the same philosophy; provide a safe and healthy environment, contributing to the welfare of the workforce. From the whole panel of experts, only one expert provided an explanation /justification for her selection. More in detail, the eighth expert stated that the rationale behind the application of OHS practices is "to protect the most valuable asset of the business". From the above statement we can deduce that this rationale does not contain any ethical motivation, viewing protection of employees as a defensive mechanism of damage control. Therefore, protection of employees can be clustered under the 'risk management' area of Paine's (2003) model. However, the fact that none of the remaining three experts who identified this motive provided any explanation/justification, hinders any further analysis. There is a likelihood that some of these three expert identified this

motive because it is a moral responsibility to provide a healthy and safe environment to the workforce. Nonetheless, the lack of their justifications restricts any further discussion.

Equally important with the protection of employees is the *development of employees' responsibility*. In the first round of the Delphi, only one of the experts identified development of employees' responsibility as a motive for OHS implementation. However, in the second and third round of the research process, all the experts agreed that this motive is of extreme importance. This is something reasonable, because even if an organization applies OHS practices to its logistics operations, without the active participation of employees, health and safety in the workplace cannot be established. In case an operation has to be performed in a limited period of time, an employee may detour essential steps to perform the job quicker. That may lead to damaging consequences for the business. Therefore, it is essential for companies to lay emphasis not only in the prevention of missteps, but also in the building of a well-functioning organization through the development of employees' responsibility. This motive demonstrates a behavior-based OHS strategy that operates under the principle that all corporate functions should share the same OHS objectives, and everyone in the company should be part of the health and safety culture. Companies adopting such a mature OHS approach, can be characterized as proactive (Freibott, 2014). In the conducted literature review, the development of employees' responsibility was not addressed as a benefit from OHS implementation. However, one of the benefits of CSR initiatives is the increase of employees' involvement in business operations (Burke & Logsdon, 1996; Bevan *et al.*, 2004). This is exactly what the eighth expert, who identified this motives, wanted to pinpoint. Through the application of OHS initiatives, employees can not only detect unsafe operations as soon as possible, but also provide suitable solutions. This approach is clearly a proactive one, which indicates a company that is motivated by the area of 'organizational functioning'. Thus, development of employees' responsibility can be classified under the 'organizational functioning' area of Paine's (2003) model. It is a motive that encourages employees' involvement and engagement in the whole spectrum of business activities.

The benefits of OHS, related to employees, that were not encounter in the findings of this thesis are improvement of employees' satisfaction (Ogilvie, Carlson & Chizzonite, 2002; Biquand & Zittel, 2012), employees' morale (Christie, 2009; Biquand & Zittel, 2012) employees' productivity (Biquand & Zittel, 2012; Moussu & Ohana, 2014), the retention of the existing workforce, and the attraction of potential employees (Biquand & Zittel, 2012).

4.5.2 Category 'operations'

In the second category, 'operations', we can cluster the following five motives: reduction/avoidance of accidents, monitoring of operations, improvement of service reliability, standardization of procedures and fostering innovation.

To begin with, companies are implementing OHS practices to do the obvious, *reduce/eliminate accidents*. This motive was identified by five panelists during the first round of the Delphi, and ranked as a motive of extreme importance during the second and the third round. Logistics operations involve a big number of warehousing and transportation tasks, which can potentially be sources of hazard. As we have seen in the discussion regarding the motive 'protection of

employees', the workforce in the logistics domain is subjected to demanding and risky operations. Therefore, in order for a company to achieve its goals, it is vital to eliminate/reduce accidents. Companies motivated by reduction/elimination of accidents through OHS implementation, demonstrate a managed approach regarding OHS, enhancing processes and policies in an attempt to prevent accidents (Freibott, 2014). This motive indicates a risk management motivation, since the main objective is to avoid or reduce the occurrence of unpleasant situations. Thus, reduction/elimination of accidents is clustered under the 'risk management' area of Paine's (2003) motivation framework.

Following reduction/avoidance of accidents, we encounter *standardization of procedures* which ensures that every task is performed based on a specific guideline, eliminating alternative approaches that can potentially cause injuries (Eighth expert). Even though this motive was identified by one expert during the first round of the Delphi, in the second round all experts agreed that this motive is of extreme importance to implement OHS practices. Similarly to the previous motive, standardization of procedures demonstrates a managed approach regarding OHS, considering that standardization of procedures aims to optimize the existing procedures and prevent shortcuts in the way employees approach each task. Linking this motive to Paine's (2003), we remain in the 'risk management' area, given that the main objective is to eradicate alternative approaches that can potentially cause injuries.

On the same wavelength with standardization of procedures, we come across *monitoring of operations*, which can detect unsafe working behaviors and the roots of accidents, giving the opportunity for provision of better solutions (Second expert). Through the first round of the Delphi, one expert identified monitoring of operations as a motive for OHS application, and all experts agreed that this motive is of extreme importance in the second round of the research process. Thus, monitoring of operations exhibits a managed approach regarding OHS, and is fueled by a risk management motivation.

Following the same pattern of the previously three discussed motives of the category 'operations', we encounter the motive of *increase of service reliability*, which refers to the reduction of delays, damages and accidents (Fifth expert). Although only one expert identified this motive in the first round of the research process, all the experts agreed that this motive is of extreme importance to apply OHS practices. Identically with the aforementioned three motives of the category 'operations', increase of service reliability indicates a managed approach, and the motivation is stemming from the avoidance or reduction of unpleasant situations. Therefore, it is a risk management motivation.

In the literature review, CSR initiatives can increase the operational efficiency of the firm (Perry and Towers, 2013), provide better risk management (Bevan *et al.*, 2004; Carroll and Shabana, 2010), and better crisis management (Panapanaan *et al.*, 2003; Bevan *et al.*, 2004). Furthermore, the application of OHS practices can preserve and maintain pre-established working standards (Drakopoulos, Economou, and Grimani, 2012), improve firm's benchmarking (CSHS Report, 2013), and increase the overall effectiveness of the company ('CSHS Report', 2013). Reduction/avoidance of accidents, standardization of procedures, monitoring of operations and improvement of service reliability, share the same reasoning with the benefits identified in the literature review; to detect missteps and provide better solutions. In turbulent and hectic business settings, companies should continually scan their operating environments to identify weaknesses or omissions that can potentially affect the firm. When a

company recognizes early such critical conditions, will be better positioned to deal with threats. Therefore, the emergence of the above four motives comes to no surprise, since “it is better to be safe than sorry”. However, the concept of CSR refers to the firm's consideration of, and response to, issues beyond the narrow technical requirements of the firm (Davis, 1973).

The last motive of the category ‘operations’ is *fostering innovation* which refers to the improvement of the absorptive capacity of the firm, where new knowledge is assimilated in operations and exploited the way it should be done (Eighth expert). In the first round of Delphi, one expert identified this as a motive for applying OHS practices. In the second round, the panel of experts did not reach consensus regarding the importance of the motive. In the third round, where the findings are finalized, even though one expert changed his opinion, consensus was not achieved. According to the eighth expert, OHS practices and enhance the absorptive capacity of the firm and facilitate the assimilation of new knowledge in firm's operations. Therefore, such an approach, regarding OHS, can be perceived as a managed one, since it is focusing on improving firm's operational efficiency. In the conducted literature review, no benefits of CSR initiatives or OHS practices were found that are directly mentioning innovation. However, CSR initiatives (Porter & Kramer, 2006) and OHS practices (Christie, 2009; Amponsah-Tawiah & Dartey-Baah, 2012) can become a competitive advantage over the rivals, and this is what the motive ‘fostering innovation’ aims to achieve. This motive mirrors the building of a well-functioning organization, aiming to enhance the firm's performance and create an organization that differs from the competition. Therefore it can be clustered under the ‘organizational functioning’ motivation area of Paine's (2003) model.

4.5.3 Category ‘law’

The third category is the ‘law’. The panel of experts identified in the first round of the Delphi *compliance with legislation* as a motive for applying OHS practices. When a company is not abiding the law, several negative consequences may occur, such as to be targeted as a potential violator of the law, be subjected to more frequent audits, face penalties, or even termination of business and revocation of license to operate. However, such consequences do not affect only the companies, but the entire supply chain in which the company operates. As a result, partners' reputation may be affected, the production may be postponed, customers may be dissatisfied, and the entire commerce may face difficulties. The legal responsibility of firms has been identified by several authors during the evolution of CSR (Davis, 1973; Carroll, 1979; McWilliams and Siegel, 2001; Panapanaan *et al.*, 2003; Idowu and Louche, 2011) and means that businesses have to fulfill their economic mission within the framework of legal requirements (Zhihua, 2010), a have-to-do responsibility (Carroll, 1979). Therefore, the emergence of this motive can be theoretically grounded and it was totally expected. In the literature review, CSR initiatives can improve relationships with government (Bevan *et al.*, 2004), and the application of OHS practices can demonstrate commitment to meet legislative requirements (Kornfeldová and Myšková, 2012), improve relationships with government (Ogilvie, Carlson and Chizzonite, 2002; Christie, 2009; Biquand and Zittel, 2012), and minimize the likelihood of state intervention (Christie, 2009). Both benefits from CSR initiatives and OHS practices share the same logic. Be, or pretend to be, a law-abiding citizen.

However, in the CSR context, companies are expected to act as a socially responsible citizen, going beyond the legal responsibilities of the firm.

The notion of legitimacy of corporate activities is one of the most important aspects of CSR (Stoian, 2012). Thus, it is of high importance for firms to comply with the established legal framework. In the second and third round of the Delphi, compliance with legislation was evaluated as a motive of extreme importance to apply OHS practices. However, the fact that none of the experts provided a small description for the rationale behind the selection of compliance with legislation, as a motive to implement OHS practices, hinders any further interpretation. Companies focusing mainly on complying with state legislation have a reactive approach regarding OHS, which can be viewed as the elementary level of OHS (Freibott, 2014). Such a motive clearly belongs in the 'risk management' area of Paine's (2003) model, where companies abide the law to avoid potential negative consequences. According to Davis (1973) the starting point of CSR is the point where the law ends, and a firm is not socially responsible when it merely complies with the minimum requirements of the law. For a social responsible company, 'abiding by the letter of the law' should be substituted by 'abiding by the spirit of the law' (Dowling, 2014). Therefore, it is expected from social responsible logistics companies not only to comply with the labor legislation of the countries in which they are doing business, but operate by the spirit of labor laws, providing to their employees the healthiest and safest working environment, even though such a high level of OHS is not required by state's legislation.

4.5.4 Category investment

The fourth category is 'investment'. In this category we can cluster the motive of protection of investment. Inside the facilities of logistics firms we can find from conventional equipment, such as tools, up to fully-automated systems or high-end technology systems, such as radio-frequency identification to automatically identify and track tags. Such technologically-advanced systems can be quite costly, thus, improper use can lead to an accident that can pose a serious threat to the investment. According to the sixth expert, the implementation of OHS practices can keep the facilities intact, by minimizing or eliminating the misuse of equipment. At this point, it is interesting to point out that the sixth expert holds the positions of Co-owner & Logistics and Quality Manager of the fifth company that participated in the thesis. This motive mirrors the notion of CSR, as initially expressed by Berle (1932), that a business is responsible only towards its shareholders, and Friedman's (1970) who asserts that managerial decisions should be based upon the interests of shareholders solely, and focus on the shareholders' wealth maximization. In addition it is aligned with Carroll's (1979) economic responsibility, that companies must produce goods and services that society wants and sell them at a profit to ensure their viability. With the application of OHS practices, improper use of equipment can be minimized or eliminated. Such an OHS approach can be characterized as managed, since it aims to leverage procedures, policies and systems, by applying OHS practices. In the conducted literature review, CSR initiatives can increase firm's financial performance and profitability (Burke and Logsdon, 1996; Holme and Watts, 2000; Bevan *et al.*, 2004; Markley and Davis, 2007), reduce operating costs (Bevan *et al.*, 2004; Carroll and Shabana, 2010), provide better risk management (Bevan *et al.*, 2004; Carroll and Shabana,

2010), and better crisis management (Panapanaan et al., 2003; Bevan *et al.*, 2004). In addition, OHS practices can secure higher and more consistent revenue streams, (Ogilvie, Carlson and Chizzonite, 2002), and can increase shareholders' satisfaction (Ogilvie, Carlson & Chizzonite, 2002; Christie, 2009; Biquand & Zittel, 2012). When the working environment mirrors health and safety, shareholders feel more secure for their investment, leading to the enhancement of their satisfaction. Comparing the benefits from CSR initiatives with the benefits from OHS practices, they both share the same principle; ensure the viability of the firm. However, companies should take actions to protect and improve not only the interest of organizations, but the welfare of society as well (Davis and Blomstrom, 1975). Protection of investment was rated by the experts as of extreme importance, which is quite reasonable considering that an accident may destroy the premises of a firm, or lead to a penalty from the state, jeopardizing the survival of the business. Linking this motive to the CSR motivation framework proposed by Paine (2003), we are clearly in the risk management area, since OHS initiatives aim to dodge unpleasant situations, such as accidents, scandals and misconducts.

4.5.5 Category 'environment'

The last category is environment. In this category we can cluster the motive of protection of environment. Logistics operations aim to fulfil customers' demands at minimum cost, where cost is not only in monetary terms, but environmental also (Green Logistics, 2010). According to Pereseina *et al.* (2013), logistics firms should focus on reducing the impact of their operations on the environment, by improving the efficiency of transportation and logistics systems. Logistics operations produce greater pressure on environment, transfer cross-border pollution and harmful substances, and aggravate the environmental deterioration of the host country and world. The impact of the logistics industry on environment can be mainly attributed to the occupation of land due to storage and transport, consumption of fuel for transport and storage equipment, and generation of wastes, especially in reverse logistics operations (Yang, 2010). The environmental impact of logistics operations can vary from effects on the local wildlife to global warming (Sathaye *et al.*, 2006). From the above we can deduce that there is tight link between logistics operations and environment, therefore, the emergence of the category environment in the first round of the Delphi is something quite reasonable. In the conducted literature review, CSR initiatives can contribute to a cleaner environment (Cierniak-Emerych and Zięba, 2014), since a socially responsible company should have in place a process to integrate environmental concerns into its business operations (European Commission, 2011). However, no benefits of OHS implementation related to the environment were found. The only benefit that can be connected to the environment is the creation of attractive workplaces (Ogilvie, Carlson and Chizzonite, 2002; Granerud and Rocha, 2011, 'CSHS Report', 2013; Koskela, 2014), since the workplace can be viewed as a subset of the environment.

As we have seen in the literature review, the focus on the social aspects of logistics was initially upon financial aspects and later on the environmental impact of logistics operations, such as pollution and fuel consumption (Aronsson and Brodin, 2006; Seuring and Müller, 2008; León and Juan, 2014). A great number of authors have focused on the importance of eco-friendly logistics, and proposed different solutions to alleviate the negative environmental

consequences stemming from logistics operations. Regarding transportation, there is an environmental need to shift from trucking-based to intermodal transportation, in order to reduce CO₂ emissions (Winebrake *et al.*, 2008; Park *et al.*, 2012), and optimize the route selection to reduce the energy consumption (Winebrake *et al.*, 2008). Regarding warehousing, reduction of energy consumption can be achieved by using smaller and fewer warehousing facilities and locate them in optimal locations (Aronsson and Brodin, 2006; Franchetti *et al.*, 2009). Lastly, regarding information flow, Dey, LaGuardia and Srinivasan (2011) highlight the importance to improve the efficiency of the information flow, in order to decrease the empty driving time (McKinnon and Yongli, 2006; Fugate, Davis-Sramek, and Goldsby, 2009). Through the second and third round of the Delphi method, the motive of protection of environment was rated as a highly important one to apply OHS practices. Such a rating is quite reasonable, considering the aforementioned discussion regarding the need for cleaner environment by using eco-friendly logistics operations.

According to the seventh expert, the application of OHS practices can prevent an accident, which can severely pollute the environment, and cancel the green efforts of a company. The above expert works in a multi-national company that possesses in total four quality certificates. Two of them are the ISO 14001, and the ISO 50001. The former standard focuses on environmental systems, while the latter is an energy management system that supports more efficient use of energy. The sixth company clearly has made a considerable investment in 'green' operations, and that environmental spirit has been propagated to the management of the company, since the sixth manager views OHS implementation as a highly important motive not to harm the environment. Such an OHS approach goes beyond the managed one, and demonstrates a more mature and proactive OHS approach. If all the employees of a company are sharing the same environmental spirit and take part in the OHS culture, such a company can be characterized as a proactive one, regarding OHS (Freibott, 2014). In that case, it also demonstrates the building of a shared value, a characteristic of socially responsible companies, as expressed in the definition of CSR provided by the European Commission (2011). The protection of the environment via the implementation of OHS practices indicates a socially responsible organization, and emits an ethical obligation to contribute to the improvement of society, acting as a responsible citizen. Therefore, the motive of protection of environment can be classified under 'the better way' area of Paine's (2003) CSR motivation framework.

Figure 13 illustrates all the motives identified in the thesis and clusters them in the CSR motivation framework proposed by Paine (2003), based on the aforementioned discussion.

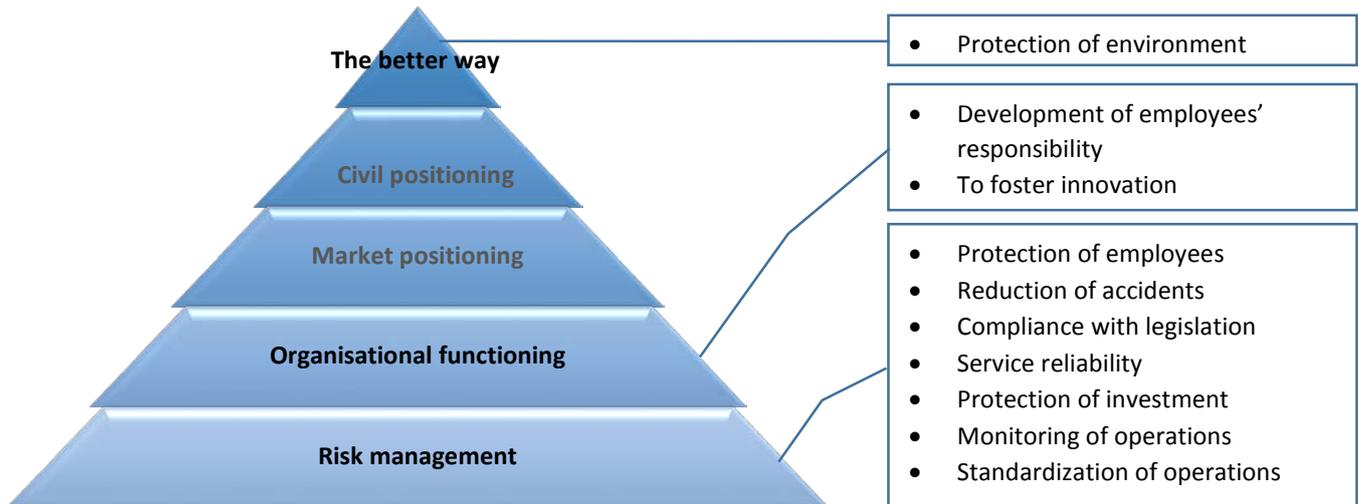


Figure 13: CSR classification of motives (adopted from Paine, 2003)

From Figure 13 it is apparent that ethical reasoning is not behind the implementation of OHS practices in logistics operations. Instead, companies are mainly driven by a risk management approach, as a mechanism of damage control.

5. CONCLUSION

5.1 CONCLUDING DISCUSSION

This thesis was set up to cast light on the motives behind the implementation of OHS practices in logistics operations. The motive behind the selection of the specific research topic is the findings of the article of Granerud (2011) with title *'Social responsibility as an intermediary for health and safety in small firms'*. Findings suggest that companies in the domain of hotels and restaurants, transportation and manufacturing, are mainly directing CSR initiatives in OHS, and are mainly motivated by ethical reasoning. To this end, the author of this thesis formulated the following research question: *What are the motives behind the implementation of OHS practices in logistics operations?* The aim of this thesis was threefold: to identify the motives, evaluate their importance and cluster them in a CSR motivation framework. To achieve this, a virtual panel of experts was formed. More specifically, ten logistics practitioners involved in OHS practices participated in three rounds, as part of the Delphi method.

In the first round of the Delphi, the panelists were requested to identify the motives for implementing OHS practices. After the completion of the first round, ten unique motives were identified. More in detail, reduction of accidents, compliance with legislation, protection of employees, monitoring operations, increase of service reliability, protection of investment, protection of environment, development of employees' responsibility, standardization of procedures, and fostering innovation, are the motives that revealed in the first round.

In the second round of the Delphi, the experts were requested to evaluate the importance of the aforementioned identified motives. Analysis of findings indicates that the experts reached consensus for the importance of nine motives. The only motive that failed to achieve consensus was 'to foster innovation'. From the nine motive that obtained consensus, eight were evaluated as extremely important, and one motive as highly important. The motive that was evaluated as of high importance to apply OHS practices in logistics operations is 'protection of environment'.

In the third round of the Delphi, the panel's scores were distributed to each individual expert, and the panelists were requested to reassess their individual scores, in the light of the panel's scores. Only one alteration was performed, without changing the research findings, as they had been established in the second round of the Delphi method.

After identifying the motives, and evaluating them according to their importance, the last objective of this thesis was to cluster them to a CSR motivation framework. Analysis of findings suggests that companies engaged in logistics operations are mainly motivated by a risk management approach, a defensive mechanism of damage control. More in detail, seven motives were classified under the 'risk management' area of Paine's (2003) framework, in an attempt to prevent unpleasant situations such as accidents and misconducts. In turn, two of the motives were classified under the 'organizational functioning' area of Paine's (2003) model, that places emphasis on building a well-functioning organization that encourages employee involvement and engagement. Lastly, one motive was clustered under the 'better way' area of Paine's (2003) model. In this last area, values and ethical concerns are the cornerstones of the

decision making of the organization, making managers and employees ethically obligated to contribute to the improvement of society.

This thesis was fueled by the findings of Granerud (2011), who found that ethical reasoning is behind the application of OHS practices in SMEs. The findings of this thesis are diametrically opposite. To a certain extent, the findings are realistic and depict the needs of any business. Companies are not philanthropic institutions, they have to generate money to ensure their existence. Therefore, it is totally reasonable to be mainly motivated by a risk management approach, and view OHS practices as a defensive mechanism. This thesis started with the words of a Hawken (1992, p.93) that “business has become [...] the most powerful institution on the planet. The dominant institution in any society needs to take responsibility for the whole”. And with power comes responsibility towards a wide spectrum of stakeholders, who affect or can be affected by the activities of the firm. As CSR is constantly involving in tune with business developments and social and political fermentations (Taneja, Taneja and Gupta, 2011) in a company, national and international level, so does OHS, as an integral part of CSR, making health and safety at the workplace a moving target, that requires constant assessment.

5.2 CONTRIBUTIONS TO KNOWLEDGE AND LIMITATIONS

This thesis addresses a literature gap, by focusing on the social dimension of logistics, which in the extant literature is recent and limited (Ciliberti, Pontrandolfo and Scozzi, 2008). More specifically, it examines OHS, a topic underdeveloped and overlooked in the extant literature (De Koster, Stam and Balk, 2011; Di and Lo, 2012). The major contribution of this thesis is that it provides an insight in logistics operations, something that has not been researched in previous studies. More in detail, similar research had shed light on the motives that drive companies operating in the fields of hotels and restaurants, transportation and manufacturing. Therefore, the findings of this thesis can be used for comparison in future researches, in different industries.

As in every study, a number of limitations can be identified. To begin with, one of the limitations is that the participating companies and experts are only from Greece. Therefore, generalizations whether the same reasoning is behind the implementation of OHS practices in different countries are dangerous to be made. This thesis is based on a research sampling involving experts from different sized firms. However, CSR practices and motives are different between small and large firms (Granerud, 2011). This can be viewed as a limitation, considering that there was not distinction between the firms’ sizes. Moreover, in order to reduce the complexity of the research, the participating companies were treated in the same way, regardless of the possession of an OHS certificate.

Moreover, in some of the motives, the experts did not provide any explanation/justification. This is a limitation for the study, taking into note that the rationale behind a motive cannot be revealed. For example one of the motives is protection of employees. However, the need to protect employees may be attributed to the need to protect an asset of the business, or to the need to do the right thing. The former can be viewed as a ‘risk management’ approach, while the latter as ‘the better way’ approach.

OHS is a concept of highly sensitive nature. As a result, the participating experts may have provided motives that not necessarily reflect the real world out there, concealing the real motives that drive companies to implement OHS practices. In addition, some of the experts may have less in-depth knowledge of the topic of OHS, and therefore be unable to identify the most important statements identified by those who possess more in-depth knowledge of the topic (Altschuld and Thomas, 1991). Even though the author requested from firms to point out the most appropriate participants for this study, there is a likelihood those participants not to be the most suitable.

5.3 MANAGERIAL IMPLICATIONS

“The value of the Delphi is [...] in alerting the participants to the complexity of issues, by forcing, cajoling, urging, luring them to think, by having them challenge their assumptions” (Coates, 1975, p194)

Misplacement of cargo can cause an accident which can have an impact on the service reliability and threaten the Just-In-Time delivery. However, logistics trucks are not using private-owned roads, or are alone in the highways. An accident can at the same time threaten the health and safety of civilians who are commuting side-by-side with trucks. An accident can destroy an investment, but a fatal accident will ‘haunt the conscience’ of the manager who is in charge for OHS practices. That was not reflected in the thesis. OHS practices in logistics operations are mainly motivated by a ‘risk management’ approach, the basic level of CSR motivation. According to Miller (2006, as cited in Sandford and Chia-Chien, 2007) a common survey aims to identify ‘what is’ in contrast to the Delphi method that attempts to address ‘what should/could be’. Motives behind the implementation of OHS practices should range from the ‘risk management’ area to ‘the better way’ area, and should not mainly viewed as a defensive mechanism. In this thesis, the majority of the motives can be clustered in the ‘risk management’ area, whereas two areas of CSR motivation (i.e. market positioning and civil positioning) are absent. Logistics practitioners should keep remembering that OHS is a distinct characteristic of a responsible organization (Amponsah-Tawiah and Dartey-Baah, 2012), a highly important aspect of an organization’s CSR activities (Koskela, 2014) and CSR represents a set of actions that extend beyond the legal obligations and the explicit monetary interests of the company, aiming to benefit the society (McWilliams and Siegel, 2001).

5.4 FUTURE RESEARCH

This thesis can be further extended in various ways. To begin with, a research based on the Delphi method can be validated with the use of a survey, where Delphi findings are distributed to companies related to the research topic. Moreover, a second or even a third panel of experts can be formed, and findings from each group can be communicated to the other panels. In that way, more ideas will be included, with the potential to fuel the research with more motives, and possibly change the outcome of the research. However, such an approach would require considerable amounts of resources (mainly time). One of the suggestions for future research

would be the examination of the OHS benefits, as they were identified in the literature review. Considering that a benefit can potentially be a motive, it would be of great interest to examine how many of these benefits are motives to apply OHS practices. To achieve this, a survey across companies can be performed. Furthermore, it would be interesting to focus on the areas of Paine's model that did not provide any motives; market positioning and civil positioning. Lastly, the motive of fostering innovation, even though it failed to achieve consensus, seems to be a very thought-provoking topic for future research in the OHS domain. From the author of this thesis point of view, this motive deserves more attention to investigate whether OHS practices can indeed create an environment that can foster innovation, and possibly to examine the moderating effect of OHS practices in the relationship between potential and realized absorptive capacity in logistics operations.

5.5 FINAL WORDS

This thesis was written with the intention to investigate a topic, that should be familiar to every employee around the globe; the provision of healthy and safe working conditions. Through the different round of the research process, the author experienced a profound interest from some of the experts that participated in the formulated virtual panel. This section ends with the hope that the findings of this paper will challenge the mindset of the participants, regarding the way OHS should be approached. This thesis closes a chapter in my life, and signals the beginning of a new one, in a healthy and safe working environment.

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APPENDICES

Appendix I- Research invitation

Dear Sir/Madam,

My name is Vasileios Bartzokas and I am a graduate student in Service Management with specialization in Logistics at the University of Lund in Sweden.

I am writing to ask for your help regarding my master thesis, discussing the motives behind the implementation of Occupational Health and Safety (OHS) practices in Logistics operations.

The study will be performed with the use of three online questionnaires. Your answers will be completely anonymous. For that reason, you will not be asked to write your name anywhere on the questionnaires. The process will be as follows:

In the first questionnaire, the person who is responsible for OHS will be asked to identify the motives for implementing OHS practices in logistics operations. In the second questionnaire, the responses from all the participants will be merged, and respondents will have to rank them according to their significance (from not relevant to extremely important). In the third questionnaire, the results of the study will be distributed to the participants and they will be asked whether they want to change any of their responses.

I hope that you will accept to participate in the study. In that way, you will help me finish my studies and I hope that you will have the opportunity to be informed for the reasons that drive firms around the globe to implement OHS policies in their logistics operations.

If you have any questions or concerns about this study, please contact me.

Sincerely,

Vasileios Bartzokas

Appendix II-Round one questionnaire

The link of the online questionnaire is available at:
<https://vasileiosbartzokas.typeform.com/to/bSk28Y>



LUND UNIVERSITY

Survey regarding the motives for implementing Occupational Health and Safety practices in Logistics operations

This questionnaire is the first of a series of three questionnaires

“Occupational Health and Safety deals with conditions and factors that affect, or could affect, the health and safety of employees or other workers (including temporary workers and contractor personnel), visitors, or any other person in the workplace”

The following three questions refer to your company's profile

- 1) Company name:
- 2) Does your company have a certificate/guideline related to occupational health and safety? Yes No
- 3) If you answer yes to the previous question, what are these?

The following three questions refer to your organizational position

- 4) Organisational position:
- 5) Years of experience in Logistics operations:
- 6) Degree of involvement in Occupational Health and Safety practices
(1=Not at all involved, 2=Low involvement, 3=Slightly involved, 4=Neutral, 5=Moderately involved, 6=Very involved, 7=Extremely involved)



- 7) What are the motives to implement Occupational Health and Safety practices in logistics operations?

Thank you very much for your participation

Appendix III-Round two questionnaire

The link of the online questionnaire is available at:
<https://vasileiosbartzokas.typeform.com/to/kp7Sul>



LUND UNIVERSITY

Survey regarding the motives for implementing Occupational Health and Safety practices in Logistics operations

This questionnaire is the second of a series of three questionnaires

The purpose of this questionnaire is to evaluate the importance of the motives that were identified in the first questionnaire.

Company name:

Organisational position:

Please rate the following motives for implementing OHS practices, according to their importance (0= Not relevant, 1=Relevant but not important, 2=Low importance, 3=Slightly important, 4=Neutral, 5=Moderately important, 6=Very important, 7=Extremely important)

1) How important is the "reduction/avoidance of accidents" to implement OHS practices?

0 1 2 3 4 5 6 7

2) How important is the "protection of employees" to implement OHS practices?

"To protect the most valuable asset of the business"

0 1 2 3 4 5 6 7

3) How important is "compliance with legislation" to implement OHS practices?

0 1 2 3 4 5 6 7

4) How important is the "protection of investment" to implement OHS practices?

"OHS practices can minimize or eliminate the misuse of equipment and keep the facilities intact."

0 1 2 3 4 5 6 7

5) How important is the "monitoring of operations" to implement OHS practices?

"Occupational Health and Safety practices can detect unsafe working behaviours and the roots of accidents. That gives the opportunity for provision of better solutions."

0 1 2 3 4 5 6 7

6) How important is the "protection of environment" to implement OHS practices?

"An accident can severely pollute the environment. It can cancel the 'green' efforts of a firm"

● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7

7) How important is "to foster innovation" to implement OHS practices?

"Occupational Health & Safety practices can create an appropriate environment for innovation. Implementation of OHS practices can improve the absorptive capacity of the firm. Absorptive capacity is a set of organizational routines and processes by which firms acquire, assimilate, transform and exploit knowledge to produce a dynamic organizational capability. Acquisition and assimilation of knowledge consist the potential absorptive capacity of the firm, and transformation and exploitation of knowledge consist the realized absorptive capacity of the firm. When new knowledge is applied in a company, OHS practices make sure that new knowledge will be assimilated in operations and exploited the way it should be done"

● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7

8) How important is the "standardization of procedures" to implement OHS practices?

"Occupational Health and Safety practices guarantee a standardized process in the workplace. Employees are following a specific guideline. Alternative approaches that can potentially cause injuries are strictly forbidden. Every task has to be performed based on OHS practices."

● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7

9) How important is the "development of employees' responsibility" to implement OHS practices?

"It is not a secret that health and safety begins at a personal level. Chiefly health and safety is everyone's responsibility, not only management's. OHS practices rest responsibility with employees. That enables employees not only to detect unsafe operations as soon as possible, but also to provide suitable solutions."

● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7

10) How important is "service reliability" to implement OHS practices?

"Occupational Health and Safety practices can increase service reliability through the reduction of delays, damages and accidents. Especially an accident can harm service reliability because safety checks will have to be performed."

● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7

Are your opinions from the first questionnaire mirrored in the questions of the present questionnaire?

Yes No

If you selected NO, please justify

Thank you very much for your participation

Appendix IV-Round three questionnaire

In round three, ten unique questionnaires were distributed. As an example, the link communicated to the first expert is the following.

<https://vasileiosbartzokas.typeform.com/to/rD9XAR>

Below, the structure of the document version is provided.



LUND UNIVERSITY

Survey regarding the motives for implementing Occupational Health and Safety practices in Logistics operations

This questionnaire is the third of a series of three questionnaires

The purpose of this questionnaire is to communicate the ratings from the second questionnaire to the participants, and allow them to change their responses from the second questionnaire.

Rating scale (0= Not relevant, 1=Relevant but not important, 2=Low importance, 3=Slightly important, 4=Neutral, 5=Moderately important, 6=Very important, 7=Extremely important)

1) Importance of "reduction/avoidance of accidents" to implement OHS practices.

Your answer:

Panel's answer: 7

Would you like to change your selection? YES NO

If you selected yes, please select the new rating.

● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7

Please, justify your alteration.

2) Importance of "protection of employees" to implement OHS practices.

Your answer:

Panel's answer: 7

Would you like to change your selection? YES NO

If you selected yes, please select the new rating.

● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7

Please, justify your alteration.

3) Importance of "compliance with legislation" to implement OHS practices.

Your answer:

Panel's answer: 7

Would you like to change your selection? YES NO

If you selected yes, please select the new rating.

0 1 2 3 4 5 6 7

Please, justify your alteration.

4) Importance of "protection of investment" to implement OHS practices.

Your answer:

Panel's answer: 7

Would you like to change your selection? YES NO

If you selected yes, please select the new rating.

0 1 2 3 4 5 6 7

Please, justify your alteration.

5) Importance of "monitoring of operations" to implement OHS practices.

Your answer:

Panel's answer: 7

Would you like to change your selection? YES NO

If you selected yes, please select the new rating.

0 1 2 3 4 5 6 7

Please, justify your alteration.

6) Importance of "protection of environment" to implement OHS practices.

Your answer:

Panel's answer: 6

Would you like to change your selection? YES NO

If you selected yes, please select the new rating.

0 1 2 3 4 5 6 7

Please, justify your alteration.

7) Importance of "fostering innovation" to implement OHS practices.

Your answer:

Panel's answer: 4

Would you like to change your selection? YES NO

If you selected yes, please select the new rating.

0 1 2 3 4 5 6 7

Please, justify your alteration.

8) Importance of "standardization of procedures" to implement OHS practices.

Your answer:

Panel's answer: 7

Would you like to change your selection? YES NO

If you select yes, please select the new rating.

0 1 2 3 4 5 6 7

Please, justify your alteration.

9) Importance of "development of employees' responsibility" to implement OHS practices.

Your answer:

Panel's answer: 7

Would you like to change your selection? YES NO

If you selected yes, please select the new rating.

0 1 2 3 4 5 6 7

Please, justify your alteration.

10) Importance of "service reliability" to implement OHS practices.

Your answer:

Panel's answer: 7

Would you like to change your selection? YES NO

If you selected yes, please select the new rating.

0 1 2 3 4 5 6 7

Please, justify your alteration.

Are your opinions from the second questionnaire mirrored in the questions of the present questionnaire?

Yes No

If you selected NO, please justify

Thank you very much for your participation