

Master's Thesis

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School of Business and Management

Supply Management

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**SUSTAINABILITY AND SUPPLY CHAIN MANAGEMENT IN TEXTILE AND CLOTHING
INDUSTRY**

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ABSTRACT

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The aim of this study is to analyze the management of sustainability in the context of supply chain, and to identify possibilities and challenges that textile and clothing industry companies experience. The study focuses on the essences of supply chain management and sustainability, that globally operating textile and clothing industry company needs to observe to be successful in the competitive market. In recent decades, sustainable supply chain management has significantly increased its popularity among scholars and customers. Textile and clothing industry is comprehensively studied theme from the perspective of supply chain management and sustainability, which is challenge and opportunity for this research. The results of this study can be implemented generally in the textile and clothing industry, and partially for globally outsourcing company's actions.

The empirical part of the study is case study conducted by qualitative methods with interviews and a questionnaire with quantitative characteristics. This study indicates that sustainability and supply chain management are supporting each other and that globally operating textile and clothing industry company should observe the sustainability in-depth. Sustainability have positive influence on company's performance, but further research is needed for measurement of the impacts and results of sustainability actions in collaboration with other organizations.

TIIVISTELMÄ

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Tämän tutkimuksen tavoitteena on selvittää vastuullisuuden ja toimitusketjun hallinnan hyötyjä, mahdollisuuksia ja haasteita tekstiili- ja vaateteollisuuden yritykselle. Tutkimus keskittyy toimitusketjun hallintaan ja vastuullisuuteen liittyviin kokonaisuuksiin, jotka globaalisti toimivan muoti- ja vaatetusalan yrityksen tulee huomioida menestyäkseen markkinoilla. Toimitusketjun hallinta ja vastuullisuus ovat viimeisten vuosikymmenien aikana kasvattanut suosioitaan niin tutkijoiden kuin asiakkaiden toiminnassa. Tekstiili- ja vaateteollisuus on laajasti tutkittu vastuullisuuden ja toimitusketjun hallinnan näkökulmasta, mikä toimii sekä haasteena että mahdollisuutena tälle tutkimukselle. Tämän tutkimuksen tulokset on mahdollista soveltaa yleisesti muoti- ja vaatetusosalalle sekä osittain myös globaalisti toimivan, ulkoistamisen mahdollisuuksia hyödyntävän yrityksen toimintaan.

Tutkimuksen empiirinen osuus toteutettiin pääosin kvalitatiivisena tapaustutkimuksena haastatteluiden ja kyselomakkeen avulla, joka sisältää kvantitatiivisia piirteitä. Tutkimus osoittaa, että vastuullisuus ja toimitusketjun hallinta ovat toisiaan tukevia kokonaisuuksia ja, että globaalisti toimivan muoti- ja vaatetusalan yrityksen on huomioitava vastuullisuus toiminnassaan entistä vahvemmin. Vastuullisuus vaikuttaa positiivisesti yrityksen toimintaan, mutta haasteeksi nousee vaikutusten mittaaminen. Toimialalle on tyypillistä, että vastuullisuus on hyvin huomioitu ja lisää tutkimusta tarvitaan vaikutusten mittaamisen parantamiseen ja siihen, miten yritykset voisivat yhteistyössä kehittää vastuullisuuden ja toimitusketjun hallinnan kokonaisuuksia.

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1. INTRODUCTION

One of the biggest challenges for supply chain management and purchasing in global business context is the need to adopt sustainability (Johnsen et al., 2016; Henninger et al., 2015). The need emerges from increasing number of laws and regulations that requires companies to consider sustainability into their supply chain and purchasing decisions. Other factors, such as customer consciousness and expectations, competition or personal commitment of the company or top management, have influence on sustainability (Walker et al., 2008; Giunipero et al., 2012). Furthermore, actions and decisions in terms of sustainability in supply chain and purchasing activities can be used as strategic advantage to differentiate company from competitors (Greer & Bruno, 1996; Henninger et al., 2015).

One of the biggest industries in the world is textile and clothing industry, which was globally worth over \$439 billion in year 2017 (Euler Hermes Economic Research, 2017) but at the same time one of the most challenging in terms of sustainability (Eryuruk, 2012). The most challenging impacts caused by textile and clothing industry are related to material and energy consumption in the production, waste and recycling of items from design to disposal, and CO₂ emissions especially related to global and complex supply chains (Beton et al. 2011; Draper et al. 2007; Vajnhandl & Valh, 2014).

In recent years, the textile and clothing industry demand for sustainable products in terms of environmental and social aspects has substantially increased (Gardetti & Torres, 2013), which has renowned the biggest brands (such as H&M and ZARA Inditex) sustainability actions, gained attention of non-profit organizations (such as Greenpeace and Business Social Compliance, BSCI), and gained attention of consumers and mass-media (Resta et al., 2016). These aspects have developed the need for sustainability principles, practices and strategies to become necessary element of the textile and clothing industry company activities, to be able to perform in rigorously competitive market (Smith, 2003).

However, despite the demands for sustainability there have been recognized inconsistency between organizations possibilities to utilize sustainability and the actual implementation of effective sustainability. Most of the companies commit sustainability in their strategies, but only minor part of the companies actually follows and put their commitment into action (Chi,

2011; Deloitte, 2013). According to Berns et al. (2009), companies face difficulties in information sharing, combining requirements with economic performance, and lack of efficient execution, when implementing sustainability into their business activities. These challenges form the foundation of the study and are examined throughout in this research.

In this study, the aim is to reflect textile and clothing industry challenges in terms of sustainability, from the case company perspective. In efficient environmental and social sustainability actions, the case company's own desire toward sustainability plays vital role, and this research goal is to provide suggestions for improvements. Previous literature has comprehensively studied sustainability in clothing, textile and fashion industries, which enables reflection to the subject, from the perspective of this research (see e.g. Gardetti & Torres, 2013; Chi, 2011; Draper et al., 2007). The goal is to provide holistic view to the sustainable supply chain management of the case company and to give recent understanding of the subject. Furthermore, the study enables that companies operating in textile and clothing industry can utilize these findings in their operations and increase sustainability activities with efficient economic performance.

1.1 Research objectives, questions and limitations

The objective of this research is to examine how sustainability requirements are considered and conducted in the case company supply chain. The objective is to provide comprehensive review of the previous literature and to reflect these findings in the case company practices. This research examines the case company's level of sustainable supply chain, in terms of activities, strategies and future implementations. Furthermore, the final goal is to determine the current situation of the case company's sustainable supply chain management and to provide suggestions for future improvements. The main research question and sub-questions are presented below.

Main research question:

How sustainability issues are considered in the case company supply chain and what are suggestions for improvement?

The sub-questions:

What are the opportunities and risks that develop the need for sustainability actions in textile and clothing industry?

What are the key sustainable supply chain practices in textile and clothing industry?

What are the key sustainability elements in textile and clothing industry?

In addition, it is important to underline that qualitative research method of this study delimits scope to the case company perspective. Industry delimitation is that this research focus on textile and clothing industry, where is specific industry requirements in terms of sustainability. The locations are limited to Nordic business environment, with global supply chain context.

1.2 Literature review

Sustainable supply chain management has developed from understanding of the influence of purchasing and supply chain actions and practices to achieve advanced and long-term performance by integrating sustainability issues into the business capabilities (Burgess et al., 2006; Hall & Matos, 2010). In the last few decade's sustainable supply chain management research has been growing significantly.

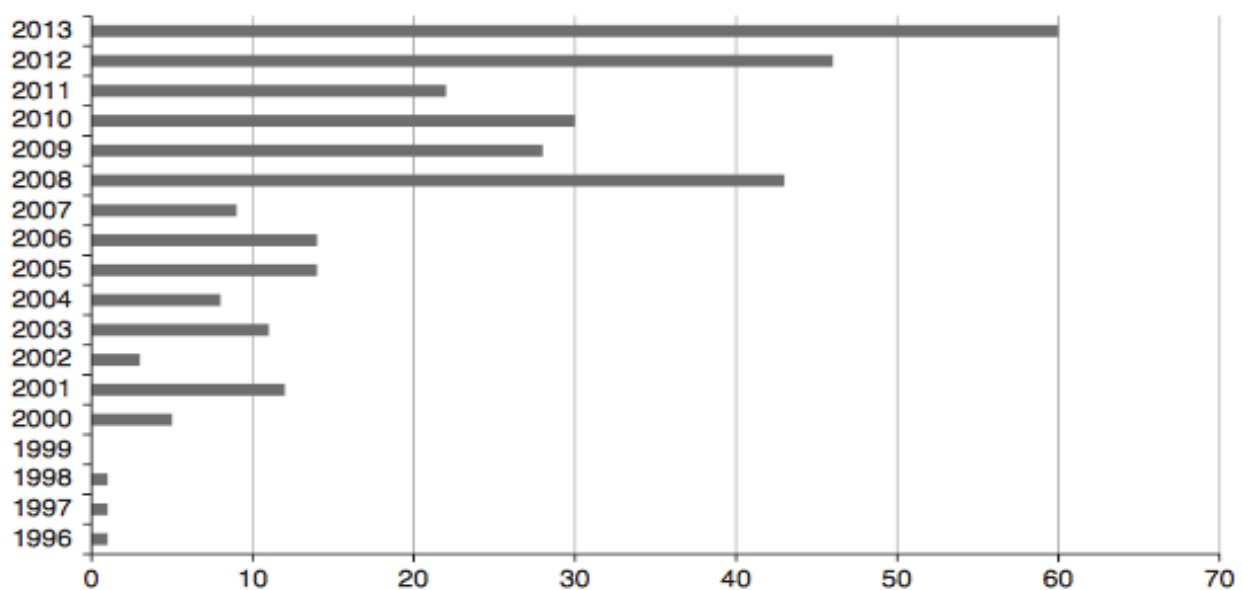


Figure 1. Number of SSCM articles by year (Touboulic & Walker, 2015)

Sustainability and responsibility can be separated into environmental, social and economic dimensions, and concepts such as green supply management, environmental purchasing, responsible buying, purchasing, socially responsible purchasing, and sustainable supply chain management have been used interchangeably (Hallikas et al., 2003). Corporate sustainability has gained significant attention in the field of organizational analysis in recent years (Scherer & Palazzo, 2011) and corporate social responsibility (CSR) has become a vital issue for firms in competitive business environment (Smith, 2003). Wegner (2015) suggest that organizations can simultaneously improve economic and environmental performance, which is one critical and challenging issue in sustainability implementation.

In the process of reducing environmental impacts and improving sustainability there are three theories that frequently emerge: (natural) resource-based view, institutional theory, and stakeholder theory (Wegner, 2015). Natural-resource-based view has gained a lot of attention in corporate sustainability, which focus on integration of organizations activities and performance (Menguc & Ozanne, 2005). Institutional theory provides conceptual base that understands organizations specific actions that are caused by institutional stakeholders (DiMaggio & Powell, 1983). This reflects to a situation where specific outside demands have huge impact to the practice how firms operate with their environmental and social issues (Bansal & Clelland, 2004). In previous literature, the third important theory toward environmental and societal activities is stakeholder theory (Johnstone, 2007; Freeman et al., 2013). This relationship has been examined extensively (e.g. Delmas & Toffel, 2008) and the fundamental idea is that stakeholder theory focus on explaining the demands more systematically (Frooman, 1999; Clarkson, 1995).

Aktin and Gergin (2016) suggest that corporate sustainability requires that firms find the balance between the expectations of stakeholder demands and protection of natural environment and social issues, with effective business performance. Elkington (1997) provides the strategy called “Triple Bottom Line”, which focus on three pillars of sustainability: profit, planet, and people. These three dimensions are inseparable and it’s important to reflect these together because they are partly dependent for each other (Elkington, 1997). Wu and Pagell (2011) reveal that it may be difficult to implement strategic intentions with significant environmental goals without high costs and changes in economic performance and results.

Sustainable supply chain management (SSCM) has become one of the major issues for companies of all sizes and in different industries (Aktin & Gergin, 2016). Several studies suggest that integration of effective SSCM requires active decision-making between partners in areas such as strategic, operational, and tactical planning, while focusing also into their influence on performance indicators (Ferretti et al., 2007; Grossmann & Guillen-Gosalbez, 2010). According to Krause et al. (2009) a company can be as sustainable as its partners in supply chain and therefore it is important to search sustainable suppliers and to collaborate with them. In addition, Klassen and Vachon (2003) introduced that improvements can be achieved in the sustainability activities by effective collaboration with suppliers. They also focus on improvement of environmental practice in their later research and emphasize the influence of collaborative activities, such as collective environmental goal setting and planning, and reducing pollution and other ecological impacts together (Vachon & Klassen, 2008).

More comprehensive perspective of sustainable supply chain management requires firms' internal practices (e.g. sustainable product and process design) and external practices (e.g. supplier collaboration), which focus on considering three dimensions of triple bottom line (Pagell & Wu, 2009; Seuring & Muller, 2008). Paulraj et al. (2015) suggest that in order to improve sustainability performance, it is crucial to focus on process design and innovations that minimize negative influence on environment of a firms' products through the whole life cycle. The problems of sustainable supply chain practices, such as additional costs can mitigate firms desire to implement these actions (McWilliams & Siegel, 2001). It is typical that additional costs might develop negative impacts and then create competitive disadvantage (Paulraj et al., 2015). Furthermore, many research show that environmental actions toward sustainability can positively relate to firm performance, for example by enhancing customer goodwill, improve relationships with stakeholders (government agencies, investors etc.), and improve employee satisfaction (McGuire et al., 1988; Arya & Zhang, 2009; Sarkis et al., 2011).

The research by Aktin and Gergin (2016) focus on improving sustainability performance and they mention that procurement operations about goods and services should be based on three related aspects: (1) economical aspects, such as value, quality, availability, and profitability; (2) environmental aspects, such as environmental impact of a product or service has throughout its life-cycle; (3) social aspects: effects of firms' decisions on human rights,

labor conditions, and distribution/usage of resources. These three aspects are the fundamental ideas of this research and they are reflected in-depth in the theoretical and empirical parts.

1.3 Theoretical framework

Theoretical framework illustrates fundamental concepts of this research. The basic idea is to show how different factors are connected to each other and what are their positions in the process of creating comprehensive research and answers to research questions. Three meta theories, (natural) resource-based view (Hart, 1995), institutional theory (DiMaggio & Powell, 1983), and stakeholder theory (Freeman, 2010) build the foundation of this research and are the basis of the theoretical framework. These theories are the central influencers of development in the research of sustainability and this study follows the same path. NRBV focus on competitive advantage by utilizing the issues of nature as tools, and institutional theory reflects institutional pressures in the field of sustainability and suggests different approaches to implement these effectively. Third theory is stakeholder theory, which is related to process of bringing the organizations vital stakeholders to the actions of sustainability, in order to create mutual benefits.

Sustainability is analyzed through various theories that have influence in the actions of a company operations to act in sustainable way. Sustainable supply chain management (SSCM) is other fundament of this research, which aims at implementation of sustainable strategic actions to perform efficiently and economically at the same time. Corporate social responsibility (CSR) focus more on sustainability by mitigating problems in social aspect. Environmental, economical, and social issues are strongly attached in sustainability and Triple Bottom Line (TBL) is other basic idea of this research. TBL focus on people, planet, and profit with strong desire to simultaneously improve organizations performance. These aspects form the second section of the theoretical framework.

Third section of the theoretical framework focus on practices that improve sustainability. These aspects are studied from the perspective of previous research and the case company. Collaboration with suppliers, sustainable product design, and continuous innovation develops benefits for various stakeholders and strives toward sustainability.

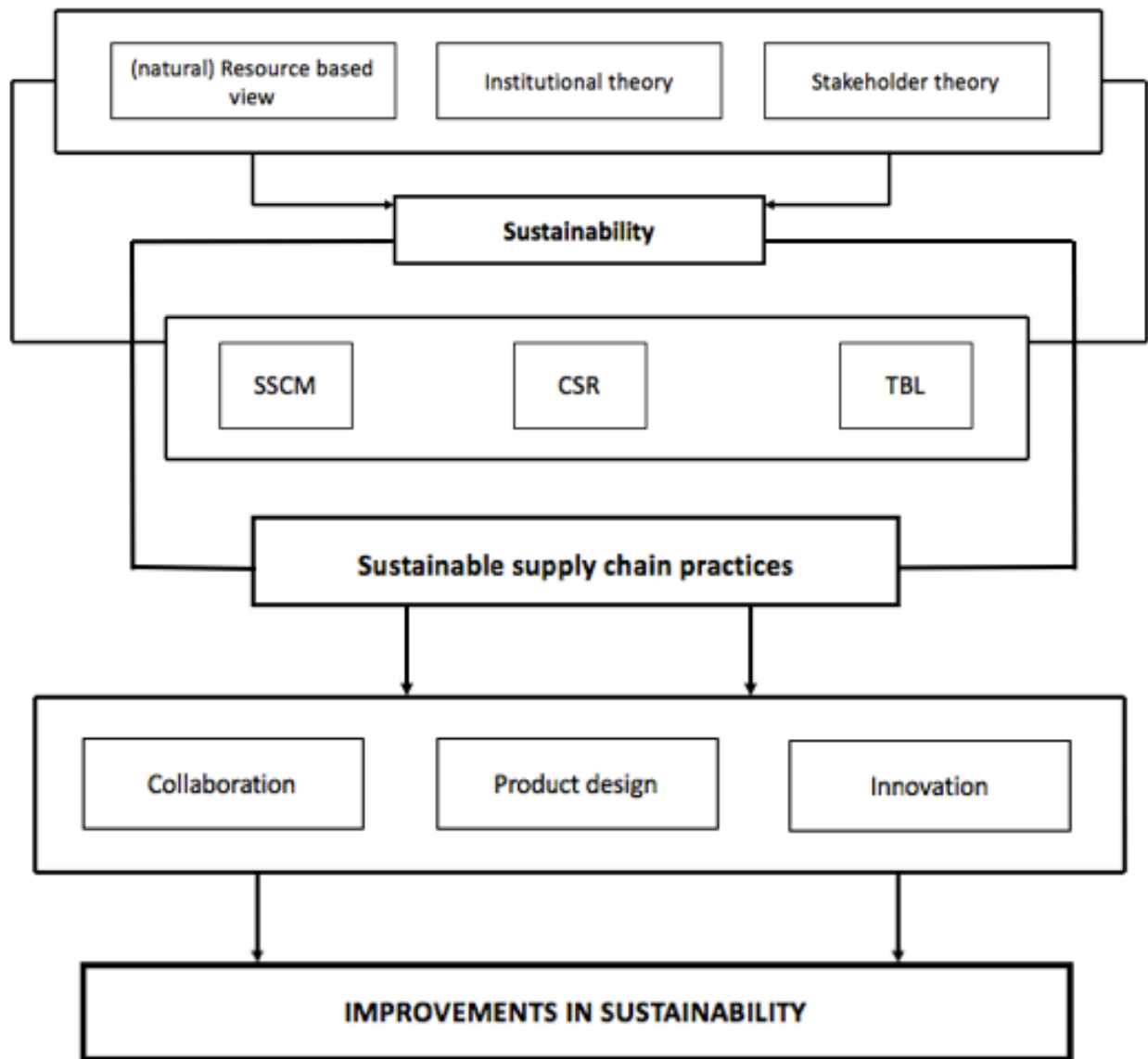


Figure 2. Theoretical framework of the study

Theoretical framework illustrates the actual continuum of the elements in this research. These elements answer to the requirements of the research questions and provide perspectives and starting points for holistic analysis. The fundamental idea of this study is to create comprehensive view to the sustainability activities and to give suggestions for improvements, which is illustrated as objective in theoretical framework.

1.4 Definitions of the key concepts

Corporate Social Responsibility (CSR): Definition for corporate social responsibility goes as “the ethical behavior of a company towards society - management acting responsibly in its relationships with other stakeholders who have a legitimate interest in the business” and “the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large.” (WBCSD, 1999)

Institutional theory: The idea of institutional theory is that organizations development can be strongly impacted by institutional environment and these impacts may be more influential than market pressures. Institutional impacts are reflected through mimetic, normative, and coercive isomorphism and these institutional forces may impact on organizational structure, climate and behavioral actions. (DiMaggio & Powell, 1983)

Resource-based view (RBV) and Natural-resource-based view (NRBV): The basic idea that resource-based view and natural-resource-based view emphasize is the development of competitive advantage by utilizing firms key resources and capabilities. RBV requires detailed usage of all important resources, in order to implement strategic actions efficiently. NRBV focus more on environmentally friendly and sustainable strategic actions when utilizing resources and capabilities. (Hart, 1995)

Sustainability: The term sustainability can be understood as effort to diminish the use of natural resources and focus more on economic activities. It is defined as actions toward long-term efficiency and productive activities in terms of nature and ethics. Sustainability is an “adaptive art wedded to science in service to ethical vision, which entails satisfying current needs without sacrificing future well-being through the balanced pursuit of ecological health, economic welfare, social empowerment, and cultural creativity”. (Leslie, 2013)

Sustainable supply chain management (SSCM): In this study this definition includes concepts such as design, purchasing, transportation and general supply management. Also, this definition can be reflected to related topics such as sustainability, sustainability management and supply chain management. The extensive appearance of the definition with wide-ranging significance for both research and practice is defined as: “the

consideration of environmental, social, ethical and economic issues in the management of the organization's external resources in such a way that the supply of all goods, services, capabilities and knowledge that are necessary for running, maintaining and managing the organization's primary and support activities provide value not only to the organization but also to society and economy" (Miemczyk et al., 2012, p. 489).

Stakeholder theory: Fundamental idea of stakeholder theory is that focus of analysis is not the organization itself, but the relationship between stakeholders and organization (Freeman, 2010). There are descriptive/empirical, instrumental, normative, and integrative stakeholder theories (Donaldson & Preston, 1995). Generating mutual interest between stakeholders is one of the key elements of stakeholder theory (Hörisch et al., 2014).

Triple Bottom Line (TBL): In this study 'triple bottom line' represents significant role throughout the research. TBL is framework with three connected parts, which are environmental, economical, and social dimension or alternatively planet, profit, and people. Organizations use TBL to evaluate and improve their performance and to create value to their businesses. (Elkington, 1997)

1.5 Research methodology

This research is conducted mainly with qualitative methods and it will include both theoretical and empirical parts. In theoretical part, previous literature is analyzed from perspective of this research and it will consist topics such as sustainability, corporate social responsibility, and supply chain management. This study utilizes deductive content analysis and according to Tuomi and Sarajärvi (2003), deductive method conducts from previous information about the phenomenon, which is the fundament of the data gathering and defining of meanings. Research from these topics is extensive and it is important to identify meaningful topics that will develop this study. The literature is gathered mostly from scientific journals, but also from books and reliable internet resources. The aim is to give holistic view of essential topics in theoretical part, which can be reflected in empirical part.

The empirical part is conducted by qualitative research methods complemented with partially quantitative questionnaire. According to Hirsjärvi et al. (2007), it is typical for qualitative research that information is collected comprehensively by utilizing methods such

as observation, discussion, and in-depth interviews. These kind of methods aim at obtaining deep understanding of participants' experiences, opinions, perceptions, knowledge, and feelings (Patton, 2002). Empirical part also includes analysis of current state of the case company sustainability performance. Furthermore, part is conducted by interviews and with questionnaire, which are based on six categories from Patton (2002): (1) experience and behavior questions, (2) sensory questions, (3) opinion or value questions, (4) knowledge questions, (5) feeling questions, and (6) background questions. In order to implement interview successfully the questions should be open-ended and neutral, singular, and clear (Patton, 2002). Gathered data from interviews will be transcribed for better analysis.

The interviews of this study are conducted by semi-structured methods. According to Hirsjärvi et al. (2007), semi-structured interview differs from structured interview and open interview and idea is that questions can be presented in more informal way, however the topics should be clear. Semi-structured interview is best way for this study because by this way it is easier to get more holistic answers to questions and to provide the possibility to discussion about the topics. The interviewees and questionnaires are contacted by e-mail beforehand, in order to give possibility to minor preparation to ensure even more holistic answers.

1.6 Structure of the research

This research is divided in theoretical and empirical parts with total of five chapters. The first chapters provide the introduction, research objectives, questions, limitations and background for the research. In the second and third chapter the focus is in theoretical part and the aim is to provide holistic view to researched themes and the context of the study. These chapters provide the foundation for empirical parts. Beginning of the fourth chapter provides the information of data collection and methods.

Empirical part of the research follows theoretical part and chapters four and five focus on empirical results and findings with conclusions. Chapter four provides data from the case company sources and five chapter concludes the findings in detail and suggest future directions. Chapter five also reflects findings for previous literature, answers to the research questions, and justifies reliability and validity.

2. THEORIES OF SUSTAINABILITY MANAGEMENT

Corporate sustainability management has been increasingly in central focus of organizational analysis among researchers (Lindgreen et al., 2009; Scherer & Palazzo, 2011). Importance of environmental management and discussion of the relationship between sustainability and business performance has received considerable attention (Ambec & Lanoie, 2008; Orlitzky et al., 2003). At the same time, corporate social responsibility has attracted more and more consideration among firms (Smith, 2003; Jamali, 2008; Kolk & Pinkse, 2006), with requirements to focus also on business ethics in the environment of previous financial crisis (Wagner, 2015). Firms are focusing on theories that can be implemented into their business strategies, in order to develop competitively useful capabilities that not only benefit the firm, but also environment and society (Clarke, 2001; Marcus & Anderson, 2006).

One of the main reasons for implementation of sustainability issues into firms supply chain management are requirements from government, customer, and other stakeholders side (Perez-Sanchez et al., 2003; Seuring & Müller, 2008). Manufacturing sector and its products has also significant influence to movement toward sustainable actions in firms' business activities (Jackson, 1996). Globalization has strong influence to the negative impacts of the sector and multinational corporations face strong demands particularly from various stakeholders to reduce environmental impact (Banerjee, 2002).

There are three theories that are commonly emerged when reflecting about companies' responses to stakeholder requirements to decrease their environmental impact: (natural) resource based view, stakeholder theory, and institutional theory. These theories are able to present the relationship between stakeholder demands and firms environmental actions. (Wagner, 2015) It is important to notice that if stakeholder requirements have impact on firm's management strategy, it should also be reflected to economic performance (Berman & Wicks, 1999; McWilliams et al., 2006). Furthermore, application of theories may help companies to answer stakeholder demands and to integrate environmental activities into the different functions of organization, and eventually improve economic and environmental performance. (Wagner, 2015)

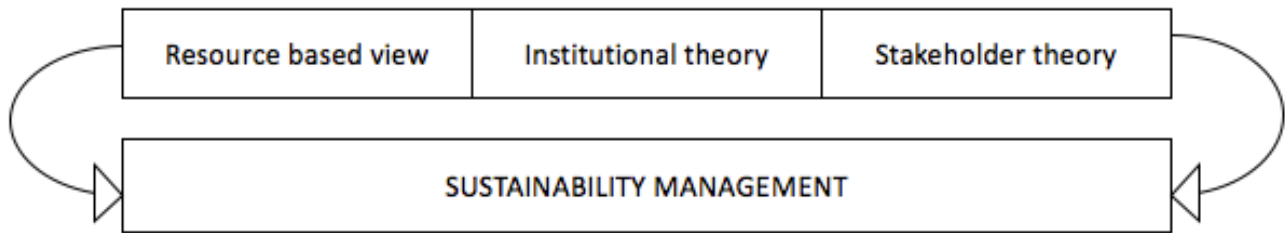


Figure 3. Theories of sustainability management (Wagner, 2015)

It is possible to connect stakeholder demands, organizational activity and business performance by utilizing theoretical methods (Davis, 2006), and stakeholder theory is first of the theories for analyzing relationship between stakeholder demands as incentive to environmental and social actions (Johnstone, 2007; Freeman et al., 2013). Several studies have analyzed this relationship and they suggest that stakeholder theory can support firms to categorize demands more systematically (see e.g. Doh & Guay, 2006). Second theory is institutional theory that focus on firms' actions that are produced by demands of institutional stakeholders (DiMaggio & Powell 1983; Etzion, 2007). Institutional demands affect to the way of how firms operate with the natural environment and social issues by preparing more into such demands (Hoffman, 1999; Bansal & Clelland, 2004; Rothenberg, 2007). Third essential theory that has achieved significance in recent decades among corporate sustainability is resource-based view (RBV) or natural-resource-based view (NRBV) (Barney, 1991; Hart, 1995; Aragon-Correa & Sharma, 2003). RBV is a theory that can be used as a perspective to connect stakeholders, actions and performance (Wagner, 2015) and it reflects the idea to the context of environmental and social sustainability of how resources are firm specific assets, which are challenging or even impossible to imitate (Teece et al., 1997).

2.1 (Natural) Resource-based view

Resources can be described as any strengths that company might utilize in process to achieve its goals or operate efficiently on its vital success components (Bryson et al., 2007). Resource-based view (RBV) focus on the relationship between firm's resources, capabilities, and competitive advantage (Hart, 1995). Competitive advantage can be seen for example as lower cost or differentiation (Porter, 1980) and competitive advantage can be sustained only if resources protecting the capabilities are not easily duplicated by

competitors (Hart, 1995). This requires that firms' resources must create barriers to imitation (Rumelt, 1984). According to RBV it is traditional that an organizations competitive strategies and business performance is highly dependent on its key resources and capabilities (see e.g. Barnley, 1991; Rumelt, 1991; Diedrickx and Cool). Resources include physical and financial assets and also employee skills in different social processes within the organization (Hart, 1995). This lead to a situation where it is vital that these resources are difficult to replicate because their tacit or socially complex nature (Teece, 1987; Winter, 1987). Furthermore, the RBV provides a theory to development of environmental strategy in the implementation of valuable organizational capabilities, such as stakeholder integration (Hart, 1995).

The need to focus on environmental actions has emerge from negative impacts to environment, such as air and water pollution, chemical spills, and industrial accidents (Brown et al., 1994). Therefore, firms should implement new concepts into their strategies, which focus more to capabilities such as waste minimization, green product design, and technological improvements (Gladwin, 1992; Kleiner, 1991). The concept of natural-resource-based view (NRBV) focus on core capabilities that facilitate environmentally friendly and sustainably economic activities. These can be fundamental element of a firms' strategy to be able to create competitive advantage. (Hart, 1995) Table 1 illustrates the relationship between crucial factors in the NRBV.

Table 1. The natural-resource-based view (Hart, 1995; Hart & Dowell, 2011)

Strategic capability	Environmental driving force	Key resource	Competitive advantage
Pollution prevention	Minimize emissions, effluents, and waste	Continuous improvement	Lower costs
Product stewardship	Minimize life-cycle cost of products	Stakeholder integration	Improved reputation and legitimacy
Sustainable development	Minimize environmental impact of company growth and development	Shared information and future vision	Future ability and position in the market

Pollution prevention is possible to achieve with effective focus on material substitution, recycling, and process innovation (Willig, 1994). Through the prevention process firms can obtain actual savings with the result of cost advantage over competitors (Hart & Ahuja 1994; Romm, 1994) and it also may influence positively to productivity and efficiency (Smart, 1992; Schmidheiny, 1992). Product stewardship focus on integration the “voice of environment” into product development and design process (Fiksel, 1993). Life-cycle analysis (LCA) is strongly attached to product stewardship and the idea behind it is to carefully focus on environmental impact of a product from “cradle to grave” (Keoleian & Menerey, 1993). Pollution prevention and product stewardship can be extended with sustainable development, which focus on mitigating negative associations between environment and business actions and the challenge in this approach is to simultaneously develop sustainability and economic efficiency (Hart, 1995).

2.2 Institutional theory and sustainability

Institutional theory studies the principles of isomorphism, which are conducting organizations to utilize similar processes, structures, and strategies (Deephouse, 1996). It is typical that organizations who operate in the same field of industry are influenced by rational actors and becoming similar with each other (DiMaggio & Powell, 1983). Pressures from inside the firm and the environment contribute and convergent the business operations (Zsidisin et al., 2005). In the field of supply chain management research, there are two main perspectives to institutional theory: the economic (see e.g. Haunschild & Miner, 1997) and the sociological (DiMaggio & Powell, 1983). Sociological studies are looking for legitimacy, whereas economic researcher are economically motivated and looking for efficiency (Ketokivi & Schroeder, 2004).

A fundamental fact in the sociological institutional theory is that organizational legitimacy can be developed with organizational isomorphism (Deephouse, 1996). The motivation focus on legitimacy is divided from managerial decision making and organizations are required to adopt practices that encourage to isomorphism, in order to compete efficiently (Gopal & Gao, 2009). DiMaggio and Powell (1983) have been identified three type of structures to develop institutional isomorphism: coercive, mimetic and normative.

Coercive isomorphism is a result of formal and informal requirements from other organizations that firms are dependent and by requirements from the society (DiMaggio & Powell, 1983). There has been discussion that coercive requirements can lead to adaptation of practice, but efficiencies are not necessarily achieved (Miemczyk, 2008). Mimetic isomorphism is associated with uncertainty that encourages imitation (Zsidisin et al., 2005). Typical situation where mimetic isomorphism take place is when industry groups try to maintain legitimacy by imitation and to reduce risks of being vanguard in a new market (Miemczyk, 2008). Normative isomorphism is associated with professionalization, which can be defined as move of members of working career that influence the principles of their work to create considerable legitimacy for their occupation (Gopal & Gao, 2009).

Institutional theory has been used by management scholars in process studying the implementation and expansion of environmental standards and practices (Gauthier, 2013) and Scott (2008) state that institutional theory has proceed from determinant to interactive arguments. Business environments may generate structural uniformity among organizations, when structures are adopted ceremoniously to achieve institutional legitimacy (Meyer & Rowan, 1977). According to Campbell (2007), institutional theory is useful way to represent the sources of requirement that has impact on firms' sustainability activities. Models conducted from institutional theory can be used various different ways, in the process of how organizations transform to implement institutional requirement into particular sustainability initiative (Miller et al., 2013).

Husted and Allen (2006) state that pressures from institutional side explain more of multinational corporations' actions toward sustainability, than strategic analysis of social issues. Institutional theory can be used as concept when considering of how sustainability vary between countries and how it's developing inside the countries (Matten & Moon, 2008). Institutional theory can be utilized as fundament when focusing on environmental factors that directly influence firms' sustainability activities (Campbell, 2007). Oliver (1991) focus on strategic actions what firms adopt when response to institutional pressures in Table 2:

Table 2. Strategies to response institutional pressures (Oliver, 1991)

Strategy	Actions
Acquiescence	Adherence, conformity, or imitation
Compromise	Placate, negotiate, or balance
Avoid	Concealing, escaping, or buffering
Defiance	Ignoring, challenging, or attacking
Manipulation	Change, control, or influence

According to Oliver (1991), first strategy of acquiescence is natural for organizations and determinant arguments lead to only one possible outcome. In compromise strategy, the actions can include for example attempts to bargain and negotiate with stakeholders. A possible way to utilize avoidance strategy is escaping where organization should leave the domain where pressures are adopted. Challenging the legality of regulations is efficient example of organizations defiance strategy. Manipulation often requires actions such as advertising campaigns to impact public opinions of people and institutions. (Oliver, 1991)

2.3 Stakeholder theory and sustainability

Stakeholder theory is one of the most traditionally used approach in the field of social, economical, and environmental sustainability management (Montiel & Delgado-Ceballos, 2014). Sustainability issues are examined extensively in a large number of publications, such as textbooks, research papers and policy publications (see e.g. Doh & Guay, 2006; Darnall et al., 2010; Lee, 2011). According to Starik and Kanashiro (2013), concepts such as stakeholder theory play crucial role in sustainability management challenges and it is important to highlight the influence of these theories.

Stakeholder is defined by Freeman (1984) as “groups and individual who can affect or be affected” and by Näsi (1995) “the individuals and groups who are depending on the firm to achieve their personal goals and on whom the firm is depending for its existence”. In the past few decades there have been developed many several different forms of stakeholder theory (Hörisch et al., 2014) and Donaldson and Preston (1995) divide these into three categories: descriptive/empirical stakeholder theory, instrumental stakeholder theory and

normative stakeholder theory. Furthermore, the original version of stakeholder theory by Freeman and associates (see e.g. Freeman, 1984; Freeman et al., 2010) focus on integration of these three theories to create normative stakeholder theory. These theories are specified in following Table 3.

Table 3. Different types of stakeholder theory (Donaldson & Preston, 1995; Hörisch et al., 2014)

Theory	Focus	Literature
Descriptive/empirical stakeholder theory	Explanation the way that companies are operated; determination of important stakeholders	Agle et al. (1999); Sangle & Ram Babu (2007); Wallis (2006)
Instrumental stakeholder theory	Influence of stakeholder management in process of organizations objectives	Berman et al. (1999); Jones (1995); Marthur et al. (2008)
Normative stakeholder theory	Analysis the objective of business; Principle identification of stakeholder theory	Goodpaster (1991); Reed (1999); Argandona (1998)
Integrative stakeholder theory	Focusing on connection between the descriptive, instrumental and normative factors of stakeholder theory	Freeman et al. (2010); Jones & Wicks (1999); Schaltegger et al. (2003)

In the stakeholder theory, there has been traditionally two different approaches to identification of a stakeholder: regard that nature is a stakeholder (e.g. Stead & Stead, 1996; Waddock, 2011) or focusing on people, groups and organizations who are willing to analyze and solve development of nature (e.g. Freeman et al., 2000; Phillips et al., 2003). According to Hörisch et al. (2014), there are three core challengers to consider and first is to integrate sustainability in the behavior of all stakeholders. Secondly, it is important to focus on creating mutual sustainability interests that improve objectives of a single stakeholder. Furthermore,

because the nature is maybe the most influential stakeholder (Starik, 1995) sustainability management is required to implement solutions to enhance the relationship between company and societal stakeholders, in order to meet expected long term goals. (Hörisch et al., 2014)

In addition, one of the core element of stakeholder theory is to focus on generating collective interests between stakeholders rather than exchange practices (Hörisch et al., 2014). These collective interests in stakeholder theory aims at value creation for all involved participants (Freeman et al., 2010). Thus, it is important to understand that exchange practices always exist and it is difficult to systematically overcome them (Key, 1999; Jensen, 2002). Stakeholder theory and sustainability management expand the focus of business ecological performance to other relevant issues (Pedersen, 2013). Stakeholder theory focus more on wider societal merger of organizations and stakeholders within the societal environment (Hörisch, 2014) and sustainability management focus more on organizations relationship between societal and environmental aspects (Schaltegger & Burritt, 2005). The relationship between stakeholder theory and sustainability management is presented in Table 4, by reflecting similarities and dissimilarities of the concepts.

Table 4. Similarities and dissimilarities between sustainability management and stakeholder theory (Hörisch et al., 2014)

Similarities	
Business practices	Both concepts focus on developing the purpose of business practices beyond increasing short-term shareholder value.
Misconception of separation	Understanding the idea that sustainability issues are not separated from business. Sustainability and business are closely linked to each other.
Implementation of CSR	Implementation of corporate social responsibility as part of company's core business activities, not as separate compulsory requirement.

Profit development	Creating also other developments together with profits. As result synergies and mutual benefits between operators.
Strategic actions	The short-term actions are replenished with long-term actions.
Intricacy	The aim is to create holistic management approaches. Adjustment of management criteria.
Crosslink between normative, empirical, and instrumental approaches	Concepts aims at creating relationship between descriptive, prescriptive and instrumental components.
Dissimilarities	
Link between social, environmental, and economic factors	Sustainability focus more detailed in the associations between social, economic, and environmental factors.
Role of nature	Sustainability focus more detailed that companies operate as part of ecological systems.
Sustainability improvements	Sustainability management focus on creating and contributing to development, where stakeholder theory is focusing on the outcome of stakeholder interactions.
Duration aspects	Sustainability management focus comprehensively to durability in terms of environmental aspects.

One of the basic idea of both concepts is that ethical issues are fundamentally linked with other business actions (Hörisch et al., 2014) and instead of dividing these issues, it is vital to focus on linking sustainable development with social and environmental issues to the core business of a company to create positive value for stakeholders (Freeman et al., 2010; Loorbach & Wijsman, 2013). In addition, stakeholder theory and sustainability management have shared understanding of morality and profit desire and by far, support long term value creation in sustainability issues, society, and organizations (Hörisch, et al., 2014). Background for these two concepts long-term perspective can be established from their relationship to strategic management (Figge et al., 2002). Thus, Albrecht (1994) and Harari (1997) suggest that long-term perspective should be balanced with short-term requirements, not as a replacement to those needs.

3. SUSTAINABLE SUPPLY CHAIN MANAGEMENT AND PRACTICES

Sustainability is essential question for many companies in today's business world (Dahlmann et al., 2008; Tuttle & Heap, 2008) and this requires simultaneous focus on the economic, environmental, and social factors of business performance (Elkington, 1997; Sikdar, 2003). Globally operating and aware market environment has created that the actions of embracing sustainability are one of the main challenges in the field of purchasing and supply chain management. The increasing number of standards and regulations are requiring companies to focus more into sustainability when doing their purchasing decisions. (Johnsen et al., 2016) Aktin and Gergin (2016) suggest that companies of all sizes and from different industries face the need to focus on more sustainable actions in their supply chain management. The need of sustainable supply chain management usually originates from different internal and external sources, such as competition that generates sustainability, increased awareness of customers or commitment of the top managers (Walker et al., 2008; Giunipero et al., 2012).

Components of sustainability are one of the first and important subjects to identify, when implementation of sustainable SCM is the intention of the company (Krause et al., 2009). Traditionally, companies utilize sustainability as their strategic and competitive advantage to separate themselves from the competitors in the global environment (Greer & Bruno, 1996). Because of the globally operating business environment and the trends of outsourcing, it is traditional that companies are able to perform as sustainable as their suppliers (Krause et al., 2009; Handfield et al., 2005). Collaboration with sustainable suppliers is crucial step in the development process of moving toward greater sustainability (Aktin & Gergin, 2016).

Involving suppliers and establishment of environmental and social standards, in order to create better supplier performance, is vital to sustainable supply chain management (Sharma & Henriques 2005; Simpson et al., 2007; Tate et al., 2010). That leads to a situation where purchasing and supply managers are in the center of the process moving towards sustainable supply network and it is pivotal to focus on development of existing outsourcing strategies and policies (Johnsen et al., 2016). Non-Governmental Organizations (NGOs) are good channel for companies to increase their positive reputation and awareness in the

marketplace. Utilizing the knowledge and resources of NGOs it is easier to companies to audit and mutually develop with the suppliers. (Crespin-Mazet & Dontenwill, 2012)

Organizations concentration on core competences and outsourcing has created a strong importance towards purchasing function (Monczka et al., 1993; Harland et al., 1999). This leads to need of improving sustainability with environmental, economic, and social performance in the process of mitigating possible damages to the reputation of an organization (Spekman & Davis, 2004; Handfield et al., 2005). Strong mutual contribution toward sustainability from both, organization and supplier side, supports and strengthens the relationship (Goldbach et al., 2003; Schneider & Wallenburg, 2012). It is also vital to actively consider other stakeholders needs to improve sustainability level of the organization. Being sustainable becomes even more challenging when applying all the stakeholders in the process. (Schneider & Wallenburg, 2012)

Sikdars (2003) macro-viewpoint definition of sustainability states that balancing with economic improvement, environmental control, and social fairness are major themes in activities of effective process. Several SSCM studies are linked to the themes, such as green procurement, waste reduction, production planning, green inventory and logistics, and energy and pollution reduction (Ramudhin et al., 2009). Also, early scientific research of sustainability initiatives in the field of supply chain focused only on the side of the supplier (Sarkis, 1999). The totality of the supply chain was suggested from the research of Klassen and Vachon (2003), in which they considered upstream and downstream dimensions. This is important in sustainable supply chain because surrounding networks can strongly influence in organizations performance (Chen & Paulraj, 2004). Rao and Holt (2005) mention that in addition to supply- and demand-side implementation of sustainable practices, it is traditional that the actual production and manufacturing process is vital when ensuring sustainability.

Sustainable supply chain management has created the need for a holistic enactment of practices that respect sustainable requirements (Pagell et al., 2010; Linton et al., 2007). The sustainable supply chain requirements include expectations from various stakeholders and are managed through partnership with supply chain operators, supplier-side and customer-side (Klassen & Vachon, 2003). This supports collaboration and joint initiatives with the supply chain partners to create strategic actions, in order to develop overall efficiency and

answer to the needs organization and environment. By focusing these improvements companies target also at developing their performance from the customer perspective and by influencing their market position. (Blome et al., 2014) In addition, improved customer mind reputation and customer satisfaction are significant factors in the process of improving profitability and competitive advantage (Anderson et al., 1994).

3.1 Corporate social responsibility

For many years, there has been increasing focus by companies on examining their responsibilities from social perspective (Moir, 2001). Corporate social responsibility is extensively researched theme (Maignan & Ralston, 2002; Greenfield, 2004; McWilliams et al., 2006) and it is comprehensively reflected in theoretical and managerial discussion, where it is defined as “not only doing good is the right thing to do, but it also leads to doing better” (Bhattacharya & Sen, 2004). This has shifted CSR from ideology to reality, and it is considered important for organizations to developed their roles in society and to implement social and ethical standards into their business performance (Lichtenstein et al., 2004).

Social responsibilities of in terms of sustainability can be divided into six categories: workplace (employees), marketplace (customers, suppliers), environment, community, ethics, and human rights. Economic perspective of the firm serves as a guideline for implementing CSR and the actual form that responsibility should take. (Moir, 2001) Social responsibility strives for maximizing shareholder value and this can be reflected to Milton Friedman’s (1962) thought of: *“Few trends would so thoroughly undermine the very foundations of our free society as the acceptance by corporate officials of a social responsibility other than to make as much money for their shareholders as they possibly can”*. Fredrick (1994) extends CSR in corporate social responsiveness, which is the capacity of an organization to respond to social pressures. Corporate social responsiveness requires more of managerial actions and reflects the will of how company respond and why (Moir, 2001).

In order to understand how some todays biggest corporations follow and implement corporate social responsibility, it is desirable to give few examples from their viewpoint.

Volkswagen: *Adopt a position which builds both shareholder value and work holder value in order to deliver “sustainable growth for the future”. They define CSR as “the ability of a company to incorporate its responsibility to society to develop solutions for economic and social problems”. (VW, 2000)*

Johnson & Johnson: *“the company's responsibilities to be fair and honest, trustworthy and respectful, in dealing with all our constituents”. (J & J, 2000)*

Shell: *“We all need to assess the impact our business makes on society and ensure that we balance the economic, environmental and social aspects of everything we do”. (Moody & Stuart, 1999)*

These examples show that corporations do actions toward implementation of CSR to their businesses to ensure the obligations of their stakeholders. However, despite the general belief that CSR facilitates firms to meet these obligations, it is typical that still various unsolved issues remain. (Lindgreen & Swaen, 2010)

One effective way to evaluate and analyze corporate social responsibility is to utilize different theories. Stakeholder theory is traditional way to examine the groups who the corporation should be responsible for their actions (Moir, 2001). Freeman (1984) defines that firm is a series of connections of stakeholders that executives should manage. In the field of social responsibility and stakeholder theory it is vital to examine that, which stakeholders should be under firms responsible. It is also traditional that stakeholders may become more or less important, for example if company is suffering difficult environmental issues. (Patten, 1992)

Social contracts theory concentrates in the relationship between society and members of society (Gray et al., 1996). Basic idea of social contracts theory is that business operates in a way that society indirectly expects them to operate (Moir, 2001). Donaldson and Dunfee (1999) focus on macro-social and micro-social context when applying idea that companies provide support to its local community (macro) and the specific involvement for certain members of society (micro). Enhanced reputation is one the commercial benefits of social contracts, but also achieved legitimacy (Suchman, 1995).

Third theory to reflect with CSR is legitimacy theory. The basic idea of legitimacy theory is that organizations actions are reasonable within socially constructed system of norms, values, beliefs and definitions. There are three types of organizational legitimacy (pragmatic, moral, cognitive) and three key challenges of legitimacy management (gaining; maintaining; and repairing legitimacy). Communication is vital part of legitimacy, which means requirement for examination of corporate communications. (Suchman, 1995) According to Lindblom (1994), legitimacy is not only a process to receive legitimacy from society and organization can utilize four legitimation strategies, when experiencing with different legitimation threats. Principles to implement in the strategy goes as: educate organizations stakeholders about desired intentions to improve performance; try to develop organizations perceptions of the situation, with no changes in actual performance; direct attention elsewhere from the actual matter of concern and; strive to adjust external expectations of its performance. (Lindblom, 1994)

Literature in the field of corporate social responsibility and stakeholder theory associate together for research of corporate social performance (Moir, 2001). Wood (1991) presents the model of corporate social performance, which includes the principles of social responsibility, process of social responsiveness, and the outcomes of corporate behavior. The corporate social performance is built to principles of social responsibility and process of social responsiveness. Principles include factors, such as legitimacy, public responsibility and managerial discretion. Processes are focusing on environmental scanning, stakeholder management and issue management. Outcomes of the corporate social performance model emerge as corporate behavior with social impacts, -policies, and -programs. (Wood, 1991)

3.2 Triple bottom line

The idea of the Triple Bottom Line (TBL) is developed by Elkington (2004), which focus on achieving the balance between environmental, economic, and social dimensions. The discussion about organization should include social and environmental issues to their business actions is a long-standing one (Berle, 1931; Dodd, 1932). Today companies are moving ahead and focusing on social and environmental objectives and implementing these aspects in their strategy and operational activities (Glavas & Mish, 2014). Because of government failures, companies have growingly focusing on actions toward improving civil, social, and political rights of people (Matten & Crane, 2005).

According to Carter and Rogers (2008), improving long-term economic performance of a particular company and its supply chain network requires strong coordination between key inter-organizational business practices. This is the foundation of “House of Sustainable Supply Chain”, which is built on the three dimensions of TBL.

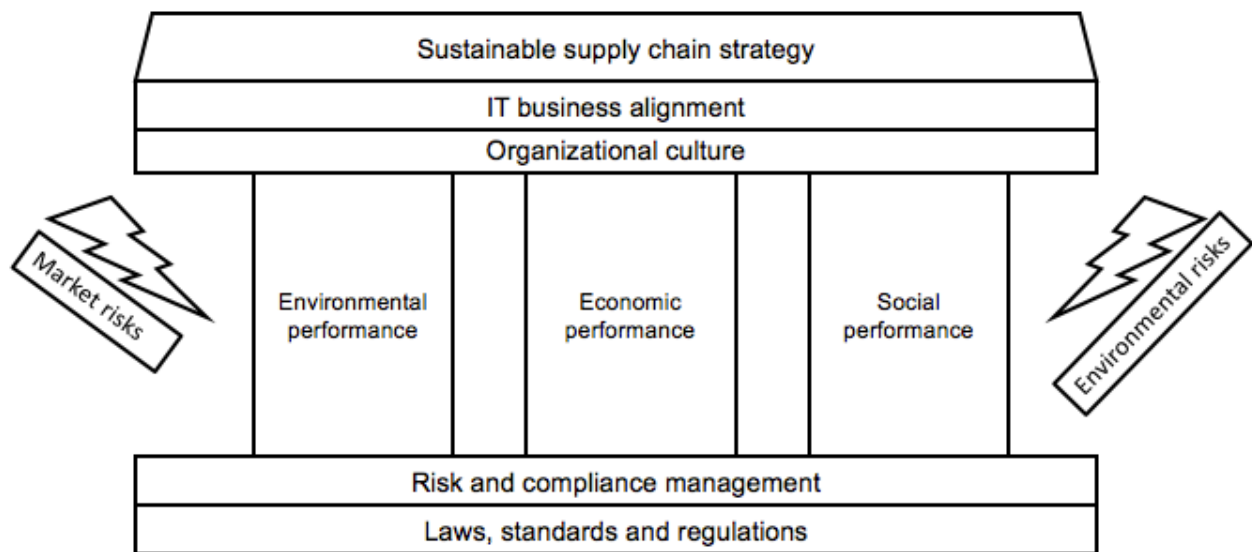


Figure 4. House of sustainable supply chain (Teuteberg & Wittstruck, 2010)

Economic, environmental, and social performance are the key pillars, where risks and compliance management, and laws, standards and regulations are the foundation of the implementation of sustainable supply chain management in the whole network (Teuteberg & Wittstruck, 2010). It is important to include the establishment of values and ethics in the organization focusing on Triple Bottom Line. Furthermore, flexible and sustainable IT environment with corporate strategy targeting on the development of sustainable actions are effective protectors of the network, against market and environmental risks. (Zailani et al., 2012)

TBL is also used to describe environmental management with closed-loop supply chains that implements people, profit and planet into corporate culture, operations and strategy (Kleindorfer et al., 2005; Elkington, 1997). Gimenez et al. (2012) provide the idea that it is possible to gain positive financial returns in Triple Bottom Line and this has led to a situation

where corporation managers are focusing more to the integration of TBL and toward social, economic, and environmental performance (Margolis & Walsh, 2003; Wood, 2010; Aguinis & Glavas, 2012)

3.3 Supplier collaboration

One of the most discussed topics in the business environment is collaboration (see e.g. Bowersox et al., 2003; Barratt, 2004). Collaboration can be defined as sharing of relevant information between two or more companies, in order to create mutual benefits (Anthony, 2000). The basic idea is that there is a lot of potential in collaborating with supply chain partners (Min et al., 2005). Effective supply chain management is based for collaboration (Ellram & Cooper, 1990; Horvath, 2001) and Sanders and Premus (2005) mention that collaboration can be considered as fundamental core capability for effective performance.

The fact that a single company cannot efficiently and successfully compete in global business environment has created the need for collaboration (Min et al., 2005). For many years, companies have strived to develop their efficiency of the internal activities of supply chain such as manufacturing, purchasing and logistics (Ellinger, 2002; Fawcett & Magnan, 2002). Customer or supplier relationships with sustainable-oriented focus can positively and considerably influence to performance of manufacturing supply chains (Vachon & Klassen, 2006; Zhu & Sarkis, 2004). Sustainable collaboration requires sustainable management actions across the supply chain in both, demand- and supplier-side (Vachon, 2007). Direct involvement is required, in order to plan and execute joint environmental solutions between supply chain partners in sustainable collaboration (Sarkis, 2003; Vachon & Klassen, 2008).

One of the important factors of sustainable collaboration is that responsibilities and capabilities are clearly understood between partners, when focusing on environmental management (Vachon & Klassen, 2008). This creates mutual competitive advantage over competitors and increases the ability to design sustainable products and processes (Vachon & Klassen, 2006).

Performance measures are typical indicators to focus on in the research of collaboration, and Lee and Klassen (2008) mention that collaboration can be one of the key factors when improving supplier sustainability. Collaboration can establish improved sustainability

capabilities of the supplier (Blome et al., 2014). The most relevant performance impacts of sustainable collaboration can be defined as positive influence on cost, operations, manufacturing, and environment (Hollos et al., 2012). Das et al. (2006) mention that divergence of a typical supplier integration profile is usually correlated with performance reduction, showing that greater level of integration is desirable. Furthermore, the influence on performance may be different depending on closeness of a supply chain collaboration profile to an ideal collaboration profile (Blome et al., 2014). It is possible that to form supply chain in many different ways and Barratt (2004) mention two main categories, which are illustrated in Figure 5.

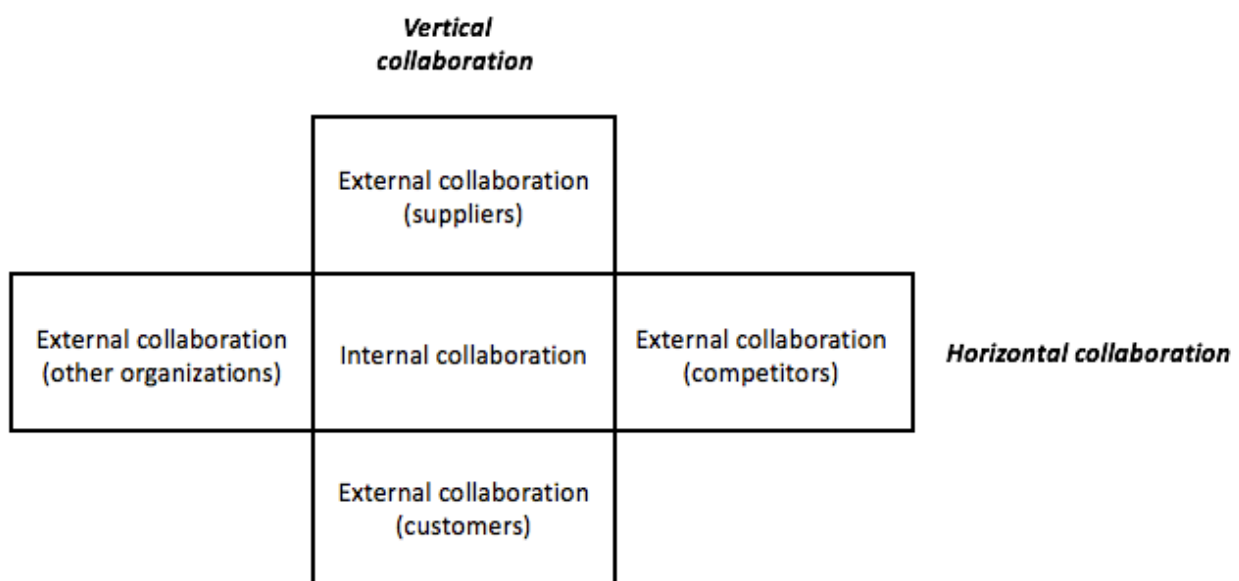


Figure 5. The scope of collaboration (Barratt, 2004)

Firstly, vertical collaboration can be seen as a relationship with suppliers and other form is collaboration with customers, internally across functions. Secondly, horizontal collaboration could focus on actions with competitors and with non-competitors, for example shared manufacturing capacity. (Simatupang & Sridharan, 2002; Barratt, 2004) From this 'scope of collaboration', the most important factor is to manage internal issues (Barratt, 2004). Usually companies may have examined and implemented external collaboration, but at the same time created disadvantages to their internal collaboration (Fawcett & Magnan, 2002; Barratt & Green, 2001). Internal collaboration can mitigate narrow focus of functions and it has potential to improve integration between internal partners (Stank et al., 2001).

One of the essential subjects in the field of efficient collaboration is integration between partners and the research of Ziggers and Trienekens (1999) study more of the motives toward and against vertical integration. They suggest different actors that increase or decrease motivation into vertical integration and Figure 6 illustrates what are the elements to consider. Furthermore, vertical integration can be also utilized as a functional solution to mitigate detrimental results of market deficiencies (Johnston & Lawrence, 1988).

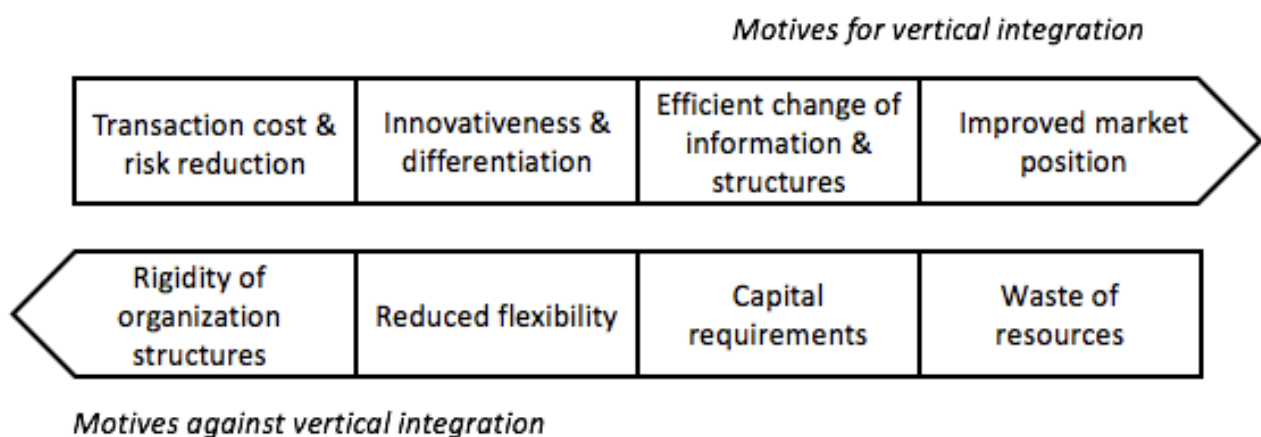


Figure 6. Vertical integration motives (Ziggers & Trienekens, 1999)

Transaction costs are strongly attached into process exchange itself and by focusing more of vertical integration in SCM, it can be possible to gain more efficient overall process (Williamson, 1979). Reduction of risks is typically associated with internal control and coordination, and therefore it is vital to focus on actions that enhance process into that direction (Ziggers & Trienekens, 1999). Ability to innovate and to differentiate belong to benefits of integration. Integration of organizational structures and information exchange create possibility to achieve improved market position. (Perry, 1989) Motives against vertical coordination include reversed results to previous positive motives. Waste of resources, increased capital requirements, and reduced flexibility are factors that reduce enthusiasm to implement vertical coordination. (Buzzel, 1983)

3.4 Sustainable product design

In past few decades there has been significant actions for sustainable product design and development by researchers and organizations, in order to reduce global environmental issues such as global warming and usage of natural resources (Hosseinpour et al., 2015). One of the most significant practices to obtain product sustainability, is to focus on actions to minimize environmental impacts in the product designing process (Hwang et al., 2013). Sustainable product design requires consideration of sustainability impacts in designing process and balancing triple bottom line of economic, social, and environmental aspects (Remery et al., 2012; Bereketli & Genevois, 2013).

Durability, reliability, affordability, and aesthetic perspective are typical product performance evaluation principles, but today organizations are considering also more of being environmentally conscious, considering global warming, mitigating energy consumption and managing product-life-cycle such as recycling, reusing and remanufacturing (Yang et al., 2012; Pialot et al., 2012). Organizations product designers have possibility to influence to the use of natural resources, therefore it is important for product achievement to meet functional and sustainability requirements. This leads to a situation where products compete with traditional aspects of price, functions and diversity, but also sustainability. (Hosseinpour et al., 2015) However, it is usually complicated to achieve sustainability, because it deals with several complex factors, such as laws, regulations and other national and international standards (Kunz et al., 2013).

According to Maxwell (2004), the key practice toward sustainable product design is to manage the problems that are causing impacts to social and environmental actors. Success in sustainable product design depends on various different issues and it is vital to implement these issues in the very beginning of the product development process. These include effective application of tools and principles of environmentally friendly design, rules and procedures and the available information in organizations cross-functional teams. (Johansson, 2002; Maxwell, 2004) Effective way to increase these aspects is to utilize data models and to produce a reference of sustainable design process (Gupta et al., 2015).

It is necessary for sustainable product to achieve economic, social and operational objectives to meet both, functional and environmental requirements (Meybodi, 2013; Zink,

2014). McLennan (2004) defines sustainability as the capability of a product to continuously develop during its life-cycle by mitigating impacts to the environment. Product design is key factor in the process of obtaining sustainability in product development. Designing process influences to the whole life-cycle from extracting raw materials to the product disposal. Therefore, it is important to focus on material selection, manufacturing and assembly process and also to product distribution, use, and recycle in the beginning of the process. (Hosseinpour et al., 2015) One of the Ullman (1992) findings reveal that even though product design cost is only between five to seven percent of product development, it has up to 75 percent impact to the entire product life cycle cost. Sustainable impacts can be diminished by sustainable product design and Gilchrist et al. (2012) state that 80 percent of environmental footprints is created in the design process. Entire product life cycle is strongly influenced by actions of product design (Bohm et al., 2010).

One of the crucial stages of sustainable product design is material selection. This process can be divided into assembly design and material selection practices. It is traditional that material selection requires integration of a large number of knowledge fields and business professionals of various departments. (Zarandi et al., 2011) Economic and environmental impacts should be considered with functional performance during the product life-cycle to achieve efficient material selection process (Skerlos et al., 2006). Furthermore, material selection can be viewed as a diverse problem, which requires optimal balance between material selection and sustainable product design (Zarandi et al., 2011). Material selection follows also the key pillars of TBL and Table 5 shows possible evaluation indicators.

Table 5. Evaluation indicators of sustainable material selection (Ljungberg, 2007; Zarandi et al., 2011)

Social Indicators	Environmental indicators	Economic indicators
Welfare	Pollution	Purchase cost
Equity	Energy-consumption	Process cost
Human-health	Eco-toxicity	Transport cost
Poverty	Recyclability	Disposal cost

Productive material selection with sustainable focus should include the evaluation process of all three indicators to achieve positive results. With this kind of actions organizations can identify best material suppliers and to develop their sustainable product design process (Ljungberg, 2007). Carefully executed consideration of important indicators from early stages of the design process can substantially improve the overall impact of a single product (Eddy et al., 2015).

3.5 Supplier innovation

In globally operating business environment where products and services are becoming more and more complex, it is inevitable that much of the great knowledge will reside outside of the organization (Bercovitz & Feldman, 2007). According to the research by Howells et al. (2003, p. 10), *“No matter who you are, most of the smartest people work for someone else.”* This is one of the reasons why firms have moved toward innovation alliances (Muller & Valikangas, 2002) and “open innovation” (Chesbrough, 2003) with their supply chain partners.

Firms high-level of outsourcing and shorter innovation cycles has emphasized the importance of utilizing suppliers as a source of innovation (Winter & Lasch, 2016). Suppliers are required to take more responsibilities (Evans & Lindsay, 2005) to develop their actions in mutual designing and partnering (Tyndall et al., 1998), and to take care of process improvements and product innovations (Simpson et al., 2002). Improved cost, quality, and life-cycle of the products are the main reasons why manufacturers increasingly rely on their suppliers. Capabilities of the manufacturing company are improved directly (utilization of supplied component) or indirectly (manufacturer learns from its suppliers) by supplier innovativeness. (Azadegan et al., 2008)

Innovation means the implementation of a new and controllable idea into a novel or developed product or process (Schilling, 2007; Wagner & Busse, 2008). Azadegan and Dooley (2010) define innovativeness as the potential to generate and introduce novel products or processes. Usually innovation involves existing with new knowledge (Schoonhoven et al., 1990) and may appear formally or informally (Harrison & Samson, 2002). Schumpeter (1934) early finding separate supplier innovations into new products and production methods, new sources of supply, or new business processes, which can affect

to performance of the customer. Furthermore, Knight (1967) distinguish four innovation types: product or service, production process, organizational-structure, and people innovation. Supplier innovation is defined by Noordhoff et al. (2011) as *“supplier’s use of a new or improved product, service, or process activities relative to the supplier’s current activities.”* Supplier innovation has also been identified as a potential source of value for the manufacturer (Azadegan & Dooley, 2010). Also, Azadegan et al. (2008) suggest that supplier innovation can be defined as any innovation, which may influence the performance of buying company.

It is widely recognized that supplier innovativeness is valuable to the purchasing company (Azadegan & Dooley, 2010). For instance, Handfield et al. (1999) propose that supplier assessment allows better advantages from their innovativeness, and Wynstra et al. (2003) finding is that supplier’s innovative capabilities can emphasize purchasing department’s role in development process. Research field of innovation management has indicated that collaboration with suppliers may generate success factors for innovation (von Hippel, 1998; Chesbrough, 2006). Klioutch and Leker (2011) study reveals that suppliers are increasingly recognized as initiators of innovation.

Innovativeness results as higher responsiveness to change and higher capability to manage new challenges (Parsons, 1991; Garcia et al., 2003). This facilitates the purchasing company to utilize the capabilities of innovative suppliers and this leads to better responsiveness to environmental changes (Swink & Mabert, 2000). Furthermore, distribution of work tasks with innovative suppliers produce possibilities for improved learning, when the benefits and capabilities of supplier can be utilized (Takeishi, 2002; King et al., 2003). Supplier innovativeness may be positively influenced to multiple dimensions of buying companies capabilities such as cost, quality, product development, delivery dependence and flexibility performance (Azadegan & Dooley, 2010).

Organizational learning is way to reinforce productivity and cost improvements (Hatch & Mowery, 1998) and literature has described this connection as the “learning curve” or “productivity curve” (Argote, 1999). This is where organizational learning is not originating only from internal sources rather than from innovative suppliers, whom provide the enhancement to business performance (Argote et al., 2003; Salomon & Martin, 2008). According to Linderman et al. (2004), organizational learning improves product quality,

which can be achieved as a result of supplier innovativeness. In addition, it is important to emphasize that negotiation and pricing are factors that highly influence to the outcome whether supplier's innovativeness leads to actual innovations or not (Azadegan & Dooley, 2010).

According to Hallikas et al. (2013) innovation and management scholars are arguing about the part of sustainability in the field of innovations and business success. Sustainable and responsible principles are not necessarily reflected as improvements to business performance, which creates challenges to the implementation of these issues (Eccles & Serafeim, 2013). Firms supply functions comprehensive and wide knowledge about their suppliers can be utilized in the innovation and sustainability practices (Hallstedt et al., 2013). In addition, supply chain management has indispensable role in ecological innovations (Preuss, 2007). Use of green and ethical practices in supplier partnerships improves innovation performance (Hallikas et al., 2013) and sustainability issues and innovation are fundamentally linked together (Eccles & Serafeim, 2013). Schiele (2006) suggest that it is important for firms to understand, find and select efficient suppliers, who can improve innovativeness and business performance; and this is considerable challenge for firms supply management division (Hallikas et al., 2013).

4. EMPIRICAL PART – SUSTAINABILITY AND SUPPLY CHAIN MANAGEMENT IN CASE COMPANY

This chapter introduces the results of the empirical research. First, chapter introduces the basic idea of how this study is examined. Then, the case company and their operations will be introduced and after that, the focus is on empirical findings. The empirical findings are presented in following themes: drivers, supplier selection and audits, sustainable design, risk and opportunities, corporate social responsibility, and motives and barriers for sustainability implementation. The findings are presented from the interviewees, questionnaire answerers and the case company's perspective. The aim is to get a holistic view of the current state of company's sustainability. The results will be analyzed in the following chapter five.

4.1 Research methods and design

Typical categorization of research methods are qualitative and quantitative methods, where quantitative method focus on numerical data with statistical explanations and qualitative method utilize deep understanding of the phenomenon from the perspective of different opinions (Metsämuuronen, 2005). Qualitative research aims at using less sources, but creating comprehensive view of the studied phenomenon. Furthermore, qualitative research is generally used in case studies, where the case is for example an organization, firm, department, or, project or process of the firm. Usually case study includes one case and the number of cases is limited, in order to provide holistic but focused analysis. (Koskinen et al., 2005) In this research, the qualitative case study methods of interviewing, observation and utilizing of case company text materials (Metsämuuronen, 2005), are widely applied. Furthermore, the questionnaire utilizes both qualitative and quantitative methods. The idea of the research methods is to use comprehensively qualitative methods with quantitative characteristics. This is managed by interviewing the case company representatives that can provide holistic views to researched themes and also, to provide the general view of the company by using questionnaire to larger group of company staff members.

Theoretical part serves as foundation to the empirical part and it will be reflected comprehensively in empirical part to be able to answer research questions. By linking theoretical part and empirical part together it is possible to create holistic view to the

researched subject and to be able to solve critical issues of this study. The aim is to be able to provide comprehensive look to case company sustainability actions in terms of supply chain management and to provide suggestions for future improvements. Following topics of this chapter focus on data collection, analysis of the data, and reliability and validity.

4.1.1 Data collection and analysis

This research is divided into two main parts, theoretical and empirical. The theoretical part focus on creating holistic view to the themes that are vital in this research such as sustainability, supply chain management and corporate social responsibility. Theoretical part also covers other required themes that are important to be able to answer the research questions. Data will be gathered mostly from relevant scientific articles, journals, and books. Also, data is gathered from reliable internet sources.

The empirical data is collected from the sources of the case company. Most utilized data is gathered from the interviews and the questionnaire, but also researchers own observations and informal discussions can be used as information source. These are typical approaches for qualitative research and the aim is to create deep understanding of the interviewees thoughts, experiences, opinions, suggestions, expertise and feelings (Patton, 2002). The case company is interested in sustainability issues and they are willing to use resources in order to create better environment and society for future generations. The case company operates in textile and clothing industry where problems in child labor, wages, and natural disasters require that it is even more important to focus on environmental actions and issues to improve performance of developing countries.

The empirical part of this research is conducted by interviewing two most suitable representatives and with questionnaire for the case company management and other sustainability specialists. To achieve best possible results for the interviews of empirical part, the process for finding best possible candidates for the interviewees includes certain phases. Following Figure 7 illustrates how best possible candidates for the interview are selected.

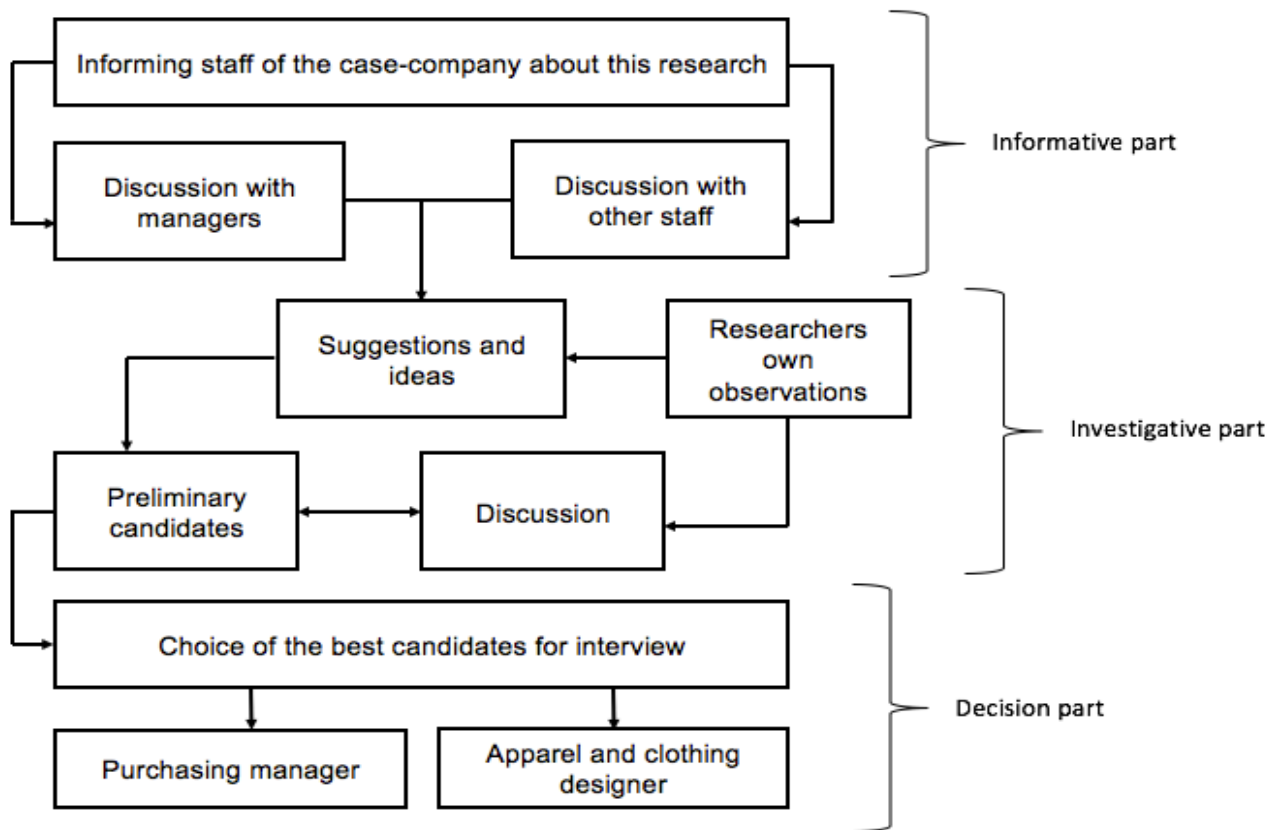


Figure 7. Decision of the candidates for interview

The process is divided to three parts: informative, investigative, and decision parts. Each part provide insight to the researched themes and allows development of the interview process. This distribution of the process helps to find the most suitable interviewees for this study, which were limited by few criteria. It is important that interviewees are responsible for sustainability issues and they have possibility to influence these actions. They should also be able to provide information of the current situation of the case company operation in the field of researched themes. From the perspective of this study, two best candidates from their knowledge and ability to positively contribute the research process are purchasing manager and apparel clothing designer of the case company. Table 6 provides details about the interviews.

Table 6. Interviews

Person	Title	Duration of the interviews
Interviewee A	Purchasing manager	35 min & 50 min
Interviewee B	Apparel and clothing designer	60 min & 40 min

The interviews are conducted by utilizing semi-structured approach, because it allows more open conversation between participants and creates more holistic answers to the questions. Semi-structured approach doesn't require similar flow or content between separate interviews, and it can be based on knowledge or flow of the discussion. (Saunders et al., 2009) Good preparation can be ensured by familiarizing the themes and focusing on the quality of the questions. Furthermore, semi-structured approach allows that the interviewer develops the conversation by including additional questions, in order to gather more vital data and information. (Denzin et al., 2000)

The interviews followed specific themes and pre-planned questions, which are based on the theoretical part and research questions. Also, the author can increase or decrease the amount of the questions depending how widely the interviewee answers to questions. The main idea is to get comprehensive answers to researched themes in order to create explicit answers to research questions.

All the interviews were conducted by person and recorded for more specific examination. Language of the interviews was Finnish, which means that they were transcribed and translated into English. Interviews required few meetings, because of the tight schedule of the interviewees. Author saw this as an opportunity to reach even more holistic answers and views to the questions, because it allows interviewees to think these subjects for longer time. Interviews lasted from 30 minutes to one hour per session. All gathered data including interviews, discussions and observations were transcribed and in-depth analyzed for comprehensive answers in following chapters.

The decision process of best possible candidates is utilized in second part of the empirical process of this research. This process provided thoughts for the challenges, suggestions, and desires for future activities in terms of sustainability, and these findings are used in the questionnaire. This questionnaire, divided in two parts: motives for sustainability and barriers for sustainability, was sent to eight case company representatives. Questionnaire include pre-defined questions with three answer choices of agree, difficult to say, and disagree. Also, after each question was possibility to provide open answers about the

question. Table 7 provides information about the questionnaire answerers and the questionnaire is illustrated in Appendix 2.

Table 7. Questionnaire information

Person	Title	Open answers for motives	Open answers for barriers
Answerer A	Purchasing manager (interviewee)	12	7
Answerer B	Apparel and clothing designer (interviewee)	12	7
Answerer C	Communication and PR manager	12	7
Answerer D	Chief Executive Officer	6	4
Answerer E	Chief Financial Officer	2	2
Answerer F	Designer 1	8	4
Answerer G	Designer 2	4	4
Answerer H	Workplace steward	3	2

4.1.2 Reliability and validity

The correlation between qualitative research and other academic ways and traditions has its challenges and limitations. Qualitative research is typically seen as not the most reliable and valid way of doing research (van Maanen, 1979). Kirk and Miller (1986) defines reliability as *“the extent to which a measurement procedure yields the same answer however and whenever it is carried out”* and validity *“is the extent to which it gives the correct answers”*. These two concepts are used for evaluating the quality of the research. Also, these concepts are important to understand, in order to ensure the research is rational and logical as academic perspective and from readers point of view.

According to Yin (2009) the quality factors of the research can be studied by analyzing validity and reliability. Yin (2009) divides validity into three different parts: internal, external and construct. Figure 8 illustrates the analogy between these validity factors and reliability.

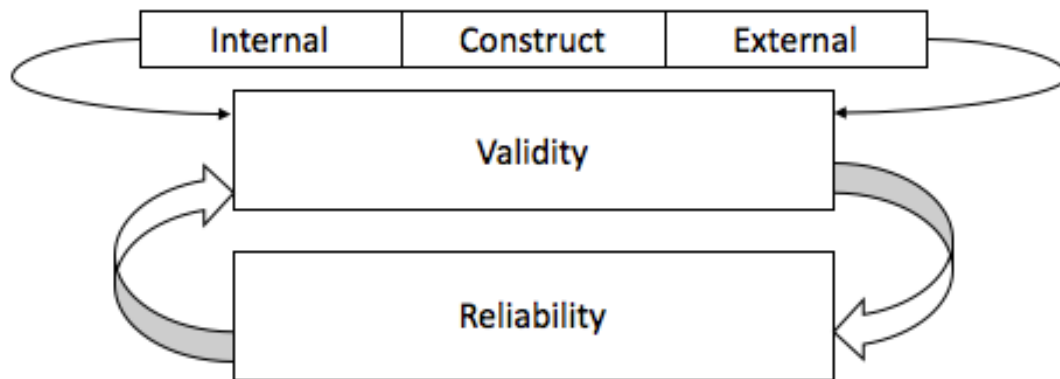


Figure 8. Reliability and validity (internal, construct and external)

The validity with internal, construct, external parts are used in terms of the quality of the research. Internal validity focuses on minimizing preconceptions of the study. External validity focus on if the findings are generalizable to other studies. Furthermore, construct validity focus on correct measures used in the progress of the research. The reliability focus on the documentation of the research, that it is done in a way that by using same metrics and ways of research, it will create the same results done for example by other researchers. (Yin, 2009)

In this research, internal validity is considered by focusing on clear explanations from the perspective of the case company. It is important to have holistic theoretical part and to reflect this to the findings and justify causal conclusion. External validity is typically challenging in a qualitative case study, but in this research the results may be applicable to the other studies focusing on textile, clothing, and fashion industries. Also, there can be found generalizable aspects from the perspective of sustainability. Furthermore, construct validity means in this qualitative research, to use observation and other company information, in addition to actual interviews. By using multiple sources of evidence, it is possible to get more comprehensive view for studied theme.

In terms of reliability, there is always challenges in case study done by qualitative methods. By interviewing the candidates, the author can use different methods to direct the

conversation in desirable way. Also, other collected empirical data can be subjective. In this research this is tackled by wide research questions and by internalizing the concept of reliability.

4.2 The case company

The case company of the research is European fashion and clothing company operating in Northern Europe. Their core collection of products includes clothes and accessories, also a minor part of other products, such as cosmetics. The company has approximately 100 stores (2016) covering over 20 cities in the Baltics and Scandinavia. The revenue is approximately 50 million (2016) with 300 employees.

All the products of the case company are produced as private label by suppliers. Private labels include only company's own brands and labels. The company has its own design team, which has the responsibility to create the collection four times a year (winter, spring, summer, autumn). Case company's products are produced in different countries, such as China, Turkey, India, and from the area of European Union. Sustainability has a strong impact on company's everyday actions, and the functions such as design, purchasing and logistics focus on creating sustainable process throughout the process from fabric to finished product to the end customer.

All the companies operating in the 21st century face huge challenges in terms of sustainability. Environmental, social, and economic factors require more and more specific focus from the organizations and companies, in order to survive in competition. In the textile and clothing industry, where the case company operates, it is even more vital to focus on these factors because of problems with conditions of workers and low wages. Following chapters focus on important areas in terms of sustainability from the case company perspective

4.3 Drivers for sustainability

The case company emphasize sustainability across the whole supply chain. In global business, the whole process from raw material to end-product, is a complex continuum and it is difficult to ensure sustainability across the supply chain. Case company supply chain

consists components from supplier selection and product design to distribution of the products, which requires holistic focus on these entities. Besides case company's economic performance, in sustainable supply chain management the focus is also on environmental and social aspect and the development of overall performance.

The drivers that create the need for sustainability are divided in three categories: drivers from stakeholders, drivers from resources, and drivers from the institutional side. These are three main groups that company has attention when focusing on sustainability.

Institutional drivers include factors such as laws and regulations, other national or international organizations that has influence on these actions, and the other directive expectations from the organizations such as Business Social Compliance Initiative (BSCI), which requirements case company has agreed to follow. BSCI focus on control and development of globally operating purchasing process. The most important factors from the case company perspective are the working conditions, transparent supply chain from raw material to end product, renewable raw materials, and chemical usage in the manufacturing process and also, in the actual products.

Also, the other main driver for sustainability comes from the stakeholder side of the business. Essential stakeholders for the company are customers, staff, suppliers, and media and case company focus on interaction with these stakeholders. Especially customers and citizens in general are more conscious about the factors of sustainability and that develops the need to focus on these actions. Furthermore, media seizes eagerly in sustainability actors, which might cause significant impacts to the business. Resources, the third part of drivers include different factors such as nature, products, and the focus to the development. According to the purchasing manager, it is vital to understand the requirements and possibilities from institutional side.

“The laws and regulations from the institutional side has naturally strong influence on actions that has performed from the perspective of sustainability across the supply chain. It is vital that company focus on collaboration with public sector operators to maintain the ability to react for changes in these regulations and possible challenges with sustainability.”
(Purchasing manager)

For customers, case company provides information about the products and emphasizes transparency across the supply chain. Company focus on providing products that are produced sustainably and with low impact to the nature. Information about social issues in the supplier factories are in the center of the case company sustainability strategy. In the future, the goal is to be able to provide better quality and durable products, which last with time and can be used for several years. In addition, company's promise is to focus on more sustainable cotton in their products with Better Cotton Initiative (BCI), which can be seen as benefit for both, customers and the case company.

“Stakeholders and resources has strong impact in the work of designers. For the last decade, the sustainability has become more and more vital factor in the design process. We consider the design process from raw material to the end products of how we can maintain and improve sustainability [...] from the perspective of stakeholders and the nature.”
(Apparel and clothing designer)

From the perspective of sustainability, the company staff plays vital part of the process. Company focuses on development of the knowledge of the staff about the sustainability issues and encourages to provide improvement ideas in their own expertise, but also from the company perspective. Company has its own sustainability department, which considers the development ideas at least monthly. Company also reports the new ideas and company strategy openly, about the consideration of sustainability issues.

With suppliers, company concentrates also on transparency from raw material to finished products. Case company's goal is to provide information from the supply chain, to ensure more sustainable continuum. Company follows practice of the textile and clothing industry and publishes full list of direct suppliers that they do business with. In the supplier selection company emphasizes that sub-contractor follows human rights and pays attention to environmental issues. Auditing of suppliers is an important part in the process for better sustainability and future development.

Media as a stakeholder is important channel for providing information about the sustainability actions in the case company's operations. Through media it is possible to gain positive image with focus to sustainability. Thus, company doesn't do this for media, but understands the value of good relationship.

Resource-efficiency is one of the biggest future development directions in the company's strategy. Company is focusing on the following themes in the next ten-year sustainability strategy:

1. Collaboration with suppliers focusing on renewable materials and energy to compensate carbon dioxide emissions;
2. Optimization of the transportation;
3. Focusing on energy-efficiency in own facilities;
4. Usage of more environmental friendly production and products (chemical use, cotton, fluff, leather).

These four goals are ambitious and require comprehensive analysis of the suppliers' and company's own operations, but sustainability is emphasized as a vital factor for surviving the challenging era of textile and clothing industry. Company has identified that actions toward sustainability influence positively, not just for environment and social aspect, but also company revenue and profit.

4.4 Supplier selection and audits

In order to ensure sustainability, company carefully selects its suppliers. Company considers not only economic factors, but also sustainability factors when selecting the best possible suppliers. These factors include working conditions, using renewable materials, safety issue considerations in terms of worker safety and safety to nature, certificates, and auditing possibilities and results. Company prefers suppliers that has cooperation with BSCI or other well-known organizations certification or auditing.

Supplier selection play key role and have impact on the business performance of the case company. Suppliers influence in the everyday operations and their performance also affects strategic aspects. Sustainable supplier selection is emphasized in integration of Triple Bottom Line (TBL) by its affection to economic, environmental, and social factors. Especially, when operating in textile and clothing industry with global supplier network, it is pivotal to focus on careful supplier selection. According to the interviewees, case company's sustainable supplier selection process follows three typical steps:

1. The process of supplier selection with sustainable focus starts from understanding the sustainability in terms of possible suppliers. This step also includes the identification of the sustainable matters that affect the company's products and whole supply chain. In this part the process is reflected from three before mentioned aspects: economic, environmental, and social. Environmental and social aspects focus more in the beginning of the supply chain, for example design and production process, and economic part across the supply chain. Figure 9 illustrates the parts that are influenced by effective supplier selection.
2. The second part is to find the most sustainable suppliers that meet the requirements and are willing to follow these requirements. In this part company use specific agencies that are specialized and has information about possible suppliers with the requirements.
3. Third part of the process concentrates on the development of suppliers. Company has identified that suppliers play pivotal role in the process of new and innovative products, and therefore company tries to find suppliers with desire to implement development, for instance in the production or design process.

Figure 9 illustrates the four important parts of the sustainable supplier selection process. Raw materials are purchased by the suppliers, so it is important to collaborate with suppliers that use sustainable sub-suppliers. Case company emphasizes that suppliers commit to follow sustainability in their business actions with their sub-suppliers. Company requires that suppliers report the origin of raw materials in general level, for instance where cotton, leather, and fluff are purchased. It is also important that raw materials purchased by suppliers are produced with good pollution prevention, waste management, and rights of workers.

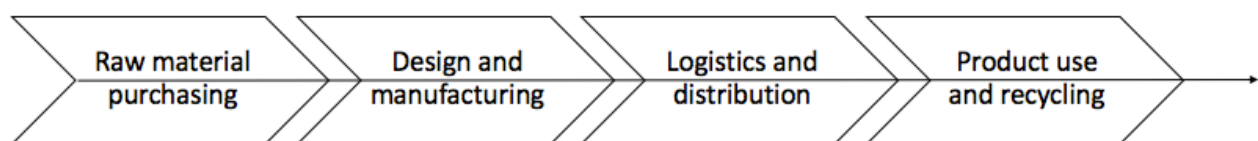


Figure 9. Sustainable supplier selection in supply chain management

In the design and manufacturing process the sustainable supplier selection plays pivotal role, because supplier selection has major influence on the following life-cycle of the products. Design focuses on sustainable material choices and usage, product testing, and desirable collections. Manufacturing concentrates on careful supplier evaluation from the perspective of environmental and social dimensions with focusing on material and resource efficiency. Also, in this part of supplier selection process company focuses in the aspects such as workers' rights and environmental impact.

Logistics and distribution plays significant role in terms of sustainability. Global operations require transportation with ships, airplanes, and trucks, which cause environmental impacts. Company strive to optimize and increase efficiency of logistics by larger cargo sizes and using environmental friendly transportation vehicles. It is important to focus on suppliers with same desire and will to improve these operations. Distribution in the countries where the stores are located are also conducted by using these methods. In warehousing company emphasizes just-in-time, where products proceed to the stores with only little time spent in the actual warehouse.

In the product use and recycling case company emphasize the selection of suppliers that use good quality materials, recycled and recyclable materials, and good quality products. It is important that supplier focus on these matters, so company can provide desirable products to end customers. The aim is to provide good quality products that can be used for many years by end-customers.

Case company also requires their suppliers' commitment to follow supplier code of conducts that forbids the use of child labor and forced labor, and they also follow BSCI requirements. International ILO-standards are also followed in contracts between case company and suppliers. Suppliers' production factory auditing is a traditional way to ensure that the suppliers follow these rules. Company uses both external specialists and company representatives, to perform these audits. Following figure 10 illustrates total of 18 audits made by company representatives from year 2016.

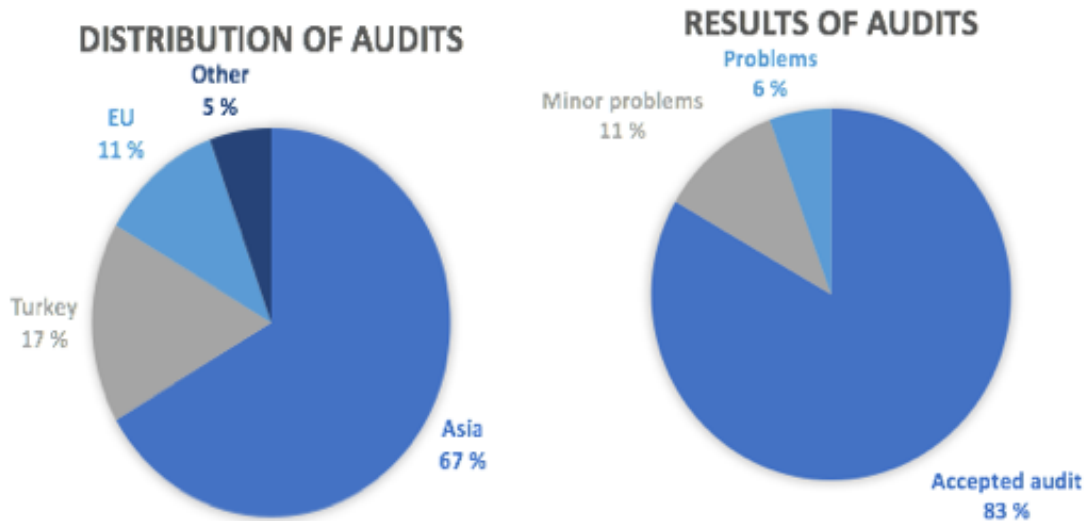


Figure 10. Audits and results of the audits

Figure 10 illustrates that major part of the audits has been carried out in Asia, where are located most of the factories of the contract-suppliers. Turkey is also important country, especially for case company's trouser and jeans production. Other audits are done in Europe, mostly in Baltic countries.

Most of the audits are accepted and in terms of working conditions, wages, and safety issues everything is well organized, but also problems usually occur. Typical problem is in the factory's production process where employees work too long hours. In 2016 83 percent of the 18 audits made in the direct supplier factories pass the audit with BSCI requirements. The number of problems with direct suppliers are 11 percent of minor problems and 6 percent of problems. Following figure 11 presents findings of these problems and challenges.

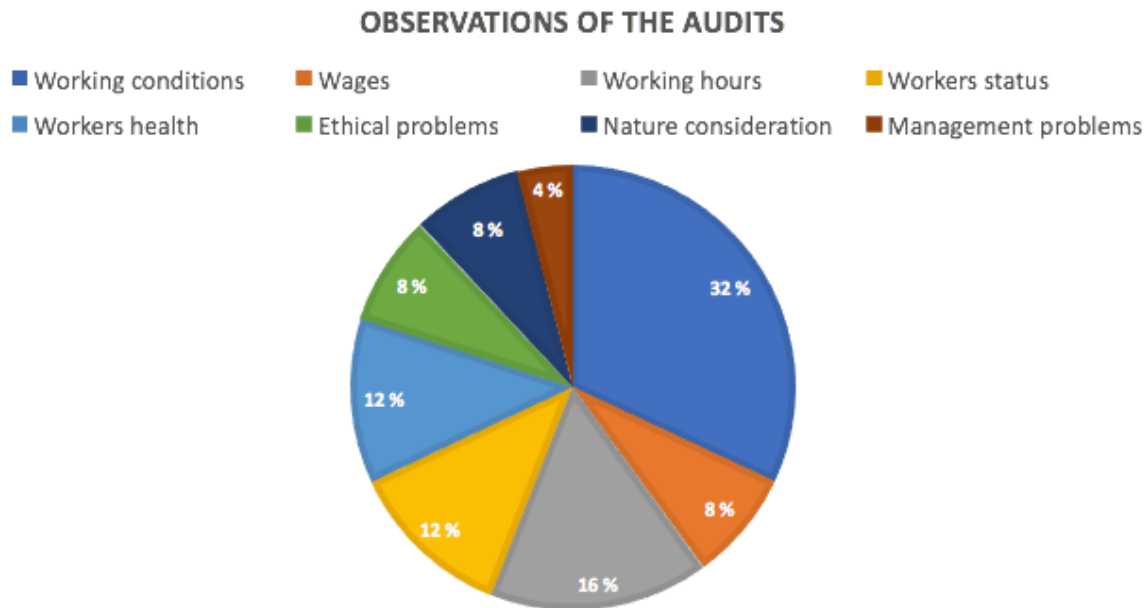


Figure 11. Observations of the audits

The observations and findings from the audits in terms of difficulties concentrate on workers' situation in the production factories. The case company requires that factories follow BSCI requirements in collaboration with the requirements from company side. When problems have been identified in the suppliers' business operations, case company representatives arrange discussion with the suppliers' managers and try to find solution to the problems.

"In many cases the managers of the production factories emphasize the cultural differences, that it is the way of working in that country. Obviously, company doesn't accept this kind of answer and require the managers to react these problems. Supplier must solve these problems to continue as a company supplier. There have been only few suppliers in my ten years of working that doesn't change their ways of working from the requirement of a case company. Naturally, collaboration with this kind of suppliers ends immediately and without further discussion." (Purchasing manager)

The aim for supplier audits and careful selection is to achieve long-term relationship in terms of sustainability and with financial benefits for both. Company favors tight collaboration and mutual information sharing between parties. Most of the relationships with supplier last several years or even decades, which enables mutual positive influences.

4.5 Sustainable design

In the sustainable supply chain management of textile and clothing industry, the sustainable design is in pivotal role of the process. Sustainable design is the fundamental part of the process and it develops the foundation for the sustainability across the supply chain. Design goes usually hand by hand with innovation, and case company has emphasized the potential supplier's ability to innovate with them and for instance, providing their own ideas in terms of new sustainable materials or new products.

Sustainable design has a strong role in case the company's design process. Company works with long-term goals in the design process of making new collections. The design process of a single new item is a complex process, which requires contribution of many different operators. Therefore, case company emphasizes active communication and information sharing between operators.

According to the interviewees, sustainability considerations start from raw materials of the products. Raw materials are acquired from suppliers that have committed to contribute case company's sustainability requirements in terms of environmental impact, social impact and use of materials and chemicals. Audits and production factory visits play vital role, when focusing on these aspects.

The clothing collection's goal is to provide sustainability in the whole life-cycle of a single product. The design process emphasizes sustainability from the choice of materials, to the choice of suppliers. The aim is to focus on the following parts of the process: designing process, choice of materials (suppliers), production process (materials), production process (end-product), packaging, usage of the products, and recycling. Sustainability starts from the design process and it defines the continuum of following process. Following three steps determines the design process from upper-level perspective. Firstly, the case company focuses on the sourcing of the raw materials from perspective of environmental and societal implications. Secondly, the focus is on production methods and suppliers' facilities that they also follow sustainability requirements. Thirdly, company emphasizes transparent information sharing.

Designers choose materials that have good quality, are durable, and from renewable sources. Also, the case company's suppliers follow the instructions, requirements, and future expectations of the sustainability issues in terms of social, environmental, and economic factors. The material acquisition follows the choice of materials with suppliers of low environmental impact. All the materials must be approved by production country's legal requirements and the requirements of the European Union.

Traditionally, case company designers divide the process or life-cycle from idea of the new item to recycling or disposal, in four steps. These four steps are illustrated in the following figure 12.

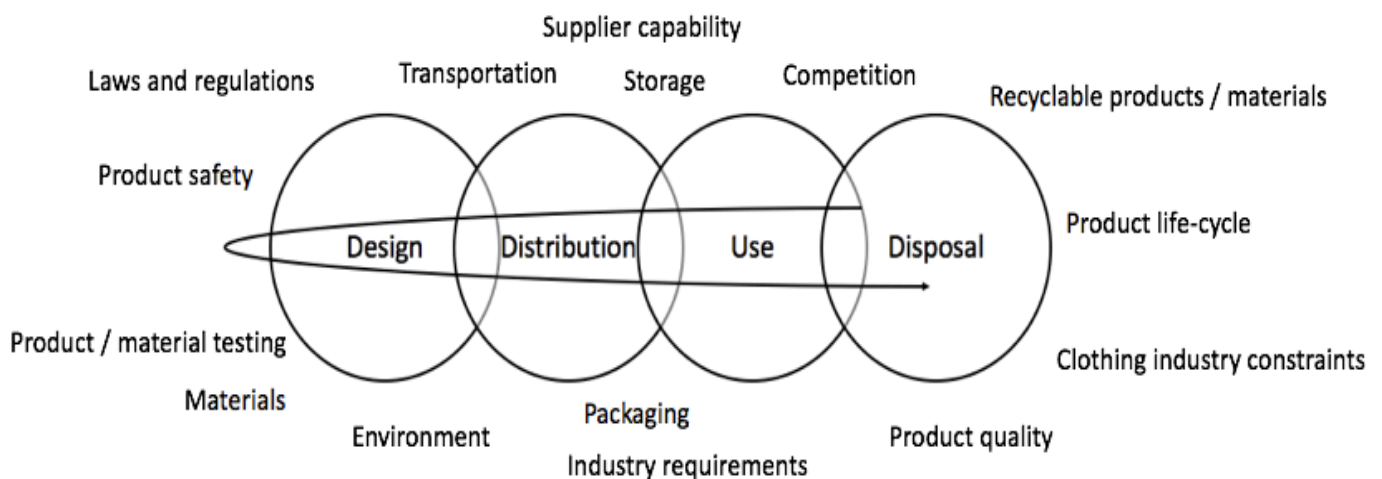


Figure 12. The four-step process from design to disposal and demands

All four steps are reflected from the perspective of sustainability in terms of environmental, social, and economic factors. Case company designers use reverse process, when the aim is to provide sustainable products for customers. It is pivotal to start the process from opposite direction and emphasize disposal and the end of the life-cycle of new item. Design, distribution, and use play also important role in sustainable design, and they should be implemented in the early stages of the design process, in order to ensure the best possible result. The demands of the sustainable design are the factors that create the need and will for the case company to operate toward sustainability. The clothing designer observes here also the way how fashion industry has developed in recent decades.

“In the last ten to twenty years there has been huge development in fashion industry. Reflecting the development from all perspectives of sustainability; product quality and life-cycle, sustainability considerations, consumer awareness, and recycling possibilities; it is important to understand that these play vital role, if company desires to maintain their ability to maintain their position in one of the most competitive industry. In lower category clothing products, margins per product is low so, it is important to understand this in the early stage of the design process, especially when focusing on sustainability.” (Apparel and clothing designer)

The demands in sustainable design are closely associated with the traditional product life-cycle. Difference is that the requirements differ and are more accurate, in order to obtain desired goals. In the actual design, case company concentrates on aspects such as product safety and testing, material safety and testing, and laws and regulation in terms of national, EU, and international level. Case company utilize certified material where it is possible, for example fluff, cotton, and leather. Material and product testing is performed before the actual product goes into manufacturing to ensure that company sustainability requirements are obtained. Product safety, in terms of chemical use and especially in child cloths the risk of suffocating is important to focus on. Therefore, the choice of right and capable supplier plays pivotal role. With successful design, it is possible to ensure that following parts of distribution, use, and disposal can also be conducted successfully.

Industry requirements and supplier capability are the upper level factors that have influence in the whole sustainable design process. These factors have most effects, when focusing on sustainability and therefore case company emphasize these in all stages. Furthermore, they play important role also when doing business in any industry or context. The interviewees mention that the demand for sustainability is not only industry requirement or company desire, but general concern of global world and in these days, it is easier to find and operate with sustainable suppliers than in previous years.

The distribution part of the process focuses on packaging, transportation, and storage. In packaging the aim is to diminish the use of materials, especially plastic and moving toward renewable materials, such as cardboard. In transportation, the aim is to use as environmental friendly ways as possible and to optimize the cargo sizes. Optimization and

just-in-time transportation creates the less need of storage, which is an advantage for case company.

Use and disposal are the parts that determined how successfully the previous parts of the process are accomplished in terms of sustainability. The aim is to provide products that have good quality and are used for several years. When the products are recycled or re-sold, case company goal is that sustainability is observed and allowed also in these situations. Renewable and durable materials are one of the most efficient ways to provide sustainability in this four-step process of design.

Design of the items is essential part of the sustainable supply chain management and important part of efficient and influential process. It is important to understand the life-cycle of fast-fashion industry, to be able to provide product with sustainable requirements. In the process of design to disposal, the case company have determined that in all stages of design, distribution, use, and disposal, all focus on following four subjects. Firstly, it is important to focus on usage of low-impact materials, in terms of environment and social aspects. Secondly, the use of high-impact material should be diminished as low as possible. Thirdly, the focus is on optimization of production and transportation by choice of right suppliers and transport companies. Last subjects, which requires successful previous parts, is diminishing the influence in the actual product use and disposal. By these observations, the sustainability has also positive influence on economic performance.

4.6 Risks and opportunities in terms of sustainability

Case company's focus toward sustainability creates new challenges and possibilities in terms of risks and opportunities. Global business operations and international supplier network requires more comprehensive focus and immediate actions, when problems or opportunities occur. By understanding risks and opportunities it is possible to develop new ways of implementing company sustainability strategy.

Company emphasizes risk management in the beginning of the supplier selection process. It is important to consider possible risks and opportunities, not only from the perspective of the case company, but also from perspective of the supplier. To get best possible results in terms of risks and opportunities the company focuses on information sharing, because it

has positive influence on mutual relationship. Company uses following management process in the determination of risks and opportunities for sustainability: identify the risk or opportunity (before, during or after the identification); analyze the risk or opportunity; management of the risk or opportunity; monitoring the risk or opportunity.

The impacts of the possible risks have developed the need to utilize sort of specific risk management in the case company's globally operating supply chain. Also, it is important to understand that every risk is also an opportunity and best way is to identify the risks as opportunities, before they generate problems. Company has divided the risks in two segments, general risks and industry specific risks. Specific risks focus more on company sustainability actions and both segments are introduced in table 8.

Table 8. Risks and opportunities; general and industry specific

General risks	Industry specific risks
Internal / external risk	Social / cultural risk
Fragmented supply chain	Environmental risk
Supplier relationship risk	Supply chain risk
Quality risk	Innovation risk
Political risk	

According to the interviewees, the general risks are typically reflected to the industry specific risks. The general risks are type of risks that company faces in every geopolitical area they are operating, but industry specific risks emerge especially in South-East Asia, where is located major part of the production factories.

General risks are divided into five segments presented in the Table 8. Internal and external risks are typical when parts of the supply chain are conducted by suppliers. In this perspective, the internal and external risks can be divided by location where the risk occurs: risk emerges in the suppliers' actual operation (internal risk), or risk emerges in suppliers' external environment (external risk). Company identifies also three other pivotal risks from this perspective, which are organizational risk (internal), supply chain risk (internal/external), and earlier mentioned environmental risk (internal/external). When reflecting these to the

sustainability factors, company emphasize that the origin of the risk is important to identify, because the risk affects both operators' businesses.

Fragmented supply chain is another typical challenge for globally sourcing textile and clothing industry company. When company collaborates with more than 50 different suppliers in various countries, it is not exceptional that risks occur. Supplier relationship risk is usually a continuum that originates from fragmented supply chain. It is difficult to maintain tight communication and information sharing with all suppliers. Fragmented supply chain and supplier relationship emerges traditionally problems with service-levels, quality, and availability. Risks with suppliers has also huge impact to the sustainability issues, which are tackled by efficient supplier relationship management and as many supplier audits as possible.

Quality risk appears as problems in the production facilities, materials, logistics, and the end products. The circumstances have changed in global business context in recent decades, but even today, it is important to emphasize these factors especially with new suppliers. Company focus on sharing company values and tight communication with all new suppliers. The sustainability strategy and requirements are one of the key elements, when emphasizing quality factors.

Last general risk is reflected from the political perspective. Changes in political circumstances from laws to regulations might cause major problems. Even though company supports robust environment and social consideration, it is sometimes challenging to obey all the new national and international laws and regulations in global context. Case company tackles these by utilizing special agencies that observe and react to these changes.

Industry specific risks from case company perspective are segmented for social (cultural), environmental, supply chain, and innovation. These risks are considered comprehensively from the perspective of sustainability and considered in company strategy. Most typical and challenging risk in clothing and apparel industry focus on social aspects. When problems occur in terms of working conditions, wages or accidents, it is the case company who gets the most of the negative impact. Clothing designer defines traditional situation from the industry specific risk.

“There are several examples in the clothing and apparel industry where even a little problem with human rights might cause huge impact for a company from financial or reputational perspective [...] and this is why we focus on defining these risks and reacting before they occur and risks realize, in actual place such as factory and in home market by media.”
(Apparel and clothing designer)

Social risks are tackled by careful supplier selection, tight information sharing, and regular supplier visits and audits. By focusing these actions, company can accomplish long relationship that has mutual respect toward sustainability. Furthermore, cooperation with different international, national, and local community organizations affects the social sustainability performance.

Even bigger challenge in terms of social risk is the origin of raw materials, such as cotton. It is challenging to track down all the suppliers, sub-suppliers, and even sub-sub-suppliers of the raw materials. This is a risk that all organizations operating in textile industry faces and therefore company belongs to the Better Cotton Initiative (BCI). The BCI aims for reduced environmental impact of cotton production, improving worker conditions and wages, and improvement of transparency and sustainability throughout the supply chain. Other organization that company belongs to is the Business Social Compliance Initiative (BSCI). which focus more on the factory workers right, such as working hours, conditions and wages, environmental issues, non-discrimination, and protection of risk groups, such as women and young workers.

Global supply chain causes big potential of risks from environmental perspective. Identified risks from textile and clothing industry perspective are scarcity of raw materials, energy and water consumption of suppliers, and as consequence is the negative impact on climate change. Phenomena such as floods, wildfires, temperature rise, and other natural changes are potential risks for the case company. In the future, the company sustainability will be improved by selecting suppliers that pledge to reducing energy consumption, utilizing renewable energy and material resources, decreasing carbon dioxide emissions, and reducing water consumption and wastes.

Supply chain risk from sustainability perspective is considered through raw material purchasing, production factories, and logistics and transportation. In raw material

purchasing the major risk is production methods that have impact on the environment. For raw material suppliers, consideration for sustainability are not traditionally in the top of the list, which causes possible risks for the case company. Company emphasizes production methods and suppliers that follows these same values.

Following part of the process is the production factories where the actual item is produced. Because of the colors and different fabrics, the usage of chemicals and material is a huge potential risk, from the nature and end-customer perspective. For the case company, it is crucial that supplier and the items that they produce meet the law and regulation standards. In worst case scenario, the usage of harmful chemicals might cause huge negative natural impact or health problems for factory employees or to the end-customers. Therefore, company has produced a roadmap which to follow with new products, that they meet the requirements for chemical and material use. Company roadmap follows OECD-regulations and Good Laboratory Practice (GLP) –accepted laboratories. As a result, case company maintains a list about forbidden chemicals, and give recommendations to the suppliers.

Supplier innovation is last industry specific risk from the perspective of sustainability. Case company requires that supplier is willing and capable to produce new and innovative products and collections. The risk is that supplier doesn't actually meet the requirements and the result is poor quality products and usage of harmful materials in terms of nature and consumer safety. Company manages sustainability risks by explicit identification of responsibilities of the parties.

“This require efficient actions in monitoring and active information sharing. This leads to a situation where incentives and rewards for supplier are in the level that it would positively influence to sustainability. By these actions, it is much easier to divide the risk management and sustainability for both parties.” (Purchasing manager)

Case company has identified that the ability for risk management is dependent on the resources of both company itself and the supplier. Therefore, the company focus on identification of the risks and reacting to them, before the actual risk occurs. With these practices, it is easier to understand potential risks as possibilities. All these practices also aim at transparent supply chain with focus on sustainability actions. In risk management company follows these steps to mitigate risks, with lowest possible negative impact on the

environmental and social aspects, with financial effectiveness. Risks are evaluated in detail and the company risk management and strategy are applied with new requirements.

4.7 Corporate social responsibility

Corporate social responsibility (CSR) as definition forms the foundation for case company sustainability actions in the supply chain management. It includes comprehensively aspects such as human rights, environment, and safety issues. Corporate social responsibility has straight impact on sustainability, which is the reason that the case company manage it in detail. The challenges of CSR have been identified especially in the developing countries in South East Asia. In last decades, the case company has been relocating manufacturing to suppliers in developing countries, where cultural differences cause challenges and requirements for better CSR.

Case company combines corporate social responsibility with other sustainability factors and the aim is to develop holistic approach with efficient activities. Interviewees mention that global textile and clothing industry sets specific requirements for CSR, which contributes mutual benefits. These requirements improve the level of sustainability performance of the industry companies and suppliers. It is easier to develop CSR standards mutually and increase the level of observing critical issues, such as social and environmental responsibility.

Corporate social responsibility is closely attached to the previously presented themes of case company's sustainability performance. The requirements for suppliers start as code of conducts that the case company demands to be followed. These include mentioned factors focusing on human rights, worker safety and observation of environmental issues. Social issues are also considered in detail, and case company participates in community development in terms of education of workers' kids and health care improvement. According to the purchasing manager, the efficient corporate social responsibility requires deep understanding and implementation from buyer side, in order to create sustainability throughout the supply chain.

"The corporate social responsibility has strong influence, for example when selecting best possible supplier [...] so it is important to define the requirements, which should be

conducted in terms of CSR, because those influence directly to the supply chain and sustainability level in the future. We try to identify best suppliers in terms of CSR [...] because in many cases they are same that are more willing to implement and develop mutual performance from the perspective of social, environmental and economic approaches” (Purchasing manager)

Case company's categorization of CSR is also reflected in terms of activities that are performed by company itself or by suppliers. These are divided in terms of environmental, financial, and social aspects. Social aspects include factors such as working place activities and community activities, financial activities include factors such as market area activities and activities focusing on company values, and environmental activities focus on environmental issues.

Social activities of company CSR have strong focus on improvements of workers' conditions and life in general in supplier locations. The working place activities include improvements in health care and general working conditions in the factories. Company encourages employee's development and education in balance with working life. It is vital that suppliers understand company perspective toward these improvements, in order to be able to reach yearly goals. Community activities in terms of CSR focus on localization in the areas of suppliers. The activities include providing financial support to improvements of child care, schools, health care, and other community activities. The aim is to provide workers normal working life in balance with family, friends and community. This require mutual dialogue with the community representatives, suppliers, workers, and case company. The best possible outcome is to provide benefits for all parties.

Financial activities of company CSR are implemented by different factors focusing on themes, such as communication and collaboration, clear values and code of conducts, and mutual information sharing. In detail, market area activities in supplier location include fair contracts and collaboration with other organizations to develop CSR. On the other hand, case company also understands CSR from the perspective of end-customer, comparing to “traditional” CSR in developing countries.

“In addition [to traditional CSR] we understand CSR as responsibility also to the end customer. In this area, we focus on providing exact information about the products and

material used. End-customers also value the information about the company activities in production countries, which has developed our information sharing procedures [...] with our own interest in such actions.” (Purchasing manager)

Furthermore, the financial activities of CSR are implemented to the values, rules and code of conducts of the case company. These are performed by taking strategic actions toward CSR, which requires company employee informing and training. In addition, company have noticed that active communication with stakeholders improve the ability of efficient and meaningful CSR.

Environmental activities of company CSR are in close relationship with other sustainability activities performed throughout the supply chain. From the perspective of CSR, the environmental activities are carefully considered from company, supplier and stakeholder side. On the company side, the focus is on consideration of own actions and strategic directions that are decided. On the supplier side, the main environmental focus is on reduction of impact to nature and energy consumption. On the stakeholder side company emphasizes clear information sharing and possibilities to have communication about CSR issues. According to the interviewees, it is important to understand that all these three dimensions, financial, social and environmental activities are in tight relationship with each other. By understanding this relationship, it is easier to actually gain competitive advantage in the marketplace and perform efficient CSR.

Corporate social responsibility can be seen as requirement for globally operating textile and clothing industry company, which is at least partly true and case company's goal is to accomplish CSR with the activities previously mentioned. Furthermore, there is also reasons and barrier for why and how CSR is implemented.

“CSR and sustainability is close to my personal interest, which I have been able to put in practice in my work career, which have been positively influenced toward company's CSR actions and it is important that you can share the same values of your personal life, also in your business life [...] also from the business perspective it is vital to understand that customers are extremely aware in the era of social media and ready to share their thoughts and to vote with their feet, if company doesn't meet the “requirements” of globally operating business environment's CSR.” (Apparel and clothing designer)

The reasons for implementation of corporate social responsibility activities are closely related to improvements or advantages that are gained through activities. Case company have recognized following reasons when performing these activities, in order to accomplish benefits. Improved reputation, customer awareness and customer satisfaction are the main reasons for implementation of CSR. In the textile and clothing industry these are the main reasons and also requirements for CSR, because problems in this area might cause huge problems in today's global business environment.

Other reasons are divided in the finance, brand, and company related factors. Financially related reasons are the ones that generate cost reduction for example by reducing energy consumption or by utilizing recycled materials. Financial benefit is also if the end-customer is willing to pay more for the products as result of CSR activities. Brand management is other vital component in the company strategy with CSR and sustainability. With mentioned activities, the case company can generate positive influence for the brand and to conduct it to the desired direction. Company related factors generate from the current needs of the case company and business environment. It divides from the innovation needs of new products to the attraction of the customers. These create different ways of implement corporate social responsibility. The company related factors change in yearly basis, and case company representatives change the actions to meet the demands of the market, customers, and stakeholders.

It is also important to understand that implementation of corporate social responsibility is complex and challenging process. Case company emphasizes their own interest toward CSR and sustainability but also mention that it is a requirement and sort of responsibility for globally operating companies to implement these activities. From the case company perspective, the challenges of CSR implementation are associated with costs and resources, balance and results.

The total cost of corporate social responsibility can be significant, especially from business perspective of small and medium-sized enterprises. It requires a lot of financial and human resources to perform effectively. Both resources should be implemented in the early stages of product life-cycle and the results, financial or reputational, are far in the end of the life-cycle. Case company determines that it is vital to find the balance between financial inputs

and utilizing their own and supplier human resources, to diminish the costs and to create established and effective process of CSR. Today, company sets requirements also for suppliers to participate the costs of CSR and to independently suggest improvements to develop the CSR performance.

The balance of CSR is associated with several different aspects that global business operators need to consider. The activities of CSR mainly develop from company's own desires, governmental requirements, or stakeholder expectations. This causes also challenges to implementation and creates the need to find best possible balance between different factors. When producing low-price category products in the fast fashion industry, it is challenging to be responsible and to provide cheap and good quality products. Majority of customers expect cheap products, but the most aware customers expects also responsible and sustainable products. Furthermore, the expectations and requirements of governmental regulators create needs to effective CSR with the balance between company's own desires and actions. Balancing between these aspects is conducted differently in yearly basis and company perform different actions for best possible outcome in terms of company, industry, and stakeholder requirements.

Last challenge in the implementation of CSR is the measurement of results. Company finds difficult to measure the impacts of financial inputs or intangible inputs in actual profits. Also, the industry requirements towards CSR have created that implementation of these activities is no longer competitive advantage in the clothing and apparel industry. It is basic presumption that company conducts CSR as part of their business operations. In addition, this creates situation where CSR activities are mandatory to implement, even without actual benefits comparing to competitors. These aspects cause the need to carefully discuss the CSR activities in order to gain profits, not only costs.

4.8 Motives and barriers for sustainability implementation

This chapter provides the information of motives and barriers for sustainability implementation from the perspective of eight case company representatives. These motives and barriers are important to be determined for efficient sustainability implementation and for future improvements. As referring to Krause et al. (2009), that "company can be as sustainable as its suppliers", but purchasing manager emphasizes that company can be as

“sustainable as its employees”. Case company encourages especially its key employees to be initiative for sustainability improvements. Figure 13 and figure 14 illustrate the case company representative’s answers. The questionnaire of motives and barriers was examined with total of 19 pre-planned questions (12 motives & 7 barriers) and a possibility to give open answers. The questionnaire and the answers were conducted and analyzed with Excel and its bar chart tool. The actual form of the questionnaire is illustrated in Appendix 2.

4.8.1 Motives for sustainability implementation

Increased productivity and cost reduction are more challenging factors, when evaluating motives for sustainability implementation. Waste reduction goes with the same category, but efficient use of recycled materials and non-toxic chemicals has direct positive influence toward sustainability. Also, Diminishing energy consumption is a motive for sustainability implementation. Detailed sustainability actions require inputs from different operators and the responsibilities and results might be difficult to determine in terms of productivity, costs, and waste reduction. Answerers observed different aspects in cost reduction and productivity improvements.

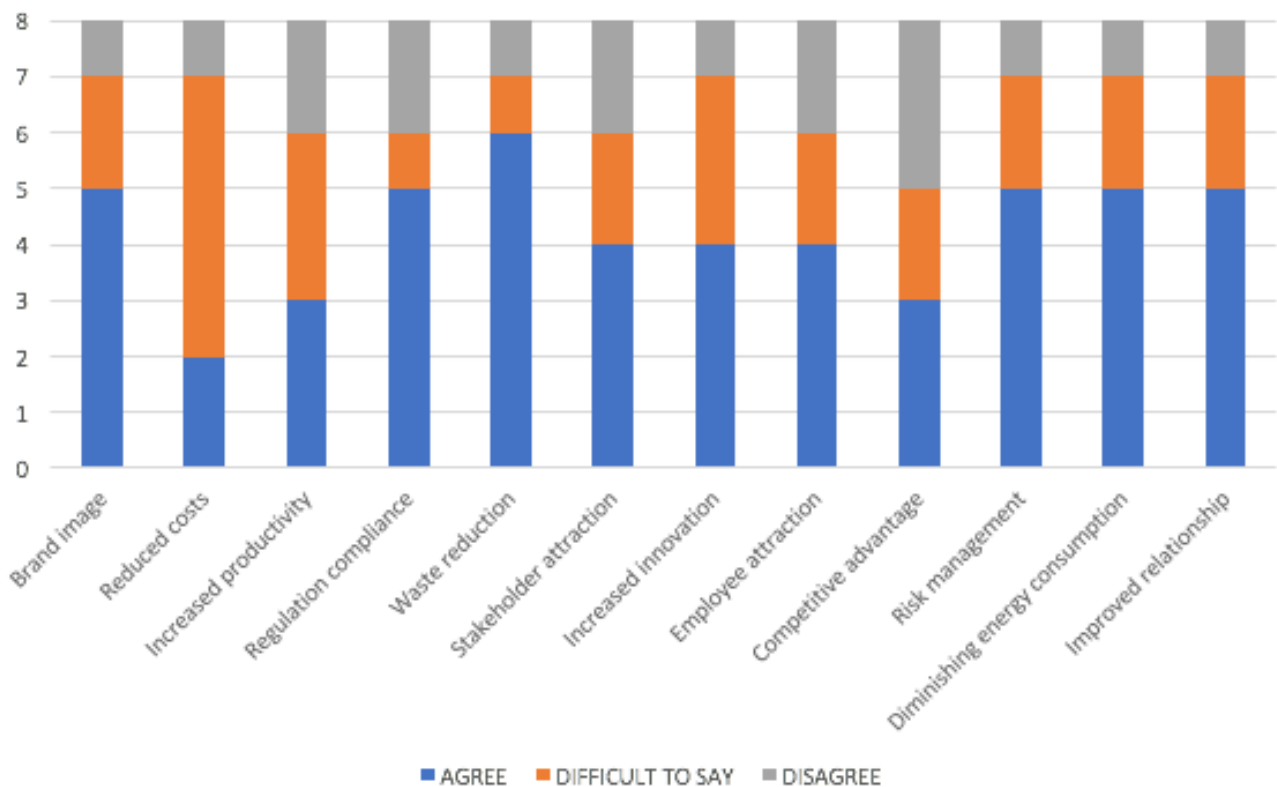


Figure 13. Motives for sustainability implementation

“Positive brand image influence directly to the employees, customers, and company performance. Also, the level of collaboration possibilities has direct positive impact with sustainable brand image.” (Chief Executive Officer)

“Cost reduction is important to understand in the long-term perspective. Sustainability requires resources in the beginning of the process and results would show in the long-run.” (Designer 1)

“Sustainability activities require usually too much effort, and it has become sort of goal, that needs to be accomplished with cost of everything else. This has some serious effects in the design process, when requirements from managers, customers, and political operators need to be observed.” (Apparel and clothing designer)

Employee and stakeholder attraction are average motives for sustainability implementation from the case company perspective. It is important that the company appears as an interesting option for possible employees, customers, investors, and suppliers and sustainability is option for obtaining this goal.

“My own personal values wouldn’t allow me to work for a company that doesn’t follow sustainability requirements in terms of environmental and social safety.” (Workplace steward)

“From the customer perspective, research has shown that aware customers are willing to pay more for sustainable products. Therefore, we try manage to find the ways to communicate this to people.” (Communication and PR manager)

Improved relationship, increased innovation, and risk management are all in close relationship, when discussing about motives for sustainability implementation. Good collaboration develops innovation and developed innovation has positive impact on the risk management. Following national, EU, and international regulations is easier with effective management in terms of innovation, risks and relationships.

“Today, suppliers are more willing to innovate with companies and sustainability is one of the critical issues in this area.” (Designer 2)

“Risk management in the areas of brand management and new products, the sustainability is vital factor. Importance of sustainability actions increases every year with slight changes in the direction. Problems with social issues create need toward these actions, and negative issues with environment create need for environmental friendly actions.” (Purchasing manager)

“Regulation compliance is closely related to the sustainability [...] and when company have willing to improve sustainability activities on its own initiative, it is lot easier to follow regulators’ requirements.” (Chief Financial Officer)

“Sustainability is great tool as part of company strategy, but as competitive advantage it doesn’t have the same uniqueness as in the previous eras.” (Chief Executive officer)

Competitive advantage is no longer key motivation for implementation of sustainability. Sustainability develops the brand image and allows for higher price-level products, but today it is no longer similarly competitive advantage as it was in the past decades.

4.8.2 Barriers for sustainability implementation

The barriers for sustainability implementation are the opposites for desired outcomes. According to the Figure 14, cost related barriers are the key barriers for sustainability implementation. Increased costs in terms of more expensive materials, usage of environmental friendly chemicals and energy resources, with specific product requirements are factors that have increasing influence on the costs. Furthermore, the resource requirements can be seen as barriers for implementation, which is closely related to own desires of company representative.

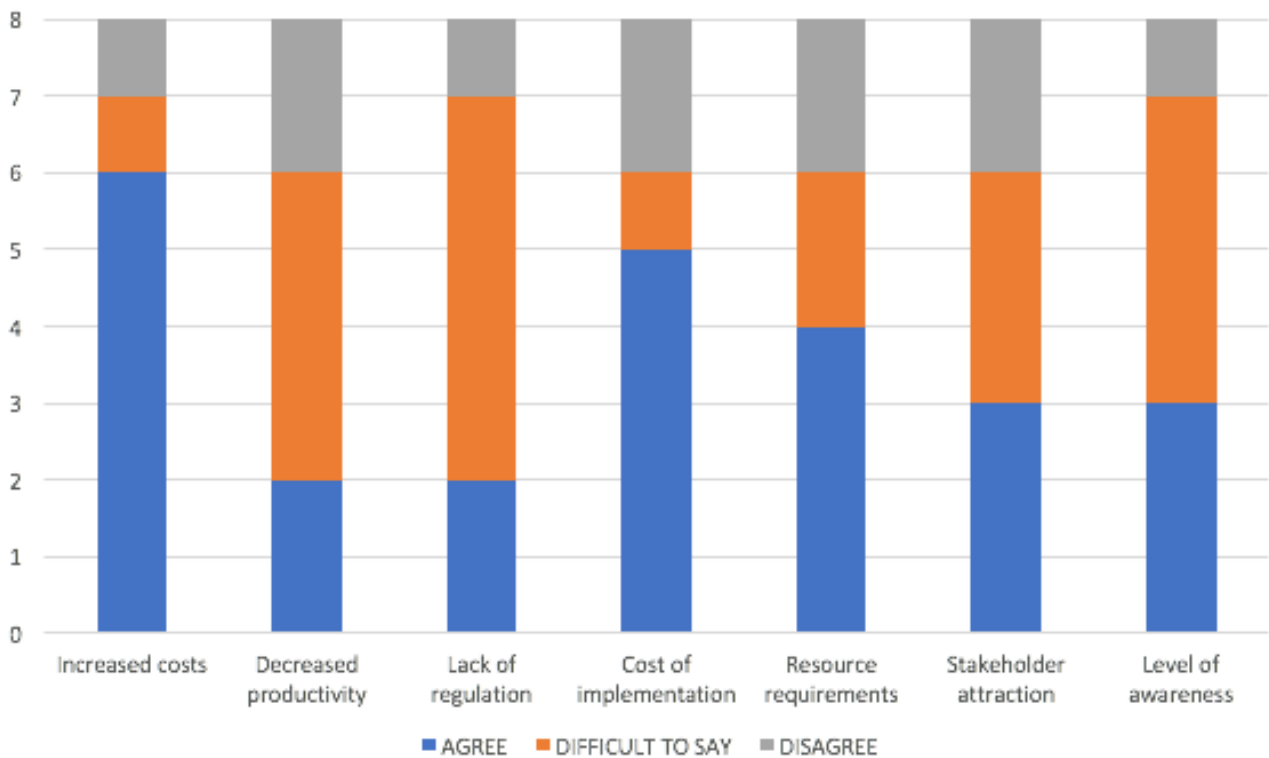


Figure 14. Barriers for sustainability implementation

“Sustainability requires major amount of resources from both buyer and supplier sides [...] and it is crucial to find the path that both want to follow and for example cultural differences might have influence on what level of sustainability is mutually desirable.” (Purchasing manager)

“Requirements for the use of latest materials in terms of sustainability and desires toward utilization of renewable energy resources might be challenging for smaller suppliers in developing countries. Our company is not one of the biggest operators in the market [...] so cost effect is also usually bigger for smaller companies operating with smaller suppliers.” (Apparel and clothing designer)

“Resource requirements is strongly attached to persons own interests. Personally, I don’t find it as requirement for using my working hours for this area, because it has many positive influences.” (Designer 1)

Decreased productivity and lack of regulation divides the company representatives and many find difficult to say, if the influences are more negative or positive. These aspects differ

yearly and new standard for sustainability might be totally different this year, reflecting for what it was last year. Also, these are closely related to typical textile and clothing industry barriers that are closely observed in the case company.

“Decreased productivity is closely related to strict requirements. The aim is to find the balance between sustainability factors and financial benefits, to be able to provide desired products from company, customer, and regulators perspective. (Communication and PR manager)

“Lack of regulation was previously challenge in supplier factories in developing countries. Today, we try to manage between the strict national requirements, with continuously changing requirements of supplier country regulators.” (Apparel and clothing designer)

Stakeholder attraction and level of awareness determine closely the level of sustainability, that needs to be implemented. Therefore, these aspects can serve as motives or barriers for implementation of sustainability. Effective stakeholder attraction requires initiative ways of sustainability and the results of customer awareness might still not be in the desirably obtained. Balancing with these aspects is difficult and might influence as barriers toward sustainability.

“In today’s global business environment it is difficult to differentiate a company from other operators by being sustainable [...] required inputs don’t achieve so remarkable results that sustainability should be used any more as advertising campaign strategy for example.” (Chief Executive Officer)

“Level of awareness is closely related for customer’s own interest, which is why it is important to fin the balance between sustainability actions and financial inputs.” (Chief Financial Officer)

The motives and barriers for implementation of sustainability requires comprehensive analysis of company performance and set requirements for actions. Suggested motives and barriers of sustainability implementation are mainly well observed and in order to successfully answer to these requirements, company should focus on implementation of sustainability in strategic and operational level

5. CONCLUSIONS

This final chapter summarizes the findings of the research and concludes the answers to the research questions based on the findings of the empirical part with reflection to the findings of the theoretical part. Furthermore, the limitations and suggestions for further research are discussed in the last part of this chapter.

5.1 Answers to the research questions

The aim for this research was to create comprehensive analysis of the case company's actions in terms of sustainability and supply chain management. Also, the aim was to provide suggestions that improve the knowledge and actions in the sustainable supply chain management. The sub-objectives of this research aim at providing supportive ideas towards sustainability by finding the drivers, practices, and industry specific elements that develop the company sustainability and supply chain performance. These finding are presented below in terms of research questions and reflected based on theoretical and empirical findings of the previous chapters.

Sub-question 1: What are the opportunities and risks that develop the need for sustainability actions in textile and clothing industry?

The previous findings of the opportunities and risks that develop the need for sustainability are based on theoretical part of the research. According to these researches, the opportunities and risks are closely related to general aspects complimented with industry specific aspects studied in the sub-question three. Requirements from the government, customers, and other stakeholders are opportunities and risks found from the previous literature. Research by Walker et al. (2008) suggests that need for sustainability actions originates from internal and external sources, such as competition and awareness of customers and managers. These requirements place different types of actions that need to be implemented to maintain the ability to efficiently compete in competitive business environment. Furthermore, early study by Hart & Ahuja (1994) has identified that the risk and opportunity of pollution prevention can obtain cost advantages over competitors.

Furthermore, the findings of theoretical part emphasize the influence of globalization and competition with their close relationship and impact on efficiency (Handfield, 2005). Globalization and globally operating companies face more challenging situations in terms of sustainability, where simultaneously organizations own resources and capabilities play pivotal role. Also, environmental and social impacts are simultaneously an opportunity and risk that create the need for sustainability actions. Previous challenges and negative impacts of environmental and social factors direct to enhance sustainability actions. Aktin & Gergin (2016) suggest that these are closely related to resource management, which is one of the key driver for sustainability from previous literature.

The empirical part of the study indicates same results as previous literature that opportunities for sustainability arise from stakeholders, resources, and governmental side. Research by Smith (2003) provides same results, that companies should focus on sustainability principles, practices, and strategies to efficiently answers of stakeholders. Laws and regulations play crucial role, when company is focusing on the level of sustainability actions, and these are implemented in close relationship by company's own initiative with non-governmental organizations, which is related to previous literature (Perez-Sanchez et al. 2003; Seuring & Müller, 2008). These starting points provide possibilities to focus on working conditions raw materials, chemical usage and the whole manufacturing process. The wide stakeholder side sets requirements for the case company to focus on customers, suppliers, and media, to efficiently implement company activities, which is also key element from previous literature (Wegner, 2015).

This study suggest that companies should emphasize the risk management in supplier selection to reach sustainability goals, and research by Winter & Lasch (2016) continues this supplier selection to supplier innovation to more efficient process. The risk can be divided in the general risks that many companies face in supply chain management and industry specific risk, that textile and clothing industry companies face, when operating in global business environment. Furthermore, this study suggests to focus on careful identification of risks for achieving the best possible results.

Sub-question 2: What are the key sustainable supply chain practices in textile and clothing industry?

Based on the previous literature, the practices that create sustainability in supply chain management in textile and clothing industry are related to holistic perspective that require observation of various aspects. Supply chain management and sustainability requires practices that improve management, collaboration, initiatives and innovation. Sustainable supply chain management is closely related to relationship between suppliers and customers, and with strategic actions companies can develop the efficiency in terms of social and environmental needs. Sustainable supply chain management (SSCM) has become one of the major issues for companies of all sizes and in different industries (Aktin & Gergin, 2016).

Improvements in supply chain management by better relationship between buying company and supplier positively influence to sustainability, profitability and competitive advantage. Another practice from previous literature is close collaboration between two or more companies is key practice, when emphasizing sustainability. Collaboration improves the potential of sustainability throughout the supply chain. The basic idea is that there is a lot of potential in collaborating with supply chain partners (Min et al., 2005). Furthermore, the initiatives and innovation with suppliers are effective ways to utilize outside resources in product design and actual manufacturing process. Relying on supplier's expertise can positively influence on product innovation, costs and quality.

The empirical part of this study confirms the importance of supplier collaboration. Case company utilizes supplier's expertise in the process of designing new sustainable products. This study also suggests that the sustainable supply chain management requires holistic understanding of the environmental and social impact from supplier side, where close collaboration and information sharing plays pivotal role, which is in accordance with previous literature (Ellram & Cooper, 1990; Horvath, 2001; Sanders & Premus, 2005). The textile and clothing industry company is required to implement sustainability practices in their strategies, to efficiently perform in competitive business environment. This study also emphasizes that the sustainability should be implemented throughout the supply chain in the processes such as design process, production process, packaging, transportation and disposal or recycling. With careful focus of implementation of sustainability, company can

achieve best possible benefits in terms of sustainable supply chain management, which is commonly identified in previous researches (Krause et al., 2009; Ferretti et al., 2007).

Sub-question 3: What are the key sustainability elements in textile and clothing industry?

The previous literature examined for this research focus on different aspects, when reflecting the fundamental sustainability elements in textile and clothing industry. The industry has specific requirements because of the high-level usage of natural and social resources. Diminishing of energy consumption, material use, and cost of products life-cycle are key elements from industry perspective (see e.g. Hwang et al., 2013). Balancing between environmental, social, and economic aspects is vital element for textile and clothing industry companies, especially when operating in global business context and utilizing suppliers in developing countries.

Industry's short product life-cycles and quarterly changing clothing collections set specific requirements for sustainability. These requirements are traditionally tackled by focusing on CSR and cooperation with non-profit- or non-governmental organizations, which positively influence to company actions and reputation. Also, corporate sustainability has gained significant attention in the field of organizational analysis in recent years (Scherer & Palazzo, 2011) and the previous literature emphasizes the importance of sustainable supply chain management from environmental perspective with actions such as green procurement, waste reduction, production planning, green inventory and logistics, and energy and pollution prevention. Furthermore, from social perspective the textile and clothing industry requires implementations toward workplace safety, human rights, and managerial actions toward social sustainability.

In the empirical part of this study, the findings of key sustainability elements in textile and clothing industry are closely related to corporate social responsibility, which follows findings of the previous literature (Smith, 2003; Scherer & Palazzo, 2011). The findings illustrate that CSR forms the foundation for sustainability actions in supply chain management. The study also confirms the reflection to previous researches that social sustainability issues are one of the main concerns in textile and clothing industry (Gardetti & Torres, 2013; Chi, 2011;

Draper et al., 2007) and the requirements in terms of sustainability should be applied by all companies.

In addition, the empirical part reveals that CSR has strong influence in the improvements of sustainable supply chain management. The critical aspects, such as human rights, worker safety and observation of environmental issues can be tackled by careful selection of responsible and sustainable supplier, which is in accordance with Krause et al. (2009). The findings also emphasize company's own interest toward sustainability for best possible results. Findings reveal that managers' interest toward sustainability can positively influence the implementation of these actions.

Main research question: How sustainability issues are considered in the case company supply chain and what are the suggestions for improvement?

The main research question of this study was to conduct comprehensive analysis of the case company supply chain management in terms of sustainability and to provide suggestions for improvements. The findings illustrate that case company implements sustainability throughout the supply chain and they emphasize the importance of the actions of sustainability. Case company focuses on implementation of environmental and social performance with economic efficiency, which is a general finding in previous literature (see e.g. Wu & Pagell, 2011; Grossmann & Guillen-Gosalbez, 2010; Vachon & Klassen, 2008).

This study's findings confirm the idea of previous literature that it is vital to focus on stakeholders, resources, and regulations when implementing sustainability (Banerjee, 2002; Seuring & Müller, 2008). Transparent collaboration and information sharing between the operators of supply chain is one important theme in sustainable supply chain management (see e.g. Bowersox et al., 2003) and this study confirms this finding. Furthermore, the findings indicate that the employees of the company play a pivotal role in terms of sustainability implementation. Case company emphasizes the importance of sustainability and encourages information sharing about the topic. The aim is to implement sustainability as a clear part of company strategy.

The findings also reveal that case company focuses on careful supplier selection with sustainability factors in collaboration with economic factors, which is in accordance with

Teuteberg & Wittstruck (2010). Furthermore, the results indicate that company conducts careful consideration of social and environmental sustainability issues such as working conditions, using renewable materials, safety issue considerations, environmental friendly, and auditing possibilities and results, when selecting best possible supplier. Logistics and distribution forms critical part of supply chain, especially when focusing on environmental friendly operations. The findings of this study from case company perspective reveal that sustainability issues are tackled by optimization of logistics and by increasing cargo sizes. Challenges of the distribution are closely related to industry specific challenges of quarterly changing clothing collections and pressures from fast fashion requirements.

Supplier audits are carefully conducted by case company and the results are utilized for benefits both, supplier and company itself. The findings suggest that company should focus on close collaboration and information sharing to conduct successful supplier audits. Supplier audits are closely related to sustainable design, which is one of the key findings of this research, in terms of sustainability in textile and clothing industry also in previous literature (Simpson et al. 2002; Evans & Lindsay, 2005). Sustainable design has many possibilities of sustainability actions, in terms of social and environmental sustainability. Sustainable design is continuum from sustainably conducted supplier selection. The findings suggest that it is pivotal to understand the relationship between different elements of the supply chain.

Corporate social responsibility forms the foundation and perspective for implementation of sustainability. The findings reveal that from the case company perspective, CSR is a tool for comprehensively focus on various aspects that should be analyzed in company sustainability, which is related to the research by Smith (2003). In terms of motives and barriers for sustainability implementation, the findings reveal that company employees are interested in the themes of sustainability and they are willing to improve company performance. Furthermore, findings emphasize the importance of risk management in supplier selection, when the aim is to ensure sustainability. The identification of risks and managing these before they occur are one of the key factors in terms of company sustainability.

The findings also reveal that sustainability is carefully considered throughout the supply chain of case company. Sustainability in supply chain management is vital factor for textile

and clothing industry companies, because of the trend of using suppliers in developing countries (Gardetti & Torres, 2013; Chi, 2011) where problems with environmental and social aspects is not in desired level, from the perspective of developed country company or stakeholder. Case company emphasizes that sustainability is process, where continuous improvement is pivotal and some suggestions can be provided.

Successful implementation of sustainability objectives and strategies can be conducted by participating to the projects and campaigns, that are associated with sustainability issues in the developing countries. With mutual campaigns and projects with other textile and clothing industry companies and non-profit organization (NPO) makes it easier to achieve better results. Utilization of the expertise of NPO's and for example Business for Social Responsibility (BSR) is one of the suggestions for sustainability partner to support suppliers in consideration of environmental and social issues in their production facilities, which is recognized also in research by Resta et al. (2016). Audits of suppliers play crucial role in the process of ensuring sustainability and future suggestions is to utilize more external organizations such as Fair Labor Association (FLA), to improve the company internal methods of auditing. Involving the operation of NPO's such as FLA provides different possibilities to collaborate also with other companies to obtain improvements in the supply chain management.

Resource efficiency is one of the key elements in the process of balancing economic, social, and environmental aspects and the suggestion is to create clear consideration about the desired level between these to ensure resource efficiency (Aktin & Gergin, 2016). Sustainability is vital factors especially in the textile and clothing industry, but the future suggestion is to carefully determine the input-output level. In terms of resources, other suggestion is to focus more on certified, recycled, and organic materials. Furthermore, resource efficiency is possible to be improved by utilization of environmentally lower impact transportation ways of ships, instead of aircrafts.

5.2 Limitations and suggestions for further research

The choice of the research method sets limited utilization possibilities for the findings. This study was conducted as qualitative case study with interviews and questionnaire, from the

perspective of one case company. The empirical part was conducted by total of four interviews and total of eight questionnaire answerers. Limited number of interviewees and questionnaire answerers influence the generalization of the findings. The objective was to comprehensively study the sustainability of the case company supply chain, but the findings can be partly utilized in the supply chain management in global business context. Furthermore, the findings of industry specific requirements in textile and clothing industry are possible to utilize from this research.

This study focused on the sustainability and supply chain management in textile and clothing industry context from case company perspective and suggestions for further research can be recognized, both from general industry perspective and case company perspective. From general perspective, the main challenges of sustainability in this study focus on finding the best practices, to achieve of long-term and measurable economic benefits. Idea for future research is to conduct study with quantitative methods with bigger sample of companies operating in textile and clothing industry about the implementation and measurement of sustainability in the supply chain context. From the case company perspective suggestion for further research is to study the potential of collaboration improvements with smaller suppliers for better implementation of sustainability. Furthermore, for the case company should be studied the input-output level and benefits of sustainability, in order to find the most suitable actions and practices to implement from strategic perspective.

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APPENDICES

Appendix 1. Interview questions

- What are the fundamental elements of sustainability and supply chain management in textile and clothing industry?
- What are the drivers that create need for sustainability?
- How company response to the sustainability requirements?
- How company control the sustainability performance in supply chain?
- What are the most challenging future requirements in terms of sustainability in company operations?
- What company considers as the most effective ways of achieving sustainability in textile and clothing industry?
- What are the motives and barriers for sustainability implementation?
- What are the main themes of sustainable supply chain management?
 - o Internal and external factors?
 - o Collaboration with suppliers?
 - o Collaboration with NPO's and/or NGO's?
 - o Components of supply chain (design, innovation, logistics)?
 - o Ways to improve these?
- What are the risks and opportunities of sustainability?
 - o General risks?
 - o Textile and clothing industry risks?
 - o Ways to improve these?
- How corporate social responsibility is observed throughout the supply chain?
 - o Workers requirements?
 - o Market place and competition?
 - o Environment and ethical aspects?

- Ways to improve these
- How company achieves balance between sustainable supply chain and economic performance?
 - In company strategy and culture?
 - Risk management?
 - Laws, standards, regulations?
 - Ways to improve these?
- What are the practices to advancement of sustainability?
 - Supplier collaboration?
 - Recycling, diminishing resource use and/or energy consumption?
 - Innovation with suppliers?
 - Ways to improve these?

Appendix 2. Questionnaire: Motives and barriers for sustainability implementation

Questionnaire: Motives and barriers for sustainability implementation			
Name:			
Position:			
Motives (M) and barriers (B)	Answer choices and open answers		
	Agree	Difficult to say	Disagree
Positive brand image (M)			
Reduced costs (M)			
Increased productivity (M)			
Regulation compliance (M)			
Waste reduction (M)			
Stakeholder attraction (M)			
Increased innovation (M)			
Employee attraction (M)			
Competitive advantage (M)			
Risk management (M)			
Diminishing energy consumption (M)			
Improved relationship (M)			
Increased costs (B)			
Decreased productivity (B)			
Lack of regulation (B)			
Cost of implementation (B)			
Resource requirements (B)			
Stakeholder attraction (B)			
Level of awareness (B)			