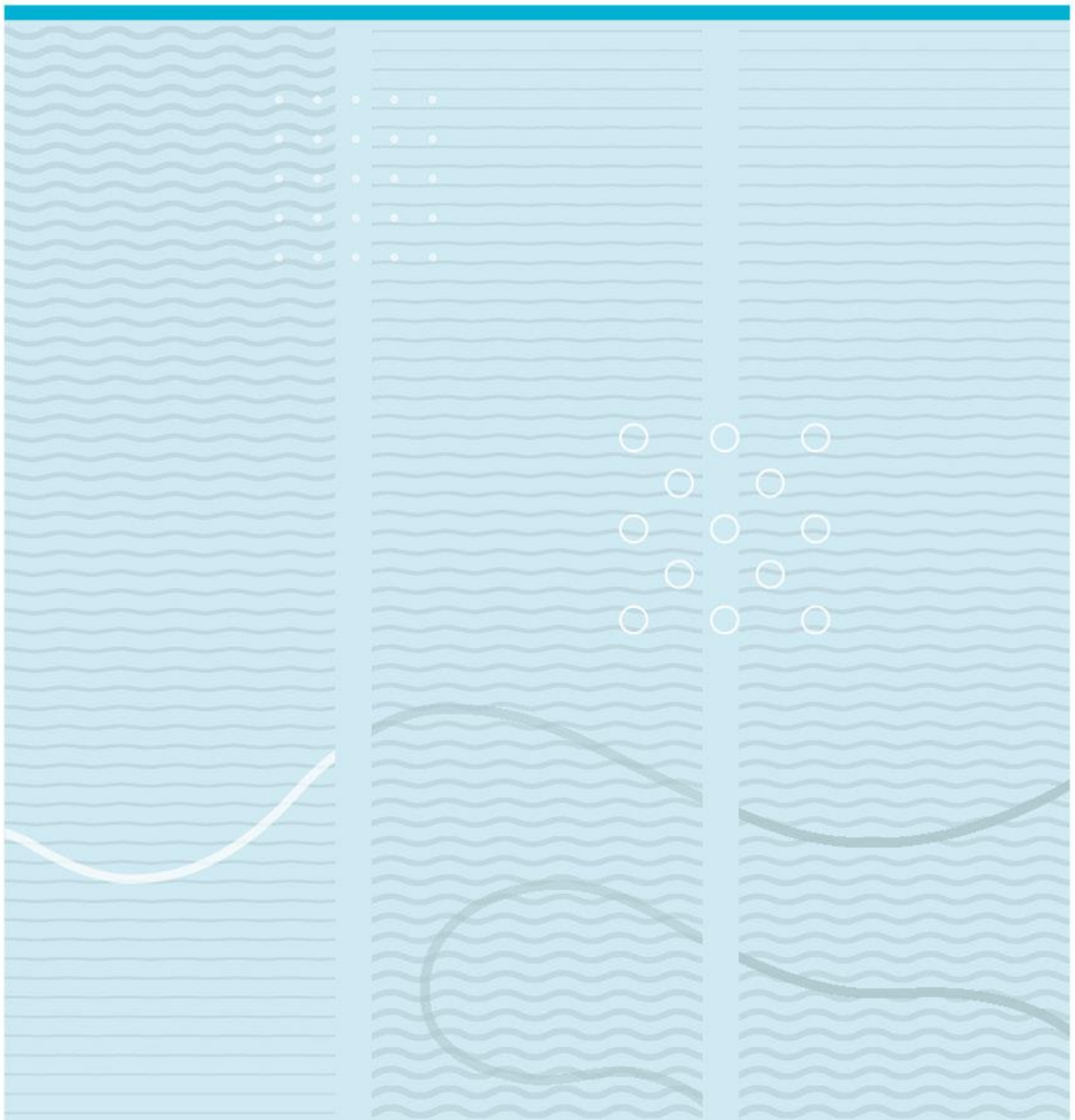


Aleksander Vestøl Bråten and Deividas Siurys

# Drivers and barriers to sustainable supply chain management

*What internal and external factors influence the decision to adopt sustainable supply chain management practices in Norwegian organizations?*



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This thesis is worth 30 study points

## Preface

This master thesis marks the end of the master's program in business administration, specializing in Industrial economics at the University of South-Eastern Norway. The work with the master's thesis, which studies factors that influence the strategic decision to adopt sustainable supply chain management (SSCM) practices, has been interesting and educational while simultaneously demanding and challenging. Throughout this process, we have gained in-depth knowledge about sustainable supply chain management. We have gained valuable insights into the drivers and barriers of sustainability practices and how organizations evaluate these influencing factors.

We are immensely grateful to the people who have shown their continuous support and contributed to developing a master's thesis that we are proud to submit. Firstly, we would like to express our utmost gratitude to our guidance counselor Lise Feirud for her availability, valuable insights, constructive feedback, and commitment throughout the entire process. We would also like to extend our sincerest thanks to Tor Martin Kvikstad for his excellent help with the statistical analysis. Furthermore, we wish to extend our gratitude to the study participants for their contributions, valuable insights, and enthusiasm for the thesis.

We also wish to express our appreciation to family, friends, and colleagues for their support, encouraging words, and patience throughout the work with this thesis. Lastly, we would like to thank each other for the incredible partnership, hard work, and good discussions throughout the entirety of the process.

University of South-Eastern Norway 1. June 2021

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## Abstract

Awareness regarding environmental and social issues is increasing, making sustainability within organizations' operations and their supply chains a contemporary issue and a highly important area of research. Organizations and their supply chains are experiencing increasing pressure from various internal and external stakeholders, and regulators to address sustainability issues caused by their operations. Consequently, organizations are inclined to implement sustainability practices in their supply chain activities, giving rise to the concept of sustainable supply chain management (SSCM). However, recent research has shown that implementing SSCM practices is challenging, with the adoption of sustainability practices moving slower than expected. Furthermore, previous research indicate that there is limited research on this phenomenon in developed countries, especially in a Norwegian or Scandinavian context. Thus, the research question in this thesis seeks to answer which internal and external factors influence the decision to adopt sustainable supply chain management practices in Norwegian organizations.

Initially, a literature review was performed, and a theoretical framework was developed. The theoretical framework identifies and describes numerous internal and external factors influencing the adoption of SSCM practices. Previous research has shown that these influencing factors will either positively or negatively influence the decision to adopt SSCM practices and are accordingly described as either barriers or drivers of SSCM practices. To answer the thesis' research question, a combination of quantitative and qualitative methods was used, with a cross-sectional design. The qualitative data were obtained through interviews, while the quantitative data were gathered through a questionnaire survey. The participants were managers holding sustainability and supply chain responsibilities in Norwegian organizations who have either implemented or attempted to implement SSCM practices.

A descriptive analysis was made for the drivers and barriers that influence the decision to adopt SSCM practices, which implicitly demonstrates that all drivers and several barriers are important for Norwegian organizations' decision to adopt SSCM practices. The descriptive analysis follows a thematic structure based on the categories outlined in previous research, where citations and findings from the interviews are presented in conjunction with the statistical findings. The analysis shows that our findings are mostly consistent with previous studies. However, some differences are revealed. Most notably, our findings demonstrate that organizational and ethical motivation is considerably more important in our study compared to previous research. The findings also indicate that resource depletion can be a driver of SSCM practices, which has to our knowledge, not been addressed in previous research. In conclusion, the findings of this thesis help solidify previous research and generate new insights.

## Sammendrag

Bevissthet angående miljø- og samfunnsutfordringer er økende. I denne sammenheng er bærekraftig drift av organisasjoner og deres forsyningskjeder blitt et fremtredende problem og et viktig forskningsområde. Organisasjoner og deres forsyningskjeder opplever økende press fra en rekke eksterne og interne interessenter, samt lovgivere for å adressere bærekraftsproblemer assosiert med deres drift. Følgelig er organisasjoner nå tilbøyelige til å implementere bærekraftige tiltak i deres forsyningskjeder, noe som har gitt opphav til begrepet «sustainable supply chain management» (SSCM). Nyere forskning viser at adopsjonsraten av bærekraftige tiltak er lavere enn forventet og at implementeringen er utfordrende. Videre viser tidligere forskning at det er begrenset forskning innenfor dette fenomenet i industriland, spesielt i en norsk eller skandinavisk kontekst. Avhandlingens forskningsspørsmål søker derfor svar på hvilke interne og eksterne faktorer som påvirker avgjørelser tilknyttet adopsjon av praksiser for bærekraftig forvaltning av forsyningskjeder (SSCM) i norske organisasjoner.

Innledningsvis ble det utført en litteraturgjennomgang og et teoretisk rammeverk ble utarbeidet. Det teoretiske rammeverket tar for seg en rekke interne og eksterne faktorer som påvirker adopsjon av SSCM praksiser. Tidligere forskning har demonstrert at disse påvirkende faktorene vil ha positiv eller negativ effekt på adopsjon av SSCM praksiser, og er følgelig beskrevet som enten barrierer eller drivere av SSCM praksiser. For å svare på avhandlingens forskningsspørsmål ble det benyttet en kombinasjon av kvantitativ og kvalitativ metode med tverrsnittsdesign. Innhenting av kvalitative data ble gjort i form av intervjuer, mens en spørreundersøkelse ble benyttet for innhenting av kvantitative data. Avhandlingens deltakere var norske organisasjoner som enten har implementert eller forsøkt å implementere SSCM praksiser hvor respondentene var ledere med ansvar innenfor organisasjonens bærekraftstrategi og leverandørkjede.

Det er foretatt en deskriptiv analyse av faktorenes påvirkning på organisasjonenes beslutning om å adoptere SSCM praksiser, hvilket implisitt påpeker at alle driverne og flere av barrierene er av betydning for norske organisasjoners beslutning om å adoptere SSCM praksiser. Den deskriptive analysen følger en tematisk inndeling hvor sitater og funn fra intervjuene er presentert i sammenheng med de statistiske funnene. Analysen indikerer at våre funn for det meste er i overensstemmelse med tidligere studier. Det fremkommer imidlertid noen forskjeller. I våre funn fremstår organisasjonsfaktorer og etisk motivasjon som betydelig viktigere sammenlignet med tidligere forskning. Funnene indikerer også at ressursknapphet kan være en driver for SSCM praksiser, som etter vår kunnskap ikke har blitt adressert i tidligere forskning. Avslutningsvis forsterker avhandlingens funn tidligere forskning, men frembringer også ny innsikt.

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# 1. Introduction

Over the last few years, sustainability within organizations' operations and their supply chains have become a contemporary issue and a highly important area of research (Ashby, Leat, & Hudson-Smith, 2012; Saeed, Waseek, & Kersten, 2017). Awareness regarding environmental and social issues is increasing, and multiple new regulations pertaining to different sustainability dimensions such as carbon discharge and greenhouse effects have been introduced over the years (Alzawawi, 2014). As a result, organizations and their supply chains are experiencing immense pressure from various stakeholders and regulators to display transparency and address sustainability issues caused by their operations (Alzawawi, 2014; Saeed & Kersten, 2019). Organizations are now inclined to identify and implement innovative and sustainable solutions to address these pressures, both within their own organization's boundaries and across the whole supply chain network to ensure success (Saeed & Kersten, 2019). This has given rise to the concept of sustainable supply chain management (SSCM). Carter and Rogers (2008, p. 368) define SSCM as:

*"The strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systematic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual organization and its supply chains."*

## 1.1 Purpose

The implementation of sustainable practices has been shown to improve organizations' environmental, economic, and social performance (Al Zaabi, Al Dhaheri, & Diabat, 2013; Amjad, Jamil, & Ehsan, 2017; Seuring & Müller, 2008). However, recent research has shown that sustainable development through the use of SSCM is challenging (Heidary Dahooie, Zamani Babgohari, Meidutė-Kavaliauskienė, & Govindan, 2020), with some studies reporting that the adoption of SSCM practices is moving slower than expected and the implementation ineffective (Narimissa, Kangarani-Farahani, & Molla-Alizadeh-Zavardehi, 2019). An organization's successful application of SSCM requires identifying and overcoming many barriers and challenges (Heidary Dahooie et al., 2020). Organizations are therefore likely to benefit from the identification of factors that drive or hinder the implementation of sustainable practices. Narimissa et al. (2019) describe the identification of both internal and external drivers and barriers as a fundamental procedure that organizations must perform to measure their potential opportunities and threats related to SSCM implementation (Narimissa et al., 2019).

Sustainability has been acknowledged as an essential factor in supply chain management (SCM) for several years (De Brito & Van der Laan, 2010), and given the topic's importance, research has increased in recent times (Ashby et al., 2012; Sajjad, Eweje, & Tappin, 2020). However, several studies examining the connection between SSCM implementation and sustainable performance report inconclusive results (Ni & Sun, 2019; Utami, Sumaji, Susanto, Septina, & Pratama, 2019). Many have also expressed a need for more studies that analyze potential drivers and barriers of SSCM implementation (Movahedipour, Jianqiu, Mengke, & Xiankang, 2017; Narimissa et al., 2019; Sajjad et al., 2020). Thus, the body of literature can still be described as fragmented and underdeveloped (Sajjad, Eweje, & Tappin, 2015; Vargas, Mantilla, & de Sousa Jabbour, 2018). Hence, we saw an opportunity to contribute to the existing literature by exploring this interesting phenomenon further.

## 1.2 Research question

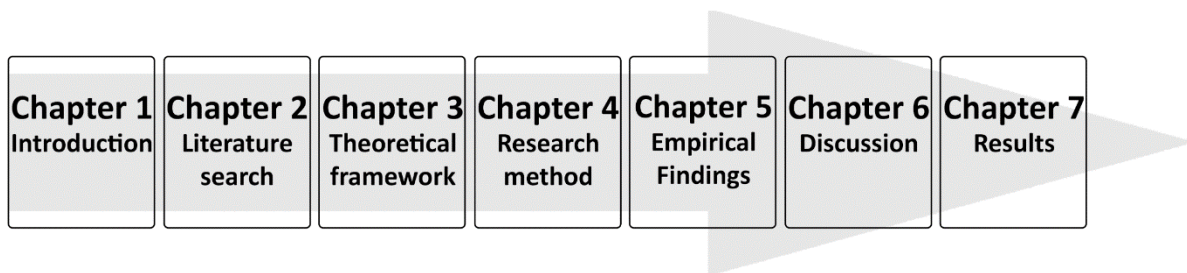
Seeing as the adoption of sustainable practices is moving slower than expected, with no clear answer as to why despite increasing research in the area, we regard this as a highly relevant phenomenon to study. Sustainable development is also high on the agenda for many governments, international institutions, and society. Failure to comply with these expectations can lead to severe repercussions and severely hinder organizational growth. As we see a worldwide movement towards environmentally friendly and sustainable practices, it is necessary to understand these components to implement SSCM in companies successfully. There is limited research conducted on this topic in the context of Norwegian businesses. Thus, our research question is formulated as follows:

*"What internal and external factors influence the decision to adopt sustainable supply chain management practices in Norwegian organizations?"*

This research question naturally delimits the research project as it describes the context and organizations relevant to study, Norwegian organizations with ties to an external supply chain. It is important to clarify that factors in relation to this research question refer to variables, both internal and external, that can influence the strategic decision to adopt sustainable practices. Answering this research question can potentially increase the knowledge and understanding of factors that influence SSCM implementation and further facilitate for more widespread and effective adoption of SSCM practices.

### 1.3 The thesis' structure

The thesis is divided into seven main chapters. The current chapter presents the introduction, with information regarding the purpose of the thesis and formulation of the research question. Chapter 2 describes our approach to the literature search. Based on this literature search, a theoretical framework is presented in Chapter 3, which begins by addressing some key terms and concepts before moving on to a review of the existing literature related to our research question. We end this chapter with a discussion of the theoretical framework as well as our research model. Chapter 4 presents the methodical choices that have been made during the study, including choice of research strategy, research design, data collection, and data analysis. Additionally, the research quality is discussed through reliability, validity, generalizability, and research ethics. Chapter 5 presents the analysis and empirical findings, structured according to the dimensions outlined in the theoretical framework, which are later summarized. The empirical findings are discussed in relation to the theoretical framework in Chapter 6. Lastly, in Chapter 7, we draw some conclusions from the previous discussion, here we also present some theoretical and practical implications, the thesis' limitations, and suggestions for future research. The structure of the thesis is visually portrayed in Figure 1 below.



*Figure 1: The structure of the thesis*

## 2. Literature search

Gaining increased insight and understanding of the elements that form the research question enables the development of a research approach that illuminates the research question appropriately. It is therefore crucial to develop a theoretical framework based on a literature search of prior research. Hence, we performed a literature search of prior research related to SSCM. In this chapter, we will explain how this literature search was conducted and how the literature will be used later in the thesis.

The literature search started with a broad spectrum to increase our understanding of the topic and the current research. The initial literature search pointed out that the subject is relatively new, and most of the literature on the topic is published after 2011. However, research related to SSCM implementation has increased since then. Yet, scholars have not reached a common consensus regarding the factors that influence SSCM implementation and the effect SSCM has on sustainable performance. Additionally, solutions within sustainable development are progressing rapidly as the awareness and focus on sustainability increase in society. This suggests that the factors that influence SSCM implementation will evolve and change as society progresses towards a more sustainable future. Since nearly all the identified literature on the topic is relatively new, it is reasonable to assume that the factors found in this research are still relevant today. Consequently, there was no apparent need to limit the search to a specific time period. The literature search was, however, limited to the search words that were used. We used the terms “sustainable supply chain” and “sustainable practices” for our primary search words. We started with “drivers” and “barriers” for the secondary search words and added more synonyms as we identified them throughout the literature search. A summary of the search words we used to identify the articles that we based our theoretical framework on can be found in Table 1.

<b>Search Words</b>	
<b>Search Word 1</b>	<b>Search Word 2</b>
Sustainable supply chain	Drivers or enablers or motivators
Sustainable practices	Barriers or challenges

*Table 1: Search Words*

These search words appeared to be extensive enough, as the inclusion of new search words (e.g., inhibitors, obstacles, pressures) did not result in any new articles relevant to our research question. The search words from Table 1 were combined and used in three different databases, Google Scholar, Oria, and ScienceDirect. In Google scholar and Oria, we used the option “advanced search” and categorized it by title (TI) and subject (TS). This was done to ensure that the search results were as

specific as possible since an “open search” resulted in too many general results. Optimally, we would have included abstracts and keywords in the search, unfortunately, that is not possible in Google Scholar and Oria. Thus, we also decided to use ScienceDirect, where this is possible. Oria was also used to identify textbooks on the subject and research methods. This combination of search words, databases, and search methods enabled us to identify numerous articles that were potentially relevant. The relevancy of these articles was at first determined by reading the title and abstract. The articles found to be relevant during the first review were then read in their entirety to determine if we could use them. For an article to be relevant, it had to analyze/identify one or more factors that influence the adoption of sustainable practices/SSCM. Furthermore, we prioritized peer-reviewed articles and articles published in highly reputed journals. The results of our literature search are summarized in Tables 2 and 3.

Search engines: Google Scholar + Oria			
Search Word 1	Search Word 2	Found	Relevant
Sustainable supply chain	Drivers	73	10
Sustainable supply chain	Enablers	50	7
Sustainable supply chain	Motivators	6	4
Sustainable supply chain	Barriers	111	12
Sustainable supply chain	Challenges	103	4
Sustainable practices	Drivers	105	6
Sustainable practices	Enablers	12	4
Sustainable practices	Motivators	6	0
Sustainable practices	Barriers	163	9
Sustainable practices	Challenges	296	3

*Table 2: Literature search, Google scholar and Oria*

The literature search resulted in 94 articles that were deemed relevant for the thesis` subject/research question after the initial screening. However, some of these articles were no longer seen as applicable after reading them in their entirety. It is also important to clarify that some of the thesis` references were identified through ancestry searching/citation searching (Savin-Baden & Howell-Major, 2013). We were able to find multiple relevant articles by revising the citations and references in relevant journal articles discovered in our literature search. Based on the articles discovered through the literature search and the citation search, we have identified 17 core articles. The choice of core articles is based on the degree to which the article provides insight into the factors that influence the adoption of SSCM practices and the importance of these factors. These articles have to a large extent formed the basis for the theoretical framework.

The core articles are presented in the literature matrix (see Appendix 1). The matrix displays the paper's title, author, independent variable, dependent variable, and main finding. Including this information in the literature matrix made it easier to keep an overview of the core articles and the factors, saving us time. Although the articles listed in the matrix made up a majority of the theory used, they also led to the discovery of new sources in addition to the ones selected from the literature search. The 17 core articles and the remainder of the identified articles are reviewed in the following chapter and form the basis for our theoretical framework that presents definitions and factors that influence SSCM implementation.

<b>Database: ScienceDirect</b>			
<b>Search Word 1</b>	<b>Search Word 2</b>	<b>Found</b>	<b>Relevant</b>
Sustainable supply chain	Drivers	32	3
Sustainable supply chain	Enablers	58	4
Sustainable supply chain	Motivators	17	2
Sustainable supply chain	Barriers	22	0
Sustainable supply chain	Challenges	84	3
Sustainable practices	Drivers	99	13
Sustainable practices	Enablers	152	6
Sustainable practices	Motivators	53	4
Sustainable practices	Barriers	90	0
Sustainable practices	Challenges	296	0

*Table 3: Literature search ScienceDirect*

## 3. Theoretical framework

This chapter presents the theoretical framework where we explore drivers and barriers to adopting SSCM practices. This framework is based on previous research that we sought out through our literature search, described in Chapter 2. Firstly, we must define a few key terms and concepts that are crucial to understanding the literature presented in the theoretical framework. We then examine the drivers and barriers to SSCM practices. Finally, the chapter ends with a discussion of the theoretical framework and presentation of the research model.

### 3.1 Definitions

In this sub-chapter, we address and define key terms and concepts used within SSCM literature. Three central terms are important to understand before we explore the literature on drivers and barriers to SSCM practices. Firstly, we address the concept of sustainability and define it. Secondly, the term triple bottom line (TBL) is described and defined. Finally, sustainability in the context of supply chain management (SCM) is defined.

#### 3.1.1 Sustainability

Sustainability or sustainable development has become a commonly addressed term in businesses and societies, e.g., sustainability in supply chains (Pagell & Wu, 2009; Seuring & Müller, 2008), sustainable tourism (Tao & Wall, 2009), sustainable cities (Berke, 2016), etc. The concept of sustainable development combines the concept of development with sustainability (Saeed et al., 2017). The idea of sustainable development was first introduced in the publication of "Our Common Future", also called the Brundtland Report (WCED, 1987). In the Brundtland Report, sustainable development is defined as "Development that meets the needs of the present without compromising future generations' ability to meet their own needs" (WCED, 1987, p. 16). This definition helps shape current and future research in the field of sustainability (Saeed et al., 2017). Sustainability can be defined as:

*"The design of human and industrial systems to ensure that humankind's use of natural resources and cycles do not lead to diminished quality of life due to either loss in future economic opportunities or to adverse impacts on social conditions, human health and the environment"* (Mihelcic et al., 2003).

This definition implies that sustainability is an approach that prevents or eliminates irresponsible behaviors that damage economic, environmental, and social aspects (Saeed et al., 2017).

### 3.1.2 Triple bottom line (TBL)

The view on sustainable development has shifted from a one-dimensional perspective toward integrated three-dimensional sustainability (i.e., environmental, social, and economic). This three-dimensional concept is often referred to as the triple bottom line (TBL), which intends to reduce harmful environmental impacts and increase positive social effects while achieving economic sustainability (Saeed & Kersten, 2019).

The economic dimension refers to the extent to which an organization improves operational, market, and financial outcomes (Somsuk & Laosirihongthong, 2017). TBL expands the economic view with social and environmental measures of performance. Environmental measurements often refer to the amount of resources companies are using for their operations. This can include energy, land, water, and what by-products its activities generate, referring to waste, air emissions, chemical residues, etc. (Hubbard, 2009). Environmental practices are implemented to reduce the impact of SCM activities on the environment and refer to how an organization improves outcomes related to pollution control and environmental management (Somsuk & Laosirihongthong, 2017). Lastly, the social dimension is the third part of TBL and generally refers to the organizations and their suppliers, and their impact on employee and community-oriented outcomes. The social dimension is the hardest to measure and can have a widely different meaning to different firms, for instance some companies measure it as donations or safety, others by legal obligations such as employment standards (Hubbard, 2009). The importance of TBL has increased in the last decade, for example, stock exchanges such as the Dow Jones have introduced Sustainability Global World Index to increase socially responsible investments. (Hubbard, 2009; Somsuk & Laosirihongthong, 2017).

### 3.1.3 Sustainable supply chain management

Research regarding sustainability has shifted focus from an organizational level to the entire supply chain (Tay, Abd Rahman, Aziz, & Sidek, 2015). The concept of SSCM expands upon traditional supply chain management (SCM) by incorporating the three dimensions of sustainability (i.e., economic, environmental, and social) (Baddeley & Font, 2011). This is also sometimes referred to as green supply chain management (GSCM) in the literature (Saeed et al., 2017). As argued by Ahi and Searcy (2013) SSCM is essentially an extension of GSCM, given that GSCM mainly focuses on the environmental dimension of sustainability. As mentioned, there has been significant growth over the last few years in the research related to sustainable development within the context of supply chains (Ashby et al., 2012; Seuring & Müller, 2008). Nevertheless, Ahi and Searcy (2013) point out that a comprehensive and universally accepted definition of SSCM does not exist. However, the definition suggested by Carter and Rogers (2008) is generally well accepted (Saeed & Kersten, 2019). They define SSCM as:



*"The strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systematic coordination of key inter-organizational business processes for improving the long-term economic performance of the individual organization and its supply chains" (Carter & Rogers, 2008, p. 368).*

Thus, the overarching purpose of SSCM is to address all three dimensions of sustainable development and maximize supply chains' profitability and response to social needs while simultaneously ensuring minimal costs and environmental impacts (Heidary Dahooie et al., 2020). It has been emphasized that it is essential to integrate the concept of sustainability in business processes throughout the supply chain to achieve long-term economic advantages. Therefore, in a sustainable supply chain, sustainability-related managerial actions are intended to accomplish economic and non-economic (social and environmental) performance goals (Alzawawi, 2014; Saeed & Kersten, 2019).

Achieving a truly sustainable supply chain requires that all supply chain partners work together to achieve overall strategic sustainability goals while fulfilling customers' and other stakeholders' requirements (Saeed & Kersten, 2019). According to Saeed and Kersten (2019), the purpose of SSCM is to "provide maximum value to all stakeholders, and fulfill customers' requirements by achieving sustainable flow of product, services, information, and capital, as well as enabling cooperation among different supply chain participants (Saeed & Kersten, 2019, p. 3)". We have now defined three key terms and concepts within SSCM literature and will in the following sections examine the drivers and barriers that influence the decisions to implement SSCM practices.

### 3.2 Drivers for SSCM

Organizations and their supply chains experience increasing pressures to adopt sustainable practices (Saeed et al., 2017). In the literature, these pressures are defined synonymously as drivers, triggers, enablers, and motivators (Emamisaleh & Taimouri, 2021). Saeed et al. (2017) define drivers for SSCM as "motivators or influences that encourage or push organizations to implement sustainability initiatives throughout the supply chain" (Saeed et al., 2017, p. 163). Many scholars have studied the drivers for SSCM and categorized them into external versus internal drivers (Emamisaleh & Rahmani, 2017; Saeed & Kersten, 2019; Somsuk & Laosirihongthong, 2017; Walker, Di Sisto, & McBain, 2008). An organization's internal drive to implement sustainability initiatives could stem from ethical and moral convictions or the desire to achieve competitive advantage through improved operational efficiency, cost reduction, and reputation. On the other hand, the external factors are related to the

increasing demands that various stakeholders value pertaining to economic, social, and environmental issues (Sajjad et al., 2015).

Multiple internal and external factors play a role in whether organizations choose to implement sustainability initiatives both within and outside the organizational boundaries (Emamisaleh & Rahmani, 2017; Saeed et al., 2017; Walker et al., 2008). Research has also found that different drivers will have distinct effects on supply chain decisions (Saeed & Kersten, 2019; Saeed et al., 2017). The following sections will go deeper into the relevant literature regarding external and internal drivers for adopting SSCM practices.

### 3.2.1 Internal drivers

Internal drivers are pressures stemming from within the organization and predict a proactive sustainability behavior of organizations (Sajjad et al., 2020), and helps form the organizations' strategies and path towards sustainability (Emamisaleh & Rahmani, 2017). Internal drivers are often reflected by management's intrinsic motivation to show corporate responsibility or the desire to realize financial and operational benefits (Sajjad et al., 2020). The existing literature demonstrates that the primary internal drivers of SSCM implementation are ethical values of managers, top management commitment, cost-related pressures, operational performance, and risk management (Saeed & Kersten, 2019; Sajjad et al., 2020). These internal drivers can typically be classified as either organizational and ethical pressures or performance expectations for SSCM implementation (Sajjad et al., 2020).

#### ***Performance expectations***

Sajjad et al. (2020) revealed that organizations' main reason for integrating sustainable practices might be for the economic and operational benefits, and embrace SSCM to mitigate and manage risks related to social and environmental supply chain activities. Perceived economic and operational benefits is expected to positively influence SSCM implementation (Sajjad et al., 2020). This is supported by Alzawawi (2014), who concluded that financial benefits were the number one driver of adopting SSCM practices. According to Sajjad et al. (2020), some organizations implement SSCM practices to improve economic and operational performance (Sajjad et al., 2020). Similarly, several studies have shown that engagement in SSCM initiatives can improve an organization's performance and competitive advantage (Utami et al., 2019; Vargas et al., 2018). The desire to reduce costs is also identified as a common driver of various green supply chain management initiatives (Walker et al., 2008). On the other hand, the potential risk or business loss that can come from unethical sustainability practices in supply chains can also push organizations to adopt SSCM practices.

Focusing on creating sustainability in supply chains offers organizations the possibility to strengthen their reputation and brand and act as an important driver in some market sectors, resulting in enhanced competitive advantage and profitability (Chkanikova & Mont, 2015). Risk management is critical in organizations with value attributes with customers, which receive their value from brand recognition and reputation expectations (Alzawawi, 2014). Sajjad et al. (2015) and Alzawawi (2014) found that one of the primary drivers for SSCM practices is risk management. They therefore suggest that companies use sustainability initiatives as a tool to manage social and environmental risks and improve reputation and brand (Sajjad et al., 2015). The governance of risk may also not be perceived as an intraorganizational issue anymore, but rather a supply chain sustainability issue (Sajjad et al., 2020).

### ***Organizational and ethical motivation***

According to the literature, it may be the performance benefits that pressures a majority of organizations to embrace sustainability practices. However, studies show that performance-related targets and internal support are needed to realize operational and economic benefits from SSCM practices. Hence, the integration of sustainability principles at a strategic level is required for organizations to fulfill their sustainability goals (Saeed & Kersten, 2019; Saeed et al., 2017). Some organizational and ethical factors that are expected to influence the adoption of SSCM practices include organizational strategy, culture, size, structure, incentive systems, top management commitment, and employee motivation.

Research has identified two types of strategies that reflect a response to sustainability initiatives, namely, a proactive or reactive strategy. Organizations with a proactive approach are generally saturated with a culture that values sustainability, and sustainability activities are initiated on their own accord. Organizations with a reactive strategy are, on the other hand, driven by a need to comply with regulations and legislation (Abdul-Rashid, Sakundarini, Ariffin, & Ramayah, 2017). The integration of sustainability issues in the overall corporate strategy has also been shown by Oelze (2017) to positively affect SSCM implementation and employee motivation towards a commonly shared and promoted sustainability mission. Thus, they conclude that effective supply chain management must be incorporated in the corporate strategy and continuous alignment with strategic areas of action (Oelze, 2017). The literature postulates that successful integration of SSCM initiatives is strongly affected by the level of alignment between the organization and its supply chain. Information sharing, collaborative relationships, and supplier trust are all factors that have been identified as enablers of the development of SSCM practices (Mastos & Gotzamani, 2018).

The change in how organizations view their approach towards sustainability has been largely dependent on organizational culture (Abdul-Rashid et al., 2017), in which top management plays a vital role in forming. Leaders' personal commitment and ethical values can spread through the entire organization (Walker et al., 2008). Top management decides and plans every activity across the organization, giving them a great deal of power and responsibility. Hence, top management possesses a crucial role in adopting SSCM practices (Kausar, Garg, & Luthra, 2017). Research frequently finds top management commitment and support to be a key driver of SSCM implementation (Narimissa et al., 2019; Oelze, 2017; Somsuk & Laosirihongthong, 2017; Vargas et al., 2018). According to Oelze (2017), commitment refers to open-mindedness towards social and environmental issues and the implementation of adequate resources (Oelze, 2017). Top management also has the capacity and ability to motivate employees to implement SSCM practices by using incentives and reward systems (Kausar et al., 2017). Employees can also be an important driver of adopting sustainability practices. Walker et al. (2008) claim that employee involvement positively influences SSCM performance. Employees can pressure organizations to undertake sustainability initiatives to improve the organization's sustainability performance. Employees can apply pressure either individually or through unions (Saeed & Kersten, 2019).

Emamisaleh and Rahmani (2017) believe that the successful implementation of organizational change depends on top management attitude and support, making it a major driver of SSCM implementation (Emamisaleh & Rahmani, 2017). Data from (Moktadir, Ali, Rajesh, & Paul, 2018) indicates that top management as a driver is more influential for large-scale companies than for small-scale companies. Findings also show that the complexity of top management as a driver of sustainability practices could be higher for small-scale companies compared to large-scale companies (Moktadir, Ali, et al., 2018). Company size can also indirectly influence the adoption of SSCM practices as it is one of the factors that affect the relevancy of various external drivers, and thereby also the external pressure that different companies face (Moktadir, Rahman, Rahman, Ali, & Paul, 2018).

To summarize this sub-chapter addressing internal drivers, the identified research on SSCM drivers indicates that performance pressures stemming from a desire to achieve operational and cost-related benefits are likely the strongest internal drivers of SSCM. However, the integration of sustainability at a strategic level and top management commitment is also identified as major drivers for SSCM. Hence, internal support and strategic alignment are likely needed to ensure that the implementation is successful, and yields benefits in the mid and long term.

### 3.2.2 External drivers

External drivers refer to pressures stemming from outside of the organization. Still, they significantly influence the organizations' internal actions (Alzawawi, 2014) and are often considered more influential than internal drivers (Saeed et al., 2017). As external pressures emerge, organizations will be inclined to initiate sustainability initiatives to avoid disadvantages or penalties (Saeed & Kersten, 2019). External drivers, such as pressure and expectations from various stakeholders and regulators, will also push organizations to display transparency in their operations (Alzawawi, 2014). The majority of drivers discussed in the SSCM literature can be classified as external drivers. These external pressures are made up of regulatory pressures (e.g., government regulations and legislation), societal pressures (e.g., NGOs and media), and market pressures (e.g., consumers and competitors) (Saeed & Kersten, 2019; Sajjad et al., 2015).

#### ***Regulatory pressures***

Regulatory pressures are one of the most frequently mentioned drivers in the literature, and they are a major driver for sustainability (Alzawawi, 2014; Saeed & Kersten, 2019; Sajjad et al., 2015; Somsuk & Laosirihongthong, 2017). This category of drivers includes pressures from government, regional or international regulators, certifications, trade/professional associations, and financial incentives (Saeed & Kersten, 2019; Saeed et al., 2017). These pressures are applied by national, regional, or international regulatory institutions, as well as trade associations and certification bodies through standards, laws, procedures, and incentives to encourage sustainable practices. Regulatory pressure significantly influences organizations' decisions to initiate sustainability practices, regulations and legislation act as a strong driver for adopting SSCM practices. Moreover, failure to fulfill these environmental regulations and laws can result in severe fines or legal penalties, which can harm the financial and social performance of the company (Emamisaleh & Rahmani, 2017; Sajjad et al., 2015).

Somsuk and Laosirihongthong (2017) stated that government regulations are an essential driver and described them as the most vital external driver of SSCM practices. Environmental regulations and subsequent actions taken by firms can, according to Porter (1991), lead to competitive advantage. Thus, Somsuk and Laosirihongthong (2017) suggest that firms should adopt proactive management of these regulations and view them as an opportunity instead of a barrier to create a sustainable competitive advantage.

Nonetheless, some researchers such as Carter and Carter (1998), Agarwal, Giraud-Carrier, and Li (2018), and González-Benito and González-Benito (2006) have concluded that coercive pressures do not constitute a driver of sustainable supply chain activities. Companies driven by compliance to regulations are in a reactive mode and tend not to have thoroughly integrated environmental concerns

into their value chain compared to those who are otherwise motivated to do so (Walker et al., 2008). Diabat, Kannan, and Mathiyazhagan (2014) experienced similar results in their study and concluded that government regulations play a minor role and do not severely impact the adoption of SSCM.

On the other hand, government pressure does not strictly have to be coercive in the form of regulations and legislation. Government support in the form of subsidiaries can also play a key role in adopting sustainable practices. For example, monetary support can provide workers with education and training about sustainable development, which can help eradicate potential barriers (Kausar et al., 2017). Data from Moktadir, Ali, et al. (2018) indicates that government legislation and especially support are a bigger driver for adopting sustainability practices for small-scale companies than for larger-scale companies. They partly contribute this to a lack of sufficient capital in smaller-scale companies. Thus, they will benefit more from government financial support (Moktadir, Rahman, et al., 2018). Lastly, certifications could potentially help promote SSCM practices. According to Alzawawi (2014), certified firms are more likely to adopt sustainable practices in their supply chain activities and engage their suppliers in environmentally friendly practices.

On the whole, regulations and legislation are portrayed as a strong driver of SSCM practices, especially if organizations see them as motivators to innovate and approach regulatory compliance proactively (Walker et al., 2008). Furthermore, (Kausar et al., 2017) found that government policies and supportive systems act as a significant driver to achieve sufficient top management support, which in its own right is a driver of SSCM (Kausar et al., 2017).

### ***Societal pressures***

Societal pressures are expectations or demands that different interest groups have from the organization to adopt sustainability practices in their operations. These pressures help increase public awareness around various sustainability issues, e.g., scarcity of resources, environmental damage, human rights, and much more. They also unite efforts to influence organizations and their supply chains to improve their sustainability performance. Drivers that are expected to influence societal pressure include expectations from NGOs, consumers, media/press, communities, and societal groups (e.g., environmental organizations) (Saeed & Kersten, 2019; Saeed et al., 2017).

Consumers, public pressure groups, and other community groups show an increasing interest in supporting responsible business practices. There is also a growing demand for transparency regarding how organizations handle sustainability-related issues and opportunities (Saeed & Kersten, 2019). Rapid improvements in information and communication technology, such as the internet and social media, have also made it increasingly more difficult for organizations to keep the public in the dark about their ethical and moral misconduct (Sajjad et al., 2020). Organizations are also starting to show

a considerable amount of interest in blockchain technology, which is characterized as an open-source, decentralized, distributed database for storing transaction information (Francisco & Swanson, 2018). More widespread use of communication technologies and informational systems such as blockchain technology can therefore help increase transparency and help push organizations to implement SSCM (Kouhizadeh, Saberi, & Sarkis, 2021)

Organizations cannot afford to ignore public pressure groups such as NGOs and green activist groups as they now have the power to reach countless people and seriously damage the organizations' reputation (Walker et al., 2008). Increasing consumer awareness and their association with societal groups and NGOs have led to a more enlightened society that places greater demand on the organization's reputation regarding sustainable practices (Alzawawi, 2014; Saeed & Kersten, 2019). Consumers are increasingly influenced by an organization's reputation when making decisions, and society is now demanding more and more environmentally friendly products (Walker et al., 2008). Additionally, NGOs can also establish partnerships with firms to help them overcome potential barriers (Devaux, Agrell, & Chatelain, 2019).

It is evident from the current literature on SSCM that society is influenced by reputation and constantly increases their expectations from organizations regarding sustainable products and transparency. Thus, society creates significant pressure for organizations to implement SSCM practices and demonstrate a sense of social responsibility (Alzawawi, 2014; Saeed & Kersten, 2019).

### ***Market pressures***

To gain a competitive advantage and develop sustainable technologies, organizations and their supply chains experience pressure from various market factors. Market-related drivers primarily deal with sustainability issues related to organizations' business performance and relationship improvement (Saeed & Kersten, 2019). Drivers expected to influence market pressure include expectations and demands from various stakeholders such as shareholders, customers/consumers, competitors, suppliers, etc. (Saeed & Kersten, 2019; Saeed et al., 2017).

Customers are becoming more aware and knowledgeable about environmental issues, and many expect to be able to buy environmentally friendly products (Shohan et al., 2019). Data shows that about 75% of customers are attracted to a product based on the company's reputation, and 80% will choose environmentally friendly products when presented with the option. Organizations emphasize the fulfillment of customer demands to achieve customer satisfaction. These expectations from customers will motivate organizations to emphasize sustainability practices to retain and attract customers and present new possibilities to those who can fulfill customer expectations. Hence, increasing customer demand for sustainable products places considerable pressure on organizations

to adopt sustainability practices throughout their supply chain (Gualandris & Kalchschmidt, 2014; Saeed & Kersten, 2019), especially environmental practices (Walker et al., 2008). The expectations placed upon the company by customers depend on company size and market reputation. Highly reputed organizations are generally more conscious of their sustainability approach than less reputed organizations due to higher expectations from customers (Kausar et al., 2017). Muktadir, Ali, et al. (2018) also found evidence indicating that customer awareness is more influential for large-scale companies.

Smaller companies are also feeling pressure from their customers. However, it has also been demonstrated that being a large retailer has both advantages and disadvantages. Large retailers have the power to influence control over their suppliers, with the disadvantage being that they must also take responsibility for their suppliers' actions, and they are often more prone to media attention. Non-organizational stakeholders can use this to pressure the retailer to act instead of going through numerous individual suppliers. When looking at the role of purchasing in environmental management, it has been shown that customer demands with a long-term supply chain perspective influence environmental management more positively compared to short-term requests by customers. These demands from customers can be driven by the end-consumers. There is also a trend towards increasingly higher demands or expectations from investors in the development of environmental policies (Walker et al., 2008).

Competition can also act as a direct driver for SSCM (Alzawawi, 2014). This type of pressure from sustainability initiatives undertaken by competitors is often referred to as memetic pressure. When competitors engage in sustainability initiatives, it creates pressure for organizations to adopt sustainable practices to match the competition on sustainability-related performance. The degree of pressure created by competitors can depend on the organization's size, and small firms generally feel more pressure from competitors (Saeed & Kersten, 2019). Certain sustainability initiatives may not be undertaken due to ethical or moral reasons. Instead, they are initiated since they can lead to competitive advantage and improved financial performance for the organization (Alzawawi, 2014).

Suppliers are considered a minor driver, and they can provide valuable ideas for the implementation of sustainability initiatives but do not usually act as a direct driving force. However, they do play an essential role in implementing sustainability in supply chain systems, as they can make this process more beneficial and efficient, and are crucial for SSCM success (Alzawawi, 2014). Strong relationships and collaboration with supply chain partners can help organizations develop and adopt technologies and practices that are environmentally friendly. Thus, increasing cooperation within supply chain



management should be reflected in the organization's strategy to achieve sustainability-related goals (Thaba, 2017).

The systematic review of the literature done by Saeed and Kersten (2019) revealed that a combination of market pressure and regulatory pressures constitutes the strongest driver for the implementation of sustainability practices, which is also supported by other studies (Alzawawi, 2014; Sajjad et al., 2020). From the literature identified in this chapter we see that regulatory pressure will act as a strong driver of SSCM when approached proactively and top management has the right mindset. Society places higher and higher demands on organizations concerning transparency and reputation and can therefore create significant pressure for organizations to emphasize SSCM. In general, market pressure is portrayed as a strong driver of SSCM practices in the existing literature and is expected to influence the implementation of SSCM positively. Customer and competitor pressure are for the most part described as a strong driver for SSCM, while suppliers play a minor role.

The literature presented in this chapter shows that previous research has identified several factors expected to influence SSCM implementation positively. On the other hand, prior research has also identified numerous factors that deter organizations from adopting SSCM practices and will be addressed in the following sub-chapter.

### 3.3 Barriers to SSCM

The existing literature has revealed that sustainable development with SSCM is challenging. Barriers refer to factors that are expected to negatively impact SSCM implementation (Al Zaabi et al., 2013) and are in the literature described synonymously as barriers, challenges, hinders, and obstacles. Organizations are bound to encounter various intertwined barriers and risks in their efforts to implement SSCM in their operations. Thus, an organization's successful application of SSCM requires identifying and overcoming several obstacles and challenges (Heidary Dahooie et al., 2020). Similarly to drivers of SSCM, barriers can also be classified as either internal or external barriers (Walker et al., 2008). Internal barriers consist of organization-related issues (Sajjad et al., 2015), while external barriers involve forces from the external environment, which can impede the ability and willingness to engage in SSCM practices. This chapter will explore previous research related to these internal and external barriers.

#### 3.3.1 Internal barriers

The overarching literature regarding sustainability barriers has confirmed that increased costs, limited resources (Alzawawi, 2014), lack of information and knowledge (Al Zaabi et al., 2013), lack of strategic

prioritization, and organizational factors (Oelze, 2017) are all major barriers to the implementation of SSCM practices. These and a host of other internal barriers identified in the literature can be classified as either financial barriers or strategic and structural barriers.

### ***Financial barriers***

Many studies have revealed that it is expensive to integrate sustainability in the supply chain (Alzawawi, 2014; Narimissa et al., 2019; Oelze, 2017). Implementing an SSCM strategy is likely to increase the cost of operations through the development of necessary supply chain infrastructure, systems, and processes (Sajjad et al., 2015). Furthermore, Oelze (2017) found that high implementation costs associated with sustainable supply chain management hinder organizations from focusing on sustainability. Thus, many organizations will struggle to initiate SSCM practices due to financial constraints (Sajjad et al., 2015). For the most part, the implementation of SSCM practices is expected to yield very few benefits in the short term. The implementation of SSCM practices therefore requires a long-term approach. Still, many organizations struggle with a long-term view of SSCM (Devaux et al., 2019; Esfahbodi, Zhang, & Watson, 2016). Studies have shown that many organizations may see SSCM practices as yet another cost, while they fail to see the potential benefits associated with it (Al Zaabi et al., 2013; Alzawawi, 2014).

Al Zaabi et al. (2013) revealed that the costs of environmentally friendly materials, parts, and products are a significant barrier to SSCM. This was also identified as a major barrier to SSCM implementation by Movahedipour et al. (2017). Furthermore, Al Zaabi et al. (2013) identified costs associated with hazardous waste disposal as a significant barrier to SSCM in some industries. A study done by Alzawawi (2014) concluded that 73% of respondents agree that higher costs are among the major obstacles to SSCM implementation (Alzawawi, 2014). However, (Ni & Sun, 2019) argues that increased cost can be avoided by implementing a more proactive SSCM approach. Hence, they recommend a strategy that involves working with supply-side and demand-side partners while delivering outcomes to create customer value (Ni & Sun, 2019).

### ***Strategic and organizational barriers***

Factors such as organizational strategy, size, structure, and incentive and reward systems can all influence the organization's decision to adopt SSCM practices, and can in certain situations make it difficult for companies to implement SSCM effectively (Sajjad et al., 2020). There are also function-related issues that can hinder SSCM engagement, a lack of necessary management skills, sufficient training, knowledge, and incentives constitute internal barriers (Oelze, 2017).

A lack of strategic prioritization of sustainability issues, corporate structures, and processes are among the internal barriers organizations may encounter (Oelze, 2017). Al Zaabi et al. (2013) found that

discrepancies between short-term and long-term strategic goals can be a barrier to SSCM implementation. Oelze (2017) claims that a lack of certain corporate structures and processes hinders an organization's ability to handle sustainability issues effectively. A centralized structure with a unified sustainable procurement policy will generally have an easier time executing and managing SSCM than an organization with a more fractured structure, divided divisions, and insufficient coordination (Sajjad et al., 2020). Company size is often one of the most important firm characteristics expected to influence the adoption of sustainable practices. Larger organizations are more likely to engage in SSCM (Tay et al., 2015), while smaller firms may struggle to engage in SSCM due to a lack of available resources (Oelze, 2017).

A lack of knowledge and information is frequently cited in the literature as a significant barrier to SSCM implementation (Al Zaabi et al., 2013; Alzawawi, 2014; Oelze, 2017; Sajjad et al., 2015). A lack of information and knowledge regarding sustainability issues increases the likelihood for organizations to keep the status quo. Insufficient knowledge and information could be related to laws and environmental management (Al Zaabi et al., 2013), or it could mean that employees, top management, and supply partners are not aware of the importance and benefits associated with the integration of sustainability practices (Alzawawi, 2014). Sajjad et al. (2015) showed that a lack of awareness, understanding and negative perceptions act as substantial internal barriers to SSCM implementation. A lack of knowledge related to the measurement and assessment of social and environmental impact is also an important barrier to SSCM practices (Al Zaabi et al., 2013). Inadequate and inconsistent performance measures have been identified as barriers to SSCM implementation (Narayanan, Sridharan, & Ram Kumar, 2019). This is further supported by (Al Zaabi et al., 2013), who found that a lack of effective evaluation measures concerning sustainability can obstruct SSCM implementation. Alzawawi (2014) found that 70% of employees agreed that a lack of knowledge and experience about sustainable development was a barrier. Comparably, 75% of employees admitted to facing major problems at the start of the implementation (Alzawawi, 2014).

Another significant barrier frequently mentioned is a lack of top management commitment (Al Zaabi et al., 2013; Alzawawi, 2014; Narayanan et al., 2019; Sajjad et al., 2020). Just like top management commitment can be a driver for SSCM, insufficient top management commitment can also hinder the implementation of SSCM practices (Alzawawi, 2014). Lacking leadership support can be attributed to negative sustainability perceptions (e.g., Sustainability practices increase business costs or lack of perceived benefits stemming from SSCM initiatives) (Sajjad et al., 2020). Negative perceptions and issues related to organizational culture can often make it difficult for management to introduce and implement SSCM practices (Sajjad et al., 2015). Al Zaabi et al. (2013) stated that many industries do not have a clear picture of the goals and benefits of sustainability. However, many organizations may

recognize the importance of a sustainable strategy but shy away from it due to a lack of management skills, experience, and essential tools to execute SSCM practices (Sajjad et al., 2015).

Previous research has also revealed that employees could potentially obstruct the adoption of SSCM practices (Al Zaabi et al., 2013). Alzawawi (2014) claim that employees are generally not informed and unaware of the importance of implementing sustainability practices in the supply chain. A lack of qualified personnel, training programs for employees, and resistance to change are considered considerable barriers to implementing SSCM practices (Al Zaabi et al., 2013). A lack of training was also identified as a big obstacle by Alzawawi (2014), where they revealed that 75% of the participants faced major difficulties during the initial phase of SSCM implementation. Thus, employees may need more motivation to work towards sustainability and eventually realize its importance (Alzawawi, 2014). In relation to this Al Zaabi et al. (2013) showed that a lack of motivation towards employees (incentives) could be a barrier to the implementation of SSCM. Incentives could be used to decrease the obstacles that organizations face, and incentives could be financial, ease of implementation, and recognition (Al Zaabi et al., 2013). On the other hand, Emamisaleh and Rahmani (2017) found that employee motivation has no direct effect on strategic sustainability orientation (Emamisaleh & Rahmani, 2017).

This sub-chapter has examined the existing literature regarding internal barriers to SSCM. The identified literature shows that implementing SSCM practices is likely to increase costs and that financial constraints are a major barrier to the adoption of SSCM practices for many organizations. Additionally, many suppliers appear to struggle with a long-term view of SSCM. Among the external barriers, a lack of information, negative perceptions, and top management commitment are frequently mentioned as significant barriers and are expected to impact the adoption of SSCM practices negatively. Organizational factors such as structure, size, and strategic prioritization could also affect how likely organizations are to engage in SSCM practices.

### 3.3.2 External barriers

Similar to internal barriers, the existing literature has identified numerous external barriers to SSCM implementation, with regulatory challenges (Narayanan et al., 2019), lack of supplier ability and interest (Oelze, 2017), and low customer interest being some of the major ones (Sajjad et al., 2020). These external forces can generally be grouped into three categories: demand-side barriers, supply-side barriers, or regulatory barriers (Sajjad et al., 2015).

### ***Demand-side barriers***

Customer pressure is an essential driver for SSCM implementation. However, a lack of customer interest can also hamper SSCM implementation. Even though many industries feel pressure from their customers to adopt sustainable practices, there is still a need for increased customer demand in some industries. For example, Diabat et al. (2014) found that more motivation is needed from the customer side towards improving sustainability practices in the textile industry, and that they also need a bigger demand for environmentally friendly products.

Heidary Dahooie et al. (2020) suggest that one of the most substantial barriers to SSCM implementation is insufficient social pressure stemming from society in general. This is further supported by (Narayanan et al., 2019), who experienced similar findings in their study. Alzawawi (2014) has also pointed out that a lack of customer awareness regarding the sustainable supply chain approach can potentially obstruct the implementation of SSCM. On the other hand, Moktadir, Rahman, et al. (2018) claims that consumers are highly aware of the benefits associated with green initiatives. For example, most customers know that fewer carbon emissions from initiatives such as recycling and remanufacturing will positively impact the environment (Moktadir, Ali, et al., 2018).

Previous research also indicates that the implementation of environmental initiatives increases the economic cost for many, and consequently, both companies and customers alike have to be willing to pay premium prices for green alternatives (Tay et al., 2015). Insufficient customer demand for sustainable goods in certain industries or countries, makes it more unlikely that organizations will differentiate themselves by offering sustainable products or services since they will struggle to justify the product's increased price (Sajjad et al., 2020). According to Sajjad et al. (2015), higher prices and lack of information can, in some cases, discourage customers from purchasing sustainable products. However, according to Alzawawi (2014), most consumers are influenced by a company's reputation to a great extent and are willing to pay extra for more environmentally friendly products.

Overall, studies looking at demand-side factors have found conflicting results. With most of the research suggesting that there is a lack of customer interest and willingness to share costs, on the other hand, a few studies have also concluded that customers are highly aware of sustainable products and are willing to pay for them. However, it is clear from the identified literature that if a lack of customer interest exists, it will negatively impact the adoption of SSCM practices.

### ***Supply-side barriers***

As stated earlier, suppliers play a minor role as a driver for SSCM. However, a complete absence of supplier involvement and interest can be a major barrier to SSCM implementation (Alzawawi, 2014; Oelze, 2017). A lack of trust and commitment between supply chain members has been identified as

two of the most common inhibiting factors (Mastos & Gotzamani, 2018). Oelze (2017) revealed that some suppliers may be reluctant to comply with increased sustainability standards or refuse to cooperate in this regard altogether (Oelze, 2017). Moreover, investing in SSCM requires a long-term view, and many suppliers cannot afford to wait for the long-term benefits (Devaux et al., 2019).

According to Heidary Dahooie et al. (2020), one of the most impactful barriers to SSCM implementation is a lack of sustainable product and service promotion by suppliers. A lack of competence among suppliers can also act as an obstacle and hamper the development of SSCM practices (Mastos & Gotzamani, 2018). Sajjad et al. (2015) identified a lack of supplier ability and higher prices by suppliers (e.g., higher prices for materials and products that are environmentally friendly) as barriers that hinder SSCM implementation.

The overarching literature on SSCM concurs that a lack of supplier involvement and interest is a major barrier to SSCM and will negatively affect the adoption of SSCM practices. Studies have revealed multiple factors that make supplier involvement challenging, including a lack of trust, cooperation, commitment, and competence.

### ***Regulatory barriers***

Regulations and legislation are crucial drivers for implementing SSCM practices, yet they can also hamper the implementation of such practices. Organizations face the risk of impaired financial performance and damage to their reputation by not complying with regulations and legislation. However, ineffective or inadequate regulations and lack of government interest can hinder SSCM implementation (Alzawawi, 2014; Narayanan et al., 2019; Sajjad et al., 2020). This is further supported by the study done by Al Zaabi et al. (2013), where they found that a lack of sustainability standards and inadequate regulations act as barriers to SSCM implementation. However, they did describe them as minor barriers (Al Zaabi et al., 2013).

Some also argue that costly and rigid environmental regulations restrain the environmental proactivity of an organization. According to Henriques and Sadorsky (1999), regulatory pressure is more related to a reactive sustainability strategy than a proactive one. When businesses are only obligated to meet the bare minimum standards, and comply with inflexible or expensive regulations, they may be discouraged from pursuing innovative technologies and solutions to improve environmental performance beyond these minimum criteria (Sajjad et al., 2015).

Similarly, Zhu, Sarkis, and Lai (2013) argue that coercive and normative pressures negatively affect external SSCM practices. Sancha, Longoni, and Giménez (2015) suggest that there might be two main reasons for that. Firstly, governments in different countries will put varying amounts of pressure on organizations regarding their approach to sustainability. Therefore, they argue that organizations

located in countries with strict regulations will be forced to focus on internal sustainability initiatives to comply with these national regulations and will subsequently have fewer resources they can devote to external SSCM initiatives. Secondly, sustainable supply chain practices are more than regulatory compliance and may not necessarily be connected to coercive pressures but rather be more firm-dependent (Sancha et al., 2015).

Additionally, the absence of harmonization of regulations between countries makes it challenging to implement sustainability in the supply chain as a whole (Chkanikova & Mont, 2015). Policymakers will often struggle to agree on the objective to be put in place. Furthermore, there is a substantial difference between what is expected by western organizations and what can realistically be achieved in developing countries (Devaux et al., 2019). Discrepancies created by governmental leadership are, however, limited by international provisions of free trade. As an example, rules determined by the World Trade Organization (WTO) states that countries are not allowed to place demands on non-product-related processes and production methods. Since it may lead to the use of environmental and social reasoning to serve protectionist ends, facilitating for domestic companies to secure a strong market position and acquire strategic trade advantages on foreign competitors (Chkanikova & Mont, 2015).

The body of literature generally agrees that a lack of government interest, support, and ineffective or inadequate regulations negatively affect the adoption of SSCM practices. However, it is often described as a minor barrier compared to market and supply-side barriers. A few studies have also found that harmonization between regulations across countries makes it challenging to implement sustainability initiatives across the entire supply chain.

To summarize Sub-Chapter 3.2 and 3.3, we have created two tables that illustrate the identified drivers and barriers. These tables are presented and discussed in relation to the identified literature in the next sub-chapter. We then end Chapter 3 by presenting our research model of factors influencing the adoption of SSCM practices in Sub-Chapter 3.5.

### 3.4 Discussion of the framework

Awareness around environmental and social issues has increased in recent years, making sustainability a contemporary issue for organizations and society and an important research area (Ashby et al., 2012; Saeed et al., 2017). Various stakeholders are now pressuring organizations to take responsibility and actions to reduce negative environmental and social impacts caused by their operations (Alzawawi, 2014; Saeed & Kersten, 2019). To address these issues, SSCM is gaining considerable importance among practitioners and scholars alike (Ashby et al., 2012; Saeed et al., 2017). Despite the increased

attention, many organizations are still struggling to implement sustainable practices in their supply chain (Heidary Dahooie et al., 2020). Studies are reporting that the adoption of SSCM practices is occurring slower than expected and that the implementation is ineffective (Narimissa et al., 2019). Hence, it is important to increase our understanding of factors that influence the strategic decision to implement SSCM practices.

We have through the development of our theoretical framework, identified numerous drivers and barriers to SSCM implementation. These drivers and barriers can be seen as either internal or external to the focal organization. The identified factors and their related sub-categories are presented in Figure 2 and Figure 3.

<u>Internal Drivers</u>	<u>External Driver</u>
<p><u>Performance expectations</u></p> <ul style="list-style-type: none"> <li>Financial benefits</li> <li>Operational performance</li> <li>Company reputation</li> <li>Risk management</li> </ul> <p><u>Organizational and ethical motivation</u></p> <ul style="list-style-type: none"> <li>Top management commitment</li> <li>Organizational strategy</li> <li>Organizational culture</li> <li>Organization size</li> <li>Structure of organization</li> <li>Collaboration with suppliers</li> <li>Incentive systems</li> <li>Employee motivation</li> <li>Top management commitment</li> </ul>	<p><u>Regulatory pressures</u></p> <ul style="list-style-type: none"> <li>Compliance with government regulations</li> <li>Compliance with regional and international institutions</li> <li>Certifications</li> <li>Governmental support</li> <li>Financial incentives</li> </ul> <p><u>Societal pressures</u></p> <ul style="list-style-type: none"> <li>Expectations from NGO's</li> <li>Pressure from media</li> <li>Pressure from local communities</li> <li>Expectations from society</li> </ul> <p><u>Market pressures</u></p> <ul style="list-style-type: none"> <li>Expectations from shareholders</li> <li>Expectations from customers</li> <li>Expectations from suppliers</li> <li>Competition's green initiatives</li> </ul>

Figure 2: Driving factors that influence SSCM

Figure 2 shows that previous research has identified numerous internal and external drivers for SSCM practices. Based on the theory presented in this chapter, it is evident that prior research indicates that performance pressures stemming from a desire to achieve operational and cost-related benefits and external factors may be the strongest drivers of SSCM. Nevertheless, studies have also revealed that management's ethical values and intrinsic motivation to show corporate social responsibility are likely needed to integrate sustainability issues at a strategic level and achieve long-term change (Emamisaleh & Rahmani, 2017; Saeed & Kersten, 2019). Accordingly, top management commitment is found to be one of the most frequently cited and strongest drivers of sustainability practices (Emamisaleh & Rahmani, 2017; Narimissa et al., 2019; Oelze, 2017). Emamisaleh and Rahmani (2017) suggested that top management commitment and support are likely needed to ensure that the implementation is successful and yields benefits in the mid and long term.

These internal and external pressures stem from various stakeholders with their stakes and sustainability-related concerns. Collaboration among various internal and external stakeholders can



increase the pressure on the focal organization and other supply chain partners to adopt sustainable practices within their operations (Saeed & Kersten, 2019). Furthermore, external factors could directly influence internal drivers, suggesting that managers and employees are influenced by the environment and react to changes in the supply chain. Thus, it is essential to balance the needs of the internal and external pressures to incorporate sustainability into corporate mid-term and long-term goals (Emamisaleh & Rahmani, 2017).

Sajjad et al. (2020) and Alzawawi (2014) suggest that organizations and their supply chains primarily adopt SSCM practices to appease external pressures or achieve performance benefits. This is reflected by our theoretical framework, which indicates that market and regulatory pressures, along with performance pressures, are the strongest drivers of SSCM implementation (Alzawawi, 2014; Saeed & Kersten, 2019; Sajjad et al., 2020). For the market-related factors, customer expectations and pressure created by sustainability initiatives from competitors are major drivers for SSCM (Somsuk & Laosirihongthong, 2017; Walker et al., 2008). Studies looking at regulatory or coercive drivers generally agree that this pressure group constitutes a stronger and more effective driver of SSCM when organizations take a proactive rather than a reactive approach to regulations and legislation (Somsuk & Laosirihongthong, 2017; Walker et al., 2008). Pressure from the general public and society is usually the least impactful driver category (Saeed & Kersten, 2019; Sajjad et al., 2020). However, social pressure groups still have the ability to severely impact an organizations’ reputation (Alzawawi, 2014; Walker et al., 2008).

<b><u>Internal Barriers</u></b>	<b><u>External Barriers</u></b>
<b><u>Financial barriers</u></b>	<b><u>Demand-side barriers</u></b>
Cost of implementation	Lack of customer demand for sustainable goods
Higher cost of environmentally friendly materials	Lack of willingness to share costs by customers
A lack of short-term benefits	Lack of social awareness regarding sustainability
<b><u>Strategic and organizational barriers</u></b>	Customers are not aware of potential
Lack of top management commitment and support	<b><u>Supply-side barriers</u></b>
Lack of employee motivation	Lack of knowledge and information on sustainability
Lack of sufficient training	Lack of willingness to collaborate among suppliers
Lack of knowledge and information	Lack of supplier motivation
Negative attitudes towards SSCM practices	<b><u>Regulatory barriers</u></b>
Lack of incentives or reward systems for SSCM	Ineffective or inadequate regulations
Lack of prioritization of sustainability issues	Lack of government interest and support
Corporate structure/bureaucracy	Differences in regulations
Organization size	

Figure 3: Barriers to SSCM

Heidary Dahooie et al. (2020) stated that the successful application of SSCM requires identifying and overcoming several intertwined barriers and risks. Accordingly, our theoretical framework has identified numerous internal and external barriers to SSCM implementation, presented in Figure 3. However, it is important to consider that not all industries are likely to experience the same obstacles,

and there is some evidence suggesting that organizational factors such as size and structure can impact the barriers that different industries and organizations face as well as their severity (Al Zaabi et al., 2013). Based on the theoretical framework, the overarching literature on SSCM indicates that the major internal barriers to SSCM are financial constraints, a general lack of information, and lack of top management commitment (Al Zaabi et al., 2013; Alzawawi, 2014; Movahedipour et al., 2017; Sajjad et al., 2015). Prior research has also identified several organizational factors that can influence SSCM implementation, including a lack of strategic prioritization of sustainability issues, corporate structures, size, processes, incentive and reward systems (Oelze, 2017).

For the external barriers identified, it is evident that a lack of customer interest and demand, unwillingness to collaborate among supply chain partners, and a lack of supplier ability and interest are expected to impede the adoption of SSCM practices significantly. Several studies show that the adoption of SSCM practices is often severely hampered by a lack of customer interest and insufficient pressure from society in general (Heidary Dahooie et al., 2020; Narayanan et al., 2019; Sajjad et al., 2020). Insufficient supplier interest and involvement are also identified as a major barrier to SSCM, and supplier involvement is often hindered by a lack of trust, cooperation, and competence (Mastos & Gotzamani, 2018; Oelze, 2017). Although regulatory pressure can positively impact SSCM, ineffective or inadequate coercive measures and a lack of government interest can also hinder the adoption of SSCM practices (Al Zaabi et al., 2013; Narayanan et al., 2019). Forcing organizations to comply with these regulations and legislations can potentially impede their ability to engage in more effective measures (Sajjad et al., 2015; Sancha et al., 2015). Lastly, a lack of standardization of regulations between countries makes it challenging to implement sustainability initiatives in global supply chains (Chkanikova & Mont, 2015). Based on the theoretical framework and the current discussion a research model was developed, which is presented in the next sub-chapter.

### 3.5 Research model and research question

From our work with the theoretical framework, it is apparent that the literature related to SSCM is on the rise, with an increasing number of published studies over the last decade. Although numerous drivers and barriers have been identified, organizations are still slow to initiate sustainability practices, with studies also reporting that the implementation is ineffective (Heidary Dahooie et al., 2020; Narimissa et al., 2019). However, many of these studies tend to focus on one or two dimensions of sustainability, often neglecting the social dimension. Most of the studies are also conducted in developing countries and biased towards a limited number of industries. Furthermore, studies looking at barriers are generally underrepresented in the literature compared to studies looking at drivers.

This highlights the need to examine the phenomenon from multiple perspectives and contexts to gain a broader understanding of the drivers and barriers that influence the decision to adopt SSCM practices. It is evident that many organizations still struggle to adopt SSCM practices, and in the previous literature the phenomenon has received little attention in a Norwegian or Scandinavian context. Consequently, the phenomenon is presented as highly relevant to study for this thesis to increase our understanding of the factors that influence the decision to adopt SSCM practices. We have therefore formulated the following research question:

*"What internal and external factors influence the decision to adopt sustainable supply chain management practices in Norwegian organizations"?*

The research question naturally delimits our research work and describes the phenomenon and context being studied. The thesis will examine factors that influence the adoption of SSCM practices either positively or negatively. We here distinguish between internal and external barriers and drivers. Furthermore, the phenomenon will be studied by investigating Norwegian organizations that are part of a larger supply chain and have either implemented or attempted to implement SSCM practices. Hence, the research question seeks to identify and describe factors that influence the decision to adopt SSCM practices in Norwegian organizations.

To create a more holistic representation of the existing literature regarding factors that influence SSCM, we have developed a theoretical model for our thesis, presented in Figure 4. The model is based on the research presented in Sub-Chapter 3.2 and 3.3 and is structured accordingly.



*Figure 4: Research model of factors influencing the adoption SSCM practices*

The model illustrates the different categories of drivers and barriers influencing the decision to implement SSCM. As the model shows, the drivers presented on the left side are expected to positively influence SSCM, while the barriers presented on the right side are expected to negatively influence the adoption of SSCM practices. Even though the drivers presented in Figure 4 can be seen as independent motivators for adopting sustainable practices, they can also act together, multiplying the pressure that organizations experience (Saeed & Kersten, 2019). Moreover, it is expected that factors within one

category will influence or be influenced by factors in the same or the other category. Several researchers have pointed out that these barriers and drivers are intertwined and influence each other (Heidary Dahooie et al., 2020; Kausar et al., 2017; Shohan et al., 2019). Finally, it should be taken into account that some stakeholders are likely to be more central in certain supply chain decisions than others (Meixell & Luoma, 2015). Thus, the stakeholder's degree of influence is expected to vary depending on the relevant dimension of sustainability (Devaux et al., 2019).

Answering the thesis` research question should lead to increased knowledge about the factors influencing SSCM adoption and contribute to further development of the body of literature regarding drivers and barriers of SSCM. The research model also provides a clear overview of the identified drivers and barriers and can help keep organizations focused on the factors of actual importance in implementing SSCM practices. Additionally, it facilitates for organizations to take a more proactive approach to sustainability practices and helps guide managers through the process. Increased knowledge of this phenomenon also helps stakeholders, governments, and other regulators direct their pressure accordingly to increase their influence and facilitate for the adoption of SSCM practices more effectively. Moreover, it will likely improve the rate at which organizations adopt sustainable practices and help make the implementation more effective.

The theoretical framework presented in this chapter forms the basis for the thesis. Hence, we aim to perform studies based on the factors that we identified through the theoretical framework. The thesis will also examine if there are any additional drivers or barriers that have not been identified in previous literature. The categories presented in the research model (Figure 4) helps form the structure for both Chapter 5 "Empirical findings" and Chapter 6 "Discussion." The next chapter presents the methodical approach for the thesis.

## 4. Research method

Forming an opinion regarding the purpose of the study and formulating a research question is a central part of the research process. It is essential to formulate a good and relevant research question in the early stages of the research process, as it dictates the terms for the rest of the decisions made regarding research methods. A prerequisite for developing a precise and well-formulated research question is to familiarize with existing literature (Johannessen, Christoffersen, & Tufte, 2016), as we have demonstrated through the development of our theoretical framework in Chapter 3. Planning a research study entails choosing a research strategy and design that is tailored to the research question (Jacobsen, 2005b). However, there are several possible ways to organize and conduct studies to answer a research question (Johannessen et al., 2016).

In this chapter, we describe our approach to the research process based on the nature of the research question. We start by decomposing our research question, which forms the basis for our choices regarding research strategy, design, data collection, and analysis. We then discuss the quality of the research in terms of the reliability, validity, and generalizability of the research. Finally, we discuss some ethical considerations for the thesis.

### 4.1 Research question

It is primarily the research question that guides the execution of the study and determines the methodological approach needed to gather the information we want (Grønmo, 2004). The research question can help organize the study, give it direction, delimit the problem, keep the researcher focused, point to the required methods, and provide a framework for writing the research manuscript (Savin-Baden & Howell-Major, 2013). To determine the research strategy and design, we need to determine if the research question is explicitly formulated, descriptive or explanatory, and whether it seeks to generalize (Jacobsen, 2005a).

Through our work with the theoretical framework, we have accumulated knowledge about what factors influence the decision to implement SSCM practices and their degree of influence in various contexts. We also performed qualitative interviews before gathering the quantitative data, which allowed us to revise and formulate a more precise research question before constructing the questionnaire. Based on this, we have a relatively clear overview of which factors will positively (drivers) and negatively (barriers) influence the decision to implement SSCM practices. The thesis' variables (factors) and units (Norwegian companies) are well defined, and the thesis research question can therefore be described as relatively clear. However, it is essential to remember that this is not an

either/or choice, as the relationship between clear and unclear questions can be best described as a sliding scale rather than a dichotomy (Jacobsen, 2005a).

Our research question seeks to answer what factors influence the decision to implement sustainable supply chain practices in Norwegian companies. Therefore, the purpose becomes to explore and describe a phenomenon, as opposed to finding cause-and-effect relationships (Yin, 2014). Hence, our research question has a descriptive character. However, Jacobsen (2005a) points out that the line between descriptive and explanatory questions is not distinct in some situations. In our thesis, the cause-and-effect relationship between the influencing factors and adoption of sustainability practices is investigated implicitly, however, causality is not the focus area of this research. Nonetheless, the cause-and-effect relationship does confirm that it is meaningful to investigate and describe the different factors.

Lastly, we must address whether the thesis' findings are intended to be generalizable. Studies can be described as intensive or extensive. Extensive studies seek to use a large number of units to describe the extent of the phenomenon, while intensive studies investigate a few units in depth to gather a detailed description of the phenomenon (Jacobsen, 2005a). The thesis aims to identify and describe the factors that influence the adoption of sustainability practices in Norwegian companies. With that in mind, a few organizations were selected for in-depth interviews, followed by a broad sampling strategy. The thesis is therefore considered as extensive, which is further explained in Sub-Chapter 4.4.1 sampling.

## 4.2 Choice of research strategy

There are two types of research strategies in social sciences, qualitative and quantitative research methods (Ringdal, 2013). These two research methods are presented as two clear paradigms regarding the generation and analysis of data (Tjora, 2017). Qualitative research methods seek to understand a social phenomenon in-depth, often through interviews or observation. Qualitative studies can provide rich and in-depth information about a small number of units (Thagaard, 2009). Quantitative research methods are, on the other hand, more concerned about taking a broader approach to understanding the phenomenon by gathering comparable and structured information from a large sample of units (Ringdal, 2013). A majority of researchers recognize that both qualitative and quantitative research methods are needed for a broad composition of research (Tjora, 2017). Ringdal (2013) claims that it is quite common to view the two methods as complementary as opposed to competing. Quantitative studies often use questionnaires with predetermined response options (Jacobsen, 2005a) and are characterized by firm structure (Thagaard, 2009). On the other hand, qualitative research methods are

often characterized by flexibility and openness, allowing the approach to be changed during the research process (Thagaard, 2009).

The choice of research strategy can be viewed as a pragmatic decision, where the research question should weigh heavily when deciding which method is best suited (Ringdal, 2013). Our research question has a descriptive character, which usually requires flexibility and responsiveness to changing conditions, favoring a qualitative approach. Additionally, our research question was less clear in the initial phase of the thesis, and a more flexible approach was therefore needed at this stage of the research process. However, as we performed a few interviews, the research question became more explicit, and the thesis emphasizes the possibility of generalizing the findings to a larger population, which means that the thesis is extensive in nature. Extensive research is characterized by large and representative sampling, which points in the direction of a quantitative research strategy (Jacobsen, 2005a). Therefore, we determined that to answer our research question in the best possible way, we needed to use a combination of the two methods. According to Tjora (2017), a combination of the two methods will often be beneficial. This research approach is usually referred to as a form of method triangulation or multiple methods approach (Grønmo, 1996). How we used these two methods in conjunction is explained in more detail in Sub-Chapters 4.3 and 4.4.

In qualitative research methods, the data is registered as text or transcribed into text, which is then analyzed with informal techniques. On the other hand, quantitative methods transfer the information into quantitative values that are then analyzed using statistical analysis techniques (Ringdal, 2013). The choice of research method and the nature of the research question lays the foundation for the choice of research design, which we will address in the next sub-chapter.

### 4.3 Choice of research design

A research design is a logical plan that guides the researcher in the process of collecting, analyzing, and interpreting data (Yin, 2014). Choosing a research design entails that the researcher must consider who and what will be studied and how the research process will be executed (Johannessen et al., 2016). The research plan helps develop guidelines that describe what the study will focus on, potential informants, where the study will be executed, and how it will be executed (Thagaard, 2009).

There are generally five possible research designs to choose from; experimental design, cross-sectional, longitudinal, case study, and comparative (Ringdal, 2013). Experiments are typically used to investigate cause-and-effect relationships and are therefore not applicable given our research question. Additionally, experiments are not well-suited for extensive studies with multiple variables and are seldom used for qualitative data. Longitudinal design entails that the research follows one or

multiple analysis units or cases over an extended period. Our thesis does not aim to measure change and stability of the phenomenon over time, and longitudinal design is therefore excluded. Case study and comparative design are also excluded as our thesis does not intend to compare or study one or a few cases in-depth. The thesis involves a larger number of analysis units and uses both quantitative and qualitative research methods, and cross-sectional design is therefore viewed as the most appropriate research design in this situation (Ringdal, 2013). This was also implied through our research question, as studies with descriptive research question are generally confined to a specific time period, and cross-sectional design is the most common form of research design (Jacobsen, 2005a).

Cross-sectional design is commonly used in both qualitative and quantitative studies. Qualitative applications are normally done in the form of interviews with a smaller number of participants, while quantitative applications normally involve larger representative samples and are executed in the form of questionnaires (Ringdal, 2013). In cross-sectional research, all the measurements or interviews are performed at a specific time or in a short and confined time period (Johannessen et al., 2016). The data is only registered once per analysis unit, and the primary goal is to describe the current situation (Ringdal, 2013). Thus, cross-sectional studies can provide information about how a phenomenon varies at that specific time period (Johannessen et al., 2016).

#### 4.4 Data collection

As previously mentioned, our research strategy involves both qualitative and quantitative methods. The data collection for the qualitative research was performed before the quantitative research. However, the data from the two methods were analyzed concurrently. This form of method triangulation called for the use of multiple different data collection methods. We decided to use interviews for our qualitative approach and a questionnaire survey for our quantitative approach. We performed one interview per analysis unit, where the interview object was a member of the organization's management team. We will explain in more detail how the interview objects were selected in Sub-Chapter 4.4.1. These interviews were also used to help develop the items in the questionnaire that was distributed among a diverse sample of organizations located in Norway, the selection criteria for these respondents will be explained in more detail in Sub-Chapter 4.4.1.

Before the data collection process started, the study was reported to "Norsk senter for forskningsdata" (NSD) and approved according to their guidelines (see Appendix 2). This ensures that any personal information gathered through the study is processed according to Norwegian/European privacy legislation. Furthermore, we have also followed NSD guidelines for the distribution of information about the study, and the organizations received an informational memo (see Appendix 3 & 4) when



they were asked to participate. This memo describes the purpose of the study, what it entails to participate, how information is stored and processed, that participation is voluntary, and that the participants are free to withdraw from the study at any point. The informants were also informed that the organization and participant's name would be kept anonymous throughout the thesis and that they will receive a draft of the thesis before it is submitted so they can approve any quotes we use from the interviews. Additionally, the informants from the qualitative study received and signed a consent form (see Appendix 5).

#### 4.4.1 Sampling

Before we start the data collection process, it is crucial to define the population sample for the study (Thagaard, 2009). The research question will often indicate whom the researcher wants to study, research studies refer to this as units, informants, or respondents. To ensure that we were able to gather the correct data, we had to identify analysis units that would be well-suited to highlight our research question and fit the context of the study. Thus, organizations were selected based on some predetermined criteria. In relation to the sampling of units, Tjora (2017) emphasizes that it can be advantageous to ensure some commonalities among the units, as it makes them more likely to be relevant for the phenomenon. For organizations to be eligible for participation in the study, they had to fulfill the following criteria:

- Based in Norway.
- Be part of a supply chain, consisting of multiple independent supply chain members.
- They have either implemented or attempted to implement SSCM practices.

These criteria ensured that the units had some fundamental commonalities that made them relevant to the research question, however, they also provided us with a sizeable theoretical population. A sample must be selected in studies where it is difficult or insufficient resources to investigate the entire theoretical population (Jacobsen, 2005a). We adopted a combination of purposive and snowball sampling techniques to recruit suitable participants to help in obtaining information regarding SSCM implementation (Johannessen et al., 2016). Organizations were chosen from multiple different industry sectors to capture perspectives of varied industries in relation to their engagement in SSCM. Furthermore, we wanted to include organizations with different sustainability profiles, including both organizations that are at the forefront of sustainable development and those who have not started or are in the process of implementing sustainability in their corporate strategy.

Initially, potential organizations were identified from the Norwegian website "Sustainable Brand Index." This national website shows how brands are perceived within environmental and social

responsibility. Subsequently, the snowball method was used to identify additional organizations at the forefront of sustainable development. To achieve a diversity of sustainability profiles, we decided to seek out organizations operating in industries known to have problems with incorporating sustainability in their operations. Hence, we sought out organizations in sectors such as oil and gas, shipping, and manufacturing. These are organizations expected to face numerous barriers to SSCM adoption while often experiencing high pressure from external sources. A total of 128 organizations were identified to participate in the study. All organizations were invited to participate in the questionnaire survey, while 28 were asked to be part of the qualitative interviews. After sending out a few follow-up notifications, we were able to get a total of 36 respondents to complete the questionnaire, while 10 organizations were interviewed.

For the interviews, we wanted to interview informants with knowledge and experiences specific to the research question. The main rule for selecting informants is that they must be able to make well-founded and reflected statements about the subject (Tjora, 2017). Thus, we needed to identify informants within each organization that had the required prerequisites to provide detailed descriptions of the phenomenon. There is a broad spectrum of sampling strategies that can be used to achieve this. We used purposeful sampling, which is often deployed in qualitative studies. This entails that informants with qualities or qualifications that are strategic to the research question and the study's theoretical perspectives are chosen (Thagaard, 2009). Similarly, to the sampling of organizations, we needed to define some criteria for the selection of informants. The informants were required to fulfill the following criteria:

- Knowledge about sustainable development.
- Knowledge about the organizations' sustainability agenda.
- Familiar with the organizations' strategy and goals.
- Familiar with the organizations' prior experiences regarding sustainability.
- Familiar with the organizations' supply chain.
- Knowledge about how sustainable practices influences supply chain activities.
- Familiar with the organizations' external environment and how it affects their approach to SSCM.
- Familiar with top-managements mindset regarding SSCM.

The fulfillment of these criteria entailed that most of the informants were managers holding sustainability and supply chain responsibilities, where the most common titles were sustainability manager, supply chain manager, vice president (VP), or chief executive officer (CEO). Involving participants who fulfilled these criteria increased the likelihood of gathering credible and relevant

information about the phenomenon of study. It also ensured that the participants had the required prerequisites to contribute valuable information towards the research question and provide us with useful information towards developing a questionnaire survey with precise and relevant questions.

For the selection of respondents to the quantitative study, we also used purposive sampling based on the criteria outlined previously whenever possible. However, we were not always able to contact the desired participants directly. We then used the snowball method to contact the appropriate informants (Thagaard, 2009). In these situations, we contacted an intermediary person within the organization. This intermediary contact was sent the informational memo describing the project and the criteria for participation in the study so that he/she could contact the appropriate organizational members on our behalf. Information gathered through the qualitative and quantitative study constitutes our primary data, collected from interviews with key organizational members and a questionnaire distributed to Norwegian organizations within several different sectors.

#### 4.4.2 Interviews

For the initial exploration and to be better able to describe the phenomenon, we decided to use interviews to gather in-depth and detailed information related to our research question. Interviews are a pillar of qualitative research (Savin-Baden & Howell-Major, 2013) and the most commonly used data collection method for qualitative data in cross-sectional research designs (Ringdal, 2013). The purpose of a qualitative research interview is to gather detailed and descriptive information about a specific situation or phenomenon while enabling the researcher to gain insight into the informants' own experiences, thoughts, and emotions (Dalen, 2004). Face-to-face interviews where the interviewer and the interviewee are physically present at the same time and space are still the most widely used form of interview mode. However, qualitative researchers are becoming more and more dependent on technology, such as telephones and various forms of web-based communication platforms for data collection (Savin-Baden & Howell-Major, 2013). Something we experienced ourselves, as we were unable to perform face-to-face physical interviews due to the current COVID-19 situation. We conducted the interviews over the digital communication platform "Microsoft Teams." The use of Microsoft Teams allowed for both auditive and visual communication while at the same time eliminating any geographical barriers. This meant that the informants could be interviewed in an environment where they felt secure and comfortable, such as their own home or workplace.

The interviews followed a semi-structured approach, meaning that we followed some preset questions while also including additional questions in response to the informants' comments and reactions (Savin-Baden & Howell-Major, 2013). This entails that we relied on an interview guide. An interview guide contains central subjects and questions that combined are supposed to cover the most

important aspects of the study (Dalen, 2004). In this sense, the interview guide helps create structure and guide the conversation from the general to the more specific, while also being flexible enough to allow the researcher to stray from the guide when appropriate (Savin-Baden & Howell-Major, 2013). Allowing the researcher to follow up on ideas and ask follow-up questions can help uncover subjects and connections that he/she could not predict in advance (Dalen, 2004).

We constructed an interview guide (Appendix 6) that was used during all the interviews. This way all the interviews had the same starting point, similar structure and covered the subjects we needed to. The interview guide was formed based on specific overarching topics relevant to our research question and our theoretical framework. Before we conducted the interviews, we performed a few pilot interviews with acquaintances, that had some experience and knowledge about the subject. These pilot interviews allowed us to test the questions and structure of the interview guide and ourselves as interviewers. The test interviews assured us that the questions were open-ended and understandable so that the informants could talk freely about the subjects they saw as important. This approach resulted in detailed and information-rich interviews. We also experienced that some informants occasionally answered questions before we asked or sometimes drifted from the topic. In these situations, the guide proved to be a valuable tool to help steer the informants back to the subject when we needed to and helped keep control over what questions and topics we had already covered.

As mentioned, most of the informants gave detailed and comprehensive answers. Nonetheless, there were some situations where we felt like the informants did not elaborate enough on the topic. In these instances, we asked follow-up questions to elicit more detailed descriptions from the informants. Follow-up questions were also used when the informants introduced new ideas, topics, or angles that we needed to pursue. As the interview process went on, we gained increased knowledge and understanding regarding the phenomenon, which enabled us to formulate better questions as we at the same time became more comfortable in the role of interviewers. As S. B. Kvale, Svend (2009) highlight, an important prerequisite for a successful interview is that the interviewer possesses a good amount of knowledge about the phenomenon.

All the interviews started with introducing ourselves, followed by a short informal conversation with the informants to make them feel as comfortable as possible. As S. Kvale (2002) points out, it is up to the researcher to create a connection and an atmosphere where the informant feels secure enough to talk openly about their own experiences, thoughts, and feelings. We then informed the participant about the purpose of the study and interview and asked if they had any questions regarding the consent form they had received before the interview. We also asked for permission to record the interview before starting the interview, as this is beneficial for the interview itself and the analysis

later. Every interview started with some short and concise questions regarding the informant's background, experience, and role within the organization. These initial questions are intended to gather information that shows what qualifications the informants have to answer our research questions. We then proceeded to more open-ended questions intended to capture information regarding the organizations' approach to sustainable supply chain management and what pushes or deter them from implementing SSCM practices. During the interviews, we had distinct roles, where one was the primary interviewer. The other person could then take notes and keep control over which questions had been answered or not. Both of us asked follow-up questions whenever it was necessary. The interviews lasted 30-60 minutes, and all the informants were very positive, forthcoming, and expressed genuine interest in the topic we were investigating.

Recording the interviews allowed us to keep the focus on the informant and show interest through the use of both verbal and non-verbal communication. Dalen (2004) emphasizes that it is crucial to show the informant respect during the interviews, display good listening skills, and show genuine interest in what the informant is sharing. This can make it easier for the informant to open up to the interviewer about their personal experiences, thoughts, and feelings, and are prerequisites that must be fulfilled for the interview to be used in a research context (Dalen, 2004). Audio recording also captures and preserves everything said during the interview, thereby reducing the risk of losing or misinterpreting information. The audio recording from each interview was reviewed and transcribed shortly after the interview was completed, while the information was still fresh to us. Dalen (2004) claims that it can be advantageous to transcribe the interviews directly after they are completed, as this provides the best means to accurately replicate the informant's statements. It also allowed us to get familiar with the data material and increased our understanding of the information we received during the subsequent interviews, strengthening the analytical process later (Dalen, 2004). The data material from the qualitative interviews was also used to develop the questionnaire for the quantitative survey, which we will discuss in the next sub-chapter.

It is often difficult to determine in advance what will be an appropriate number of interviews. The number of interviews should be at least large enough to highlight the research question and allow the research to gain a good understanding of the phenomenon, implying that the number will to some degree depend on the quality of the interviews (Johannessen et al., 2016). When qualitative research is performed prior to quantitative research, the primary goal is often to establish an empirical basis that allows for the formulation of good measurement items (Grønmo, 1996). In theory, there are no upper or lower limits for the number of interviews. However, it depends on the research question and what we can practically expect to be feasible (Johannessen et al., 2016). Before the project started, we had a rough idea of how many interviews we would like to conduct. Regardless, we knew that this

number would depend on the quality and quantity of the information we received during these interviews. After completing 8 interviews, we decided that we needed 2 more interviews to gather enough qualitative data, resulting in 10 interviews. At this point, we felt like we had a comprehensive understanding of the phenomenon and a reasonable empirical basis for the development of good measurement items for the collection of quantitative data. The quantitative data was gathered from a questionnaire survey performed after the interview process, which we will address in the next sub-chapter.

#### 4.4.3 Questionnaire survey

A questionnaire was used to gather the quantitative data for our study, which Jacobsen (2005b) claims to be the most dominant data collection method for gathering quantitative data material. The questionnaire was formed based on the thesis' research question. To answer the research question, we needed to establish operational definitions for the constructs and descriptions of the measurement items used in the thesis. All the theoretical constructs are measured using multi-item scales and are well-established within SSCM literature (e.g., (Biswal, Muduli, & Satapathy, 2017; Narayanan et al., 2019). The generation of measurement items was primarily based on our review of prior research coupled with feedback received through the interviews with organizational representatives. The qualitative research contributed with detailed descriptions and a more comprehensive understanding and insight into the phenomenon, allowing for the development of more concrete and relevant measurement instruments for the quantitative method. This approach is in line with the one presented by Johannessen et al. (2016), where they emphasize that it is crucial to review relevant literature and research on the topic and that it may be beneficial to get familiar with the phenomenon through qualitative methods. They recommend this approach since it is impossible to adjust the questions and responses from the questionnaire after it is distributed to the respondents.

The response format was also guided by prior research and modified to fit the context of this thesis. The information was collected on a five-point Likert scale anchored "not at all important" and "very important," this scale was used for all items. "Not relevant" was also added as an option outside the measurement scale. This was done since some of the organizations may not consider all the factors presented. This way, the actual importance of the relevant factor is reflected. The alternative "Not relevant" is placed furthest to the right in the matrix to help separate it from the rest of the scale, which Haraldsen (1999) recommends. All the questions except the two questions regarding organizational size, and the open-ended questions are obligatory. We saw this as necessary to measure the items accurately while also limiting the risk of gaps in our data set. Operational definitions of the 10 constructs used in this report are presented in the two tables below.

<p><b><u>Market pressures</u></b></p> <ol style="list-style-type: none"> <li>1. Expectations from investors</li> <li>2. Expectations from other stakeholders</li> <li>3. Supplier's green initiatives</li> <li>4. Support from supply chain members</li> <li>5. Competitors green actions</li> <li>6. Expectations from customers</li> <li>7. Increased brand awareness</li> </ol> <p><b><u>Societal pressure</u></b></p> <ol style="list-style-type: none"> <li>1. Expectations from local organizations</li> <li>2. Expectations from society</li> <li>3. Pressure from non-governmental organizations (NGOs e.g., Greenpeace)</li> <li>4. Pressure created by media</li> </ol>	<p><b><u>Regulatory pressure</u></b></p> <ol style="list-style-type: none"> <li>1. Government regulatory requirements</li> <li>2. Regulatory requirements from international institutions (e.g., EU)</li> <li>3. Certifications</li> <li>4. Government financial incentives (e.g., tax relief)</li> <li>5. Government support scheme</li> </ol> <p><b><u>Performance expectations</u></b></p> <ol style="list-style-type: none"> <li>1. Increased operational performance</li> <li>2. Increased profitability</li> </ol> <p><b><u>Organizational and ethical motivation</u></b></p> <ol style="list-style-type: none"> <li>1. Top management commitment and support</li> <li>2. Expectations and motivation from employees</li> </ol>
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Table 4: Operational definition of driver constructs

<p><b><u>Financial barriers</u></b></p> <ol style="list-style-type: none"> <li>1. Initial cost of implementation (Development of infrastructure, etc.)</li> <li>2. Cost of environmentally friendly materials and products</li> </ol> <p><b><u>Strategic and organizational barriers</u></b></p> <ol style="list-style-type: none"> <li>1. Lack of top management commitment and support</li> <li>2. Lack of employee motivation in adopting SSCM</li> <li>3. Organizational bureaucracy</li> <li>4. Lack of reward incentive and reward systems for adopting SSCM</li> <li>5. Lack of knowledge and training in SSCM</li> <li>6. Negative attitude towards sustainable practices</li> <li>7. Lack of strategic prioritization of sustainability goals</li> <li>8. Lack of ability to engage in SSCM practices</li> </ol>	<p><b><u>Demand-side barriers</u></b></p> <ol style="list-style-type: none"> <li>1. Lack of customer demand for sustainable products</li> <li>2. Lack of willingness to share costs by customers</li> <li>3. Customer unawareness regarding benefits of sustainability</li> <li>4. Lack of awareness in society regarding sustainability issues</li> </ol> <p><b><u>Supply-side barriers</u></b></p> <ol style="list-style-type: none"> <li>1. Lack of supplier interest and involvement</li> <li>2. Lack of knowledge and information concerning sustainability</li> <li>3. Lack of supplier willingness to collaborate/share information</li> </ol> <p><b><u>Regulatory barriers</u></b></p> <ol style="list-style-type: none"> <li>1. Ineffective or inadequate regulations</li> <li>2. Lack of government support policies</li> <li>3. Lack of financial incentives</li> </ol>
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Table 5: Operational definition of barrier constructs

We used “UiO Nettskjema” to build an online questionnaire. The questionnaire is primarily constructed of close-ended questions and starts with some general questions about the respondent and the organization that he/she represents. These questions were formed as single-answer multiple-choice questions, where the informants were presented with some predefined category answers. For some of the questions such as industry, size, and occupation the respondents were presented with an option called “other,” they could then fill in their preferred answer in a text box below if none of the predefined answers were appropriate for them. Additionally, one of the general questions was open-ended. It can be beneficial to start the questionnaire with a few harmless and straightforward questions to motivate the respondent (Ringdal, 2013).

In the second part of the questionnaire, the respondents are asked a few questions related to the organization and its supply chain’s relationship to sustainability. These are also presented as single-answer multiple-choice questions with predefined category answers. The final part of the questionnaire concerns questions related to the factors that we have described previously. This part of the questionnaire is structured according to the constructs described in tables 4 and 5, presented in two matrices. Before each matrix, the respondents were presented with the text “Please rate the following drivers/barriers according to their importance in your decisions related to SSCM implementation.” This is followed by a series of claims that they were asked to rate according to the five-point Likert scale described above. After answering the items related to these constructs, the informants were given the possibility to address other aspects than those presented in the

questionnaire. Throughout the entire questionnaire, the informant is provided with definitions/explanations when it may be necessary and instructions for how to answer the questions. The questionnaire can be seen in its entirety in Appendix 7.

Before sending the questionnaire to the selected participants, we performed a pilot study on acquaintances with experience from quantitative research. The objective of this pilot study was to get feedback regarding the structure, typos, how long they took to complete it, and if everything was understandable. This resulted in us having to make some minor adjustments related to the answer options and word choice to clarify certain things. After making these adjustments, we created two different versions, one closed-access and one invite-only.

Several measures can be taken to help increase the response rate (Jacobsen, 2005a). It was important for us to implement some of these measures to ensure a representative number of respondents and increase the findings' generalizability. The informants received an informational memo (see Appendix 4) along with their invitation to participate in the survey. This memo describes the purpose of the thesis and what it entails to participate in the study. This can help increase the response rate as some people may choose not to answer if they do not know the context of the study. Furthermore, the informants were promised that the results would be presented anonymously, which can be helpful if the informants do not want their points of view to be publicly known. The structure and length of the questionnaire can also impact the response rate. People are less likely to participate if the questionnaire is complicated and overly long (Jacobsen, 2005b). We have tried to limit the number of introductory questions to a bare minimum and keep the questionnaire as concise as possible. Therefore, most of the questionnaire is compounded of the items related to SSCM implementation (see Appendix 7)

As described in Chapter 4.4.1, the questionnaire was distributed to organizational representatives that met the specified criteria. These respondents were sent the invite-only version and a link to the closed-access version that they could forward if they had colleges with the right qualifications. However, if we could not contact these persons ourselves, we had to go through an intermediary contact that forwarded the survey to the appropriate persons in the organization. As mentioned in Chapter 4.4.1, the intermediary contact was provided instructions for whom we wanted to answer the survey. The survey was distributed electronically through "UiO Nettskjema," which allowed us to send out reminders to the participants that had not answered yet. The deadline for the survey was 28 days, with a reminder issued after 14 days and 21 days, a standard procedure to help increase the response rate (Jacobsen, 2005b). The questionnaire was sent to 128 organizations, in total we received 36 completed questionnaires, resulting in a response rate of 28%.



## 4.5 Data analysis

In social science research, there exist various approaches for the analysis of data material. Our data material consisted of both qualitative and quantitative data and was analyzed with the help of quantitative data analysis techniques and a thematic data analysis approach. A thematic data analysis approach entails that the data is categorized, where each category represents central themes in the study. These categories aid the researcher and help facilitate the identification of key research themes and patterns in the data material. Dividing the data material into categories allows for large amounts of data to be summarized clearly and concisely (Thagaard, 2009).

Statistical analysis software is a crucial tool for using quantitative analysis techniques (Ringdal, 2013). Statistics helps convert quantitative data to useful information to describe patterns, relationships, and contexts. Statistics can be either descriptive or inferential. Descriptive statistics aims to describe the distribution of the variable through statistical measurements and diagrams and helps describe the data in a clear and easy-to-understand manner. Inferential statistics allow us to describe the relationship between variables in a sample and make estimations about the entire population (Ringdal, 2013).

The most widely used statistical software package for quantitative analysis in social sciences is SPSS (Statistical package for the social sciences) (Ringdal, 2013). The quantitative data collected for the thesis was coded and analyzed with the software package SPSS. This helped organize the extraction of raw data from the questionnaire survey and the development of matrices and tables. Furthermore, the thesis aims to perform reliability and correlation analysis.

Cronbach's alpha ( $\alpha$ ) is the most widely used measure for reliability and measures internal consistency between the indicators. Cronbach's alpha should have a value between 0 and 1, where  $\geq .700$  is considered an acceptable lower limit for satisfying reliability. Cronbach's alpha is influenced by the number of indicators and the average correlation between them. Cronbach's alpha has a positive relationship to the number of indicators, and an increasing number of indicators, even with a similar correlation will increase the reliability value (Ringdal, 2013). Cronbach's alpha should therefore be seen with some skepticism when dealing with scales that include many indicators. The reliability is measured with Cronbach's alpha in Sub-Chapter 5.3.

Correlation provides a numerical value for the strength and direction of the relationship between two variables. Correlation can be used to describe the relationship between variables, estimate correlation in populations, measure reliability, and measure effect size. Pearson R measures a specific type of correlation, the tendency of a linear relationship between two variables. Pearson R provides a numerical value for the strength of the relationship between two variables and whether it is positive or negative. The variables measured by Pearson R lies between -1 and +1, where  $r=1$  means perfect

positive linear relationship and  $r=-1$  means perfect negative linear relationship. A positive correlation means that the variables vary in the same direction, while a negative correlation means that the variables vary in opposite directions.  $r=1$  implies that there is no correlation between the variables. Pearson R is symmetric, which means that the correlation of X with Y is the same as the correlation of Y with X (Ringdal, 2013). Pearson R is used to measure correlation in Sub-Chapter 5.6.

As mentioned in Sub-Chapter 4.1.2, the interviews were recorded and transcribed shortly after the interviews were performed. The transcripts were then read and sorted to increase our understanding of the data. Lastly, categories representing comparable factors were assembled to form key themes and concepts regarding SSCM drivers and barriers. The transcripts from qualitative interviews resulted in a large amount of information. Therefore, we needed to exclude a considerable amount of information that was irrelevant to the research question and context, we also needed to exclude all data that could be used to identify the participant or organization directly. To preserve the anonymity of the participants, we have coded both the informants and respondents, which was done automatically through “UiO nettskjema” for the quantitative data.

The empirical findings presented in Chapter 5 include statistical analyses of the quantitative data and quotes, information, and statements from the informants. Analyzing the qualitative and quantitative data in conjunction highlights the phenomenon from multiple perspectives and allows for a more complete understanding and representation of the phenomenon. Therefore, the quantitative data from the questionnaire and qualitative data from the interviews related to the same theme were analyzed in relation to each other. The descriptive data analysis follows the same structure used in Sub-Chapter 3.2 and 3.3, which means that the data is analyzed according to the identified categories. Our interpretation of the qualitative data is shaped by our understanding of the phenomenon based on previous research and the empirical data gathered. The quantitative data is analyzed using statistical analysis software and is accordingly interpreted through the statistical analyses described previously. Following the analyses, the empirical findings are discussed against the theoretical framework, lastly, the thesis' conclusions are presented.

## 4.6 Research quality

A study can rarely be described as flawless, as many factors can influence the work along the way. Halvorsen (2008) points out that the researcher must evaluate if the results have been influenced by the methods used during sampling, data collection, and analysis of the data material and if this could lead to one or more sources of error. Therefore, an important part of the research process is to critically evaluate the quality of the study (Repstad, 2007). In relation to this, many researchers have

emphasized the importance of credibility (Thagaard, 2009). Validity, reliability, and generality are all fundamental terms for evaluating the quality and credibility of the research (Leseth, 2014). Reliability is related to the data quality and how the researchers apply and further develop information from the field (Thagaard, 2009). On the other hand, validity deals with the researcher's interpretation of the data and how accurately the data represents the phenomena and reality that is being studied (Thagaard, 2009). Generality is related to the analytical process and focuses on developing a broader understanding of the phenomena being studied. Nonetheless, it is important to emphasize that the researcher's approach and interpretation will always, to some degree, influence the data that is produced and ultimately also the findings (Leseth, 2014).

#### 4.6.1 Reliability

Reliability indicates the degree of consistency and credibility of the research results. A study's reliability is high when similar results are achieved through repetitive measurements with the same measurement instruments (Ringdal, 2013). Thagaard (2009) states that reliability at its core refers to whether a different researcher using the same methods will reach the same results. The objective of strengthening the study's reliability is to ensure that if other researchers conduct the same study repeatedly, they will arrive at the same conclusion and findings. For this to be possible, the researcher must document the procedures performed in the study (Yin, 2014). Silverman (2006) argues that reliability can be strengthened by ensuring that the research process is transparent (Thagaard, 2009). Throughout this thesis, we will provide structured and detailed explanations of how we have performed the research process and our choices regarding the research method, allowing the reader to review the research process step-by-step. Explaining how the data has been developed is also intended to convince the critical reader that the quality of the research is good, thereby displaying the results' worth (Thagaard, 2009).

It is important to know how prior research data has been collected and how relevant questions are formulated. This allows the researcher to trace possible sources of error (Ringdal, 2013). Before we started planning the thesis, we needed to acquire some prerequisite knowledge about sustainability and to what extent it is implemented in the supply chain in different industries. Moreover, it was important to gain insight into and understand the problems and pressures that various industries encounter regarding the adoption of sustainable supply chain management practices. This was achieved by reviewing existing research on sustainable supply chain management. Being knowledgeable about the phenomenon being studied allows the researcher to formulate precise and relevant questions (Tjora, 2017). However, (Repstad, 2007) emphasizes that the researcher must be open to adjusting this knowledge and preconceptions. To ensure that we conducted the study with an

objective approach, we constructed an interview guide with open-ended questions that allowed the informants to speak freely about the relevant and important topics. This contributed to new knowledge and an increased understanding of the phenomenon of study. The construction of our questionnaire was based on prior research on sustainable supply chain management. We thoroughly examined how relevant questions had been formulated in previous research, what items had been used to measure the relevant constructs, and the scales used to measure the relevant items, explained in more detail in Sub-Chapter 4.4.3. This combination of methods (method triangulation) will also strengthen the reliability of the data and results since it provides a broader foundation of data and a more secure basis for interpretation (Repstad, 2007).

The knowledge that we acquired prior to this study has also been paramount for us to identify the correct analysis units and the right participants within each unit that could provide relevant information on the subject. This ensured that the questionnaire was distributed to respondents with experience and knowledge about SSCM. It also allowed us to identify informants for the qualitative interviews that could provide detailed and relevant descriptions and credible information, which further increases the reliability of our data. Most of the informants explained that sustainability is a highly contemporary issue and that it is something that they continually strive to be better at, despite expressing that they had encountered several challenges in their efforts to improve on the area. All the interviewed organizations also requested a copy of the thesis, which indicates that they have a genuine interest in contributing to the study. Many of the respondents provided comprehensive answers in the textbox presented after each matrix, which indicates that they completed the questionnaire with commitment. Thus, it is reasonable to assume that the respondents are well-informed and recognize the phenomenon's importance. Hence, the data can be considered reliable.

Reliability is also related to how the researchers apply and further develop information from the field (Thagaard, 2009). Seale (1999) argues that the research process can be clarified by using what he calls "low-inference descriptors." This is data that is concrete and to as much degree as possible separated from the researcher's interpretations (Thagaard, 2009). During the interview process, we used audio recordings that we transcribed directly after the interview was completed. The use of audio recording also forms a solid basis for developing data that is fundamentally more independent than notes. The use of audio recording also allowed us to present quotes to the reader, exactly how the informant expressed them, strengthening the reliability by ensuring that the data is as concrete as possible (Thagaard, 2009).

Reliability can also be measured with statistical tools. With cross-sectional data, reliability can be measured based on internal consistency. The goal is to measure the degree of internal consistency

between the indicators that are part of the scale. We want to measure internal consistency with Cronbach's alfa, which is the most commonly used measure for reliability (Ringdal, 2013). This was explained in Sub-Chapter 4.5, and the results are presented later in Sub-Chapter 5.3.

The reliability of the study can also be strengthened by involving multiple researchers (Thagaard, 2009). We are two students that have collaborated closely throughout the study. We have had many beneficial discussions that have contributed to sound judgment and decision-making during our work. As a result, our study is based on multiple views and perspectives, strengthening the reliability of the study (Leseth, 2014). In conclusion, the choices that we have made have strengthened the reliability and will in turn increase the validity of the study as a high degree of reliability is a precondition for a high degree of validity (Halvorsen, 2008).

#### 4.6.2 Validity

Validity refers to the degree to which research examines what it is intended to S. B. Kvale, Svend (2009) and is also related to the interpretation of the data (Thagaard, 2009). In other words, validity refers to whether the research approach, collected data, and findings accurately reflect the purpose of the study as well as the reality and phenomenon we want to study. However, it is important to note that data generated in social science research does not cover reality in its entirety but representations of it. It is common to distinguish between three types of validity, namely, construct validity, internal validity, and external validity (Johannessen et al., 2016). Construct validity and internal validity are discussed in this sub-chapter, while external validity is closely related to generalizability and will therefore be addressed separately in the following sub-chapter.

##### ***Construct validity***

Construct validity refers to the connection between the phenomenon that is studied and the established data (Johannessen et al., 2016). Construct validity indicates whether or not we measure the construct or phenomenon we intend to (Jacobsen, 2005b). The construct validity of our thesis is strengthened by the preparations we did prior to the data collection. The literature search and development of the theoretical framework ensure that our study is based on existing and relevant research, which increases the study's validity, according to Tjora (2013). This allowed us to define terms and concepts and identify operational measures that match these concepts. Therefore, this thesis' definitions and operational measures are based on published studies and not our impressions only, which helps increase construct validity (Yin, 2014).

A commonly used form of control for construct validity is to allow other persons with knowledge about the subject to review the data and operational measures. When more people agree that the questions

seem reasonable and meaningful, the likelihood for the measurement items to measure the correct phenomenon increases (Jacobsen, 2005b). Thus, construct validity for the measurement items used in the questionnaire was increased by the pilot study we performed before distributing the questionnaire to the respondents, as described in Sub-Chapter 4.4.3. Conducting the qualitative interviews prior to the questionnaire development helped us ask relevant and accurately phrased questions, increasing the validity, according to Jacobsen (2005b). Our use of multiple methods naturally led to multiple different data sets, allowing us to compare different types of data. The likelihood that we measure the phenomenon we intend to increases when multiple data sets corroborate each other and therefore help ensure construct validity (Silverman, 2011).

### ***Internal validity***

Internal validity concerns the degree to which the research process and results reflect the study's purpose and represents the reality studied (Johannessen et al., 2016). It is usually internal validity we refer to when we discuss the term validity, which deals with assessing the interpretations within a single study (Thagaard, 2009). To achieve a high degree of validity, the respondent/informants must be knowledgeable about the subject that is being studied. Using the selection criteria described in Sub-Chapter 4.4.1, we established a sample that could provide us with relevant information for the thesis and research question. This ensures that the sample consists of competent persons who understand the terms used in the interviews and questionnaire. The response rate for the questionnaire was 28%, which is considered good. As mentioned in Sub-Chapter 4.6.1, the respondents have put a lot of effort and commitment into the completion of the questionnaire as they have provided comprehensive answers in the textboxes whenever possible. The average time used to complete the questionnaire was approximately 16 minutes. These are good indicators for a high degree of validity in our thesis.

In social science, the term intersubjectivity is often used rather than the term "truth." Intersubjectivity implies that the closest we can come to the truth is when multiple people agree that something is an accurate description. This means that the likelihood that the description is accurate increases when more people agree. The literature search performed, and the development of the theoretical framework implies that our empirical evidence and conclusions could be compared with results from other studies. For the most part, our results are consistent with previous research. However, where it does deviate the qualitative data from the interviews helps expand on it. Generally speaking, the internal validity will be good if the results are supported by existing research related to the subject we are studying (Jacobsen, 2005b). Furthermore, the informants from the interviews were offered to corroborate the results and our interpretations of the data, which helps ensure internal validity (Johannessen et al., 2016).

The term transparency is also relevant when we discuss the validity, any interpretations that are presented from the data material should be well-founded and documented. Our work with the theoretical framework has enabled us to make qualified justifications for the study's conclusions, and this will, according to Thagaard (2009) help strengthen the validity. We have also documented and described the choices made throughout the research process as thoroughly as possible in this chapter, where we also explain how our experiences from the research work form a basis for any conclusions made. As with reliability, the study's validity is also increased since we are two students who have worked closely together. This has contributed to ensuring that the analysis, interpretations, and conclusions have been thoroughly discussed from multiple perspectives. This increases the validity of the study, as argued by Thagaard (2009).

### 4.6.3 Generalizability

External validity refers to the degree to which the results and knowledge gained from a research study can be transferred to a larger population, similar phenomenon, context, or a different population (Johannessen et al., 2016; Leseth, 2014). External validity and generalizability are closely related concepts (Leseth, 2014), and the term generalizability is typically used to describe external validity (Thagaard, 2009). We have included a wide variety of industries from the Norwegian business market and accumulated a relatively good response rate, and our perception is therefore that the external validity is good in this regard. Based on this, the selection criteria, and the sampling techniques used, we perceive the identified sample to be representative of a larger population. Hence, we argue that the empirical findings can be generalized to a larger population, however, with a certain degree of uncertainty (Jacobsen, 2005b).

The generalizability of the research results is linked to the analytical process (Leseth, 2014). Chapter 5 examine which of the identified factors influences decisions related to SSCM adoption in the Norwegian business market. Chapter 6 compares our empirical findings against the existing literature related to the adoption of SSCM practices. The results from our study, which coincides with the existing body of literature, can with more certainty be generalized to a larger population and to a certain extent, be generalized to different populations. However, this study's results that do not coincide with the current research will have little generalizability beyond our sample population.

A study's generalizability depends on its ability to establish descriptions, constructs, interpretations, and explanations useful in other areas or contexts than those studied (Johannessen et al., 2016). The qualitative interviews allow for more in-depth and detailed interpretations of the data and help provide context to the quantitative data analysis. The preparations done before the data collection process have also allowed for the development of clear constructs and descriptions of the

phenomenon founded on existing and relevant literature. Additionally, Chapter 4 includes documentation and information regarding the sampling process, data collection methods, data analysis, and the context surrounding the gathered data. These measures will, in turn, help clarify the circumstances and populations to which the results may apply (Leseth, 2014).

#### 4.6.4 Research ethics

Ethics is about principles, rules, and guidelines designed to evaluate if certain actions are deemed as “right” or “wrong” (Johannessen et al., 2016). Research ethics are the fundamental guidelines for research practice (Ringdal, 2013). During the work with this thesis, we have followed the guidelines for research ethics in social sciences and the humanities, as described by N.E.S.H (2021). We have as far as possible remained neutral in our role as researchers during the interviews and all other aspects of the data collection process and analyzed the data to the best of our ability to highlight the factors that influence the decision to adopt SSCM practices in Norwegian organizations. We have not presented fabricated data in any way, nor have we had any interest in forging data of any kind. Furthermore, our thesis is built around a theoretical framework based on prior research and literature, which has been further used to discuss the empirical data we have gathered. Previous literature has also been used to guide and support any decisions made related to the methodical approach of our research. While doing so, we have displayed good referral ethics by correctly and carefully referencing the author with year when appropriate. For citations, we have used EndNote with reference style APA 6<sup>th</sup>, and a reference list is included at the end of the thesis.

Formal approval from an ethical committee and informed consent from the participants are required to conduct data collection (Fangen, 2010). Before we started the data collection process, we reported the study to “Norsk senter for forskningsdata” (NSD), which is required for studies that handle personal information or background information that can be used to identify participants (Fangen, 2010). The study was then appraised and approved according to their guidelines for research ethics in relation to the Norwegian privacy act (see Appendix 2). When the study participants have been identified, it is required to collect informed and willing consent from them before the data collection can start (Johannessen et al., 2016). The participants must also be allowed to withdraw their participation at any time without any negative consequences (Thagaard, 2009). All the participants received a consent form along with an informative memo and an invitation to participate in the thesis. This informed about the study’s purpose, what their participation entailed, that the collected data will be deleted when the thesis is completed, and that participants were free to withdraw from the study.

Additionally, consent was gathered through a yes/no question in the questionnaire, ensuring that informed and willing consent was collected from all the participants. The approval of our study through



NSD and the participants declaration of consent confirms that we have fulfilled our obligation to respect the informant's private information, as well as their right to determine what information is gathered about them, how it is used, who has access to it, and if it is made publicly available or not (Johannessen et al., 2016). All data material has been processed with confidentiality and in accordance with the informant's declaration. All the organizations and informants are also anonymized in the presentation of the thesis` findings.

We have emphasized the fulfillment of ethical guidelines and what is considered good research practices throughout the entire research process. We have expressed the utmost respect and gratitude to the participants for their participation in our study, displayed moral accountability, and minimized any inconvenience we may have caused by always taking care of the participants in the best possible manner. We can therefore claim that we have satisfactorily obeyed guidelines for research ethics.

# 5. Empirical Findings

In the theoretical framework, we identified and described numerous drivers and barriers that have been shown to affect the decision to adopt SSCM practices. This formed the basis for our thesis, and the empirical findings are structured according to the categories outlined in Chapter 3. Chapter 5 presents the thesis` empirical findings, which include both qualitative and quantitative data. The citations gathered from the qualitative interviews are referenced by industry to preserve the informants' anonymity. Firstly, we present descriptive statistics that describe relevant characteristics of the sample population. Secondly, the data is prepared for further analysis, including data inspection and a reliability test in the form of Cronbach's alpha Thirdly, descriptive statistics that implicitly measure the effect of the identified drivers and barriers has on the decision to adopt SSCM practices are presented, in conjunction with citations and interpretations from the transcribed interview data. Lastly, Pearson correlation coefficient (Pearson's r) is used to examine the correlation between the factors that influence SSCM.

## 5.1 Sample characteristics

This sub-chapter starts with descriptive statistics describing the sample population's relevant characteristics for the quantitative survey. The population for the thesis is organizations based in Norway with ties to an external supply chain that have either implemented or attempted to implement SSCM practices. The questionnaire was distributed to 128 organizations within this population. At the end of the data collection period, a total of 36 completed questionnaires were gathered, resulting in a response rate of 28%. Relevant characteristics of the respondents and their distribution are presented in Table 6.

<b>Size of organization</b>	Frequency	Percent
10-49	3	8,3 %
100-499	5	14 %
Over 500	28	78 %
Total	36	100 %
<b>Yearly revenue</b>	Frequency	Percent
16-70 million	3	8 %
71-350 million	1	3 %
Over 350 million	32	89 %
Total	36	100 %
<b>Job Title</b>	Frequency	Percent
Sustainability manager	24	67 %
Purchaser	1	3 %
CEO	3	8 %
Other	8	22 %
Total	36	100 %

Table 6: Sample characteristics

We started the survey with a few open-ended questions to gather relevant background information about the respondents. The statistics show that 78% of the organizations have more than 500 employees, while 89% have yearly revenue of over 350 million. We conclude that most of the organizations in this study are categorized as large according to Norwegian standards. The respondents mainly work within sustainability management, with 67% of the respondents fitting the job description of a sustainability manager. This indicates that the respondents are familiar with the organizations' approach to sustainability and that we have identified respondents that are qualified to participate in the survey.

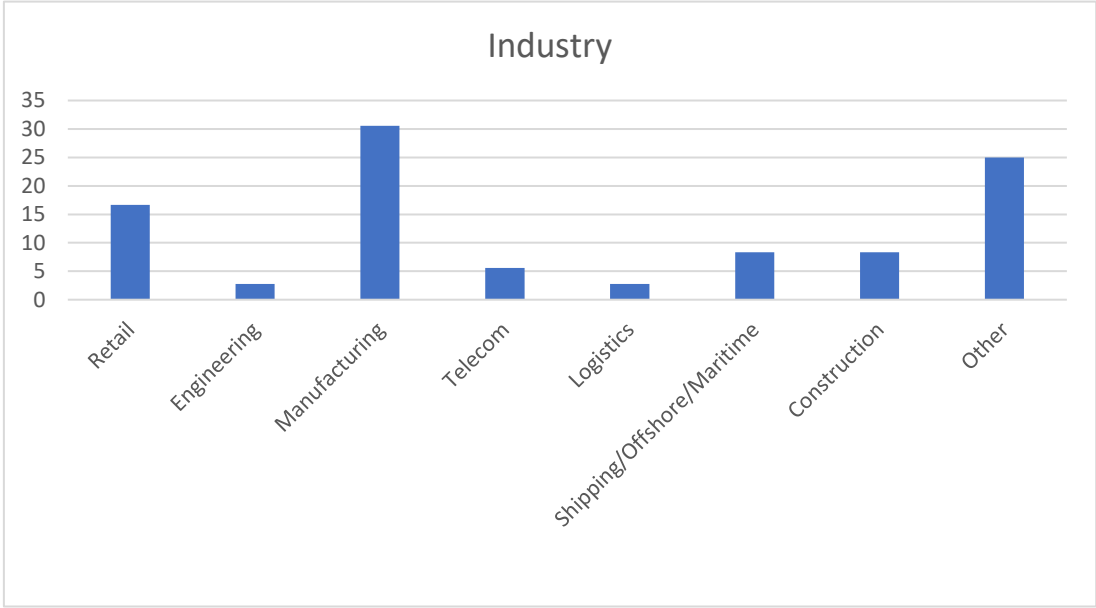


Figure 5: Industry representation in survey, presented in percent

Furthermore, from Figure 5, we see that the respondents in our survey mainly work in manufacturing, which is around 3,6% of total organizations in Norway (SSB, 2021). Manufacturing is in the middle of the supply chain and could significantly impact the whole supply chain. The second largest industry that participated is Retail, which has received a great deal of media attention in the past for questionable practices related to corporate social responsibility. These two industries make up about 50% of the participants, with a broad array of different industries being represented to a smaller extent. This selection should provide a representative overview of the drivers and barriers of SSCM that organizations may encounter in the Norwegian business market.

### 5.2 Data inspection

In preparation for the statistical analysis, we appraised the data by examining the accuracy of data entry, missing values, and outliers. During data examination, no entry errors or missing values were found. However, mild outliers were identified. To detect outliers, we performed univariate and

multivariate tests. During data inspection, four mild univariate outliers were identified based on their z-score and boxplot. These outliers were distributed across three factors, market factors (respondent 13660352), performance expectations (respondent 13473862), and organizational restrictions (respondent 13052727 and 13054999). Furthermore, Mahalanobis distance with  $p < .001$  was used to check for multivariate outliers, and no outliers were detected using this method.

The four univariate outliers that were identified could arguably have been removed. However, we choose to keep the data set intact since they were considered mild univariate outliers and were not identified as multivariate outliers. Moreover, we wanted to preserve the nuances of the data set, the data set that is used for further analysis, therefore, consists of 36 respondents.

### 5.3 Reliability

To determine the reliability of the construct used in the thesis, we performed a reliability test in SPSS based on Cronbach’s alpha. The alpha value for each construct is presented in Table 7. We have also examined if it would be beneficial to remove certain variables to increase the alpha values.

	<b>Cronbach's alpha</b>
Performance expectations	.843
Organizational and ethical motivation	.759
Market pressures	.427
Societal pressures	.767
Regulatory pressures	.643
Financial barriers	.809
Strategic and organizational barriers	.856
Demand-side barriers	.872
Supply-side barriers	.643
Regulatory barriers	.768

*Table 7: Cronbach’s Alpha*

Table 7 shows that seven of the constructs have an alpha value  $> .700$ , which means that the variables that constitute these constructs are consistent in their measurement. The reliability is considered high for these constructs. The reliability test computes a Cronbach's alpha value of 0.643 for regulatory pressure and supply-side barriers. Optimally we would have an alpha value  $> .700$ . However, these values still indicate that the measurement is consistent enough to dictate that the questionnaire items are reliable. Market pressures have an alpha value of 0.427, which suggests that this construct is inconsistent and has a lower degree of reliability. On the other hand, previous research indicates that the items that constitute regulatory pressure, market pressure, and supply-side barriers are important

for SSCM implementation. Nonetheless, the low alpha value for market pressure may indicate that the items used here should have been formulated differently or been split into two or more constructs. However, the measurement scales used for the thesis are based on previous research studying the same phenomenon, strengthening the reliability of the constructs. We have therefore chosen to keep these constructs as they are presented and deem them as reliable.

For the reliability test performed in SPSS, we used the “scale if item deleted” option to examine whether eliminating any of the items would increase the alpha value for any of the constructs. For market pressure, the reliability test revealed that eliminating item “other stakeholders” would increase the alpha value from .304 to .427, this elimination was therefore executed. Additionally, two more constructs could be improved by eliminating items. Eliminating item “local organizations” would improve the alpha value for societal pressure from .767 to .841 and eliminating item “capacity” would improve the alpha value of strategic and organizational barriers from .856 to .865. These eliminations were not performed as it would serve little to no purpose, given that the alpha value for these constructs was well over .700, especially for strategic and organizational barriers where the increase was minor. All the constructs except market pressure are therefore represented in their entirety, and we can conclude that the measurement scales used in the thesis are internally consistent and sufficiently reliable.

### 5.4 Analysis of drivers for SSCM

From the literature review, we have identified numerous drivers that are expected to influence the decision to adopt SSCM practices positively. The importance of each of the factors is measured in a Norwegian context, illustrated in Figure 6. The values on the bar chart indicate the importance of each factor based on the average importance from each respondent (0=not relevant, 1=not at all important, 2=slightly important, 3=important, 4=fairly important, 5=very important).

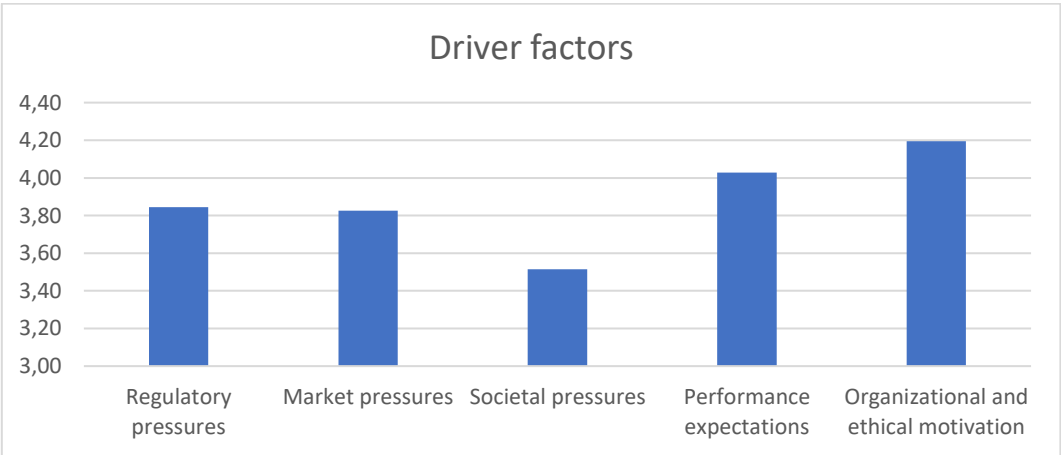


Figure 6: Average importance of the drivers

Figure 6 shows that all the factors are important for the adoption of SSCM practices. Ethical motivation is displayed as the most influential driver group, with a mean score of the importance of 4,19. Performance expectations, market factors, and regulatory pressure are also described as important drivers, all with a score above 3,8. Social pressure appears to be the least influential driver group. Nonetheless, it is still important with an average score of 3,51. Descriptive statistics for each of the factors (constructs) are presented in the following sections, which intends to explain how the importance of each factor is distributed at a more detailed level. The factors are presented according to the structure outlined in Sub-Chapter 3.2. In the graphical presentation of each factor, the questions are abbreviated and partly reformulated to increase the readability of the charts, and the questions can be studied in their entirety in Appendix 7.

### 5.4.1 Internal drivers of SSCM

The internal drivers consist of two higher-order constructs, namely, performance expectations and organizational and ethical pressure. These constructs are comprised of multiple variables, and we will in this sub-chapter examine the average importance that each variable has for the adoption of SSCM practices. The statistical data is presented in conjunction with relevant information and citations from the transcribed interview data. Subsequently, the same is done for the external drivers.

**Performance expectations**

Previous research emphasizes that performance expectations are a major driver of SSCM practices and that economic benefits and increased operational performance may be the main reason why many organizations choose to implement sustainability practices. Our findings reflect this as performance expectations are revealed to be the second most important driver, with an average score of 4,03. Performance expectations consist of two variables, presented in Figure 7 with their mean score of importance.

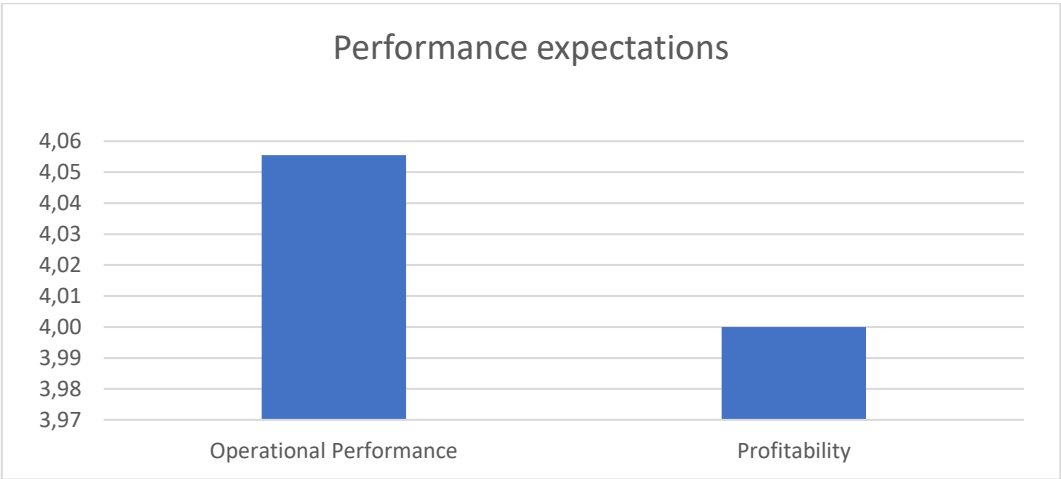


Figure 7: Performance expectations, presented in average

The transcribed data from the interviews gives a more comprehensive description of why organizations may perceive performance expectations as an essential driver. The informants emphasize that sustainability also includes an economic dimension and that it can be financially smart to work with sustainability.

*«We think it is healthy for our company`s economy to work with sustainable development today and be the one that is quick to implement good solutions”- Manufacturing*

The informants also highlight the importance of perceived performance benefits by indicating that sustainability and increased performance are closely linked.

*“It is financially smart to work with sustainability. It can be costly in a transition phase, but it can be economically profitable to work with sustainability in the long run. Sustainability also includes economy. Having a climate perspective means that you become more competitive and is able to drive innovation further.” – Manufacturing*

*«We are prepared for the fact that reaching the goals we have within sustainability will have a cost, but it will in many instances lead to cost reductions since we will actually use fewer resources or avoid penalty fees. So even though it will increase costs in the coming years, we are confident that it will be a huge cost reduction in the long-term. It will also ensure that we will remain competitive in the distant future.” – Retailer*

*“Some people say that you have to accept increased costs to be sustainable, that’s not completely true, because in many cases you actually have adjacency between or correlation between a sustainable solution and a good business solution”- Maritime*

### **Organizational and ethical motivation**

In our thesis, organizational and ethical motivation is revealed to be the most influential factor, with an average importance score of 4,19. This driver consists of two variables, where top management support and commitment are found to be substantially more important than employee motivation. The variables and their mean scores are illustrated in Figure 8.



Figure 8: Organizational and ethical motivation presented in average

The transcribed data from the interviews demonstrate the importance of commitment and support from top management and that this is often expressed through the organizations' strategy.

*«We have a highly competent management team that most definitively cares about sustainability, and sustainability is well-established at top management level. Of course, we experience expectations and demands from external sources, but we are under the impression that our own motivation and understanding of the importance of sustainability is what is going to drive us forward.»- Manufacturing*

*“Sustainability is a part of our social mission, and it is an important part of doing business, and top management is sending clear signals that we need more strategic goals related to this.”- Retailer*

Lastly, from the statistical data, it is evident that employee expectations and motivation are weaker drivers for SSCM. Nonetheless, the qualitative data indicates that employees can be very passionate about sustainability issues and therefore act as a relevant driver for some organizations.

*“A lot of people are very excited about changes related to sustainability, and they want to work on projects that are related to sustainable solutions.”- Oil and energy*

*“Employees want to have a job they are proud of, and we experience that young people who come to us for work are highly concerned about finding an employer that works with sustainability. The employees are generally much more concerned about sustainability now than they were 5 years ago.”- Retailer*

*«We have an app where the employees can share information, and almost daily we see that employees post examples of supplier that have breached our sustainability guidelines, so this is something that many of our employees are highly passionate about.»- Retailer*



## 5.4.2 External drivers to SSCM

The external drivers consist of three higher-order constructs: regulatory pressure, societal pressure, and market factors. These constructs are composed of multiple variables, and this sub-chapter examines the average importance that each variable has for the adoption of SSCM practices. The statistical data is presented in conjunction with relevant information and citations from the transcribed interview data.

### **Regulatory pressures**

Previous research has emphasized that regulatory pressure is a powerful driver for the adoption of sustainability practices. Our findings support this, which shows that regulatory pressure is the most important external driver and the third most important driver overall, with an average importance score of 3,83. The average importance for the five variables that constitute regulatory pressure is illustrated in Figure 9.

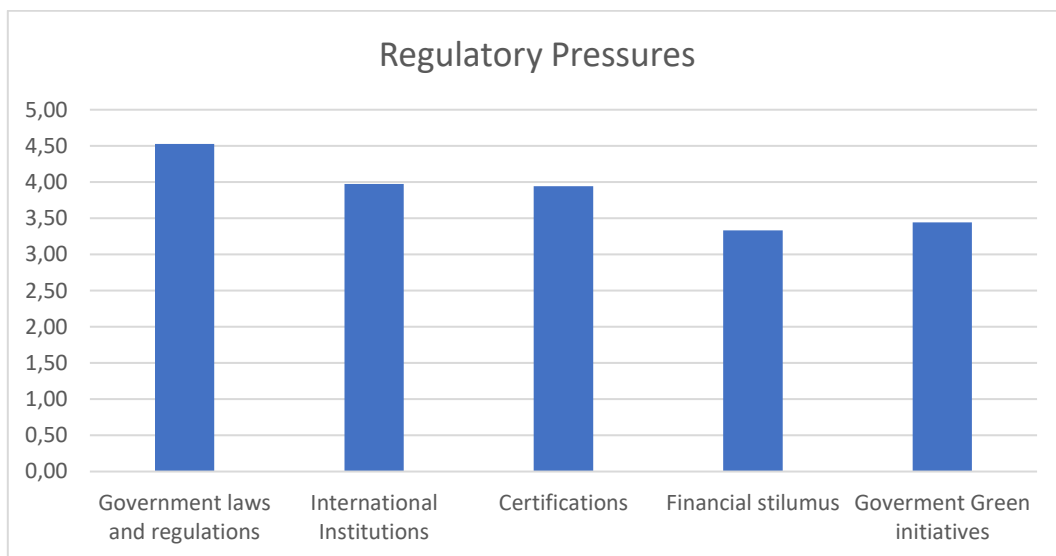


Figure 9: Regulatory pressure, presented in average

It is evident that regulations and legislation are major drivers for SSCM as all the informants emphasized that they are affected by this. The informants are generally positive towards regulations and legislation and emphasize their importance for the progression of sustainability initiatives.

*«All pressure we feel from the government is very positive because it encourages our competitors and us to implement changes.»- Retailer*

Furthermore, the informants emphasize that government and international regulations force everyone to comply with the same requirements and standards and implement the same changes. It is also indicated that financial incentives and government support can help drive SSCM implementation.

*«The government and EU currently have a tremendous focus on regulations and initiatives that are very important to us. The government has also given us tax reliefs that enable us to perform important changes. So, the government is doing a fantastic job in certain areas. And sometimes the government has to pave the way and put in place guidelines for the organizations, through policies, laws, and regulations.»- Oil and energy*

*«A lot of work is being done to develop regulations that we think are good and easy to follow. We are luckily ahead of some of these regulations, but they ensure that our competitors have to follow in our steps.»- Manufacturing*

*“Subsidies and tax reliefs have been critical for us to be able to change direction and for our new investments to be profitable. Eventually, we were able to produce enough volume, and the demand increased to where we don’t need subsidies. Just the fact that the government demands that everyone must have a plan towards zero-emission makes things happen. At the same time, it is incredibly important for us to have a dialog with the government so we can tell them when we need some help to implement this plan.”- Oil and energy*

The qualitative data shows that certifications can be an important factor in specific industries that affects SSCM implementation for some organizations.

*“One of the first things we look at when we are looking for new suppliers is if they have the necessary certifications. If they do, then we can start looking at the next step of the development to become truly environmentally friendly.”- Maritime*

### **Societal pressures**

Despite increased awareness around social and environmental issues, social pressure is revealed to be the least important driver, with a mean importance score of 3,51. The variables and their average importance is illustrated in Figure 10. Expectations from society have the highest score, while expectations from local organizations have the lowest score. These extremes represent an average importance of 3,14 and 4,06, respectively, which indicates a relatively small difference in importance between the variables that constitute social pressure.

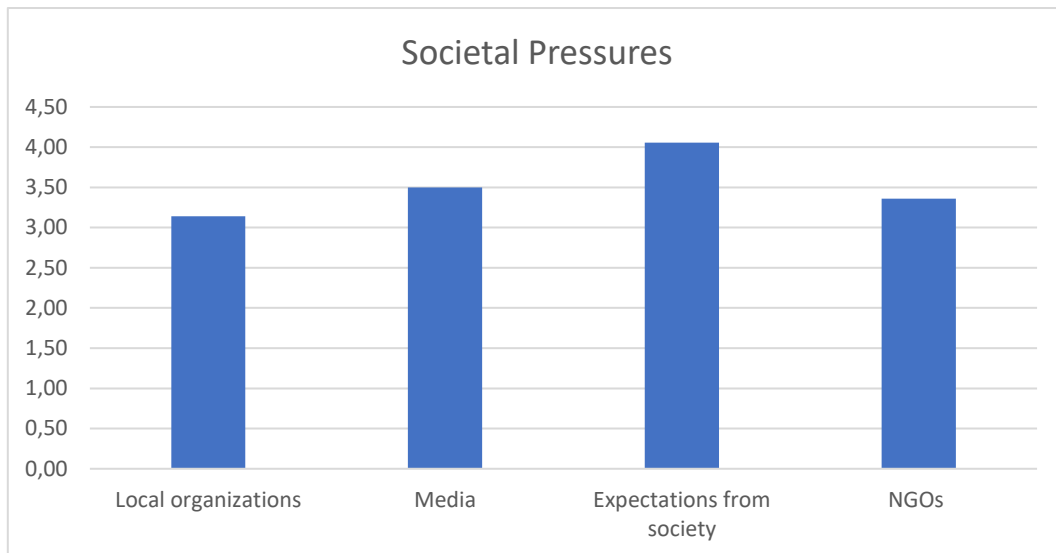


Figure 10: Societal pressure, presented in average

From the qualitative data, it is evident that there are differences in how different organizations experience societal pressure. Expectations placed upon the organization by society can, for some organizations be a powerful driver of SSCM practices.

*«The biggest influencer for us is the expectations that society places on us. We most definitely feel pressure from the society we live in, especially from the younger generation. We are concerned that the youth will not see us as a part of the solution. This pressure is more directed towards sustainability in the form of environment and human rights.»- Oil and energy*

Furthermore, the organizations indicate that they have varying experiences with media as a driver of sustainability. A few informants express that NGOs and media attention motivate them to adopt a more sustainable approach, while others express that media does not act as a driver for them.

*«There is no doubt that media affects us, of course, we want to avoid bad media attention. Some people are super concerned about sustainability, and they might investigate what our products are made of, how much resources they use, etc. There are some pretty strong consumer groups out there that can yell loudly and draw a lot of media attention, so these groups absolutely contribute to pushing the agenda forward.»- Retailer*

*«No, we actually do not feel any kind of pressure from media. However, we do feel pressure some certain smaller groups»- Retailer*

*“We do feel pressure from media, where things are seen from a critical perspective. We have been getting a beating from media and society, and rightfully so because we haven’t woken up in time.”- Oil and energy*

### Market pressures

Market pressures emerge as the thesis' second most important external driver, with an average importance score of 3,83. There is a large variance of importance for the variables that constitute market factors, ranging from 3,31 to 4,5. Competitors' engagement in sustainability initiatives is the least important value, while customer expectations are found to be the most important variable. An overview of the variables and their average importance is illustrated in Figure 11.

From Figure 11, we see that customers are the number one pressure group for the adoption of SSCM practices. Similarly, the qualitative data also highlights the importance of customer expectations, and the informants point out that customers have a great deal of influence over them and perceive sustainability as an important topic for many customers.

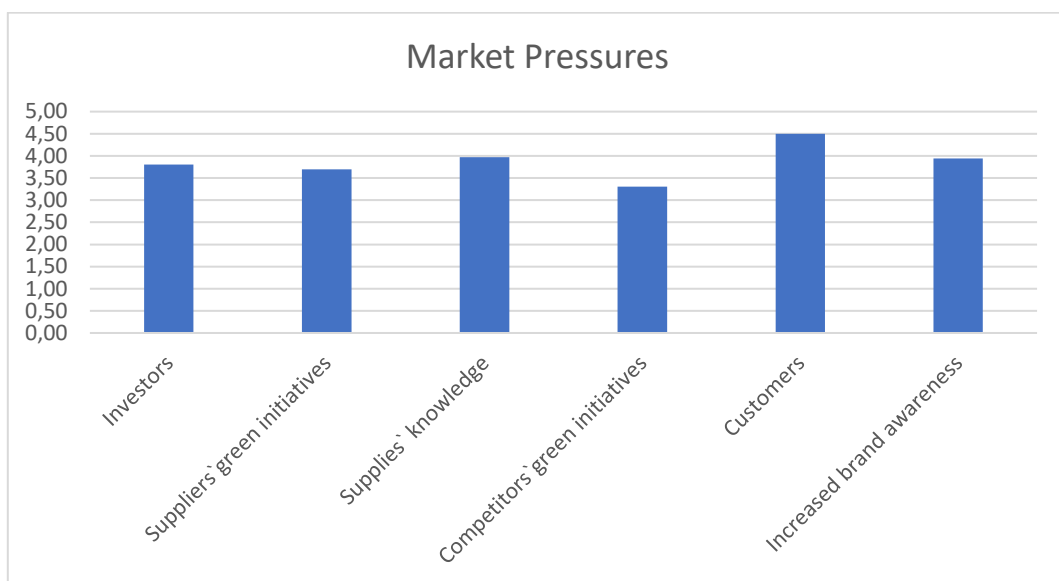


Figure 11: Market pressure, presented in average

*“We have a tremendous amount of faith in our customers, and we see that they are highly concerned about sustainability. The feedback from our customers are pretty clear on this subject.”- Retailer*

*“It is an ever-increasing pressure from buyer groups for us to be able to document and prove that we have a sustainable approach.”- Manufacturing company*

*«Our environmental work and focus on sustainable supply chain management are continually increasing, and we can see that this is important to the consumers. We perceive that the focus on sustainability has been gradually increasing every year over the last 5 years or so.”- Retailer*

Furthermore, it is indicated that sustainability is especially important for customers in the corporate market.

*“In the business-to-business market, you will not be able to sell your goods if you are unable to document the environmental performance, which means that it has a direct commercial effect on the market.”- Retailer*

The transcribed data indicates that competitors can act as a driver of SSCM in some industries, and different organizations may assess competitors' engagement in sustainability initiatives differently. On the other hand, others are not affected by sustainability practices initiated by competitors.

*«Competitors give us some goals and targets that we can benchmark against, and it gives us something to reach for.”- Retailer*

*«We feel like we are far ahead of our competitors on most areas related to sustainability and is therefore not too concerned about what they are doing, so competitors are not a significant driver for us.”- Manufacturing*

The transcribed data indicates that suppliers are gradually becoming a more prominent driver for SSCM implementation. Several informants expressed that suppliers are constantly getting more informed and knowledgeable about SSCM and that they are increasingly advocating more and more for the implementation of SSCM practices.

*«We experience that many suppliers are now really paving the way, and they state that they want to progress sustainability within the industry.”- Retailer*

*«We have now established a strategy, which we have started to implement, and we do generally notice that our suppliers are also more concerned about sustainability. They are taking action, and we see that they have more sustainable practices related to how they manufacture and deliver their products.”- Retailer*

A majority of the informants also emphasize collaboration between suppliers and other supply chain partners as an important element to the implementation of SSCM practices, and that increased interest and knowledge among actors has made collaboration more feasible.

*«We have noticed that suppliers are becoming more concerned and informed about sustainability. They no longer need to be convinced that this an important subject, which makes it easier to cooperate about these initiatives now.”- Oil and energy*

*«We now experience that our suppliers have discovered the same as we have, that they have to inform the younger generation, financial market, and all the actors around us that they are serious about this. So, when we meet with our supplier today, we speak the same language.”- Oil and energy*

Lastly, the importance of investors is also indicated by the transcribed interview data. Some informants express that investors are increasingly concerned about sustainability and that sustainability performance influences their investment decisions in some instances.

*«We have noticed that investors are increasingly asking questions that are directed towards sustainability. The finance market has really woken up, and there is an entirely different focus on environmental, social, and governance now. The investors now realize that it is important for them to have a renewable energy portfolio.»- Oil and energy*

*“You now have investors that will use sustainability as a criterion in their decision-making process.”- Maritime*

### 5.5 Analysis of barriers to SSCM

From the literature review, we have identified numerous barriers that are expected to influence the decision to adopt SSCM practices negatively. The importance of each of the barriers is measured in a Norwegian context, illustrated in Figure 12. The values on the bar chart indicate the importance of each factor based on the average from each respondent (0=not relevant, 1=not at all important, 2=slightly important, 3=important, 4=fairly important, 5=very important).

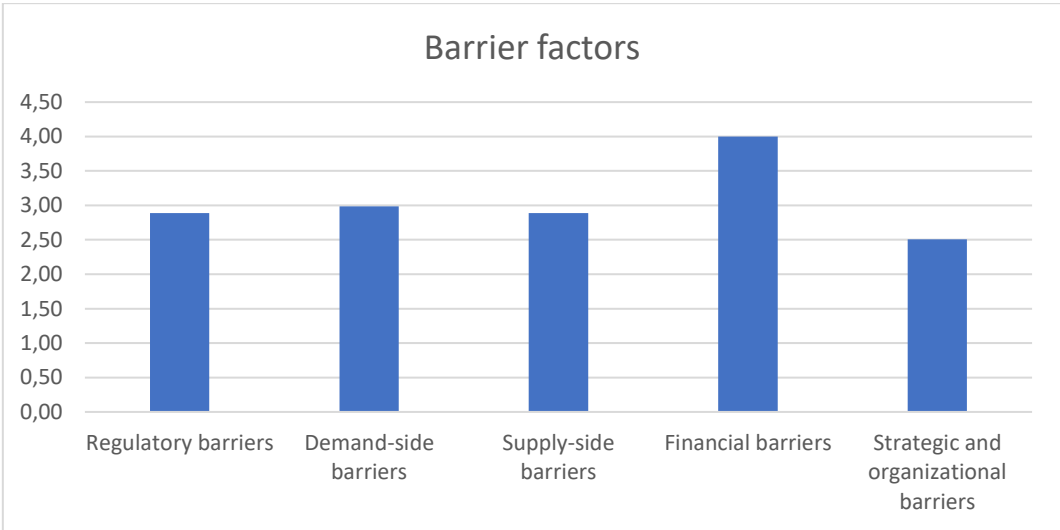


Figure 12: Importance of the barriers, presented in average

Figure 12 shows that all the factors have some degree of importance for the adoption of SSCM practices. Financial barriers are revealed to be the most influential barrier category, with a score of 4,0. Strategic and structural barriers are portrayed as the least important barrier, with an average score of 2,51. Overall, the remaining three barrier groups are rated relatively equally, with an average score of about 2,9. Descriptive statistics for each of the factors (constructs) are presented in the following sections, which intends to explain how the importance of each factor is distributed at a more detailed

level. For the graphical presentation of each factor, the questions are abbreviated and partly reformulated to increase the readability of the charts, and the questions can be studied in their entirety in Appendix 7.

### 5.5.1 Internal barriers to SSCM

Internal barriers consist of two higher-order constructs, namely, financial barriers and organizational restrictions. These constructs are composed of multiple variables, and this sub-chapter examines the average importance that each variable has for adopting SSCM practices. The statistical data is presented in conjunction with relevant information and citations from the transcribed interview data.

#### **Financial barriers**

Prior studies have shown that increased costs are a major barrier to the adoption of SSCM practices. This is reflected by our findings, where financial barriers are identified as the biggest obstacle. This barrier group has an average importance score of 4, making it the most important limitation by a rather large margin. Comparatively, the second most important barrier group is demand-side barriers, with a score of 2,99. Financial barriers consist of two variables, the cost of implementation and the cost of products/materials. The two variables have an equal mean score of importance, presented in Figure 13.

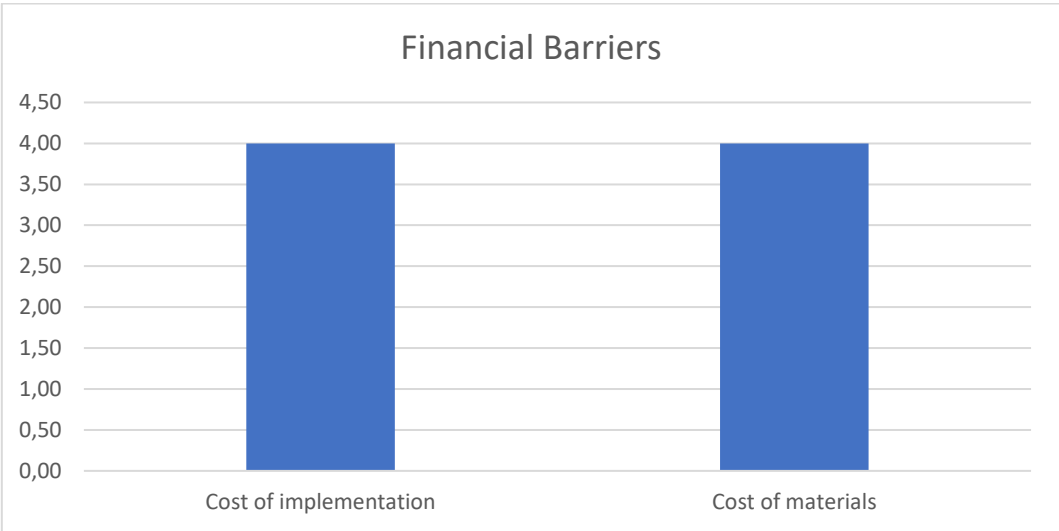


Figure 13: Financial barriers, presented in average

During the interviews, the informants emphasized that implementing sustainability practices often leads to increased costs.

*«We cannot always produce a product in the most environmentally friendly way possible since it will often lead to higher costs because it is often more expensive to use recyclable materials.» - Retailer*

The informants also emphasize the importance of economic sustainability. It is highlighted that investing in sustainability initiatives must be profitable and that increased costs are not inconsequential just because something is linked to sustainability.

*“We cannot use unlimited amounts of money because something is related to sustainability, it still has to be healthy and thoughtful investments.” - Retailer*

*“Many of the things that we can do today to become greener costs money. It requires time, money, and effort to invest in the latest technology, and such investments are not justifiable from a financial standpoint in some cases. We cannot spend significantly more money than our competition to save the planet” - Oil and Energy*

**Strategic and organizational barriers**

Previous research suggests that numerous aspects of strategy and organizational factors influence organizations' decisions to adopt SSCM practices. The empirical data shows a rather large spread in importance for the variables that constitute strategic and organizational barriers. Combined, this barrier group is considered as the least influential, with an average importance score of 2,51. However, some variables are ranked significantly higher than that. The variables that constitute the construct strategic and organizational barriers are illustrated in Figure 14 with their mean importance score.



Figure 14: Strategic and organizational barriers, presented in average

As we can see from the bar chart, the importance of the variables varies from 2,11 to 3,28, where negative attitude and misconceptions are the least important variable, and capacity is the most important variable. The informants from the interviews indicated that top management might be hesitant to commit to sustainability initiatives since it will often require a longer-term approach.



*“Sustainability requires a great deal of patience, and it can be difficult to work with the necessary mindset in a results-oriented company.” - Retailer*

*“What hinders many corporations from taking the necessary actions is that many of the actions that are required to operate in a more sustainable way dictate that you have to abdicate short-term profit for a long-term advantage. That is something that can be difficult for top management to commit to and communicate to the owners and investors.” - Manufacturing*

Furthermore, a few of the informants indicated that change could create friction among employees and that a lack of motivation among employees makes it challenging to implement the necessary measures. Additionally, the qualitative data indicates that there is a lack of incentive systems aimed towards increasing employee motivation for to the adoption SSCM practices.

*“People sometimes need to be convinced that this is the right path for the future. And in some instances, the employees feel like we are turning our back on them when we implement changes that affect them and force them to change with us. This is something that we struggle with, getting people to contribute to new areas.” - Oil and Energy*

*«We do not use incentives towards employees to increase sustainability as it is challenging to develop concrete and quantifiable goals related to sustainability performance.” - Retailer*

From the interview data, it is also indicated that the size and structure of the organization increase complexity and bureaucracy, which makes it challenging to implement sustainability practices.

*“We are a rather large organization with quite a few employees globally, this means that we cannot meet the consumers' expectations immediately. It takes time for us to adjust to the consumers' needs and expectations, and cooperating with various actors and governments across many countries to find the right solutions is extremely challenging” - Retailer*

The qualitative data demonstrates the importance of information and knowledge. All the informants emphasize that a lack of information and knowledge makes it challenging for them to determine the appropriate measures to ensure a sustainable operation. The qualitative data generally suggests that many struggles to determine what the long-term effects of specific measures are going to be.

*«Sustainability is a very abstract concept, and it requires a great deal of competence to determine which measures that are actually effective. I think we would benefit from better competence to be able to think critically around which practices that are really going to make a difference and then focus on them.” - Retailer*

*“Something that makes environmental issues challenging is that it is very difficult to formulate concrete goals and document what we are doing or not doing. It is hard to find answers that are good enough to make the well-informed and correct decisions.” - Manufacturing*

Lastly, informants also expressed that a lack of information and knowledge, and capacity hinders them from implementing certain sustainability practices and reaching their sustainability goals.

*“We have ambitious goals within sustainability, but we do not currently have all the tools that are needed to reach them.” - Retailer*

*“We definitely do not have all the necessary knowledge, and there is a lot of trial and error.” - Manufacturing*

### 5.5.2 External barriers to SSCM

The external barriers consist of three higher-order constructs, namely, demand-side, supply-side, and regulatory barriers. These constructs are comprised of multiple variables, this sub-chapter examines the average importance that each variable has for the adoption of SSCM practices. The statistical data is presented in conjunction with relevant information and citations from the transcribed interview data.

#### **Demand-side barriers**

Previous research highlights that challenges associated with demand-side constraints are a major external barrier that affects the decision to adopt SSCM practices. Our findings support this, as demand-side barriers are revealed to be the most influential external barrier group with an average importance of 2,99. Figure 15 shows the variables that make up the construct demand-side barriers and the mean score of importance for each variable.

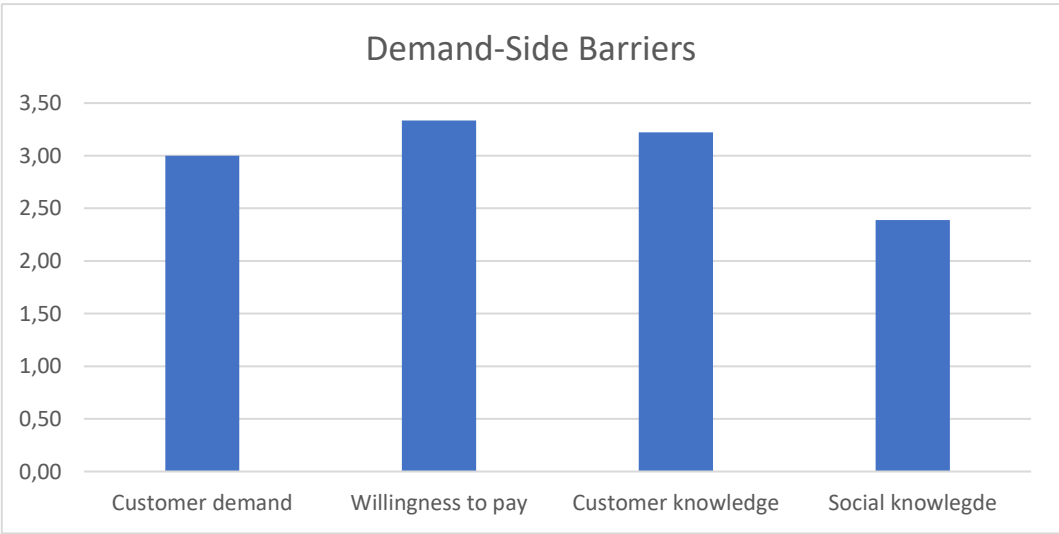


Figure 15: Demand-side barriers, presented in average

The qualitative data provides a more detailed description of potential factors that impose demand-side constraints. This barrier group includes customer demand, customers' willingness to share sustainability costs, customer knowledge about sustainability, and society's knowledge and awareness regarding sustainability issues. The information gathered from the interview's highlights that the interest and demand for sustainable products are, to an extent limited.

*«We feel like the demand is not quite there, but that people tend to choose environmentally friendly products when they are made aware of it. So, it is largely up to us to take responsibility and act, we cannot wait for the customers to make demands because they often don't know what they want in these instances.» – Retailer*

*“It is estimated that about 10-15% of consumers actively choose the most sustainable solutions, and then maybe 10-15% are actively avoiding sustainable solutions, while most people are kind of in the middle. Most of us are somewhat concerned about these issues and makes sustainable choices when it is also is the most appropriate, most attractive, and most economically smart choice.”- Retailer*

The transcribed data from the interviews also reveal that customers are concerned about price and that not all customers are willing to pay extra for an environmentally friendly option. The informants here emphasize that it is hard to justify an increase in costs based solely on environmental benefits.

*«Based on our experience, customers are not willing to choose a more expensive option over a cheaper alternative just because the expensive option is more environmentally friendly.» - Retailer*

Lastly, the qualitative data indicate that a lack of knowledge and misconceptions about sustainability in society can deter organizations from implementing certain SSCM practices.

*“We have implemented an incredible number of measures, but we are afraid to publicly announce some of them. We have seen that when someone announces something positive, then there is always someone who is there to try to nail them for something negative, and this is a major challenge for larger companies. In our opinion, the greenwashing accusations have gone way too far.”- Retailer*

### **Supply-side barriers**

Supply-side barriers include three obstacles, suppliers' interest in sustainability initiatives, knowledge about sustainability, and supplier's willingness to collaborate on SSCM initiatives. This barrier group appears to be the second most influential external barrier group for the potential organizations, with a combined average of 2,86. Supplier's degree of sustainability knowledge is here considered to be the most influential variable. Figure 16 illustrates the variables that constitute supply-side barriers and the mean score of importance for each variable.

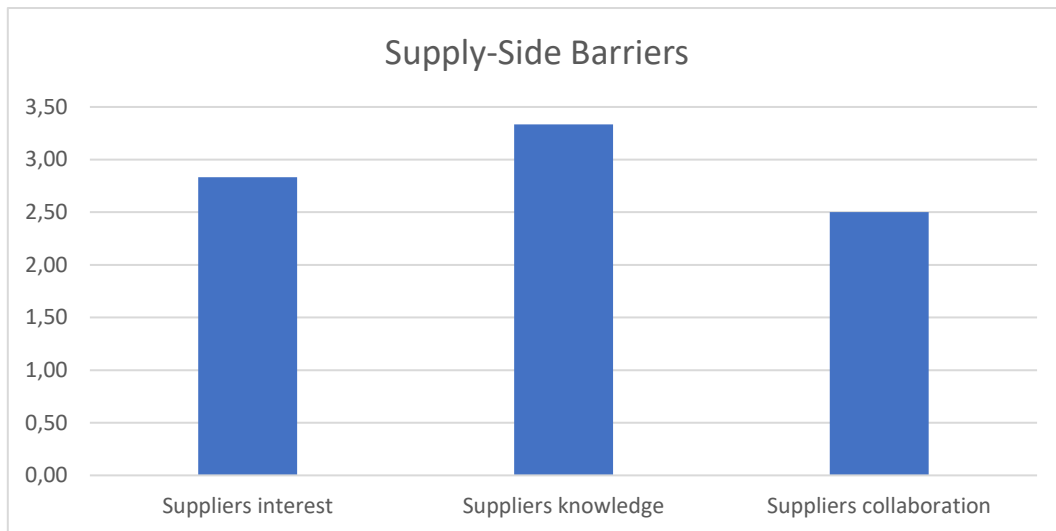


Figure 16: Supply-side barriers, presented in average

The information gathered from the interview's highlights that the level of knowledge and interest in SSCM initiatives varies between suppliers and that it can be challenging to find suppliers that meet their expectations.

*«We have some suppliers that are very good in this regard and some that are not quite that good. There are varying degrees of knowledge among our suppliers. Many may see it as a government-imposed requirement and another cost, they see it from a cost perspective» - Retailer*

*“Far from all the suppliers have had their awakening, and it can be challenging to locate suppliers that are capable, willing, and have the same culture as us.” - Offshore*

*“The ambition level varies a great deal from supplier to supplier, but I would say that most are aware of it. The competency level is way too low in the Norwegian retail industry, and the approaches are very varied. We need a significant increase in competency all around.”- Retailer*

Furthermore, it is emphasized that collaboration in the supply chain is limited and that it can be difficult to cooperate and share information regarding sustainability initiatives, often due to a lack of a shared understanding of what sustainability is. Informants also point out that it can be challenging to quantify concrete goals for sustainability.

*“Collaboration is limited, and we have some common organizations that work to develop standards and tries to bring the organizations of the industry to a shared understanding wherever possible.” - Oil and energy*

*“One of the reasons for why we insource much of our production is because it is extremely difficult to convince other actors to commit to an offensive environmental strategy.”- Manufacturing*

«If we are going to eliminate the major challenges, we need to improve our cooperation ability. We have already improved on this area, but it will become even more important in the future, and we need to do better.”- Retailer

“I think, the first thing that is a bit confusing for people in the different terms, because one minute we would we say CSR, the next minute you say is ESG, the next minute we say sustainability, or we use another term.” - Maritime

“Terms like triple bottom line are tricky. It sounds nice, but it is very hard to quantify. You aren’t talking about an actual bottom line because the only dimension that is reflected by the actual bottom line is profit, while the other dimensions will not be reflected in the annual report.” – Manufacturing

**Regulatory barriers**

Regulatory barriers are found to be of equal importance to supply-side barriers, with a mean score of the importance of 2,89. This barrier group consists of two variables, namely, ineffective, or inadequate regulations, and a lack of government support or interest. The two variables and their average importance is illustrated in Figure 17.

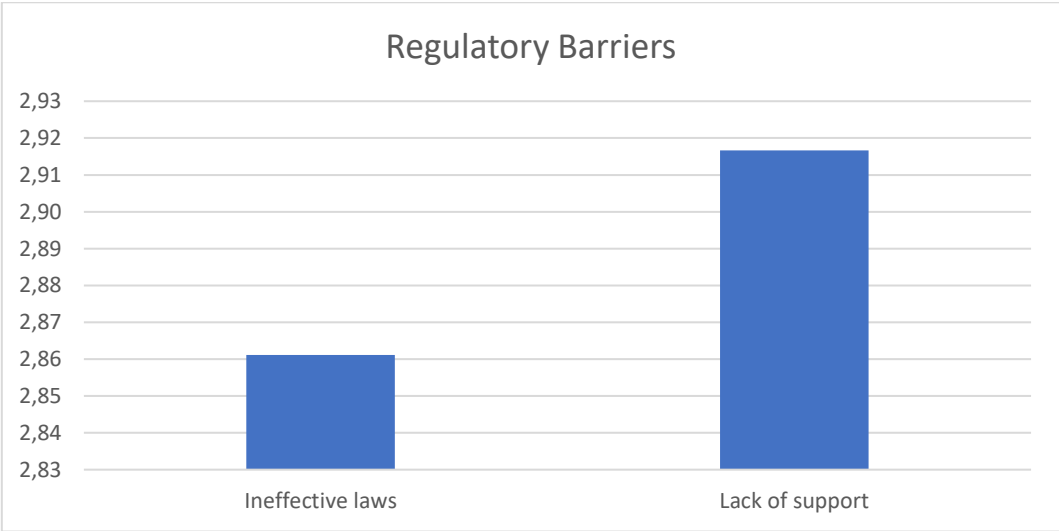


Figure 17: Regulatory barriers, presented in average

The data from the interviews indicates that a lack of regulations can limit the progress being made concerning sustainability initiatives. It is also clear from the discussions that differences in regulations between countries make it challenging to implement sustainability practices in a global supply chain.

“We would make it extremely hard for ourselves if we were to be the good guy and go above and beyond everybody else to implement green initiatives. We, therefore, need regulations that force everybody to implement the same initiatives to avoid penalty fees, that is when we can really make a difference. It is a lack of such regulations that have hindered us from taking the big leaps.” - Oil and energy

*“Different regulations and legislations between governments creates problems for international trade, we therefore prefer that regulations and legislations are kept at an international level such as the EU.”*

*- Retailer*

*“If each government is doing things differently, then just focusing on Norway does not help me because we got supplies in Poland, China, central Europe. So, government concerns are great, but they need to be aligned.” - Maritime*

Furthermore, the response from the interviews indicates that some regulations may be difficult to understand and interpret correctly.

*“Some regulations can be difficult to understand, and it can be difficult to derive what the solution is going to be when it comes to certain new regulations.” - Manufacturing*

## 5.6 Correlation

Pearson correlation coefficient (Pearson’s r) was used to examine the correlation between the factors influencing organizations’ decision to adopt SSCM practices. The correlations are split into two tables and presented at a construct level. The correlation analysis for the driver constructs is presented in Table 8, while the analysis for the barrier constructs is presented in Table 9.

	1	2	3	4	5	6	7
1. Regulatory pressures	1						
2. Market pressures	,348*	1					
3. Societal pressures	,424*	,533**	1				
4. Performance expectations	,321	,491**	,447**	1			
5. Organizational and ethical motivation	,252	,567**	,712**	,691**	1		
6. External drivers	,749**	,825**	,788**	,534**	,632**	1	
7. Internal drivers	,317	,569**	,609**	,941**	,894**	,625**	1
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							

Table 8: Correlation matrix - Driver constructs

Table 8 shows that correlations are significant at the 0.01 level for several of the constructs. The correlations coefficients shows that regulatory pressures correlates positively with market pressures ( $r = .348$ ,  $p = .038$ ) and societal pressures ( $r = .424$ ,  $p = .010$ ). Market pressures and societal pressures correlate positively with all the driver constructs, indicating that these drivers help facilitate all types of pressure. There is a strong correlation between societal pressures and ethical motivation ( $r = .712$ ,  $p = .000$ ), suggesting that increased social pressure leads to increased ethical motivation. Both performance expectations and ethical motivation positively correlate with all the driver constructs, except regulatory pressures. There is a high degree of correlation between performance expectations and ethical motivation ( $r = .691$ ,  $p = .000$ ), which indicates that increased performance expectations are

important for increased ethical motivation. Furthermore, there is a strong correlation between external (Regulatory pressures, market pressures, and societal pressures) and internal (Performance expectations and organizational and ethical motivation) drivers ( $r = .625, p = .000$ ). The correlation analysis for the barriers constructs is presented in Table 9 below.

	1	2	3	4	5	6	7
1. Regulatory barriers	1						
2. Demand-side barriers	,641**	1					
3. Supply-side barriers	,405*	,599**	1				
4. Financial barriers	,187	,192	,043	1			
5. Strategic and organizational barriers	,496**	,637**	,599**	,246	1		
6. External barriers	,785**	,941**	,763**	,178	,691**	1	
7. Internal barriers	,500**	,633**	,568**	,425**	,982**	,680**	1
* . Correlation is significant at the 0.05 level (2-tailed).							
** . Correlation is significant at the 0.01 level (2-tailed).							

Table 9: Correlation matrix - Barrier constructs

Table 9 shows that all the barrier constructs appear to correlate with each other, except for financial barriers, which do not significantly correlate with any constructs. Several of these correlations are strong, where the two highest correlations are between regulatory barriers and demand-side barriers ( $r = .641, p = .000$ ), and between demand-side barriers and organizational barriers ( $r = .637, p = .000$ ). Lastly, there is a strong correlation between external (regulatory, demand-side, and supply-side) and internal (financial and organizational) barriers ( $r = .680, p = .000$ ). The correlations will be further discussed in Chapter 6, where we discuss our empirical findings and compare them to the literature presented in Chapter 3.

### 5.7 Summary of analysis

A summary of the identified factors that have been analyzed throughout this chapter is presented in Table 10 (next page), we distinguish between drivers and barriers based on their expected effect on SSCM decisions. The influencing factors in Table 10 are ranked based on their average importance, providing an overview of how organizations perceive the importance of the factors concerning the adoption of SSCM practices.

Ranking	Driver	Average importance	Barrier	Average importance
1	Government regulations	4,53	Cost of implementation	4,00
2	Customer expectations	4,50	Cost of materials	4,00
3	Top management	4,47	Higher cost for customers	3,33
4	Expectations from society	4,06	Lack of supplier knowledge	3,33
5	Increased performance	4,06	Lack of capacity	3,28
6	Increased profitability	4,00	Lack of customer knowledge	3,22
7	Supplier initiatives	3,97	Lack of knowledge and training	3,14
8	International institutions	3,97	Lack of customer demand	3,00
9	Certifications	3,94	Lack of government support	2,92
10	Brand awareness	3,94	Inadequate regulations	2,86
11	Employee motivation	3,92	Lack of supplier interest	2,83
12	Investors	3,81	Bureaucracy	2,50
13	Support from suppliers	3,69	Limited collaboration	2,50
14	Media pressure	3,50	Limited top management support	2,42
15	Government initiatives	3,44	Lack of social awareness	2,39
16	NGOs	3,36	Lack of employee motivation	2,39
17	Financial incentives	3,33	Lack of incentives/reward systems	2,28
18	Competitors	3,31	Strategic conflicts	2,11
19	Local organizations	3,14	Negative misconceptions	1,94

*Table 10: Ranking influencing factors*

Table 10 show that all the factors influence the decision to adopt SSCM practices to some degree, which is consistent with the overall body of literature. The drivers displayed in Table 10 have in previous research been proven to positively influence SSCM practices, while the barriers have been proven to influence SSCM practices negatively. We have throughout this chapter analyzed numerous factors that are expected to either positively or negatively affect the decision to adopt SSCM practices. We will in the next chapter discuss our empirical findings and compare them to the literature presented in Chapter 3.



## 6. Discussion

In the previous chapter, which addressed the empirical findings, numerous factors that influence the decision to adopt SSCM practices were identified. This chapter will review and discuss the empirical data in relation to the thesis' research question and previous research. The objective is to highlight which factors are confirmed or partly confirmed, refuted, or not addressed in previous research. However, it is worth mentioning that the selected variables and their degree of importance in the decision to implement SSCM practices are measured implicitly. The discussion in this chapter is therefore based on the variables' average importance. The chapter is structured according to the drivers and barriers as they are presented in Chapters 3.2 and 3.3, respectively.

### 6.1 Internal drivers for SSCM

Previous research has revealed that several internal forces can motivate organizations to engage in SSCM initiatives. These forces can generally be categorized as either performance expectations or organizational and ethical motivation. In this sub-chapter, we will examine the importance these internal factors have for adopting SSCM practices.

#### ***Performance expectations***

Expectations related to increased operational and economic performance are often described as the most influential driver for SSCM practices. For example, Sajjad et al. (2020) revealed that economic and operational benefits are the main reason for integrating sustainability practices for many organizations. This is supported by our empirical findings, which show that this driver group constitutes the thesis' second most important driver for SSCM practices. Benefits related to operational performance emerge as the thesis' second most important driver for adopting sustainability practices. It is therefore suggested that sustainability initiatives are perceived to lead to increased operational performance.

In the literature, performance and competitive advantage are closely linked to reputation and brand recognition. Alzawawi (2014) and Sajjad et al. (2015) claims that companies use sustainability practices to manage risk regarding reputation and brand awareness. This is supported by Chkanikova and Mont (2015), who showed that SSCM could strengthen organizations' reputation and brand awareness, and thereby improve performance. This is consistent with our empirical findings. Based on the thesis' interview data and the questionnaire's open-ended questions, the respondents perceive their reputation to be closely linked to their sustainability strategy. According to the informants, it is becoming increasingly important to communicate the organization's sustainability strategy to the external environment, especially consumers. Furthermore, brand awareness appears to be a strong

external driver of SSCM, which will be discussed in more detail in Sub-Chapter 6.2. Hence, it is suggested that sustainability and reputation are closely linked and perceived as important elements for increased performance. Sajjad et al. (2020) claim that risk associated with sustainability is no longer an intraorganizational issue but rather a supply chain issue. Therefore, it is likely that sustainability practices aimed at improving reputation and mitigate risks related to sustainability must be implemented throughout the entire supply chain to maximize their effect.

Several studies have shown that economic benefits are a major driver of SSCM practices, e.g., Walker et al. (2008) and Alzawawi (2014). Our empirical findings support this. The empirical data shows that expectations related to increased profitability are a major driver for SSCM practices. The importance of economy as an important dimension of sustainability is also highlighted in the interviews. Moreover, it is evident that the respondents are convinced that SSCM practices will yield economic benefits in many instances.

Performance expectations appear to have a strong correlation with all the identified drivers, except regulatory pressure. Therefore, it is suggested that market and social pressure for sustainable products and solutions is a key driver for performance expectations related to SSCM practices. This is highly plausible since market and social pressure encompasses market demand, and performance and profitability are directly linked to market demand. The results also suggest that organizational and ethical motivation is dependent on performance expectations, or vice versa. It is plausible that performance expectations are influenced by organizational and ethical factors such as top management commitment and employee motivation. However, based on prior research it is more likely that intrinsic motivation and top management commitment are dependent on performance expectations. Saeed and Kersten (2019) suggested that SSCM becomes a priority when top management is convinced of future benefits.

### ***Organizational and Ethical motivation***

Top management commitment and support are revealed to be the thesis' number one driver of SSCM practices. These results are consistent with the overall body of literature on SSCM. Kausar et al. (2017) found that top management plays a crucial role in adopting SSCM practices. Numerous researchers have also identified top management commitment and support as a key driver of SSCM practices, e.g., Somsuk and Laosirihongthong (2017) and Narimissa et al. (2019). These results are also reflected in the interviews. It is evident that the informants perceive moral and corporate responsibility as important aspects when SSCM practices are considered. Several informants point out that sustainability is well-established through top management, and intrinsic motivation and top management commitment are portrayed as strong drivers of SSCM practices.

The literature also indicates that sustainability performance is closely related to the organizations' strategy. Previous research has identified two main approaches to sustainability, namely, a proactive or reactive strategy. Organizations with a proactive strategy are generally saturated with a culture that values sustainability and sustainability activities are initiated on their own accord. On the other hand, organizations with a reactive strategy are driven by a need to comply with regulations and legislation (Abdul-Rashid et al., 2017). Oelze (2017) found that incorporating sustainability issues in the corporate strategy positively affects SSCM implementation. Furthermore, Saeed et al. (2017) claim that internal support is likely needed to realize any operational and economic benefits associated with SSCM. A proactive approach to sustainability issues is therefore associated with better SSCM performance. This is consistent with the qualitative findings, which indicate that the integration of sustainability as a key aspect of the organization's strategy positively affects SSCM performance.

Saeed and Kersten (2019) stated that achieving a truly sustainable supply chain requires that all supply chain partners work together to achieve overall strategic sustainability goals while fulfilling customer and other stakeholders' requirements. The importance of alignment between the organization and its supply chain has been emphasized by Mastos and Gotzamani (2018), who identified information sharing and collaboration as enablers for the development of SSCM practices. Likewise, our qualitative findings suggest that collaboration between supply chain partners is important to facilitate for the progression of sustainability practices within supply chains.

The findings show that employee expectations and motivation to improve sustainability performance is an important driver for SSCM. This is consistent with the findings of Walker et al. (2008) and Saeed and Kersten (2019). Walker et al. (2008) claim that employee involvement positively influences SSCM performance. Saeed and Kersten (2019) found that employees can pressure organizations to undertake sustainability to improve the organization's sustainability performance. The interviews also support this. The informants expressed that they perceive most employees to be aware and concerned about sustainability issues. Moreover, the qualitative data highlights the importance of sustainability performance for recruitment of new employees. In relation to this the informants express that new job seekers are perceived as increasingly more concerned about the organization's sustainability performance. Thus, employee expectations and motivation appear to be an important driver for the adoption of SSCM practices.

Top management can also affect the degree of employee motivation and commitment by implementing incentives or reward systems aimed at improving sustainability performance (Kausar et al., 2017). However, our qualitative findings indicate that this is not widely used among Norwegian organizations. The limited use of incentive systems aimed towards sustainability in Norwegian

organizations could be partly attributed to difficulties related to goal setting. Several informants express that it can be difficult to develop concrete and quantifiable goals for sustainability, making it challenging to implement incentive systems aimed towards improving sustainability.

Abdul-Rashid et al. (2017) has clarified that organizations' sustainability approach is largely dependent on organizational culture. Culture and legacy are also highlighted as potential drivers of SSCM. Furthermore, Walker et al. (2008) clarified that organizations' sustainability approach is largely dependent on organizational culture. In the qualitative findings, culture and legacy are also highlighted as potential drivers of SSCM. Furthermore, Walker et al. (2008) and Abdul-Rashid et al. (2017) point out that top management plays an important role in forming the culture and ethical values of the entire organization. Kausar et al. (2017) has also highlighted that top management can directly affect employee motivation. On the other hand, the empirical findings of this thesis demonstrate that employee expectations and motivation can influence top management commitment towards SSCM.

Moktadir, Rahman, et al. (2018) claim that top management as a driver for sustainability practices is more complex for small-scale companies compared to large-scale companies. Our findings do not support this. The empirical findings show that bureaucracy is expected to impact the adoption of SSCM practices negatively. However, the qualitative results suggest that bureaucracy tends to increase in large-scale organizations. A possible explanation for this could be that Norwegian organizations generally have relatively flat structure when compared to organizations located in other parts of the world. Nevertheless, the organizational structure tends to become more hierarchical when the size of the organization increases. Another aspect that should be considered is that what is considered large-scale by Norwegian standards may be defined as relatively medium-scale in many parts of the world.

The correlation analysis shows that there is a strong relationship between external and internal drivers. It is therefore likely that organizations' internal drivers are partly dependent on the external pressure they experience. Organizational and ethical motivation appears to strongly correlate with all the external drivers, except regulatory pressure. Therefore, it is likely that market demand and social expectations strongly influence top management's motivation to pursue sustainability practices.

## 6.2 External drivers for SSCM

Previous research has revealed that several external forces can pressure organizations to engage in SSCM initiatives. These forces can generally be categorized as regulatory, societal, or market pressures. This sub-chapter examines the importance that these external factors have for the adoption of SSCM practices.

### ***Regulatory pressures***

Our findings indicate that several aspects of regulatory pressure are important for organizations to adopt SSCM practices. Emamisaleh and Rahmani (2017) and Sajjad et al. (2015) found that regulatory pressure significantly affects organizations' decisions related to sustainability. Our findings support this as regulatory pressure emerges as the thesis' most important external driver of SSCM practices.

According to the thesis' empirical data, government regulations and legislation are the number one driver of SSCM practices. Both the quantitative and qualitative data demonstrate that government regulations and legislation greatly influence the participants' approach to SSCM, which is consistent with numerous studies. Emamisaleh and Rahmani (2017) and Sajjad et al. (2015) concluded that regulations and legislation are strong drivers for adopting SSCM practices. Moreover, Somsuk and Laosirihongthong (2017) also identified government regulations as the number one external driver, and described them as an essential driver of SSCM practices. The findings also show that international institutions are an important driver of SSCM practices. International organizations such as FN and EU are identified as essential drivers towards sustainability. The qualitative data indicates that the participants prefer sustainability regulations at an international level since it helps limit differences in global supply chains.

In the literature, it is often distinguished between a reactive and proactive approach towards regulations. Somsuk and Laosirihongthong (2017) suggested that firms should approach sustainability proactively and view regulations as potential opportunities. Organizations that have a reactive approach to regulations will on the other hand be driven by compliance to regulations (Walker et al., 2008). The qualitative findings indicate that most of the participants have a proactive strategy towards regulations and are for the most perceived to have a positive mindset towards sustainability regulations (Walker et al., 2008). The qualitative findings indicate that most of the participants have a proactive strategy towards regulations and are for the most part perceived to have a positive mindset towards sustainability regulations. However, the interviews indicate differences between sectors when it comes to proactive and reactive perspectives.

The qualitative data indicate that regulations are important to ensure that everyone within a given industry is forced to comply with a bare minimum of sustainability standards. Emamisaleh and Rahmani (2017) and Sajjad et al. (2015) has emphasized that failure to fulfill regulations and laws can result in fines or legal penalties and harm financial and social performance. Some of the informants also point this out. They express that the risk of being put at an economic disadvantage through fines and penalties motivates them to implement sustainability practices. The qualitative findings also indicate that the threat of economic sanctions is important to ensure that those who choose to focus

on sustainability are not put at a competitive disadvantage but rather “rewarded” compared to those who do not choose to focus on sustainability.

Based on the empirical data, government support and financial incentives emerge as minor drivers of SSCM practices. It is revealed that few of the informants receive any form of government support, and it does not appear to influence most organizations' approach to sustainability to any notable extent. Informants from industries that do not currently receive any benefits also express that increased financial support from the government would likely not expedite the adoption of SSCM practices to a significant extent in their industry.

Likewise, certifications are also identified as a minor driver of SSCM. However, government support and certifications such as ISO9001 appear to be more common and more influential for certain industries, i.e., manufacturing and offshore. According to Moktadir, Rahman, et al. (2018), smaller companies benefit more from government support than large-scale companies. Thus, financial incentives and government support are according to them a larger driver for SSCM practices for smaller companies. Our respondents are mostly from organizations that are considered large by Norwegian standards, which could have influenced our results. Many respondents are also from the retail industry, which according to the informants do not commonly receive any form of government support. Nonetheless, research related to government support and certifications as drivers of SSCM is limited compared to the other drivers. Thus, we cannot dismiss that it may be an important driver in certain industries.

Regulatory pressure appears to correlate with societal and market pressure. It is therefore plausible that regulations are influenced by social awareness and expectations. However, it is also highly likely that regulations influence social awareness and market demand for sustainable products. For example, the demand for electric cars is greatly influenced by environmental regulations and financial incentives. Regulatory pressure does not seem to correlate significantly with internal drivers. Hence, it is plausible that regulations and government support do not substantially affect top management motivation or performance expectations related to SSCM.

### ***Societal pressures***

The findings show that societal pressure is the least influential pressure group for the adoption of SSCM practices. Nevertheless, it is evident that some elements of societal pressure are of more importance than others. Saeed and Kersten (2019) and Alzawawi (2014) claim that increasing consumer awareness and the emergence of social groups/NGOs has led to a highly enlightened society with increasing expectations towards organizations' sustainability practices. This is consistent with our empirical findings, which show that society's expectations greatly influence decisions related to the adoption of

SSCM practices. Hence, expectations from society are identified as a major driver for SSCM practices in the thesis. Walker et al. (2008) claim that consumers are increasingly influenced by an organization's reputation, and that society is demanding more environmentally friendly products. This is partly confirmed in our thesis. The qualitative findings indicate that organizations perceive that their reputation is closely related to their sustainability strategy, and that it is becoming increasingly important to communicate their sustainability initiatives to external sources. Moreover, the empirical findings suggest that society's awareness regarding sustainability is increasing. However, the demand for sustainable products is still perceived as limited by the participants.

According to the thesis' empirical evidence, NGOs, local organizations, and public pressure groups can act as drivers for SSCM practices. However, to a lesser extent than many of the identified external drivers in this thesis. This is supported by Saeed and Kersten (2019), who claim that public pressure groups and other community groups show increasing interest in sustainable business practices. Sajjad et al. (2020) and Saberi, Kouhizadeh, Sarkis, and Shen (2019) have emphasized that rapid information and communication technology improvements have facilitated increased transparency. Walker et al. (2008) have emphasized that rapid improvements in information and communication technologies have facilitated increased transparency. Walker et al. (2008) pointed out that public pressure groups now have the power to reach countless people through various media channels. This is reflected by our findings, which show that media is an important driver for SSCM practices. The qualitative findings also indicate that NGOs and public pressure groups can draw a lot of media attention. Media attention can in this regard either damage or enhance organizations' reputation depending on how they are portrayed. Thus, society, NGOs, and public pressure groups can in combination with media channels significantly influence an organization's decisions regarding SSCM practices.

Societal pressure correlates with market pressure. Market pressure includes groups such as competitors, suppliers, investors, and customers, which are likely influenced by factors in society. Hence, it is plausible that market pressure is influenced by societal factors such as media attention, expectations from society, and public pressure groups/NGOs. Societal pressure also appears to correlate strongly with all the other driver groups as well. These correlations have been addressed throughout this chapter in their respective sections.

### ***Market Pressures***

Our findings indicate that several aspects related to market pressure is of importance for organizations to adopt SSCM practices. The empirical findings demonstrate that market pressure is a major driver of SSCM practices, which is consistent with previous research. Saeed and Kersten (2019) revealed that a combination market pressure and regulatory pressure constitutes the strongest driver for

sustainability practices. Alzawawi (2014) and Sajjad et al. (2020) also concluded that market pressure is a major driver for SSCM practices.

Expectations from customers is according to the empirical findings the thesis's second most important driver for SSCM. Consequently, customer expectations is expected to significantly influence organizational decisions related to sustainability. Therefore, customers is identified as a powerful pressure group that can push organizations towards the implementation of sustainability practices. This is supported by the established body of literature. Gualandris and Kalchschmidt (2014) and Saeed and Kersten (2019) found that increasing customer demand for sustainable products places considerable pressure on organizations to implement SSCM practices across the entire supply chain. Walker et al. (2008) have emphasized that organizations environmental practices is especially affected by pressure and expectations from customers. This is consistent with our findings and those of previous research, which indicates that sustainability is a contemporary problem that is gaining increased importance and attention in society. Several informants indicate that customer pressure for more sustainable practices is increasing. Similarly, Shohan et al. (2019) claim that customers are now expecting to be able to buy environmentally friendly products.

The importance of reputation in relation to customer expectations is also brought to our attention by the informants. Our findings show that brand awareness is an important driver for SSCM practices. Many of the informants emphasize that it is becoming increasingly important to communicate the organization's sustainability strategy and measures to the consumers, indicating that customers are influenced by the organization's reputation concerning sustainability. These findings are consistent with previous research examining reputation as a driver for sustainability practices. Gualandris and Kalchschmidt (2014) claim that about 75% of customers are attracted to a product based on the company's reputation. According to Sajjad et al. (2020) and Chkanikova and Mont (2015) it is likely that organizations use sustainability practices partly as a tool to enhance reputation and mitigate risks related to sustainability issues. Hence, it is suggested that the implementation of SSCM practices can be partly contributed to increased focus on reputation and brand awareness concerning sustainability issues.

The empirical findings show that investors can be an important driver for the adoption of SSCM practices. The thesis's qualitative data indicates that sustainability is becoming an increasingly important criteria for investors in their decision-making process. Furthermore, more widespread availability of annual reports and sustainability reports is likely contributing to increased transparency and awareness around sustainability issues in organizations. The informants express that they receive more questions aimed towards environmental, social and corporate governance. These results are



partly supported by existing literature. A systematic review of the literature done by Saeed and Kersten (2019) identified investors as a potential driver group for the adoption of SSCM practices. Walker et al. (2008) claim that there is a trend towards increasingly higher demands or expectations from investors in the development of environmental policies. Nonetheless, research on investor expectations or demands as direct driver of sustainability practices is limited. Therefore, we cannot with absolute certainty confirm the importance of investor demands or expectations on decisions related to the implementation of sustainability practices.

Our empirical findings reveal that sustainability initiatives undertaken by competitors is an important driver that affects decisions regarding SSCM implementation, although to a lesser extent. This is supported by the existing literature. Saeed and Kersten (2019) and Alzawawi (2014) identified competition as a driver for SSCM practices. According to Alzawawi (2014), when competitors engage in sustainability initiatives it creates pressure for organizations to adopt sustainable practices to match the competition on sustainability performance. From the interviews it is revealed that competitors can help push organizations to increase sustainability performance by providing goals and targets to measure themselves against. Furthermore, based on the interviews it is expected that more competitors will emphasize sustainability initiatives going forward, and that competitors may become a stronger driver of SSCM practices in the future.

The findings show that supplier involvement and sustainability initiatives undertaken by suppliers can influence the decision to adopt SSCM practices. Suppliers is identified as an important driver the adoption of SSCM practices. This is partly supported by previous research. Suppliers is described as minor driver for SSCM adoption by Thaba (2017) and Alzawawi (2014). Based on the informant's statements it is evident that sustainability is gaining increasing importance among suppliers, and they are gradually initiating actions on their own accord. According to Alzawawi (2014), suppliers do not normally act as a direct driving force, however, they can play an essential role in implementing sustainability in supply chain systems. Suppliers can provide valuable ideas and help streamline sustainability practices in supply chain systems.

Thaba (2017) claims that strong relationships and collaboration with supply chain partners can help the development and adoption of environmentally friendly practices. The informants also emphasize the importance of collaboration for the implementation of SSCM practices and the future progression of sustainability performance. Increasing cooperation related to sustainability initiatives within supply chains is clearly a focus area for many informants. Likewise, Thaba (2017) suggests that increasing cooperation within supply chain management should be reflected in the organization's strategy to achieve sustainability-related goals (Thaba, 2017).

### 6.3 Internal barriers to SSCM

Previous research has revealed that several internal aspects can deter organizations from engaging in SSCM initiatives. These aspects can generally be categorized as either financial constraints or organizational restrictions. This sub-chapter will examine the variables that constitute financial constraints and organizational restrictions in more detail.

#### ***Financial barriers***

Financial barriers are portrayed as the thesis' most influential barrier group and could be a crucial obstacle that organizations need to overcome to implement SSCM practices. This is consistent with prior research, which has confirmed that it is expensive to incorporate sustainability throughout the supply chain and that many organizations will struggle to engage in SSCM practices due to financial constraints (Narimissa et al., 2019; Sajjad et al., 2015). Sajjad et al. (2015) revealed in their study that implementing SSCM practices is likely to increase costs through the development of necessary infrastructure. Similarly, costs associated with the development of the required infrastructure are in our study found to be the biggest obstacle to SSCM implementation and, therefore, a crucial aspect of the decision-making process. Furthermore, the cost of environmentally friendly materials and products appears to be equally as important. This is also consistent with previous studies within SSCM literature. Both Al Zaabi et al. (2013) and Movahedipour et al. (2017) revealed that the cost of environmentally friendly materials, parts, and products could act as a significant barrier to SSCM implementation. Additionally, Movahedipour et al. (2017) identified that the cost of hazardous waste could be an influential barrier in some industries. This could potentially be a barrier for some of the respondents in our study. However, this was not directly measured, and we cannot extrapolate if this is an influencing variable from the gathered data.

From the qualitative data, it is also clear that SSCM initiatives are associated with increased costs, whereas several informants express that producing environmentally friendly products is more costly. In this regard, the use of environmentally friendly materials is emphasized as a key driver of costs and a major challenge that many struggles to overcome. Most of the informants also refer to the importance of profitability in relation to sustainability initiatives and that economy is an essential aspect of sustainability. It is made clear that even though sustainability is critical to future development, the participants cannot spend unlimited resources to maximize every aspect of sustainable development.

Although environmental and social improvement does not necessarily come at the expense of economic gain, they can be competing issues in certain instances. Some practices that are aimed towards environmental and social improvement are therefore difficult to justify as they will hinder the

economic aspect of sustainability to a large extent. However, some informants do emphasize that investments related to sustainability initiatives will often be given a longer return on investment. Nonetheless, they still need to be healthy and wise investments that are expected to yield economic gain in the long term. These findings indicate that economic viability is a crucial part of sustainability and that profitability will be at the forefront when the adoption of SSCM practices is considered. This is reflected by our quantitative data and the existing literature, which demonstrates that perceptions related to increased profitability are ranked as an important driver of SSCM practices, as discussed in more detail earlier in Sub-Chapter 6.1.

Interestingly, financial constraints do not appear to correlate with any of the barrier constructs, indicating that financial constraints are not considerably affected by or affecting the importance of barriers in other categories significantly. This suggests that financial constraints will remain a prominent obstacle regardless of whether other barriers are present. This is reflected by the average importance of the factors, where it is evident that financial constraints have a considerably higher score than the rest of the barrier groups.

### ***Strategic and organizational barriers***

Based on the empirical data, strategic and organizational barriers are the least important barrier when considering implementing SSCM practices. However, there is a rather large spread in the mean score when we look at the variables that constitute strategic and organizational barriers. Therefore, some of the variables are considerably more important than others, which indicates that some aspects related to strategic and organizational barriers can play a considerable part in the decision-making process. It is also worth noting that the respondents have generally rated the questions related to barriers relatively low, compared to the questions pertaining to drivers.

The empirical data reveals several aspects of strategic and organizational barriers that influence the strategic decision to adopt SSCM practices. This barrier group consists of several variables, including strategic incompatibility, capacity, top management, employees, bureaucracy, incentives, knowledge and training, and negative perceptions. We will in the following section discuss the importance of these variables and what they encompass. Based on the empirical findings, strategic conflicts or incompatibilities between sustainability goals and the organization's primary objectives appear to be of little importance when considering new sustainability initiatives. A plausible explanation for this is that sustainability is integrated into the core strategy for most participants, which would be consistent with what the informants expressed during the interviews. Several informants highlighted that sustainability is already a cornerstone in their overall strategy. The only strategic conflict that the informants brought up is that environmental and social improvement can sometimes interfere with

financial goals, which we discussed in more detail earlier in this sub-chapter (financial barriers). However, research related to strategy as a barrier for SSCM implementation is still relatively limited, and consequently, we cannot discredit it as a barrier to the adoption of SSCM practices.

The thesis' empirical findings indicate that organizational aspects related to size and structure are of importance for SSCM implementation, which is consistent with the existing literature. For example, Sajjad et al. (2015) revealed that a centralized and unified organizational structure positively affects SSCM implementation. Similarly, our findings show that bureaucracy is a relatively important barrier to the implementation of sustainability practices. Furthermore, the qualitative data indicates that bureaucracy increases with the organization's size, suggesting that size negatively impacts SSCM implementation. This is contradictory to what Tay et al. (2015) and Oelze (2017) found in their studies, where they found that larger organizations are more likely to adopt sustainability practices. Again, this could be related to differences in what is considered large organizations in different sectors and countries. Moreover, the influence that organizational size has on the adoption of SSCM practices was not measured in our quantitative research, and is only implicitly mentioned in the qualitative data. Hence, more research is needed to determine the effect of organizational size on the adoption of SSCM practices in Norwegian organizations.

Furthermore, Oelze (2017) found that a lack of resources can impede SSCM engagement, especially in smaller firms. Similarly, the thesis' statistical data demonstrates that a lack of capacity is a major barrier to adopting SSCM practices. Our findings show that a lack of support from employees is perceived as relatively inconsequential when organizations are considering new sustainability initiatives. Only two informants disclose that a lack of support or resistance from employees needs to be considered when discussing internal changes reflected by the statistical data through the variables' average score. These results are for the most part consistent with the findings of previous studies, for example, Al Zaabi et al. (2013) and Emamisaleh and Rahmani (2017). A lack of incentive systems emerges as a minor barrier to SSCM adoption and is perceived to be of little importance to the thesis' participants. The informants disclosed that incentive systems targeted towards sustainability were used in any of the organizations. The qualitative data provide a possible explanation for this, as several of the informants express that they struggle to formulate concrete and quantifiable targets for environmental and social performance.

Alzawawi (2014) and Narayanan et al. (2019) are among several researchers who have found that a lack of top management commitment and support is a significant barrier to the implementation of SSCM practices. This is not reflected by either the thesis' quantitative or qualitative data. On the contrary, the empirical findings indicate that top management is very committed to improving

sustainability performance. Our findings suggest that Norwegian managers are largely driven by intrinsic motivation to show environmental and social responsibility and recognize the importance of sustainability. This is likely why the participants perceive that a lack of top management commitment is of little importance when considering the adoption of sustainability practices. Sajjad et al. (2015) suggested that a lack of top management support can be attributed to negative perceptions or misconceptions regarding sustainability, which is also confirmed by Alzawawi (2014) and Al Zaabi et al. (2013). This is another area where our findings deviate from the literature. Misconceptions or negative perceptions related to sustainability are perceived to be the least influential variable, and the transcribed data demonstrates that the informants are highly aware of the importance of sustainability and its potential benefits. The absence of misconceptions and negative perceptions can be partly explained by the fact that the participants appear to be knowledgeable about the importance of sustainability and display strong intrinsic motivation.

Lastly, the empirical findings show that a lack of knowledge and training related to sustainability is an important barrier that considerably affects decisions related to sustainability. This is supported by previous research, for example, Al Zaabi et al. (2013) found that insufficient knowledge and information related to regulations and environmental management could hamper SSCM implementation. The informants also highlight that a lack of knowledge and information is a major barrier to them. It is generally expressed that limited information and knowledge make it challenging to predict the long-term effect of specific SSCM initiatives, making it difficult to determine the most effective measures. Additionally, Narayanan et al. (2019) pointed out that many struggles to formulate performance measures related to sustainability. This is also brought up as a challenge by the informants, where they express that they do not have enough information to develop concrete and quantifiable performance metrics.

From the correlation analysis, it is evident that there is a strong correlation between strategic and organizational barriers and external barriers. It is therefore likely that external factors influence the importance of strategic and organizational restrictions. Regulatory, demand-side, and supply-side barriers all correlate strongly with strategic and organizational barriers, whereas demand-side barriers have the strongest correlation of the three. It is plausible that these factors would negatively affect organizational aspects such as sustainability strategy, training, and top management mindset. Therefore, it is suggested that organizations are less likely to devote capacity and resources towards SSCM when external expectations and pressures are low. Furthermore, top management is probably less motivated to pursue an SSCM strategy and implement sustainability initiatives when there is insufficient regulatory pressure and market demand. Hence, it is reasonable to assume that organizational resistance increases when external barriers increase.

## 6.4 External barriers to SSCM

Previous research has revealed that several external elements can deter organizations from the engagement in SSCM initiatives. These aspects can generally be categorized as either demand-side, supply-side, or regulatory barriers. This sub-chapter examines the variables that constitute these three categories in more detail.

### ***Demand-side barriers***

Our thesis indicates that several aspects related to demand-side barriers influence how likely it is for organizations to adopt SSCM practices. Sajjad et al. (2020) claim that some industries and countries experience insufficient customer demand for sustainable products. Our study supports this, insufficient customer demand for sustainable products/solutions appears to be of importance for the sample population. The interviews suggest that most customers have a moderate interest in sustainability and choose sustainable options when it is convenient for them, or at least does not come with an additional cost. Therefore, the participants feel that they need to pave the way and facilitate for the customers to choose environmentally friendly.

Similarly, the empirical data indicates that customers are for the most part not willing to pay extra for sustainable products. These results are consistent with those of Tay et al. (2015). Our statistical data is in this regard strongly supported by our qualitative data. None of the informants are convinced their customers are willing to pay a premium price for sustainable products if there are no additional benefits. On the other hand, several of the informants express that their customers are willing to pay more for a sustainable product if it is generally perceived as the better option. Hence, the product's perceived value or quality is likely as important for sustainable products as it is for non-sustainable products.

The empirical data also emphasizes the importance of customer knowledge regarding sustainability when organizations consider implementing SSCM initiatives. Similarly, Alzawawi (2014) claims that a lack of customer awareness regarding SSCM can be challenging. Our findings clearly show that society is generally highly aware of the importance of sustainability and that the external pressure is strong. However, the empirical evidence also suggests that customers are typically perceived as relatively unaware of the potential benefits of sustainable products and solutions. This also appears to be an important aspect that influences how likely it is for organizations to implement SSCM practices. Heidary Dahooie et al. (2020) and Narayanan et al. (2019) found that insufficient social pressure is a substantial barrier to SSCM implementation. These results are not reflected in our thesis. Our results are more consistent with those of Muktadir, Rahman, et al. (2018). Accordingly, Limited social knowledge about sustainability issues is portrayed as a relatively inconsequential problem for the

respondents. Moreover, expectations from society are revealed to be a major driver of sustainability, suggesting that the participants are located in an environment where society is highly informed about sustainability issues. These findings are consistent with those of Moktadir, Rahman, et al. (2018), who claim that consumers are highly aware of the outcomes and importance of green initiatives. However, findings from the quantitative survey suggest that customers may not be aware of potential benefits that are directly linked to sustainable products and that this could impede the adoption of SSCM practices to a notable extent. On the other hand, based on the qualitative data both society and customers are perceived to be highly aware and knowledgeable about sustainability issues and the potential benefits associated with sustainable products. Thus, the question related to a lack of customer awareness regarding sustainable products may have been interpreted differently by the respondents in the quantitative survey, which could have influenced the results.

### ***Supply-side barriers***

Oelze (2017) and Alzawawi (2014) describe the absence of supplier involvement and interest as a major barrier to SSCM implementation. This is partly supported in our thesis. The statistical data shows that a lack of supplier interest is of importance when considering SSCM initiatives. However, compared to several of the identified barriers addressed in this thesis it is not perceived to be a major barrier to the respondents. That a lack of supplier involvement and interest is considered a relatively minor barrier for the participants could indicate that most suppliers in the Norwegian business market recognize the importance of sustainability and values to a certain extent. This would be consistent with our qualitative data, which suggests that suppliers are gradually starting to emphasize sustainability more and more. The informants also highlight challenges related to supplier interest. The transcribed data indicates that ambition level and willingness are important measures that organizations use to describe supplier interest. Furthermore, it is described that low ambitions and unwillingness to make the necessary investments towards improving sustainability are common problems among suppliers.

The findings from our study show that a lack of information and knowledge among suppliers is a considerable barrier to SSCM implementation. This is consistent with previous research. For example, Mastos and Gotzamani (2018) found that a lack of competence among suppliers can impair the development of SSCM practices. Furthermore, Sajjad et al. (2015) identified a lack of supplier ability as a barrier to SSCM implementation. The importance of knowledge is also reflected in our qualitative data. Several of the informants clarifies that the competence level is generally perceived as too low among their suppliers. However, it is also indicated that many suppliers are incrementally starting to realize how important sustainability is, and that the interest and knowledge is slowly increasing among suppliers. Nevertheless, it is emphasized that it can be challenging to locate suppliers that are willing

and capable of delivering on ambitious sustainability demands. This is supported by Oelze (2017), who revealed that suppliers could potentially be reluctant to comply with increased sustainability standards.

Based on the thesis` quantitative data, unwillingness to collaborate among suppliers is perceived as a relatively insignificant problem in relation to SSCM practices. This is an area where our quantitative data diverges from our qualitative data and the established literature. These discrepancies could be due to differences in how the qualitative and quantitative data were gathered, and it indicates that the question regarding collaboration should have been formulated differently in the questionnaire. Oelze (2017) revealed that suppliers can be hesitant to cooperate on sustainability initiatives and that a lack of supplier involvement is a major barrier to SSCM implementation. In relation to this, Mastos and Gotzamani (2018) identified a lack of trust and commitment between supply chain members as common problems that limits supplier collaboration and involvement. A lack of collaboration and supplier involvement is portrayed as much more influential for SSCM implementation in our qualitative findings than it is in our quantitative findings. It is emphasized that collaboration with suppliers is limited for many organizations. Furthermore, it is also expressed that improved cooperation between supply chain partners would help eliminate major challenges associated with SSCM implementation. According to the informants, a lack of a common understanding regarding sustainability makes it difficult to cooperate on sustainability initiatives. The qualitative data reveals that several elements contribute to a lack of common understanding, such as differentiating perceptions of what sustainability encompasses, the use of several different terms, and the inability to develop concrete and quantifiable goals.

### ***Regulatory barriers***

Several researchers such as Narayanan et al. (2019) and Sajjad et al. (2020), have revealed that ineffective or inadequate regulations can hinder SSCM implementation. This is further supported by Al Zaabi et al. (2013), who found that inadequate regulations act as a minor barrier to SSCM implementation. Our findings are in this regard consistent with those of previous studies, and ineffective and inadequate regulations emerge as a minor barrier in our thesis. This is also reflected through the interviews, where most informants express that they are relatively content with the degree of government involvement and the direction of new policies. Nevertheless, it is emphasized that some regulations can be challenging to interpret and implement in practice. Furthermore, the respondents consider regulations to be an important driver for SSCM practices. This could help explain why the sample population perceives that regulatory barriers effect their decisions regarding SSCM to a lesser extent.



According to the empirical data, a lack of government support and financial incentives is of little importance for the sample population regarding their approach to SSCM. In relation to this, several informants disclose that they do not receive any government support in the form of green initiatives or financial incentives. Although they express that it would be nice to receive such benefits, it does not appear to affect their decisions regarding sustainability to a considerable extent. To our knowledge, the absence of government support in the form of green initiatives and financial incentives has not been directly studied before. Hence, we cannot completely discredit its importance in relation to SSCM practices.

Henriques and Sadowsky (1999) claim that costly and rigid environmental regulations restrain the potential for environmental proactivity. This is supported by Sajjad et al. (2015), who suggests that regulatory pressure fosters a reactive sustainability approach. This is also reflected by our qualitative findings, where it is indicated that some suppliers may see certain sustainability practices as another expense and government regulation that they have to comply with. Sancha et al. (2015) pointed out that government pressure varies between countries. Consequently, organizations in global supply chains are held to different standards. This is supported by Chkanikova and Mont (2015) and Devaux et al. (2019), who also found that a lack of harmonization of regulations between countries makes it challenging to implement SSCM practices, especially in global supply chains. Based on the thesis' qualitative data, it is evident that this is a challenge that affects decisions related to SSCM. In relation to this, the informants clearly express a need for better alignment and standardization of regulations. Enforcing sustainability through standardized regulations would also help limit potential competitive differences caused by implementing a sustainable approach.

The correlation analysis shows that all the barriers correlate strongly with each other, except for financial barriers. It is therefore likely that supply-side barriers and regulatory barriers are dependent on demand-side barriers. It is plausible that suppliers are less likely to embrace SSCM when there are high demand-side barriers. It is also plausible that regulators are less inclined to focus on sustainability initiatives when market awareness and demand are low. However, it is also possible that social knowledge and customer demand for sustainable solutions are affected by regulatory initiatives. Organizational restrictions correlate strongly with external barriers, and it is plausible that internal barriers are dependent on external barriers. A potential explanation is that external barriers negatively affect the motivation to overcome internal barriers, and consequently organizational restrictions would be perceived as more influential.

## 6.5 Summary of discussion

We have throughout this chapter discussed our empirical findings and compared them to previous research. Based on this discussion, it is evident that most of our findings are consistent with previous research. The congruence between our findings and previous research indicates that the identified factors are still relevant and applicable to the thesis population. However, our findings reveal some differences concerning the importance of certain factors when compared to previous research. These differences could be due to disparities in the external environment, such as societal changes, regulations, and technology. On the other hand, they could also be dependent on internal factors such as top management's focus and mindset regarding sustainability, organizational culture, and industry.

Our findings also indicate that resource depletion could be a potential driver for SSCM. Resource depletion has to our knowledge, not been addressed as a driver of SSCM practices in previous research. The informants point out that many industries and organizations rely on resources with limited supply, forcing them to find new and more sustainable options. However, this is only addressed in our qualitative research and not tested in the questionnaire. Lastly, it is evident from the analysis that barriers are generally perceived to be less impactful than drivers for the adoption of SSCM practices. Only 8 of 19 barriers have an average score of 3,0 or more, where 3,0 represents "important" on the Likert scale. Comparatively, all the drivers have an average score of 3,14 or more.

This chapter has reviewed the empirical findings presented in Chapter 5 and discussed them in relation to previous research. Accordingly, the next chapter will present the thesis' results, including a conclusion, theoretical and practical implications. Finally, we address the thesis' limitations and recommendations for future research.

## 7. Results

The purpose of the thesis has been to increase knowledge on SSCM by examining factors that either drive or deter organizations from adopting SSCM practices. This chapter presents the thesis' conclusion based on the thesis' empirical data, existing literature, and the discussion presented in Chapter 6. Theoretical and practical implications are also discussed in this chapter. Lastly, the thesis' limitations are discussed, and recommendations for future research are presented.

### 7.1 Conclusion

The thesis has been executed with the intention to answer the following research question "*What internal and external factors influence the decision to adopt sustainable supply chain management practices in Norwegian organizations?*". The research question seeks to identify drivers and barriers to the adoption of SSCM practices. Furthermore, the research question aims to describe the importance of the identified factors in a Norwegian context. Both qualitative and quantitative research methods were applied to answer the research question. Ten interviews were performed with managers holding sustainability and supply chain responsibilities. The interviews included ten Norwegian organizations from a broad spectrum of sectors. Subsequently, an electronic survey was performed. For the survey, a total of 36 responses were gathered from a wide range of organizations within the Norwegian business market. Manufacturing and retail have the largest representation in the thesis, these industries combined constituted 47% of all participants.

Through our literature review, we were able to identify numerous drivers and barriers that have been shown to influence the adoption of SSCM practices by previous research. The applicability of the identified drivers and barriers was then implicitly tested in a Norwegian context. Based on previous research, all the drivers and barriers were measured on a 5-point Likert scale, grouped, and formulated as higher-order constructs. A correlation analysis was also performed, which shows a significant correlation between many of the identified factors. This is consistent with previous research that has revealed that these influencing factors are intertwined and will influence each other. Hence, it is highly likely that several internal factors are affected by various external factors in the organization's environment, suggesting that these factors should not be seen in a vacuum.

Our findings indicate that all the identified drivers are of importance for the adoption of SSCM practices. All the drivers have an average importance of 3,1 or more. The empirical findings are for the most part consistent with previous research. Nonetheless, some differences concerning the degree of importance are revealed for a few of the identified factors. The importance of each driver group in chronological order is (i) organizational and ethical motivation, (ii) performance expectations, (iii)

market pressure, (iv) regulatory pressure, and (v) societal pressure. The most notable difference is that organizational and ethical motivation appears to be considerably more important according to our findings than in previous research. Our findings indicate that top management is strongly committed to improving the organization's sustainability performance and is an essential driver for the adoption of SSCM practices. Our findings confirm that performance expectations, regulatory, and market pressure is important drivers for SSCM, with their average importance ranging from 3,83 to 4,03. Consistent with prior research, societal pressure is according to our findings the least influential driver group. However, societal pressure includes expectations from society, which is shown by our findings to be a strong driver of SSCM practices.

Our findings indicate that the identified barriers are of less importance compared to the drivers. 19 barriers were identified, where 8 of them have an average importance of 3,0 or more. Based on previous studies, the identified barriers were grouped into five categories. The importance of each barrier group in chronological order is (i) financial barriers, (ii) demand-side barriers, (iii) supply-side barriers, (iv) regulatory barriers, and (v) strategic and organizational barriers. The empirical findings are for the most part consistent with previous research. However, the impact of the identified barriers is generally perceived as less important in our findings compared to previous research. Financial barriers emerge as the thesis' number one barrier to SSCM practices with a relatively large margin as it has an average score of 4,0. Comparatively, the thesis' second most important barrier group is demand-side barriers, with an average score of 2,99. The existing literature supports the importance of financial barriers. Our findings indicate that strategic and organizational barriers are of little importance. However, there are relatively large differences in average importance for the barriers that constitute structural and organizational barriers. Top management commitment and training and knowledge are shown to be considerably more important than the other barriers that constitute structural and organizational restrictions.

Regulatory barriers and supply-side barriers are found to be of equal importance and are, according to our findings, the least important barrier groups. Although regulatory barriers emerge as a minor barrier to SSCM implementation, it is still emphasized that differences created by regulatory initiatives are a considerable problem. Supply-side barriers appear to be of little importance and may not directly impact the decision to adopt SSCM practices considerably. However, the interviews and existing literature indicate that a lack of supplier collaboration and involvement is an important barrier to implementing SSCM practices. In summary, the thesis largely accomplished what it intended to and managed to answer the research question. However, we also revealed gaps in the current body of literature and pointed to areas where more research is needed. Hence, the thesis help solidify previous research and generate new insights.

## 7.2 Theoretical implications

Through the theoretical framework, we discovered that there is a lack of research on SSCM in developed countries, especially in a Norwegian or Scandinavian context. Furthermore, there is limited research studying SSCM implementation from a holistic perspective. The thesis contributes to existing research by identifying and describing drivers and barriers to SSCM adoption. The thesis also contributes by studying the adoption of SSCM practices from a holistic perspective. Furthermore, the thesis studies the applicability and importance of the identified drivers and barriers in the Norwegian business market. The interviews provide context to the factors and help explain how organizations evaluate the different drivers and barriers concerning the adoption of SSCM practices. Thus, the thesis contributes to the existing body of literature by providing increased knowledge on factors that influence the decision to adopt SSCM practices in a Norwegian context.

The drivers that have been addressed in the thesis have in previous research been shown to positively influence SSCM practices, while the barriers have been shown to influence SSCM practices negatively. Our findings are in this regard consistent with previous research. However, some differences in the importance of the factors are revealed. The most notable difference is that intrinsic motivation to increase sustainability performance is portrayed as a much stronger driver for SSCM practices in our thesis than in previous research. Another difference is that supplier involvement and collaboration is perceived as considerably more important in our thesis compared to previous research. On the other hand, a lack of collaboration between supply chain members is also revealed to be a major barrier to SSCM implementation. Furthermore, the empirical findings indicate that the barriers are generally perceived as less influential than the drivers. The findings also indicate that the barriers have less of an effect on the decision to adopt SSCM practices than in previous research. Our findings reveal that there is a strong relationship between several of the factors. Internal factors are likely influenced by external factors. However, regulatory pressure does not seem to affect intrinsic motivation to adopt SSCM practices.

The congruence between our findings and previous research indicates that most of the identified factors are applicable in the Norwegian market and possibly other developed countries. It would also suggest that despite increasing research and awareness regarding sustainability, most of the factors are still applicable currently. Lastly, the thesis identified a potential driver that has not been addressed in previous research, namely resource depletion. The informants point out that many industries and organizations rely on resources that have a limited supply, forcing them to find new and more sustainable options. Thus, resource depletion could potentially be a driver of SSCM practices that have

not been addressed previously. However, this is only reflected in our qualitative findings, and the importance of resource depletion as a driver for SSCM practices is not tested in the questionnaire.

### 7.3 Practical implications

The thesis contributes to further develop the existing body of literature by increasing the knowledge about drivers and barriers that influences the adoption of SSCM practices. By examining the importance of previously identified factors in a Norwegian context, the thesis contributes to developing a more holistic perspective of SSCM implementation. This knowledge and understanding come with several implications for practices.

We have throughout this thesis identified and discussed numerous factors that influence the decision to adopt SSCM practices. Resulting in insights that provide an overview of the identified drivers and barriers, which facilitates for managers to be more attentive to the factors that work for and against the adoption of SSCM practices. This allows managers to focus on the most important factors, approach sustainability initiatives more proactively and helps guide them through the process. Furthermore, through the analysis and discussion it is suggested that several of the identified factors are influenced by each other. For example, it is highly likely that internal factors are influenced by factors in the organization's external environment. Organizations will likely benefit from increased awareness regarding several of these interdependencies. With this information, managers could potentially identify the underlying factors that lead to increased internal support and eventually increased adoption of SSCM practices. It could also help identify the root cause of why some organizations may be reluctant to adopt SSCM practices.

These results are not limited to any specific industry and are expected to be applicable to a variety of industries and organizations. However, a considerable percentage of the respondents represent the retail and manufacturing industry. Consequently, the results will predominantly be applicable to these industries, and they will likely benefit most from the insights gained from this thesis. The interviews also provide some context to the results, elaborates on the circumstance of the findings, and point to which industries certain factors may be most prominent.

The thesis also contributes with practical implications for various actors in the organization's external and internal environment. Stakeholders can use this thesis to get an indication of how effective their current efforts are towards the adoption of SSCM practices in varying organizations. The thesis provides stakeholders with an overview of the most and least influential actors and how they can deter or push organizations to implement SSCM practices. Thus, insights from the thesis can help various stakeholders, governments, and other regulators direct their pressure accordingly to increase their

influence and facilitate for the adoption of SSCM practices more effectively. The thesis provides a holistic perspective of the factors influencing the adoption of SSCM practices by addressing both drivers and barriers. Consequently, the insights from this thesis will likely be of interest to Norwegian organizations looking to implement SSCM practices in their operations and potentially other organizations with similar values and conditions in the external environment. The insights from the thesis could also be of value to external entities such as NGOs or regulators that want to maximize their impact towards the adoption of SSCM practices.

## 7.4 The thesis' limitations

The main purpose of the thesis was to examine factors that influence the decision to adopt SSCM practices in Norwegian organizations. However, the research also sought to examine if the importance of the identified factors varied between organizations located in different phases of SSCM implementation. We aimed to statistically confirm or reject these differences through an analysis of variance (ANOVA). Unfortunately, after we ended the data collection process, we realized that a mistake had been made during the construction of the questionnaire. The implementation of SSCM practices had not been measured correctly for its intended purpose. The thesis' number of participants (N=36) combined with the measurement error meant that it would have been ill-considered to draw any well-founded conclusions from such an analysis. Consequently, it was deemed unwise to perform hypothesis tests to confirm or reject these potential differences. This is clearly the thesis' biggest limitation.

Despite this limitation, the thesis is otherwise executed as intended, and we managed to answer the thesis' research question by focusing on descriptive statistics and qualitative data. Although we were unable to test differences between groups statistically, the qualitative data still indicates that organizations in different phases of SSCM implementation experience the influence of various factors differently.

It should also be noted that most of the respondents/informants are employed in positions that are part of top management, and might be hesitant to disclose internal issues that are related to management. Furthermore, it is possible that we have been unable to identify certain drivers or barriers that should have been included in the study. Lastly, the potentially large population for the thesis could be a limitation. Uncertainty surrounding the size of the thesis population could potentially entail that the thesis' sample size is too small to be generalizable.

## 7.5 Recommendation for future research

Although research related to SSCM has increased considerably over the last few years, and numerous drivers and barriers have been identified, the body of literature is still underdeveloped in many areas. Our work on the thesis has revealed several interesting research gaps, which have led to good discussions and reflections. However, addressing and discussing all these areas in detail would have been infeasible given the thesis' timeframe. Thus, we would like to present these research gaps as a recommendation for future research.

Firstly, we would like to present the thesis' limitations as recommendations for future research. For this thesis, a combination of qualitative and quantitative methods was used to identify and describe drivers and barriers to adopting SSCM practices in Norwegian organizations. Hence, we recommended that future research studies this phenomenon from a purely quantitative perspective with a larger sample size to confirm or reject if these results can be transferred to a larger population. Moreover, statistically confirming or rejecting if the factors importance varies between organizations located in different phases of SSCM implementation would allow for several interesting comparisons. A study like this would potentially be able to help identify why organizations succeed or fail in the implementation of SSCM practices.

Our findings indicate that some drivers and barriers may be more prominent in specific industries. Thus, it is recommended that future studies compare various industries to examine if the importance of the factors differentiates between industries. Furthermore, the thesis has revealed that a few of the identified drivers and barriers have received limited attention in previous literature. Thus, it could be beneficial to perform a more nuanced study of these factors to identify how they influence the decision to adopt SSCM practices. Future studies could for example, study if disparities or conflicts between the organization's overall strategy and sustainability goals impede the adoption of SSCM practices. Our findings also indicate that organizational size may have different implications for the adoption of SSCM practices in Norwegian organizations when compared to previous studies. Thus, it could be interesting to study how organizational size affects the adoption of SSCM practices in Norwegian organizations. There is also limited research regarding the absence of government support and financial support and its effect on SSCM adoption.

It could also be interesting to examine certain conditions that may be more specific to the Norwegian market. There are especially two areas where our research deviates from previous research that could be interesting to study more in-depth. Our findings suggest that Norwegian organizations perceive collaboration between supply chain partners as highly important for the adoption of SSCM practices. A study examining collaboration between supply chain partners in the Norwegian business market



could potentially provide insight into how collaboration among organizations can facilitate for better adoption of SSCM practices. Our findings indicate that intrinsic motivation is considerably stronger for Norwegian organizations compared to research done in developing countries. Examining internal drivers of SSCM practices more in-depth in the Norwegian business market could potentially help explain why intrinsic motivation is high for Norwegian organizations. Our findings also identified a potential driver, which has to our knowledge not been addressed in previous research, namely resource depletion. Thus, it is recommended that future research examines resource depletion as a driver of SSCM practices to understand its potential impact on the decision to adopt SSCM practices.

Lastly, it could be interesting to investigate how differences in organizations' external or internal environment affect the drivers and barriers they encounter. The differences between our findings and previous research could be attributed to variations in the organization's external environment, such as market differences, societal changes, and changing regulations. The differences that we uncovered could also be due to conditions related to organizations' industry, culture, and top management's ethical values. Consequently, the identified drivers and barriers may be perceived differently in other contexts, and new factors may be discovered by investigating the phenomenon in countries with different societal values, government priorities, and other industries.

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## Appendix 1 – Literature Matrix

Artikkel	Forfatter	Uavhengige variabler	Avhengige variabler	Funn
Drivers and Obstacles for Creating Sustainable Supply chain Management and Operations	Alzawawi, May	Internal drivers of SSCM External drivers of SSCM Internal obstacles to SSCM External obstacles to SSCM	Integration of sustainability in the supply chain	Highlights major drivers and barriers that medium sized businesses face when making sustainable and ecological progress a reality in their current supply chain operations
Analyzing the interactions among barriers of sustainable supply chain management practices A case study	Anilkumar Elavanakattu Narayanan, Rajagopalan Sridharan, & P.N Ram Kumar	Barriers applicable for implementing SSCM practices in the rubber manufacturing sector	The implementation of sustainable practices in rubber products manufacturing industry in Kerala	Lack of top-level management commitment, motivation, government initiatives, and high initial cost of implementation are major barriers in implementing sustainable practices
Sustainable Supply Chain Management: Motivators and Barriers	Aymen Sajjad, Gabriel Eweje, and David Tapping	Normative, instrumental, and external motivators. Organizational/internal and external barriers	Effect on the implementation of SSCM practices	Identified three primary motivators for SSCM adoption, and three primary barriers to SSCM implementation
Managerial perspectives on drivers for and barriers to sustainable supply chain management implementation: evidence from New Zealand	Aymen Sajjad, Gabriel Eweje, and David Tapping	Normative, instrumental, and external drivers. Internal and external barriers	Effect on the implementation of SSCM practices	The evidence from our findings provides support for both instrumental and normative logics for SSCM implementation
Sustainable supplier development practices: Drivers and enablers in a global context (2015)	Cristina Sanchan, Annachiara Longoni, Cristina Giménez	1. - Coervice pressures - Normative pressures 2. - Mimetic pressures - Supplier integration	Supplier integration Sustainable supplier development (SD) Practices	Coercive and normative pressures do not exert a significant effect on sustainable supplier development adaption.
Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors	Helen Walker, Lucio Di Sisto, Darian Mc Bain	Organisational factors, regulation, customers, competitors, society, suppliers, cost, and industry	Green supply chain management initiatives	External drivers seem to be more influential than internal drivers, and most experience both internal and external barriers to SSCM
Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors (2008)	Helen Walker, Lucio Di Sistob, Darian McBainc	Internal Drivers Internal Barriers External Drivers External Barriers	Sustainable company practices	What drivers and barriers have been identified in 8 large companies in 2008
Prioritising sustainable supply chain management practices by their impact on multiple interacting barriers	Jalil Heidary Dahooie, Ali Zamani Badgohari, Leva Meidutė- Kavaliauskienė, & Kannan Govindan	SSCM barriers	SSCM practices	Identified two top priority barriers and two crucial SSCM practices

Artikkel	Forfatter	Uavhengige variabler	Avhengige variabler	Funn
Sustainable supply chain in food industries: Drivers and strategic sustainability orientation	Korosh Emamisaheh & Kamaledin Rahmani	Mometric pressure Coercive pressure Normative pressure Managerial attitude Top management support Employee motivation	Strategic sustainability orientation	internal drivers has a positive impact on strategic sustainability orientation and are affected by external drivers
Drivers of Sustainable Supply Chain Management: Identification and Classification	Muhammad Amad & Wolfgang Kersten	Internal (Organizational strategy, culture, resources, and characteristics) and external (regulatory, societal, and market pressures) drivers to SSCM	Degree of pressure exerted on organizations and their supply chains for the adoption of sustainable practices	Regulatory and market pressure are the most prevailing drivers of SSCM for the implementation of sustainable practices
Litterature review of drivers of sustainable supply chain management	Muhammad Amad Saeed, Ishfaque Waseek, Wolfgang Kersten	Internal (Organizational strategy, culture, resources, and characteristics) and external (regulatory, societal, and market pressures) drivers to SSCM	Degree of influence on implementation of sustainability initiatives	A comprehensive review of drivers of SSCM and understading of their role in the implementation of sustainable initiatives
Drivers and barriers for implementation and improvement of Sustainable Supply Chain Management	Narimissa, Omid; Kangaranu-Farahani, Ali; Molla Alizadeh-Zavardehi, Saber	Drivers and barriers to SSCM	Implementation of SSCM in Iranian oil context	Identified and prioritized numerous drivers and barriers to SSCM implementation in oil sector
Sustainable Supply Chain Management Implementation–Enablers and Barriers in the Textile Industry	Nelly Oelze	collaboration Structure and processes Cost and ressources Regulation Competitive pressure Intrinsic motivation Knowledge	Internal sustainability approaches SSCM policy development SSCM implementation	Specific modes of collaboration can both enable and effective SSCM and deminish barriers for policy implementation
Prioritization of applicable drivers for green supply chain management implementation toward sustainability in Thailand	Nisakorn Somsuk & Tritos laosirihongthong	RBV-based drivers RV-based drivers Institutional drivers	Green supply chain management implementation	They highlight government pressure, top management support, customer pressure, and cost reduction as the most important drivers
Drivers of green supply management performance: Evidence from Germany (2011)	Rudolf O.Large, Cristina Gimenez Thomsen	Green supplier assesment Green collaboration with suppliers Strategic level of purchasing	Purchasing Performance	Researchers find that green collaboration with suppliers have negative effects on purchasing performance
Analysis of interaction between the barriers for the implementation of sustainable supply chain management	Shaikha Al Zaabi, Noura Al Dhaheri, and Ali Diabat	13 barriers to SSCM implementation divided into 3 categories based on importance	The adoption of SSCM in Indian fastener manufacturing industries	Three barriers are found to be crucial to eradicate for adopting SSCM practices
The effect of sustainable supply chain management on business performance: Implications for integrating the entire supply chain in the Chinese manufacturing sector	Wenbin Ni & Hongyi Sun	Inbound sustainability Internal sustainability Outbound sustainability	Business performance	Highlights the destinctive role of each diemension of SSCM and the importance of integrating the entire supply chain



## Appendix 2 - NSD

Behandlingen av personopplysninger er vurdert av NSD. Vurderingen er:

Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet 03.02.21 med vedlegg, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte.

### DEL PROSJEKTET MED PROSJEKTANSVARLIG

Det er obligatorisk for studenter å dele meldeskjemaet med prosjektansvarlig (veileder). Det gjøres ved å trykke på "Del prosjekt" i meldeskjemaet.

### MELD VESENTLIGE ENDRINGER

Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. Før du melder inn en endring, oppfordrer vi deg til å lese om hvilke type endringer det er nødvendig å melde: [nsd.no/personverntjenester/fyll-ut-meldeskjema-for-personopplysninger/melde-endringer-i-meldeskjema](https://nsd.no/personverntjenester/fyll-ut-meldeskjema-for-personopplysninger/melde-endringer-i-meldeskjema)  
Du må vente på svar fra NSD før endringen gjennomføres.

### TYPE OPPLYSNINGER OG VARIGHET

Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til 20.05.21.

### LOVLIG GRUNNLAG

Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake. Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

### PERSONVERNPRINSIPPER

NSD vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om:

- lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen
- formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke viderebehandles til nye uforenlige formål
- dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet
- lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

### DE REGISTRERTES RETTIGHETER

NSD vurderer at informasjonen om behandlingen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18) og dataportabilitet (art. 20).

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

### FØLG DIN INSTITUSJONS RETNINGSLINJER

NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1 f) og sikkerhet (art. 32).

Microsoft Teams og UiOs Nettskjema er databehandlere i prosjektet. NSD legger til grunn at behandlingen oppfyller kravene til bruk av databehandler, jf. art 28 og 29.

For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og eventuelt rådføre dere med behandlingsansvarlig institusjon.

### OPPFØLGING AV PROSJEKTET

NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!

## Appendix 3 – Informational memo qualitative study

### Vil du delta i forskningsprosjektet

#### Drivers and barriers to sustainable supply chain management?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å kartlegge faktorer rundt bærekraftighet i norske bedrifter. I dette skrevet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

#### Formål

Vi er to masterstudenter innen industriell økonomi ved Universitetet i Sørøst-Norge, campus Kongsberg. Oppgaven vår dreier seg om å identifisere faktorer som påvirker bedrifters ønske/evne til å implementere bærekraftige tiltak i sin verdikjede. Vi vil derfor forsøke å svare på følgende problemstilling: *"What internal and external factors drive organizations to implement SSCM in their operations, and what barriers do they encounter during this process?"*

I denne sammenhengen er det derfor nødvendig for oss å samle inn informasjon vedrørende bærekraftighet og verdikjeden fra en rekke forskjellige bedrifter i det norske markedet. Vi ønsker å gjøre dette gjennom dybdeintervjuer med nøkkelpersoner i de aktuelle bedriftene, vi trenger derfor opplysninger om kandidatens stilling og arbeidsoppgaver. Vi ønsker også å benytte oss av lydopptak/videoopptak.

#### Hvem er ansvarlig for forskningsprosjektet?

Universitetet i Sørøst Norge er ansvarlig for prosjektet.

#### Hvorfor får du spørsmål om å delta?

Norske bedrifter som har et forhold til bærekraftighet og er del av en større verdikjede/leverandørkjede

#### Hva innebærer det for deg å delta?

Hvis du velger å delta i prosjektet, innebærer det at du ønsker å delta på vårt digitale intervju. Intervjuet inneholder spørsmål om bærekraftighet i bedriftens verdikjede du er ansatt hos. Intervjuet vil ta deg ca. 30 minutter, med mulighet for oppfølgingsspørsmål etter intervjuet via e-post.

Intervjuene vil bli tatt opp via lydopptak og brukt i master oppgaven vår. Etter intervjuet vil vi sende ut en spørreundersøkelse for å kartlegge hvilke faktorer som hindrer eller oppfordrer Norske bedrifter til å utøve bærekraftighet i deres leverandørkjede. Deltakerne vil motta en kopi at resultatene når prosjektet er ferdig, dersom det er ønskelig.

#### Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

#### Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrevet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

Disse personer kommer til å ha tilgang til informasjonen:

- Prosjektgruppe: Deividas Siurys, Deividaaas@gmail.com; Aleksander Vestøl Bråten, Aleksandervb96@hotmail.com.
- Veileder: Lise Feirud Lise.Feirud@usn.no
- Institusjon: Universitet i Sør-Øst Norge

Data og resultater som presenteres i master oppgaven vil ikke kunne spores til den enkelte organisasjonene eller individene. Tiltak som blir gjort for å sikre at ingen uvedkommende får tilgang til personopplysninger: Navnet og kontaktopplysningene dine vil jeg erstatte med en kode som lagres på egen navneliste adskilt fra øvrige data. Deltakerne vil ikke kunne bli gjenkjent i publikasjon.

### **Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?**

Opplysningene anonymiseres når prosjektet avsluttes/oppgaven er godkjent, noe som etter planen er 20.Mai 2021.

### **Dine rettigheter**

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg, og å få utlevert en kopi av opplysningene,
- å få rettet personopplysninger om deg,
- å få slettet personopplysninger om deg, og
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger.

### **Hva gir oss rett til å behandle personopplysninger om deg?**

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Universitetet i Sør-Øst Norge har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

### **Hvor kan jeg finne ut mer?**

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Universitetet i Sør-Øst Norge, Lise Feirud; Lise.Feirud@usn.no
- Vårt personvernombud: Paal Are Solberg; Paal.A.Solberg@usn.no

Hvis du har spørsmål knyttet til NSD sin vurdering av prosjektet, kan du ta kontakt med:

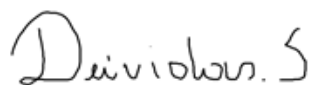
- NSD – Norsk senter for forskningsdata AS på epost ([personverntjenester@nsd.no](mailto:personverntjenester@nsd.no)) eller på telefon: 55 58 21 17.

Med vennlig hilsen

Lise Feirud  
(Veileder)



Deividas Siurys  
(Student)



Aleksander Vestøl Bråten  
(Student)



## Vil du delta i forskningsprosjektet

### Drivers and barriers to sustainable supply chain management?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å kartlegge faktorer rundt bærekraftighet i norske bedrifter. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

#### Formål

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I denne sammenhengen er det derfor nødvendig for oss å samle inn informasjon vedrørende bærekraftighet og verdikjeden fra en rekke forskjellige bedrifter i det norske markedet. Vi ønsker å gjøre dette gjennom spørreskjema med nøkkelpersoner i de aktuelle bedriftene, vi trenger derfor opplysninger om kandidatens e-postadresse.

#### Hvem er ansvarlig for forskningsprosjektet?

Universitetet i Sørøst Norge er ansvarlig for prosjektet.

#### Hvorfor får du spørsmål om å delta?

Norske bedrifter som har et forhold til bærekraftighet og er del av en større verdikjede/leverandørkjede

#### Hva innebærer det for deg å delta?

Hvis du velger å delta i prosjektet, innebærer det at du ønsker å delta på vårt digitale spørreskjema. Spørreskjema inneholder spørsmål om bærekraftighet i bedriftens verdikjede du er ansatt hos. Fullføring av spørreskjema vil ta deg ca. 15 minutter. Svarene fra spørreskjema blir lagret elektronisk i "Nettskjema" som USN har tilgang til gjennom en avtale med Universitetet i Oslo. Deltakerne vil motta en kopi at resultatene når prosjektet er ferdig, dersom det er ønskelig.

#### Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

#### Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

Disse personer kommer til å ha tilgang til informasjonen:

- Prosjektgruppe: Deividas Siurys, Deividaaas@gmail.com; Aleksander Vestøl Bråten, Aleksandervb96@hotmail.com.
- Veileder: Lise Feirud Lise.Feirud@usn.no
- Institusjon: Universitet i Sørøst Norge

Data og resultater som presenteres i master oppgaven vil ikke kunne spores til de enkelte organisasjonene eller individene. Tiltak som blir gjort for å sikre at ingen uvedkommende får tilgang til personopplysninger: Det vil ikke bli samlet inn personidentifiserende informasjon i spørreskjemaet, men undersøkelsen kan kobles til e-post/IP-adresse eller lignende.

Deltakerne vil ikke kunne bli gjenkjent i publikasjon.



### Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?

Opplysningene slettes når prosjektet avsluttes/oppgaven er godkjent, noe som etter planen er 20.Mai 2021.

### Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg, og å få utlevert en kopi av opplysningene,
- å få rettet personopplysninger om deg,
- å få slettet personopplysninger om deg, og
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger.

### Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Universitetet i Sørøst Norge har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

### Hvor kan jeg finne ut mer?

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Universitetet i Sørøst Norge, Lise Feirud; Lise.Feirud@usn.no
- Vårt personvernombud: Paal Are Solberg; Paal.A.Solberg@usn.no

Hvis du har spørsmål knyttet til NSD sin vurdering av prosjektet, kan du ta kontakt med:

- NSD – Norsk senter for forskningsdata AS på epost ([personverntjenester@nsd.no](mailto:personverntjenester@nsd.no)) eller på telefon: 55 58 21 17.

Med vennlig hilsen

Lise Feirud  
(Veileder)



Deividas Siurys  
(Student)



Aleksander Vestøl Bråten  
(Student)



## Appendix 5 – Consent form

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### **Samtykkeerklæring**

Jeg har mottatt og forstått informasjon om prosjektet «Drivers and barriers to sustainable supply chain management», og har fått anledning til å stille spørsmål. Jeg samtykker til:

- å delta i et intervju som blir spilt inn, hvor informasjonen som innhentes vil bli presentert anonymt i master oppgaven.
- å svare på oppfølgingsspørsmål via e-post etter at intervjuet er fullført dersom det er nødvendig. Det vil ikke komme noen spørsmål etter at oppgaven er levert.
- At mine opplysninger behandles frem til master oppgaven er ferdigstilt, 20.05.2021*

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

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(Signert av prosjektdeltaker, dato)

## Appendix 6 – Interview guide

*We are two master-students at the university of south-eastern Norway who are studying Industrial economics. We are currently writing our master thesis on factors that influence the strategic decision to adopt sustainable supply chain management practices. We would therefore like to interview you due to your expertise in the area. Any information you provide will be processed in confidentiality, and you and the organization you represent will remain anonymous in the thesis.*

### **Personal information**

1. What are your background and previous experience?
2. What is your current position within the organization?
3. How has sustainability affected your job over the last few years?

### **The concept of sustainability**

4. How would you describe sustainability?
5. Is there a common understanding within the organization of what sustainability is?

### **Internal factors that influence SSCM**

6. How does sustainability fit into the organization's overall strategy?
7. How do you perceive the top management's mindset and commitment towards SSCM practices?
8. In what way does the implementation of SSCM practices influence the organization's economic performance?
9. In what way does the implementation of SSCM practices influence the organization's operational performance?
10. How do you perceive the employee's mindset towards SSCM practices?
11. How does capacity affect the organization's ability to implement SSCM practices?
12. Have you experienced any challenges related to a lack of information or knowledge regarding sustainability initiatives? If so, which and how?
13. Does the organizational structure affect the adoption of SSCM practices, if so, how?

### **External drivers of SSCM**

14. Could you describe how customers affect the organizations' adoption of sustainability practices?
15. What role do suppliers play in the implementation of sustainability practices in your supply chain?

16. To what extent do competitors affect the organizations' approach to sustainable supply chain management?
17. How important is sustainability to potential investors, and have you ever experienced that they use sustainability as an investment criterion?
18. How do expectations or pressure from society affect the organization's approach to SSCM?
19. What is your experience with media attention regarding the organizations' approach to sustainability?
20. To what extent do regulations affect the implementation of sustainability practices in the organization?
21. Does the organization receive any financial incentives or other forms of government support for the adoption of sustainability practices? If so, how important is this for the organization?
22. Do you use certifications in relation to sustainability? If so, how are they used?

### **External barriers to SSCM**

23. Does your customers or society in any way hinder your ability to adopt sustainability practices? If so, how?
24. Do your suppliers constrain your ability to engage in SSCM practices in any way? If so, how?
25. Are there any regulations that you perceive as ineffective or counterproductive? If so, how and which?
26. Are there any additional factors that either hinder or push the organization to adopt SSCM practices?



## Appendix 7 – Questionnaire

### Factors that influence sustainable supply chain management

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Do you consent to participate in this study and that your information is treated according to the guidelines presented in the informational memo until the project is completed? \*

You can find informational memo here:

<https://filesender.uninett.no/?s=download&token=feaf04cf-0667-4a41-8bbb-140bf6146912>

Yes

No

#### 1. Fundemantal questions

1.1 What industry/sector does your organization operate in? \*

Bank/Finance

Retail

Engineering

Manufacturing

Healthcare

Telecommunication


Logistics

IT: Hardware/Software

Legal

Shipping/Offshore/Maritime

Other (please specify in the text-box below)

 Dette elementet vises kun dersom alternativet «Other (please specify in the text-box below)» er valgt i spørsmålet «1.1 What industry/sector does your organization operate in?»

## 1.2 Number of employees in your organization

1-9

10-49

50-99

100-499

More than 500

## 1.3 Yearly sales (NOK)

0-15 mill

16-70 mill

71-350 mill

Over 350 mill

## 1.4 What is your current position within the organization? \*

Please select the alternative that best describes your current responsibilities within the organization, if none of the predefined roles are appropriate you may select the "other".

General manager/CEO

Sustainability manager


Supply chain manager

Production manager

Purchasing manager

Other (Please specify in the text-below)

\*

 Dette elementet vises kun dersom alternativet «Other (Please specify in the text-below)» er valgt i spørsmålet «1.4 What is your current position within the organization?»

## 1.5 Define sustainability

Shortly describe what sustainability entails for your organization. You may do so by using 3-5 sentences that covers the most central aspects of your approach to sustainability.

## 1.6 Sustainability is a part of our strategy \*

Yes

No

### 1.6.1 In which of the following phases is your organization located currently? \*

Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «1.6 Sustainability is a part of our strategy»

We are working on setting some goals for sustainability

We are planning how we will reach our goals regarding sustainability

We are currently implementing sustainable practices/solutions

We have finished implementing some sustainable practices/solutions

## 1.7 Sustainability is something we consider in our supply chain \*

Yes

No

### 1.7.1 In which of the following phases is your supply chain located currently? \*

Dette elementet vises kun dersom alternativet «Yes» er valgt i spørsmålet «1.7 Sustainability is something we consider in our supply chain»

We are currently planning how we will implement sustainable practices in our supply chain

Parts of our supply chain have implemented sustainable practices

Sustainable practices has been implemented throughout the entire supply chain

## 2. Statements related to factors influencing the implementation of sustainable supply chain management (SSCM)

In the following section we present some factors that may influence your decision to implement SSCM practices. Please rate them on a five-point scale to the best of your ability.

The option "not at all important" means that the factor influences your decision to implement SSCM practices to a small degree, whereas "very important" means that they are among the most influential factors for your organization.

If some of the factors presented here does not impact your decision to implement SSCM practises to any extent, please select the option "not relevant"

### 2.1 Drivers

Please rate the following drivers according to their importance in your decisions related to SSCM implementation.

	Not at all important	Slightly important	Important	Fairly important	Very important	Not relevant
Regulatory factors - Government regulatory requirements *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulatory factors - Regulatory requirements from international institutions (e.g., EU) *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulatory factors - Certifications *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulatory factors - Government financial incentives (e.g., tax relief) *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulatory factors - Government support scheme *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market factors - Expectations from investors *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market factors - Expectations from other stakeholders *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market factors - Suppliers green initiatives *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market factors - Support from supply chain members *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market factors - Competitors green actions *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market factors - Expectations from customers *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Market factors - Increased brand awareness *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Social factors - Expectations from local organizations *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social factors - Pressure created by media *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social factors - Expectations from society *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social factors - Pressure from non-governmental organizations (NGOs such as green peace) *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal expectations - Increased operational performance *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal expectations - Increased profitability *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal factors - Top management commitment and support *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal factors - Expectations/motivation from employees *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2.1.2 Are there other drivers than those listed here that influence your decisions related to SSCM implementation?

## 2.2 Barriers

Please rate the following barriers according to their importance in your decisions related to sustainable supply chain management (SSCM) implementation.

	Ikke viktig	Lite viktig	Nøytral	Ganske viktig	Svært viktig	Ikke relevant
Financial - Initial cost of implementation *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial - Cost of environmentally friendly materials and products *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic and structural - Lack of sustainable goals in the organizations strategy *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic and structural - Lack of ability to engage in sustainable practices *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic and structural - Lack of commitment by top level management *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic and structural - Lack of employee motivation in adopting SCCM *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic and structural- Organizational bureaucracy *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic and structural - Lack of reward systems for adopting sustainability practices *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic and structural - Lack of knowledge and training in SSCM *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strategic and structural - Negative attitude towards sustainable products/solutions *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Demand-side - Lack of customer demand for sustainable products/solutions *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demand-side - Lack of willingness to share costs by customers *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demand-side - Customers are unfamiliar with the benefits of sustainable products *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demand-side - Lack of societal awareness regarding sustainable issues *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supply-side - Lack of supplier motivation in adopting SSCM *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supply-side - Lack of knowledge and information regarding sustainability *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supply-side - Lack of supplier willingness to collaborate and/or share information *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulatory - Ineffective or inadequate regulatory requirements *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulatory - Lack of government support policies *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2.2.2 Are there other challenges than those listed here that hinder your progress within SSCM?