



## **INCREASING SUPPLY CHAIN SUSTAINABILITY AND TRANSPARENCY WITH SUPPLIER AUDITS**

Lappeenranta–Lahti University of Technology LUT

Master's Thesis in Supply Management

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## **ABSTRACT**

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### **Increasing supply chain sustainability and transparency with supplier audits**

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79 pages, 8 figures, 4 tables

Examiners: Professor Jukka Hallikas and University Lecturer Sirpa Multaharju

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The aim of this master's thesis was to find out how companies can increase the sustainability and transparency of their supply chains with supplier audits. Another objective was to conclude how the selected target companies are utilizing supplier audits, what are the benefits and challenges in utilizing supplier audits and how the role of audits is viewed in the future. A literature review was conducted to gain a comprehensive picture of the existing literature and theory around the topic. The actual data was collected with semi-structured interviews from four interviewees representing Finnish companies in the manufacturing industry.

The results show that there is little variation between the ways companies utilize supplier audits, as well as the motives companies have for them. Supplier audits were seen as especially effective in supply chain risk management and supplier development. Audits were also viewed as an effective way of passing on responsible practices in the supply chain. According to the results, the biggest challenges in supplier audits are cultural differences and language barriers especially between European and Asian countries, as well as the disruptions in the supply chain caused by the Covid-19 pandemic. Audits were also found to have a key role in aiming towards sustainability and transparency in the supply chain, and the role of audits in supply chain risk management was emphasized. Based on the results, it can be stated that audits have two key roles in increasing sustainability: supplier development and ensuring supplier compliance. The future significance of supplier audits is expected to increase due to the increasing demands in legislation, as well as the growing external pressure by stakeholders. Additionally, supply chain sustainability and transparency are also expected to gain more significance in the future, due to the increasing conversation regarding the climate change and social issues in the supply chain.

## **TIIVISTELMÄ**

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### **Toimittaja-arviointien hyödyntäminen toimitusketjun kestävyiden ja läpinäkyvyyden kasvattamisessa**

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Tämän pro gradu -tutkielman tavoitteena oli selvittää, miten toimitusketjun kestävyyttä ja läpinäkyvyyttä on mahdollista kasvattaa toimittaja-auditointien avulla. Lisäksi tarkoituksena oli tutkia kohdeyritysten tapoja auditoida, auditointien hyötyjä ja haasteita sekä sitä, millaisena auditointien rooli nähdään tulevaisuudessa. Työn pohjana käytettiin runsaasti erilaisia artikkeleja ja muita lähteitä, jotta aiheeseen liittyvästä teoriasta ja aiemmista tutkimuksista voitiin muodostaa kattava kuva. Varsinainen tutkimusaineisto kerättiin puolistrukturoiduilla teemahaastatteluilla. Haastatteluihin osallistui edustaja neljästä suomalaisesta teollisuusyrityksestä.

Tutkimuksen tulokset osoittavat, että yritysten tavat toteuttaa auditointeja sekä auditointien taustalla vaikuttavat motiivit ovat melko samankaltaisia eri yrityksissä. Auditoinneista koettiin olevan hyötyä erityisesti toimitusketjun riskien hallinnassa sekä toimittajien kehittämisessä. Auditointien koettiin olevan hyvä väylä viedä vastuullisia ja yritysten hyväksi kokemia toimintatapoja eteenpäin toimitusketjussa. Auditointien suurimmiksi haasteiksi mainittiin kulttuurierot ja kielimuuri erityisesti Euroopan ja Aasian maiden välillä, sekä koronapandemian aiheuttamat häiriöt toimitusketjussa. Auditoinnit nähtiin tärkeänä osana yritysten vastuullisuuspyrkimyksiä, ja tässäkin tapauksessa auditointien vaikutus riskien hallintaan nähtiin merkittävänä. Tutkimuksen perusteella voidaan sanoa auditoinneilla olevan kaksi roolia yrityksen vastuullisuuden kasvattamisessa: toimittajien kehittäminen sekä ostajayrityksen eettisten ohjeiden noudattamisen varmistaminen. Auditointien merkitys tulevaisuudessa nähtiin kasvavana erityisesti lisääntyvien lainsäädännöllisten vaatimusten ja sidosryhmiltä tulevan ulkoisen paineen takia. Vastuullisuuden ja läpinäkyvyyden roolin nähtiin myös kasvavan entisestään tulevaisuudessa, johtuen lisääntyvästä keskustelusta ilmastomuutoksen ja sosiaalisten ongelmien ympärillä.

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In Espoo, 8th December 2022

Linda Henriksson

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# 1 INTRODUCTION

The purpose of this paper is to examine the effects supplier audits have on supply chain sustainability and transparency – the aim is to conclude how companies can increase sustainability and transparency in cooperation with their suppliers. While supply chain sustainability and transparency have been widely discussed in academic literature, supplier audits have received considerably less attention during the past years. The focus in the literature has mainly been on the process of supplier audits, and fewer researchers have focused on the content of them. This study is aiming at addressing the research gap in describing the different ways companies have in conducting supplier audits, as well as utilizing the audits in increasing supply chain sustainability and transparency. The introduction chapter of this paper consists of an overview of the issue behind this research, research questions, theoretical framework, and the key concepts, as well as a brief introduction of the methodology.

Without a doubt, sustainability is one of the most widely discussed topics from the past few years (Kronborg Jensen 2012). Since the term “sustainability” was first introduced in literature over 30 years ago, there has been time for different definitions to be developed for the term. In their report “Our common future” The World Commission on Environment and Development has defined sustainability as “the way of using resources to meet the needs of the present without compromising the ability of future generations to meet their own needs” (Winter & Knemeyer 2012). Keeping this definition in mind, companies have had to focus more and more on the sustainability of their operations during the past few years. Thus, the relevance of sustainability in supply chain management has also increased significantly.

According to Bové & Swartz (2016), the environmental and social costs of the supply chain of a typical consumer company are far greater than the company’s own operations. They state that supply chains are accountable for 90 % of the impact on air, land, water, biodiversity, and geological resources, and 80 % of the greenhouse gas emissions. The sustainability issues within the supply chains are evident, and



this has pushed companies towards working in collaboration with their suppliers to try to create more sustainable supply chains. Out of the different supplier evaluation methods, supplier audits have been increasing their significance, since they are an effective method in ensuring that the sustainability requirements are met throughout the entire supply chain. In addition, Castka et al. (2021) state, that supplier audits are also effective when it comes to the transparency and traceability of products and have an important role in managing the performance of the suppliers.

## 1.1 Research questions and limitations

The focus of this paper is on the connection between supply chain sustainability and transparency and the auditing of suppliers. Sustainability and transparency have been widely discussed and studied during the past years, and as their significance increases have the selection of suppliers and assessment of the chosen suppliers become more and more important for companies – after all, the selected suppliers and their level of sustainability greatly affect the sustainability of the company (Grosword et al. 2014). The aim of this study is to find out how companies are utilizing supplier audits to support their supply chain sustainability and transparency and what is the importance of those, as well as map the possible benefits and challenges companies face with utilizing supplier audits. Based on these goals, the research questions of this study are presented below.

The main research question is:

*“How can supplier audits increase the sustainability and transparency of the supply chain?”*

The main research question focuses on supplier audits and aims to conclude how supplier audits can be helpful in increasing supply chain sustainability and

transparency. The main research question is supported by the following sub-questions:

*“How do companies view the importance of supply chain sustainability and transparency to their business and in their industry?”*

*“How are companies utilizing supplier audits?”*

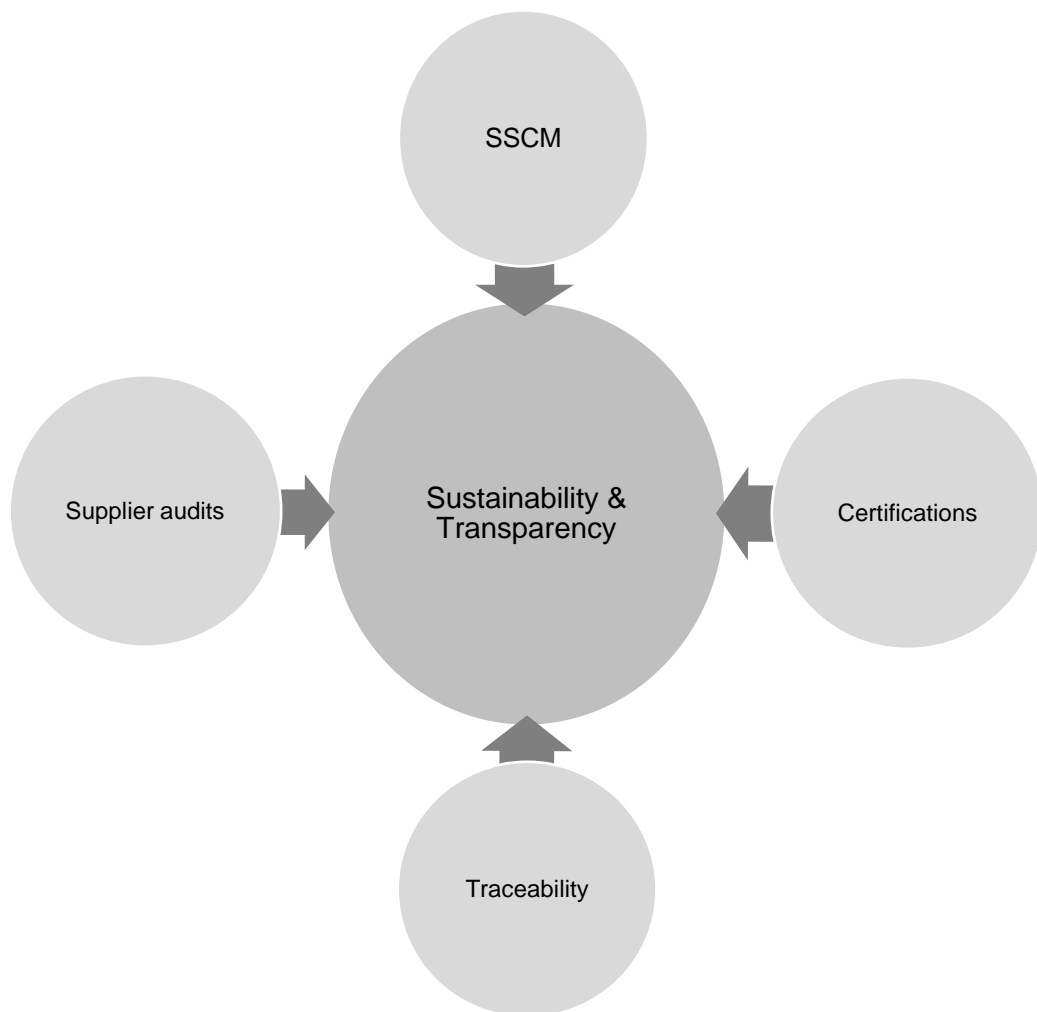
*“What are the benefits and challenges in conducting supplier audits?”*

The aim for the sub-questions is to provide background and support the main research question and offer more information on supplier audits – what the benefits and challenges in them are and how can they be utilized in different companies. The sub-questions are also meant to help in understanding how companies view sustainability and transparency in their supply chains, and what is their importance.

It must be noted that the limited number of interviewees effects on the generalization of this study. All interviewees represent companies in the Finnish manufacturing industry, which means that no broad conclusions can be drawn from this research. In addition, while all three aspects of sustainability are presented and to some extent discussed in this paper, the focus is on the environmental and social aspect especially in the empirical part of this research.

## 1.2 Theoretical framework

The aim for the theoretical framework is to introduce the concepts and definitions that are in the center of this study. The theoretical framework, it's parts and their connections are visually presented below in figure 1.



*Figure 1. Theoretical framework*

The idea for this research stems from the growing demand companies face to increase sustainability as well as the need to be more aware of the origin of their products and supply. Sustainability is in the very center of this research and is discussed in the context of its all three aspects: environmental, social and economic. Sustainability is especially discussed in the context of supply chain management. Other important key definitions to this research are supply chain transparency, supplier assessment as well as traceability of the products and materials – these concepts are briefly introduced in chapter 1.3.

### 1.3 Key definitions

This chapter briefly introduces the key definitions that are often used within this study. The definitions will provide a base for this paper, and they will be further discussed in the theoretical part of this research.

#### *Sustainability*

Sustainability has been a widely discussed topic during the past years. The Brundtland report from 1987 defines sustainability as the ability to meet the needs and standards of today without compromising the ability of future generations to meet their own needs. The word sustainability is based on the Latin word “sustain”, which means to maintain or to keep in existence. (Markman & Krause 2016) Sustainability is often divided into environmental, social, and economic sustainability (Elkington 1997).

#### *Supply chain management*

According to Blanchard (2007), a supply chain includes the processes and events that ultimately result in the customer receiving the product; it extends from the ultimate supplier to the end customer. Supply chain management can be described as the controlling of this process, and consists of planning, sourcing, making, delivering, and returning.

#### *Supply chain transparency*

In the past years companies have become more and more accountable for their supply chain's operations. Montecchi et al. (2021) define supply chain transparency as a practice of providing accurate information about operations and their products, such as their origin.

### *Traceability*

Traceability is closely linked to supply chain transparency and can be described as the organizational routines and technological systems necessary to gather and distribute information about the origin of the company's products (Montecchi et al. 2021).

### *Supplier assessment*

Supplier assessment is the process in which the company evaluates the performance and potential of the supplier in various areas. In literature, more and more researchers are focusing on the environmental aspects of the supplier selection issues. (Dai & Blackhurst 2012)

### *Supplier auditing*

Supplier audits are a way of ensuring the supplier's compliance with standards and regulations. They usually include an on-site visit to the supplier's factory or headquarters, but can also to a certain extent be conducted remote (Castka et al. 2021)

## 1.4 Methodology

The theoretical part of this research is based on previous studies about this topic. The aim for the theoretical part is to gain a deep understanding of the issue and to ensure this, the literature used in this study is originated from different time periods and scholars.

The empirical part of this study is based on qualitative research, and more specifically a case study that was chosen due to the nature of the research issue and questions. The research is conducted by interviewing company representatives

within the Finnish manufacturing industry. The methodology is further discussed in chapter 4.1 in the empirical part of this paper.

## 1.5 Structure of the study

This chapter introduces the structure of this paper. The study is divided into two sections, the theoretical part and the empirical part. The first chapter introduces the topic and its background as well as the key concepts of this study. Chapters 2 and 3 focus on sustainability and transparency of the supply chain and discuss these topics more in depth. The empirical part begins in chapter 4 and consists of a description of the methodology and data collection, and then moves on to the analysis part in chapter 5. Finally, the results are presented and discussed in chapter 6.

## **2 SUSTAINABILITY IN SUPPLY CHAIN MANAGEMENT AND SOURCING**

The focus of this chapter is on sustainability, which is discussed through the concept of “triple bottom line”. After discussing sustainability and its different definitions and aspects, the focus turns to the connection of sustainability and supply chain management. The remaining of this chapter focuses on sustainability in sourcing.

### **2.1 Sustainability**

Companies and organizations worldwide are increasingly adopting sustainability in their operations (Ahi & Searcy 2014). Sustainability as a concept was originally established in the late 1980’s, when it was mentioned in the 1987 Brundtland report written by the United Nations via the Oxford University Press (Markman & Krause 2016). Since this, sustainability as well as sustainable development have become widely popular terms in both literature and research. As Ahi & Searcy (2014) state in their research, the wide adoption of the term has also created a dilemma: while sustainability as a concept has existed for decades, there is still a lack of consensus of what sustainability in fact means, and what can be seen as sustainable development. These terms are also often used as synonyms in literature. However, the focus of this paper is on sustainability itself, while sustainable development is left more in the background.

As already mentioned in chapter 1.3, the most common definition to sustainability is the following 1987 Brundtland Report definition: using resources to meet the needs of the present without compromising the ability of future generations to meet their own needs. As can be concluded from this definition, sustainability is a multidimensional and complex issue (Ahi & Searcy 2014). According to Geissdoerfer et al. (2016), in addition to the definition by the Brundtland report, sustainability has over 300 additional definitions. For example, sustainability can be defined as “a

*situation in which human activity is conducted in a way that conserves the functions of the earths ecosystems” or “a transformation of human lifestyle that optimizes the likelihood that living conditions will continuously support security, well-being and health, particularly by maintaining the supply of non-replaceable goods and services.”* The problem with these various definitions is, that they don't provide organizations any insight on how to actually incorporate sustainability in their processes, and how to balance between the multiple demands different stakeholders have (Carter & Rogers 2008).

Sustainability can nowadays be seen as a key aspect in business and a great number of organizations are viewing sustainability as an important part of their strategies. According to Carter & Rogers (2008), companies acting in a sustainable manner take various environmental, economic, and social issues into account when planning their operations and processes. The best-case scenario is, that by acting responsibly companies can have other positive effects to their business as well, such as an enhanced reputation and competitive advantage.

### 2.1.1 Sustainability as a decision-making strategy

Decision-making can be defined as a cognitive process that results in selecting a course of action among different alternatives. In order to truly achieve sustainability, an organization should aim at viewing sustainability as a decision-making strategy. According to Hugé et al. (2011), to reach this, the three following aspects should be taken into consideration:

1. Interpretation: sustainability should be viewed in its socio-environmental context, and considering its organizing principles
2. Information structuring: being a complex, multi-dimensional concept, sustainability should be divided into operational information units, such as indicators, and properly communicated

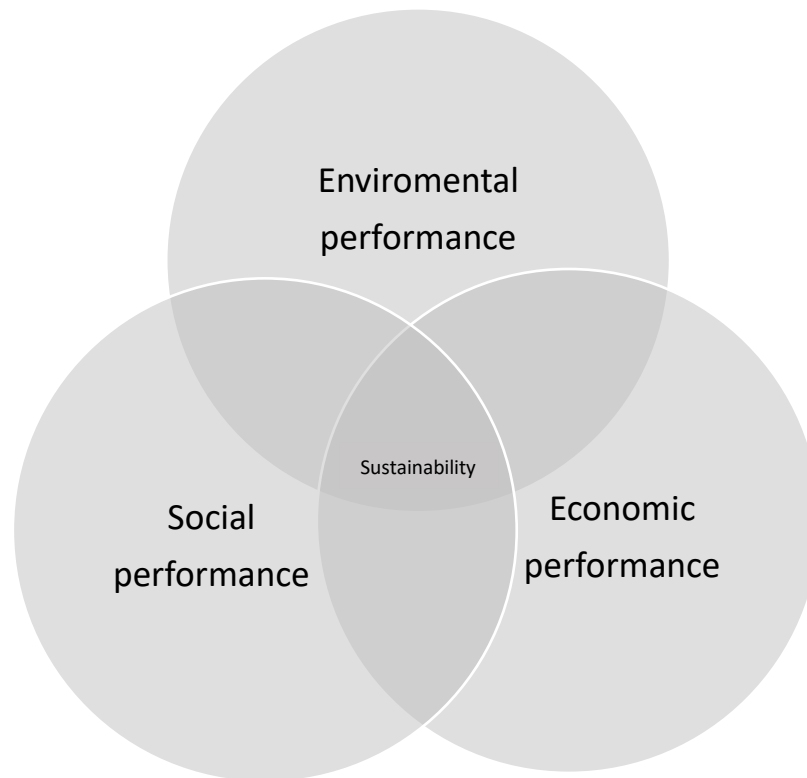


3. Influence: sustainability information should lead to actually influencing the decision-making process and the implementation of sustainable development

In the process of including sustainability in the decision-making process, sustainability assessment can be utilized. Bond et al. (2012) define sustainability assessment as “any process that directs decision-making towards” sustainability. More precisely, Waas et al. (2014) state, that sustainability assessment can be seen as any process that aims to gain a better understanding of sustainability as a context (interpretation challenge), integrates sustainability issues into decision-making by evaluating either past or future sustainability impacts (information structuring challenge), or foster the sustainability objectives (influence challenge).

## 2.2 The Triple Bottom Line

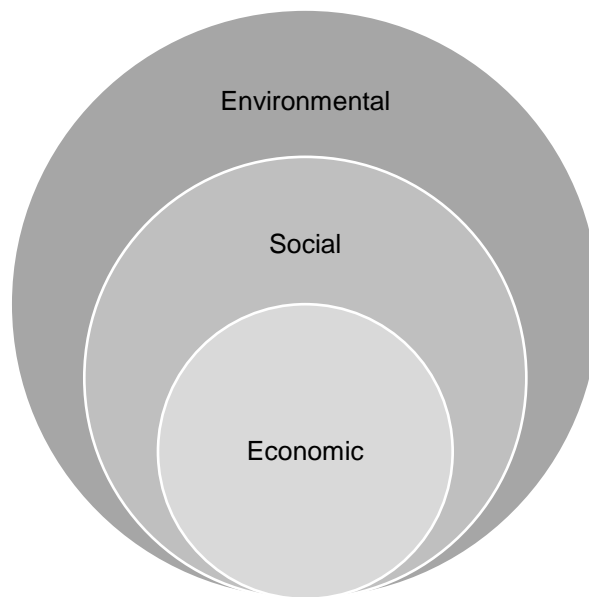
To gain a better understanding of sustainability as a concept, the triple bottom line approach (introduced by Elkington 1997) can be utilized. As is stated in the literature review by Carter & Rogers (2008), the triple bottom line consists of environmental performance, economic performance, and social performance. The three aspects of triple bottom line are visually represented below in figure 2. The idea behind the triple bottom line is, that a company’s performance should not be only assessed by financial measures, but also include ecological and social viewpoints (Norman & MacDonald 2004).



*Figure 2. The triple bottom line of sustainability (Carter & Rogers 2008)*

As can be seen from figure 2, the triple bottom line model places sustainability in the center of the three aspects. According to Carter & Rogers (2008), the triple bottom line suggests that by taking all three aspects into account in their business, organizations can achieve long-term economic benefits and affect positively on the environment and society, and through these even gain competitive advantage for their company and business.

Traditionally, the triple bottom line represents all three aspects as equally important, as is suggested by the equal size of the circles in figure 2. To focus extra attention to the environmental performance of the triple bottom line, Montabon et al. (2016) have created a logic called “ecologically dominant logic”, which is visually illustrated below in figure 3.



*Figure 3. Ecologically dominant logic (Montabon et al. 2016)*

The development of this model stems from the idea that the priority should be to protect the environment followed by society, and only after that focus on the profits – as can be seen from figure 3 above, the social and economic issues are placed inside the environmental ones. This was also suggested by Griggs et al. (2013) when they stated that “*the global economy services society which lies within Earth’s life-support system*”. The background for the ecologically dominant logic can be summarized in the Brundtland Report’s definition to sustainability: to keep the planet inhabitable, more weight needs to be put on solving the environmental issues. Thus, organizations need to focus increasingly on the environmental effects of their business. This can not only increase their competitiveness in their industry, but also help them achieve economic advantages, such as cost savings due to reduced packaging waste, reduced health and safety costs, lower labor costs and an enhanced reputation (Carter & Rogers 2008).

While the triple bottom line can be a useful tool to improving an organizations sustainability, it has also received some criticism. For example, Norman & MacDonald (2004) state that since environmental and social performance are not as

easily measured with quantitative measures as the financial performance, it can be difficult to truly evaluate how the organization is performing in these areas. The lack of quantitative measures is also creating an opportunity for companies to brand themselves as socially responsible just by utilizing the qualitative measures, which are much harder to prove accurate.

### 2.2.1 Environmental sustainability

According to Dyllick & Hockerts (2001), environmental sustainability is based on the idea that the utilization of natural capital can't continue endlessly. Natural capital can briefly be categorized into natural resources, such as wood (renewable) or fossil fuels (non-renewable) and ecosystem services, for example climate stabilization or the reproduction of animals and plants. Although critical to the humanity, the ecosystem service remains far less understood compared to natural resources. To achieve environmental sustainability, an organization should not endanger the ecosystems, should not use more natural resources than what is their reproduction ability, and should keep the emissions in a level where the environment can naturally either assimilate or absorb them. (Dyllick & Hockerts 2001)

As is mentioned in their research, Aguilera et al. (2021) define environmental sustainability as corporate strategies and types of behavior that are meant to decrease the impact the company has on the environment. This includes implementing policies and processes throughout the entire value chain that can reduce those impacts. Factors such as energy consumption, sustainable resources and waste management should be considered while implementing more ecologically sustainable processes. In addition, environmental management systems, such as ISO 14001, can be utilized to help improve sustainability. To ensure that the implementation of environmental sustainability practices is successful, companies should focus especially on the diversity of the board, aligning financial and environmental strategies and outcomes and ensuring that employees are heard in environmental decisions. The challenge lies in minimizing conflict between actors

and their possibly different interests when it comes to sustainability. (Aguilera et al. 2021)

The environment and its ecosystems are highly important to businesses since they not only impact but also depend on them (Visser 2009). Since the deterioration of the environment has become a known issue, a wide spectrum of different measures and indices have been developed to better understand the state of the environment and the effect humankind has on it. These indices can measure for example trends in the Earth's biological diversity (WWF Living Planet Index), the demand humankind has on the biosphere usually within a specific area, such as a country (Ecological Footprint) and how well countries are establishing the set sustainability targets (Environmental Performance Index). (Visser 2009; Wolf, M.J. et al. 2022) Whereas the indices are usually meant to analyze the state of the environment on a country- or area-level, various tools have been developed for organizations to assess their own performance in the context of environmental sustainability. One of the most widely utilized tool is the life cycle assessment, which can provide information on how the organizations processes are affecting the surrounding environment (Abdallah et al. 2011). The measurement methods will be further discussed in chapter 2.4.

### 2.2.2 Social sustainability

The definition of socially sustainable companies is, that they create value to the surrounding community by increasing the human capital of individual partners as well as furthering the societal capital of these communities (Dyllick & Hockerts 2001). In other words, social sustainability can be described as identifying and managing the impacts that business has on the surrounding society (United Nations Global Compact 2022). Social sustainability is often used as a synonym with corporate social responsibility (CSR), but the difference between them is that while social responsibility focuses solely on the social and ethical issues, CSR also has some similar attributes as environmental sustainability (Vallance et al. 2011).

According to several scholars (Missimer et al. 2017; Kaplan 2020; Carter 2005) the social dimension of the triple bottom line is in many cases considered as the least developed dimension of sustainability, thus making it vastly under-theorized as well as oversimplified. In addition, there remains no consensus on what sort of criteria and perspectives should be considered while defining the concept of social sustainability (Missimer et al. 2017).

Social sustainability focuses on aspects related to people, such as working conditions, the compliance with labor legislation, human rights and health and safety in the workplace. In their research, Alghababsheh & Gallear (2020) point out, that the issues related to social sustainability have gained an increasing amount of attention during the past few years, following accidents such as factory collapses and reports of the increased amount of child labor and forced labor. Social issues in the supply chain may lead to problems for the purchasing company since the state of sustainability of a single supplier affects the sustainability of the entire supply chain. According to Alghababsheh & Gallear (2020), social sustainability practices must be well integrated into the company's strategy to prevent any potential damages. Supplier collaboration is highly emphasized when aiming at increasing the level of social sustainability of suppliers.

### 2.2.3 Economic sustainability

The third aspect of the triple bottom line is the economic performance. Throughout the history of business, growth has been viewed essential to companies. As discovered by Wilson et al. (2015), the lifespan of companies in the Fortune 500 list has decreased from 61 (1958) years to 18 years (2012). This is mainly due to rapidly increased competition, which has forced companies to constantly find new ways and develop their processes to gain profit from their business. In order to gain competitive advantage, a company must be able to learn faster than its competitors. To achieve economic sustainability, a company must guarantee sufficient cashflow

to ensure their liquidity and be able to generate profit for its stakeholders (Dyllick & Hockerts 2001).

### 2.3 Weak or strong sustainability?

According to Landrum (2018), there is a great variety in how organizations implement different sustainability practices. This is partly due to the vagueness of the term – without a universal definition, it's left for organizations themselves to interpret the term and decide on how to aim towards sustainability. For example, some organizations view sustainability as an additional improvement in their daily business, while others see it more as a change in their way of thinking. (Landrum 2018) In order for organizations to be truly sustainable, sustainability should be viewed as a part of the decision-making strategy (Waas et al. 2014).

One of the questions that yet remain to be answered is that how it is possible that sustainability has been increasingly adopted in organizations during the past years, and yet the environmental conditions continue their deterioration. Dyllick & Muff (2016) have named this paradox as “*the big disconnect*”, and have three explanations to it: firstly, they state that organization's understanding of sustainability has been misguided. In other words, it is not the same thing *to reduce unsustainability* and *create sustainability*, and most of the actions taken by organizations to increase their sustainability can in fact be classified as reducing unsustainability. The misunderstanding of these terms can be traced back to the lack of a universal, standard definition for the term sustainability. Secondly, they argue that there remain multiple constructs that haven't been properly integrated (for example corporate social responsibility and corporate sustainability). Finally, they point out that the micro- and macro-level understanding of sustainability have not been integrated. (Dyllick & Muff 2016; Landrum 2018)

To better assess organization's actions towards sustainability, a model called sustainability spectrum has been developed (Landrum 2018). The spectrum

introduces the terms weak and strong sustainability and places them on a line segment. The sustainability spectrum provides a theory for identifying the sustainable actions as well as noticing the differences between sustainable and non-sustainable actions. According to Landrum (2018), “*weak and strong sustainability are differentiated by their approach to integration, the ambition of the vision of change, the complexity of the innovation and the extent of collaboration among social, political and economic actors.*”

Subsequently, weak and strong sustainability can be seen as the foundation for contemporary theories around the topic. The main differences of weak and strong sustainability are presented below in table 1.

*Table 1. Main differences between weak and strong sustainability  
(adapted from Pelenc et al. 2015)*

	<b>Weak sustainability</b>	<b>Strong sustainability</b>
<b>Key idea</b>	Natural capital and other types of capitals are substitutable	Limited substitutability of natural capital
<b>Consequences</b>	Innovations can compensate environmental degenerations	Human actions can entail irreversible consequences
<b>Sustainability issues</b>	The total value of capital should be at least maintained	Conserving the irreplaceable natural capital for future generations
<b>Key concept</b>	Optimal allocation of scale resources	Critical natural capital



In general, weak sustainability views man-made capital (MMC) and critical natural capital (CNC) as substitutes for each other. Hence, if the CNC at some point runs out, sustainability can still be achieved if enough MMC is utilized to replace the CNC. However, this can cause issues in the future since there still remains a lack of consensus whether all forms of CNC are truly replaceable. Whereas weak sustainability sees CNC and MMC as substitutes, strong sustainability is based in the idea that the level of critical natural resources should either be maintained or increased. According to Neumayer (2003), the problem with the definition of strong sustainability is that there is no priority for the different elements in natural resources - for example, biodiversity, as important to humankind as it is, is not in all cases viewed as part of them. (Purdon 2013)

## 2.4 Sustainability and supply chain management

Supply chain operations are one of the most environmental-heavy operations throughout the organization – as stated by Bové & Swartz (2016), supply chains produce more than 90 % of an organizations overall environmental impact. Considering this, it is no wonder that sustainable supply chain management (SSCM) has received an increasing amount of focus in literature and study during the past years and companies are facing more pressure to reduce their environmental impact not only in their own processes and actions, but also throughout the entire supply chain (Kronborg Jensen 2012). In fact, it has been shown that the main reason behind sustainability practices is the external pressure companies face (Beske 2012; Fraser et al. 2020). This has become essential especially now, that processes and supply chains are increasingly sprawled around the globe, and because an organization might be held accountable for not only their own, but also the actions of their suppliers. (Seuring & Müller 2008). The triggers for sustainable supply chain management are visually presented below in figure 4.

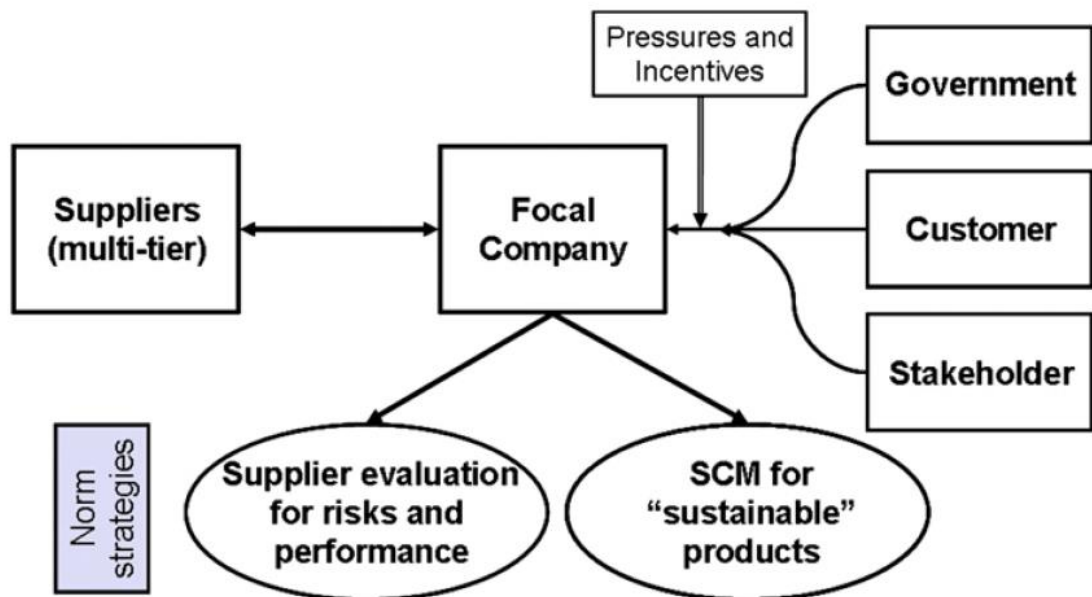


Figure 4. Triggers for sustainable supply chain management (Seuring & Müller 2008)

According to Seuring & Müller (2008), the starting point for sustainable supply chain management is the external pressure companies face from especially two different groups of stakeholders: customers and different types of government control, such as local authorities and multi-national governments. Especially in the case of larger, multi-national companies the external pressure from different stakeholders pushes the organizations into extending the implementation of sustainability practices further along the supply chain, beyond the sustainability level needed for economic reasons. This includes performing both risk-based and performance-based evaluation for the suppliers.

Based on their research around the topics of sustainable supply chain management, Seuring & Müller (2008) have identified three distinctive features for sustainable supply chain management. Firstly, SSCM must look at the supply chain with a wider perspective and consider multiple issues throughout the entire chain. Secondly, and also linked to the first feature, SSCM includes a wider spectrum of performance

objectives, and focuses especially on the environmental and social aspects of sustainability which are increasingly in the center of public discussion. Thirdly, SSCM includes an increased need for communication and cooperation among all the actors within the supply chain – this means including the suppliers in the process of aiming towards sustainability.

According to Mentzer et al. (2002), supply chain management can be defined as *“the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole”*. This combined with sustainability, the definition for sustainable supply chain management (SSCM) according to Seuring & Müller (2008) is *“the management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e. economic, environmental and social, into account which are derived from customer and stakeholder requirements.”* While this definition for SSCM is the most cited one, it is also broad enough and thus leaves enough possibilities for further research and defining (Beske-Janssen et al. 2015). What must be noted from the SSCM definition by Seuring & Müller is that it highlights communication and cooperation among the supply chain – for the supply chain to truly achieve sustainability, suppliers need to be included in the process. The definition is also based on the triple bottom line, thus including all three dimensions of sustainability in the definition.

For the supply chain to achieve sustainability, the performance of both the suppliers and the supply chain must be measured (Beske et al. 2006). Multitude of performance indicators have been developed to help with this, but according to Beske-Janssen et al. (2015), the main performance indicators can be summarized as quality, speed, flexibility, dependability, and cost. However, the incorporation of sustainability into supply chain management creates some issues with these indicators. While being useful in assessing the economic performance, the indicators

are not suitable for measuring the environmental and social performance of the supply chain. In addition, as stated previously in this research, sustainability can be difficult to measure, especially when it comes to the social dimension. Beske-Janssen et al. (2015) also note, that aiming towards sustainability in one dimension may cause a conflict with another dimension, which can cause issues when aiming to achieve sustainability in more than one dimension at the same time. For example, there might be an increase in procurement costs when materials are changed into more environmental-friendly options.

To tackle the issues with the use of only the economic performance measures, several indices and methods are created to focus more on the environmental and social dimension of sustainability. In their research, Beske-Janssen et al. (2015) mention three of those: product carbon footprint, life cycle assessment (LCA) and sustainability balanced scorecard (SBSC). While various environmental footprint indices have been developed (such as blue water footprint, chemical footprint, and ecological footprint), product carbon footprint is one of the most popular and is thus more specifically introduced in this research. In addition, it has been proven to be particularly effective in supporting the assessment of environmental impacts and decisions related to it. (Fang et al. 2015).

According to Kronborg Jensen (2012), while there is no specific origin for the term product carbon footprint, it is most likely based on the term ecological footprint which has been formulated already in the 1990's. The idea behind product carbon footprint as a measurement tool is to summarize the carbon emission created by the product throughout its entire life cycle, from harvesting the material to the end user. The product carbon footprint is also closely linked to the life cycle assessment which is an evaluation method to help assess the environmental impacts caused by a specific product (Abdallah et al. 2011). The life cycle assessment can help organizations make environmentally sustainable decisions (for example in raw material and supplier selection) by providing measurable information about different products and their effects on the environment (Abdallah et al. 2011). In general, the life cycle assessment provides a broader view of the product, whereas the product carbon

footprint only focuses on the carbon emissions. The third performance measurement method is the sustainability balanced scorecard, which is based on the balanced scorecard, a method for balancing financial and non-financial as well as short-term and long-term measures with four performance perspectives: finance, customers, internal processes, and growth (Hansen & Schaltegger 2013). The sustainability balanced scorecard takes also the environmental, social, and ethical goals into account, thus providing a broader perspective.

## 2.5 Sustainability in sourcing

Purchasing companies are becoming more and more responsible for the ecological and social effects they have on the surrounding society and the people living in it. Sustainable sourcing is a concept, where sustainability practices are incorporated into the company's sourcing processes. Sustainable sourcing is usually based on Elkington's triple bottom line model, thus taking the three dimensions of sustainability into consideration – it can be defined as *“the management of all aspects of the upstream component of the supply chain to maximize triple bottom line performance”*. Sourcing has traditionally been related to an organization's direct suppliers, but more actors typically need to be included while aiming towards sustainability in the supply chain. Thus, sustainable sourcing can be practiced together with all stakeholders throughout the supply chain. (Akhavan & Beckmann 2016)

According to Schneider & Wallenburg (2012), the successful implementation of sustainability into an organizations' daily operations is strongly depending on the state of the sustainability in the purchasing department. Companies that aim for sustainability should include their entire supply base into the process, since they can only be as sustainable as their supply chain. In sourcing, sustainability can be increased with assuring that the supplier-buyer relationships are ethical, requiring the suppliers to comply with code of conducts, preventing the usage of child labor

and ensuring the diversity of the supply base by taking minority-owned suppliers into consideration (Schneider & Wallenburg 2012).

In sustainable sourcing and supplier selection, the environmental and social dimensions of sustainability need to be carefully considered. Environmentally sustainable supplier selection can include seeking suppliers that are continuously aiming towards more environmentally friendly technologies, take environmental issues into consideration in their daily processes and actively aim towards environmental responsibility. Socially sustainable supplier selection on the other hand ensures that the suppliers are not involved in any form of involuntary labor, comply with labor laws and do not practice discrimination. In addition, ethical behavior of top management and good ethics throughout the entire supplier company should be considered. (Goebel et al. 2010)

### **3 SUPPLY CHAIN TRANSPARENCY AND ASSESSING THE SUPPLIERS**

The third chapter of this paper shifts the focus from sustainability to transparency and the concepts linked to it. Traceability and different certifications and standards are viewed as methods to help achieve supply chain transparency. The second part of this chapter focuses on supplier audits, and those are again linked to transparency and sustainability.

#### **3.1 Aiming towards transparency in the supply chain**

Supply chain transparency is by no means a new topic, although it has received significant academic interest during the past years. As stated by Montecchi et al. (2021), organizations are facing the challenge of improving their supply chain sustainability to meet the increasing regulatory requirements, ensure the sustainability of their processes and to guarantee that their operations and products meet the high-quality standards. Consumers today are increasingly aware of sustainability issues and are holding companies more accountable for the impact they have on the environment and society surrounding them – this together with wanting to remain a trustworthy partner to other actors in the supply chain is pushing companies to finding more ways to increase their supply chain transparency.

As stated previously in chapter 1.3, supply chain transparency can be defined as *“the practice of disclosing detailed and accurate information about operations and products, such as their origin and sourcing, manufacturing processes, costs and logistics”* (Bai & Sarkis 2020). For example, organizations may be providing information on when, where and by whom their products are being made, or providing customers and other stakeholders detailed information on what is the origin of the raw materials they use in their processes. The Covid-19 pandemic had its impact on supply chain transparency as well, since customers want to ensure the safety of the products that they purchase. (Montecchi et al. 2021) To better

understand the concept of supply chain transparency, Bai & Sarkis (2020) have identified three dimensions it consists of. First is the range of transparency: this dimension includes factors such as social and environmental information of the supply chain and sharing information with others in the supply chain. The second dimension is product transparency which can be defined as tracking the information shared throughout the supply process, such as providing information on the origin of the raw materials and the sustainability of the entire production process, all the way from the origin to the final customer. The third dimension is participant transparency, which is providing information about the participants in the supply chain.

Moreover, according to Bai & Sarkis (2020), for the company to achieve effective supply chain transparency, participation is needed from all actors throughout the supply chain. This can be seen especially important since organizations often have no way of independently ensure the sustainability of the suppliers beyond their own network such as their second- or third-tier suppliers. If not being aware of the supply network, organizations can face various challenges and consequences due to unethical or even illegal practices, environmental hazards, or disruptions in production. These consequences can lead to sanctions from the government, deterioration of reputation or even criminal charges. As Carter & Rogers (2008) stated, transparency is not only about reporting to stakeholders, but should be seen more as a two-way process with using feedback from the stakeholders to improve supply chain processes. The improvement can be either vertical across the supply chain, or horizontal improvement across supply chain networks.

One major aspect of future development in supply chain transparency is the European Union Corporate Sustainability Due Diligence Directive (CSDD), which is a legislation proposal with the aim of ensuring environmental and social impacts are considered in supply chains. These requirements expand from the company's own operations and processes to the impacts throughout their entire supply chain and goes beyond the current national laws and requirements. Traditionally, national laws



tend to have a more specific and targeted approach, whereas the CSDD has a more cross-sectional, comprehensive aim. (European Commission 2022)

The new law will affect companies both inside and outside of Europe. At least with the current proposal, the law would only apply to companies with the following restrictions:

**Group 1:** limited liability companies with more than 500 employees and more than 150 million in turnover worldwide

**Group 2:** those companies that don't meet the requirements for group 1, but operate in pre-defined high-impact sectors, and have more than 250 employees and a net turnover of more than 40 million worldwide

**Group 3:** non-EU companies that are active in the EU region, with turnover threshold generated in the EU aligned with groups 1 and 2

At this point, small and medium companies are not affected by the directive. As stated by The European Commission (2022), compliance with the new directive requires companies to integrate due diligence into their operations and corporate policies. They must identify potential human rights and environment associated issues, mitigate potential impacts and minimize the actual impacts caused by their supply chain. They are also required to establish and further develop a complaints procedure, as well as monitor and publicly communicate the effectiveness of their due diligence practices.

As the new directive aims at improving the ways companies consider human rights and environment related issues in their operations, it is expected to have great effects on supply chain transparency. The directive should increase the consciousness consumers have on the products that they purchase and encourage companies to better understand the impact they have on the environment and society surrounding them, as well as increase the role of companies with bigger market shares as forerunners. (European Commission 2022)

### 3.1.1 Traceability of products and materials

Traceability is a concept that is often linked closely or sometimes even used as a synonym with transparency (Montecchi et al. 2021). Traceability is a key concept in tracking the supply chain and provides information throughout the supply chain. According to Garcia-Torres et al. (2019), traceability can be defined as *“the ability to identify and trace the history, distribution, location and application of products, parts and materials, to ensure the reliability of sustainability claims, in the areas of human rights, labor (including health and safety), the environment and anti-corruption.”* Traceability can be viewed as an essential part of an organization’s quality management, as well as a strategy to manage uncertainty and diminish complexity throughout supply chains.

Roy (2020) has identified four different themes within supply chain traceability: the technology-dominant view of traceability, the supply chain-dominant view of traceability, traceability and product recalls and traceability for improving supply chain performance. The first one, the technology-dominant view, is based on the idea that by understanding how technology can be utilized in different supply chain processes, the organization can increase the traceability of their supply chain. By adapting different technological solutions, a company can be able to minimize disruptions and errors in their supply chain. The supply chain-dominant view addresses that with traceability, the supply chain can achieve a higher level of efficiency through error mitigation, increased visibility of processes and quality assurance. Traceability and product recalls emphasize the importance of provenance in the supply chain. Product recalls can be categorized as supply chain related, design related and manufacturing related. Finally, the traceability to improving supply chain performance can be defined as the idea that with efficiently aiming towards traceability, the organization can maximize the economic performance of its supply chain processes. Thus, supply chain traceability can have cost-reducing effects to the company.

### 3.1.2 Certifications

Different certifications are a useful tool in enhancing the transparency and traceability of the supply chain (Mol & Oosterveer 2015; Renzo et al. 2016). Certifications can be used to assure customers, suppliers and other stakeholders that a company is following specific guidelines and requirements in its processes. They are meant to enhance the consideration of environmental and social effects of the supply chain. The certification process traditionally requires a facility visit from a certification body – a specified third-party actor who assures that the requirements of the standards are being followed in the certified company. The certificates are usually valid for only a limited period (typically three years) and the compliance with the requirements of the certificate are monitored with annual audits, which means that the company is regularly inspected. A certification can apply to a certain person, product, process or a management system. (FINAS 2022)

Unlike requirements of legislation, certifications are a voluntary way of enhancing sustainability. The need for certifications has risen from the increased environmental and social issues that cause concern among consumers and other stakeholders – certificates are a useful tool in assuring that the supplier is following certain guidelines and requirements in their processes, and they have been proven effective in improving sustainability practices and awareness among stakeholders. Sustainability certificates allow consumers to evaluate their purchases in the context of environmental and social sustainability, and this will further encourage organizations to improve their sustainability practices. (Renzo et al. 2016) While the requirements and use of different certificates can vary greatly, Barry et al. (2012) state, that most of them include the following basic components:

- Setting the standard
- Managing the scheme
- Evaluating compliance based on the audit results
- Evaluating the certification body and auditors and their competence
- Marketing the scheme

If these components are applied in the certification, the main objective, creating cooperation and helping organization to improve their sustainability practices, can be achieved. In addition, improvement in management systems as well as increased productivity have been identified as the positive outcomes of certifications (Renzo et al. 2016).

Barry et al. (2012) have identified three main drivers behind the increasing popularity of certifications: non-government organizations (NGOs) and the civil society, government, and business. The role of NGOs and civil society can be traced back decades and they are in the background of developing various certification schemes and standards. Their effect is especially seen in engaging the consumers and increasing consumer influence in the use of certifications. The role of government is based on the rapid increase in global trade in the 1990s, and the effect the increase had on finding solutions to social issues. The government has not only created standards itself, but also provide legal frameworks and fund the development of standards and certification schemes. Finally, the role of business follows the change in the global business environment: processes and supply chains are now functioning within multiple markets and multiple time zones at the same time. The role of business highlights the cooperation among different stakeholders, such as NGOs and government agencies, and some businesses have even developed standards of their own. However, Barry et al. (2012) note that the most important role businesses have in the creation process of certifications schemes and standards, is to promote and drive the growth of them.

While the certificates have been proven effective when evaluating and assuring the transparency of the supply chain, there are some challenges and issues related to them. For instance, the requirements of different certification schemes are often vague and may leave opportunities for multiple interpretations, which can lead to overlapping among the different schemes. When competing schemes are existing simultaneously, the diversity of different scopes and practices may lead to less effective processes and outcomes. In addition, overlapping may result in greenwashing when organizations are able to choose the certification schemes most

suitable for them. To avoid overlapping, more attention should be focused on the interoperability of the schemes. Interoperability has the possibility of leading to enhanced outcomes and reduced costs of a single certification scheme. (Renzo et al. 2016)

## ISO 9001 and 14001

Some of the most used standards are the ISO 9001 and ISO 14001. These are voluntary, globally acknowledged management system standards developed in the 1980s-1990s to provide tools and help organizations adopt efficient ways to improve their management in certain focus areas.

ISO 9001 is a quality system standard designed to help with quality management system improvement – the implementation of ISO 9001 practices can help organizations to produce and deliver products and services according to the requirements of the standard. Organizations can also benefit from the standard by adopting a better way of organizing their processes, as well as learn methods for continuous improvement and consistency of outputs. (Prajogo et al. 2022) While the ISO 9001 is a useful tool in improving quality management practices, it must be noted that as the standard can be utilized in various types of organizations, it is also very generic when it comes to its requirements. As the standard is generic, the auditor assessing the implementation of the management system holds a more significant role – the experience of the auditor can influence on how the standard is implemented in the target organization. A more experienced auditor can provide a more consistent view of compliance and more accordingly assess the conformity level, while a less experienced auditor may be less demanding and allow an inferior operational performance. (Prajogo et al. 2022)

ISO 14001 is, like ISO 9001, a management system standard, with focus on environmental management. ISO 14001 is designed to endorse sustainability in the

context of environmental and economic objectives. It includes various aspects, such as the environmental impacts of product development and design, life cycle assessment, carbon and water footprint of products, environmental audits and inspections and communication related to environmental issues. The standard defines the processes, resources and methods that can help the organization to comply with set environmental targets and increase the level of environmental protection. (SFS Suomen Standardisoimisliitto 2022) The issues within ISO 14001 are similar to the ones in ISO 9001 – the auditor has a great influence on the outcome of the audit, and it is possible for companies to seemingly comply with the requirements of the certificate with minimal effort. (Prajogo et al. 2016)

### 3.2 Supplier audits

Ever since outsourcing became a norm among companies, the negative effects of outsourcing to reduce costs, such as violations in worker rights and labor conditions, have been in the center of discussion. This development has also created the question of how far along the supply chain can companies trace their materials and products, especially since larger companies might have hundreds, or even thousands of suppliers (and sub-suppliers) in their supply chains (Egels-Zandén 2017) With the increasing sustainability demands organizations face, supplier evaluation has become an important method for ensuring supply chain sustainability and transparency. Following this, organizations have developed company-specific supplier code of conducts, that define the requirements related to sustainability selected suppliers must meet (Fraser et al. 2020). The compliance to these codes of conduct is continuously monitored by the purchasing company to ensure supplier sustainability. One of the most effective ways of monitoring supplier compliance is supplier audits, that have significantly increased their significance during the past years. While supplier self-assessments can also be utilized to monitor compliance, the results of them are highly dependent on the information the supplier chooses to provide. Instead of relying on the information given by the supplier, companies can organize audits in the suppliers' facilities. (Fraser et al. 2020)

Supplier audits can be effective when assessing for example the environmental, ethical, or social sustainability. In their research, Fraser et al. (2020) categorize all different types of audits as sustainability audits. This definition also suggests, that unlike for example ISO certifications, these audits are not voluntary, but rather mandatory in order to engage cooperation with the purchasing company. While the focus of the audits can vary depending on their target, the auditing process itself is usually somewhat similar. The auditing process is illustrated below in figure 5.

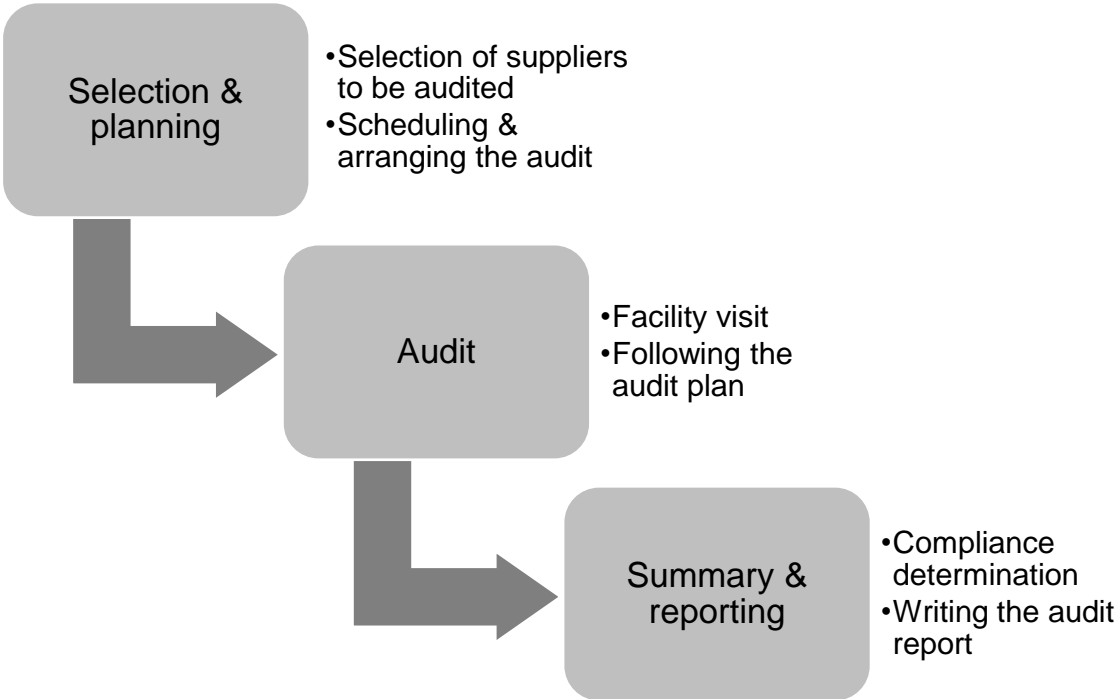


Figure 5. The traditional supplier auditing process

According to Castka et al. (2021), the traditional auditing process consists of three steps. The first step requires organizations to select and prioritize the suppliers they want to audit. This step includes conformity evaluation and cooperation with the auditing body, as well as scheduling the actual audit. The second step consists of the actual audit. This is traditionally a facility visit, where the auditor evaluates the

processes and conditions that are listed in the audit plan. In the third step the auditor prepares a summarizing report of the audit and defines whether the supplier complies with the requirements given by the auditing organization or not.

As a part of pre-planning the audit, selecting the suppliers to be audited is one of the key factors for a successful auditing process. Especially in larger companies with complex and global supply chains, it is impossible to audit all suppliers. Because of this, prioritization methods are crucial in ensuring that the audits are as useful as possible and provide enough valuable information to the purchasing company (Rhoades 2010). Suppliers can be prioritized for example according to geographic location, supplier size or importance, position in the value chain or type of offering. In addition, auditing new suppliers is often seen important whereas occasional suppliers are audited more rarely. (Egels-Zandén 2017)

### 3.2.1 From on-site to remote - supplier audits during the Covid-19 pandemic

When the Covid-19 pandemic hit the world in the beginning of 2020 and spread across the world at an enormous speed, global supply chains faced significant disruptions and barriers in their functions due to worldwide travel restrictions, border closures and different stages of lockdowns that forced businesses to close their doors and employees shift to remote work. As supplier audits are traditionally conducted on-site in the supplier's facilities, the pandemic forced organizations to quickly adapt new methods for conducting the audits. While remote audits had to some extent been researched already before Covid-19, the research was mainly focused on significant parts and methods of remote auditing, and not so much on the entire auditing process. Despite the lack of previous experience and comprehensive research, companies were able to shift from on-site to remote audits somewhat quickly. (Castka et al. 2021)

While the requirements for suppliers stayed the same during the pandemic, the actual auditing process went through some major modifications, and significant



differences can be found between traditional on-site audits and remote audits. As stated before, traditional audits are conducted mainly or entirely at the supplier's facilities – however, due to the travel restrictions and lockdowns this was not possible during the pandemic and organizations had to quickly adapt new ways of auditing suppliers. In remote audits all required steps are conducted remotely, and different technological solutions increase their significance. Such technological solutions are for example virtual meetings (Microsoft Teams, Zoom etc.), different cloud-based technologies and big-data analytics (Castka et al. 2020). In addition to technological solutions, pre-audit planning increased its significance as well. In general, conducting a remote audit requires more planning ahead compared to traditional audits – to be able to effectively utilize the audit time, it is essential to determine the scope and focus areas beforehand. It can also include for example requesting access to necessary documents or video footage of the supplier facilities, depending on the digitalization level of the supplier. (Castka et al. 2021)

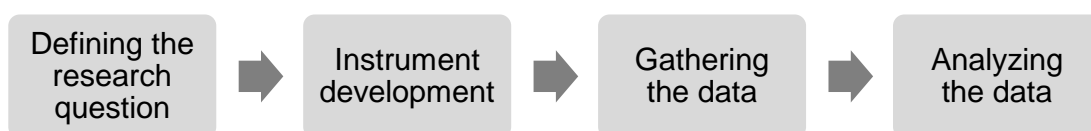
Remote audits have been praised for their flexibility among suppliers (Castka et al. 2021). The technological solutions, such as video footage and Teams-meetings have helped the auditors to reach a comprehensive outlook of the supplier's compliance. However, since the topic is yet somewhat new, more research must be conducted to gain a better understanding of the pros and cons of remote audits. While the experiences regarding remote audits are mainly positive so far and remote audits have some advantages compared to traditional ones, it is unlikely that remote audits will entirely replace on-site audits in supplier assessment, and some kind of hybrid model is more likely to gain more popularity (Castka et al. 2021).

## 4 METHODOLOGY AND DATA COLLECTION

The second part of this paper focuses on the empirical study. This was conducted to gain a more practical and comprehensive overview of the topics and definitions discussed in chapters 1-3. The empirical part consists of the introduction of methodology and data collection and the analysis of the information collected from the interviews.

### 4.1 Methodology and data collection

After a literature review around the topic is conducted, data collection follows. Data collection is based on the previously defined research questions, that also limit how the data should be collected and whether a qualitative or quantitative research method should be chosen. The final step in data collection is analyzing the collected data – this process is visually presented below in figure 6.



*Figure 6. The research process model (adapted from Stuart et al. 2002)*

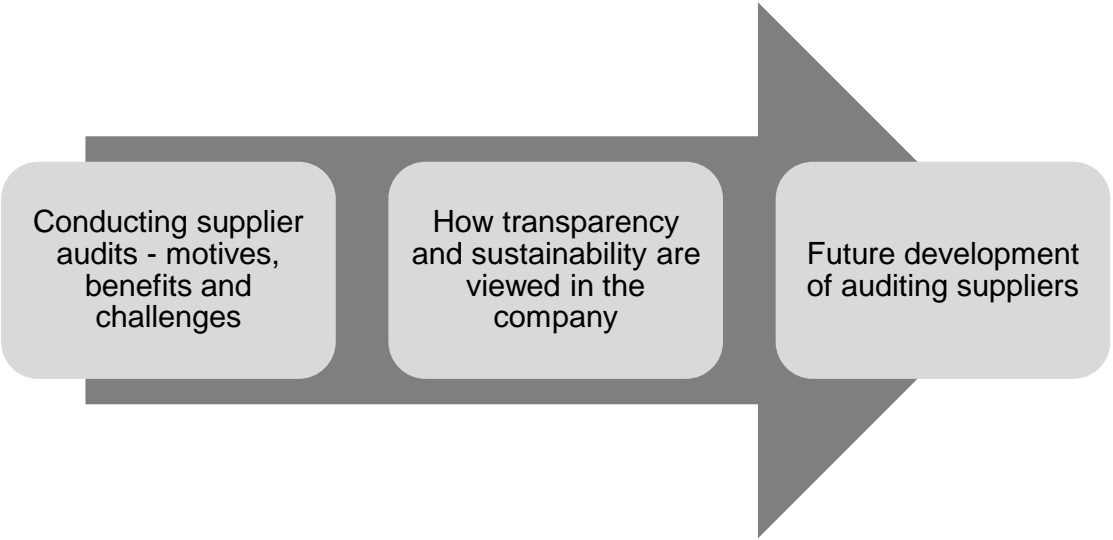
This research is conducted as qualitative research due to the nature of the topic – traditionally, qualitative research methods aim at describing the phenomenon, whereas quantitative research focuses more on collecting and analyzing measurable data. Since sustainability and transparency can be difficult to accurately

measure, a qualitative research method was chosen for this paper. Qualitative research is based on the idea of understanding phenomena rather than measure them – it aims at describing and understanding real life (Eriksson & Kovalainen 2008).

In qualitative research, interviews are often used as data collection methods. Interview types vary from fully structured to semi-structured and completely unstructured interviews. Fully structured interviews are usually conducted with a formalized survey that has standardized questions, whereas unstructured interview is an informal event where the interviewee is able to freely talk about the chosen subject. In this research however a semi-structured interview is used – a semi-structured interview is, as the name suggests, a combination of the two other interview types. In this case, the researcher usually has the interview themes and key questions prepared before the interview. (Saunders et al. 2016) While the key questions help keeping the focus on the preferred subject, the lack of fully structured questions usually allow a better flow to the conversation (Eriksson & Kovalainen 2008). It is also possible to come up with completely new questions during the interview. If multiple interviews are conducted, it is possible for the order and/or the amount of the questions to vary between interviewees. While the themes remain the same, the length and content of the interviews can be significantly different depending on the conversation (Saunders et al. 2016).

The primary data collection method in this research was a semi-structured interview. Prior to the interviews, interview themes were decided on. The themes were meant to form a base to the interview questions and help in developing the questions and are presented below in figure 7. The first theme was supplier audits and how they are conducted in the each of the target companies in general. This included questions from selecting the suppliers to be audited to the competence of the auditors. It also included discussion about what are the motives, benefits and possible challenges companies face when conducting audits. The second theme was related to sustainability and transparency and how they and their importance are viewed within the case company. This theme also included discussion related to

how the interviewees see that supplier audits can enhance the sustainability and transparency of the supply chain. Finally, the third theme focused on the future development in auditing the suppliers – especially after Covid-19, the way of conducting supplier audits went through drastic changes and could greatly affect the future of supplier audits. To support the findings of the interviews and to keep them within the time limit, data especially regarding sustainability objectives was also collected from secondary sources, such as the supplier code of conducts, sustainability reports and certifications of the target companies.



*Figure 7. Themes of the interviews*

A total of four interviews were conducted with four different companies. The selected companies were all Finnish and operating in the manufacturing industry both in Finland and globally. The interviews took place in October and November of 2022, with most of them held as Teams-interviews – the interview with representative from company B was the only one held face-to-face. The length of interviews varied from 27 to 67 minutes, depending on the schedule of the interviewee. The list of interviewees and interview durations are presented in table 2.

Table 2. List of interviewees

<b>Company</b>	<b>Industry</b>	<b>Interviewee</b>	<b>Duration of interview</b>
<b>A</b>	Manufacturing	Director, Supplier Quality and Sustainability	27 minutes
<b>B</b>	Manufacturing	Head of Supply Chain Sustainability	31 minutes
<b>C</b>	Manufacturing	Procurement Manager	67 minutes
<b>D</b>	Manufacturing	Sustainability Manager	50 minutes

The interviews were based on interview themes and the questions related to them. Interviewees were not given the questions beforehand, only the main topic and the themes were briefly introduced. Same questions were used in all four interviews, but due to the nature of semi-structured interview, additional questions rose during the interviews and the interviewees were able to answer the questions freely. While this research is written in English, all interviews were all held in Finnish as it was the first language for both the interviewer and interviewees. This was done to ensure the flow of the conversation and to avoid any misunderstandings.

#### 4.2 Reliability and validity

When conducting research, its trustworthiness and quality should be evaluated. A well-conducted evaluation can help with ensuring that the research is following the set criteria and increases the transparency of the research. The evaluation criteria should be chosen according to the methodology of the study – qualitative and

quantitative research methods have different characteristics and thus could also have different evaluation criteria. (Eriksson & Kovalainen 2008)

Reliability and validity are some of the most used evaluation criteria. Being suitable to evaluate qualitative research, they were also used in this paper. Reliability describes the trustworthiness of the research. It is related to the consistency of the research and evaluates the ability to replicate the research with the same results as previously. If the research is reliable, the results are not due to coincidence. Validity describes how well the research measures what was intended to measure and how well it is able to provide an accurate explanation of the phenomenon. In qualitative research validity can also be seen as proof that the research is correct and can be ensured with reflexivity and induction. (Eriksson & Kovalainen 2008) It must be noted that while reliability and validity are suitable for qualitative research, there still remains a difference in opinion on how accurate reliability and validity are in evaluating qualitative research – this is due to the fact that a qualitative study isn't usually repeated (Saunders et al. 2016).

To ensure the reliability and validity in this research, the interviewees were selected, and the interview questions were constructed carefully. All four interviewees represent companies from the manufacturing industry, which may also increase the reliability of the research. However, it must be noted that the results may be less reliable in other industries, and reliability and validity are affected by the limited number of interviewees.

## 5 RESULTS OF THE STUDY

This chapter focuses on the interviews. The data collected from the interviews is analyzed through the interview questions. The aim of this chapter is to gain a deeper understanding on supplier audits, the way they are utilized in target companies, their benefits and challenges, as well as to discuss the importance of supply chain sustainability and transparency. The analysis is based on the interview themes presented previously in figure 7.

### 5.1 Conducting supplier audits

Supplier audits are in the center of this research, and they were the first theme discussed in each interview. The goal was to find out how supplier audits are utilized in the target companies. This included questions about motives behind conducting supplier audits, selecting the suppliers that will be audited, certification requirements and audit focus areas, as well as the benefits and challenges of supplier audits. The semi-structured interview questions can be found in appendix 1.

The interviews showed that while there could be found differences in how, when, and why supplier audits are conducted in target companies, there were also many similarities. Risk-based auditing was by far the most popular way of choosing companies to be audited. In this case, companies often maintained some sort of list for suppliers with higher risk in sustainability related issues. The interviewee from company A described risk-based auditing as follows:

*“We usually audit purely risk based. We are maintaining a sustainability-based profile for high-risked suppliers that we use to find the suppliers we need to visit.”*

Risk-based auditing includes defining which suppliers are critical for the purchasing company and was found to be especially effective in larger companies with hundreds

or even thousands of suppliers. Understandably, in this case there is no possibility to conduct regular audits to all suppliers, and some prioritization must be done. Risk-based auditing considers risks related to reliability, economic issues, quality, and responsibility. Other popular selection method to larger organizations was found to be need-based auditing. While closely connected to risk-based auditing, it isn't necessarily based on the risk associated with the supplier. Need-based auditing may be useful if the supplier has been performing poorly recently, and the purchasing company wants to ensure that the supplier still fulfills the requirements and complies with the criteria set by the purchasing company. Audit frequency and the total number of audits depended strongly on the company. While all interviewees stated that they don't conduct audits annually for each supplier, the total number of audits varied from 5 to several hundred per year.

While risk-based auditing was found to be the most popular way of conducting supplier audits, other methods were also utilized in the target companies. New suppliers were audited in some cases, and surveys and/or phone interviews were usually conducted before the audit. These pre-audit contacts are utilized to find out if the supplier is suitable for the purchasing company and whether and audit needs to be conducted to verify this. Similar to risk-based auditing, all new suppliers are not audited in any of the target companies, but the audits are rather based on a need. The pre-audit surveys mostly included questions regarding the current state of environmental and social sustainability of the supplier.

All target companies have developed a supplier code of conduct that defines the minimum standards and requirements the selected suppliers must comply with. During the audits, the compliance of the suppliers is one of the key focus areas and attention is paid especially on the requirements of the code of conduct. The code of conducts are comprehensive documents and often include requirements and limitations regarding human rights and labor conditions, environmental impacts and product safety, corruption and bribery, transparency of actions and processes, as well as complying with legislation, directives, and guidelines. In addition, most of the target companies required suppliers to maintain different management certification



systems, such as ISO 9001 and ISO 14001, and the compliance to them was also monitored during audits. In most cases, certifications were seen as proof of the quality of the supplier. One of the interviewees stated, that while they don't require the suppliers to maintain certified management systems, they must comply with the requirements of the certificate. This is due to the certification systems being somewhat expensive and requiring a lot of effort to maintain, which might not be possible for especially smaller suppliers with limited resources. In addition, the interviewee from company C stated that the certificates they require from suppliers also depend on what kind of projects are ongoing, as legislation and directives are also placing limitations and requirements for supplier quality.

The focus areas of audits depended on the supplier and the audits' purpose. The interviewee from company A stated that in the case of a "full audit", the operations and processes of the supplier are audited from their vision and mission to the delivery of the product to the buyer, and everything in between. During full audits attention is paid especially on how systematic the processes of the supplier are. This included assessing the documentation of projects and comparing them to the actual execution - this way, the auditor can define how well instructions and guidelines are followed in the suppliers' processes, and whether the documented information is matching the actual activity. Most of the target companies also focused on personnel interviews during audits, and the interviews were considered important especially when auditing working conditions and the compliance with labor laws and directives. In company C, one important aspect was ensuring that the personnel of the supplier had valid relevant certifications and that machines and tools in use had been appropriately maintained.

### 5.1.1 Motives, benefits, and challenges

One key focus area in each interview was discussing the motives companies have for conducting supplier audits, and whether those motives are internal or external. The motives mentioned were similar in each interview, but there could also be seen company specific motives, especially in the context of the size and specific industry

of the company. The most mentioned and the most significant motives are listed below in table 3.

*Table 3. Motives for supplier audits*

<b>Motive</b>	<b>Internal</b>	<b>External</b>
Legislation and directives		x
Internal instructions and guidelines	x	
Company strategy	x	
Risk management	x	
Ensuring supply chain abilities	x	x
Learning	x	
Supplier management	x	x
Increasing knowledge about the supplier	x	x
Stakeholder demands		x

Table 3 lists the motives for supplier audits and categorizes them as internal or external. As can be seen from the table, most of the motives were categorized as internal, while some of them could be viewed as both. Out of the listed motives, risk management was by far the most emphasized one and was seen as especially important when focusing on the quality and safety of the supplier. A few of the interviewees mentioned supplier risk management as an important factor in avoiding possible damages to the company's reputation – as discussed previously in the theory part of this research, a poorly performing supplier can influence the entire supply chain. Related to this, the interviewees mentioned risk management as a way of ensuring the supply chains ability to function properly and removing all non-conformities.

A lot of emphasize was also put on ensuring supply chain abilities and suitable ways of acting among the suppliers. This was viewed as especially important in company C, and the interviewee described ensuring supply chain abilities as follows:

*“We as a manufacturer must be able to ensure the compliance and functioning of the supply chain – the suppliers included in the chain must fulfill the same requirements and conditions as we do.”*

Here ensuring supply chain abilities is viewed as both internal and external motive. While the reasonings behind this motive are based on stakeholder demands and general requirements for purchasing companies, it can also be traced into the internal willingness to improve the supply chain and pass on suitable ways of acting to the suppliers.

Related to ensuring supply chain abilities, the interviewee from company A emphasized managing the supplier as one of the key motivations for supplier audits in the represented company. The interviewee stated that in their organization, supplier audits are not seen as much as a tool for ensuring compliance, but rather a way of managing the suppliers and thus ensuring the functioning of the supply chain. Supplier management, risk management, ensuring supply chain abilities and increasing knowledge about the supplier are all connected to each other and are helping in ensuring the quality of the suppliers, as well as passing on suitable ways of working across the supply chain.

Out of the external motives, legislation and stakeholder demands were categorized as most influential. The significance of legislation and directives was noticed especially in company C, as the industry of which has various requirements, standards and directives companies must comply with. The legislation can for example place requirements for the sourcing of raw materials and demand specific knowledge of their origin. In company C, the significance of legislation was mainly seen as a positive factor and important in the context of risk management. In addition

to legislation and directives, stakeholder demands were also seen influential. All companies described receiving demands from customers, but non-government organizations (NGOs) were collectively seen as more influential when it comes to external pressure.

Supplier audits were found to have a lot of benefits, but also some challenges. Similar to the list of motives, risk management was also highly emphasized as a benefit. By conducting supplier audits the purchasing companies are able to ensure that the requirements in their code of conducts are met and can avoid working with suppliers that don't comply with them, thus reducing risks in their business. Audits may help the company to get to the source of possible issues before any actual damage is done. Risk management is related to knowing the supplier which was also categorized as an important benefit. According to one interviewee, knowing the supplier could be especially beneficial for the purchasing department and may lead to both improved communication and reduction of costs.

Supplier audits can help also in improving communication and enhancing supplier relationship, which can lead to improved collaboration between the supplier and the purchasing company. An improved communication can make it easier to contact the supplier in the future, and audits may also help in expanding the contact in the supplier company, when more people from both sides are involved in the communication.

Developing the supplier was also mentioned frequently during the interviews. Especially with smaller suppliers there is a great possibility to positively impact the suppliers' processes and implement suitable ways of working. In some cases, the audit can be seen as free consultation from the purchasing company to the supplier, as there are cases where the supplier has been able to significantly improve their processes because of the audit. As stated by the interviewee from company A, supplier audits shouldn't be viewed strictly as a tool for ensuring compliance, but

rather a way of developing collaboration and business. In addition, the interviewee from company B described supplier development through supplier audits as follows:

*“One key benefit of audits especially with smaller suppliers is, that we can help them improve their own processes and actions and understand the expectations and requirements a large, western company has. This is much more easily done when we can visit the suppliers’ facilities.”*

In addition to educating the supplier, the learning and development inside the purchasing company were also seen as benefits that supplier audits have. Especially in developing industries where the best practices are not as established as in some other industries, supplier audits can benefit the purchasing company as much as the supplier learning wise. The benefits and challenges of supplier audits are listed below in table 4.

*Table 4. Benefits and challenges of supplier audits*

<b>Benefits</b>	<b>Challenges</b>
Developing the supplier	Covid-19
Enhanced supplier relationship	Auditor competence
Risk management	Language barriers
Education	Cultural differences
Knowing the supplier	Audit load on suppliers
Collaboration & communication	Actualization of the audit trail
Reversed marketing	Audit comparability
Learning and development	Internal workload and communication
Finding new suppliers	

While supplier audits were seen to have many benefits, some challenges could also be found. One major challenge that has emerged in the past few years is the Covid-19 pandemic, which practically stopped all on-site supplier audits within just few weeks. The approaches on remote audits varied greatly among target companies – some viewed them as a useful tool while others stated that they simply don't work for the companies they represent. The interviewee from company B described conducting remote audits:

*“Supplier audits were terminated in many countries due to Covid-19, so we have been developing virtual audits as a replacement. I find that remote audits are suitable for certain types of observations, for example issues relate to working conditions are possible to audit through video footage. Personnel interviews on the other hand are easier to conduct on-site, but overall, both methods are being utilized in our company.”*

The problem with remote audits according to the interviewees is, that the supplier has a bigger opportunity to control what they want to show to the auditor. In addition, issues related to virtual personnel interviews were especially emphasized. The success of remote audits was also viewed as highly dependent on the supplier – it was stated by one interviewee, that remote audits were much more useful in Europe than for example Asia. The interviewee noted, that in some Asian countries it is seen as mandatory to visit the suppliers' facilities to assure that requirements are met.

Related to the issue with remote audits, language barriers and cultural differences were seen as one of the most influential challenges in conducting audits. For example, in some cases the suppliers might not have any documentation in English and very few of the suppliers' personnel speak English. To tackle this issue, the purchasing companies utilize translators who are familiar with the supplier's language and possible dialects, as well as have some understanding about the industry and are able to accurately translate the interviews, conversations and documents.

The competence of the auditors was also seen as a challenge. Especially in smaller companies that don't utilize third-party auditors, auditor competence must be ensured to achieve a successful audit and the benefits that come with it. The auditor must be able to focus on the important aspects and follow the audit plan accurately, as well as have enough knowledge about the supplier and their significance to the purchasing company. To ensure auditor competence, purchasing companies use a great number of resources to educate auditors in a way that they can assess suppliers according to the requirements in the code of conduct. Educating the auditors also ensures that the audits are comparable. It must be noted, that while some interviewees stated that the best results are achieved by using auditors who are educated by the purchasing company, the use of a third-party auditor can be effective when auditing suppliers in locations where the purchasing company has no presence. In addition, one interviewee stated that they always have a third-party auditor present at supplier audits to ensure auditor competence and that enough information is received from the audit.

## 5.2 Supply chain sustainability and transparency in target companies

Sustainability was seen as a key part of the strategy and a prerequisite for the company's existence in all interviews. Sustainability was collectively seen as a guideline for all activity and an important aspect of good business. The interviewee from company B stated, that the targets of both social and environmental sustainability can be seen in all of their actions and processes, and that sustainability objectives are integrated in all of their practices. The sustainability objectives also included passing on environmental and ethical requirements throughout the supply chain and maintaining ethical guidelines suppliers must comply with. In their own processes and actions companies monitor for example the emissions caused by their factories and plants, electricity usage, and diminishing waste. The goal in implementing these actions is to minimize the effects their processes have on the surrounding environment.

Motives for sustainability actions were mainly seen as internal motives. As noted previously, all target companies have integrated sustainability into their core strategies, and sustainability objectives are placing guidelines to their entire existence. One of the interviewees stated, that by incorporating sustainability into their strategies and business, they are able to achieve more permanent results in aiming towards sustainability, compared to only reacting to pressure coming from outside the organization. While internal motives were seen as more influential, some of the interviewees admitted that the external pressure regarding sustainability has increased significantly especially during the past five years. External pressure in sustainability issues can be traced back to increasing demands in legislation, increased consciousness consumers have in sustainability, and the influence of NGOs. One frequently mentioned form of external pressure was the EU CSDD, that will increase the demands legislation has regarding sustainability objectives and the state of sustainability in organizations under its' influence. One interviewee described the company's sustainability as a way to stand out as a forerunner, and pointed that nowadays sustainability is key especially in a large, multinational company:

*“In a company as big and developed as ours, sustainability processes must be well implemented and a notable part of the strategy – otherwise we have no place in the business whatsoever.”*

All target companies were found to have various targets in different dimensions of sustainability. Sustainability objectives were often based on existing sustainability guidelines, such as the United Nations Sustainable Development Goals and corporate sustainability reporting. Most target companies have set multiple goals regarding environmental and social sustainability to the following years. These goals include for example aiming towards carbon neutrality and decreasing the carbon footprint throughout the entire value chain, monitoring the quality of water near production sites, decreasing the amount of sewage, protecting nature's biodiversity, developing solutions that support circular economy, and aiming towards more efficiency in energy usage. On the social sustainability side, the goals are typically based on two aspects: people and society. The focus areas of social sustainability



goals are diversity, a safe and healthy working environment, and compliance with human rights, to name a few. The focus areas of these sustainability goals are presented below in figure 8.



Figure 8. Sustainability goals in target companies

Transparency in supply chains was viewed as equally important, although more difficult to assess and aim towards as sustainability. One interviewee stated that their aim is to focus on increasing transparency throughout the entire supply chain, from selecting the supplier to purchasing raw materials and products. Their supplier selection process includes going further in the suppliers' processes and purchases and a lot of effort is put to tracing the materials all the way to the origin. The interviewee wanted to emphasize, that transparency in the supply chain requires years and years of dedicated work and open communication to stakeholders.

In some cases, legislation also has demands on supply chain transparency, and especially product traceability. In highly regulated industries, it becomes especially

important to know where the products and materials are coming from, and which actors are taking part in the supply chain. Interviewee from company C noted, that they have had cases where the materials have been purchased from a trusted, good-quality supplier and can be traced back to a high-quality manufacturer, but the materials have been delivered via an actor who has not been approved by the purchasing company. While the origin of the product is known, the uncertainties in the supply chain cause decreasing in transparency.

Reflecting on this, the challenge lies in identifying all intermediaries in the chain. According to interviewee from company A, the suppliers are sometimes hesitant to open their own purchasing processes, and that the level of achieved transparency and traceability is also highly dependent on the purchased material or product:

*“Considering that we buy a fairly small number of customized products, and that the raw materials are mostly ordinary and generic, we can rarely trace the entire chain to the very origin.”*

This viewpoint was agreed on by other interviewees as well and the dependence of traceability on product type was collectively recognized. Traceability is especially important in ensuring product quality, and increasing traceability is one of the best ways to prevent product forgeries, as noted by one of the interviewees.

The interviewee from company D especially emphasized the meaning of communication when it comes to transparency. It was noted that transparency should not be seen solely as knowing the suppliers and being able to originate the products and materials, but also as a process of open communication both internally and externally. It includes providing necessary information on the processes and sustainability objectives to the stakeholders, as well as engaging the personnel and ensuring everyone in the organization is familiar with the objectives and how they will be achieved.

### 5.2.1 Sustainability requirements for suppliers

The sustainability requirements that the target companies had for suppliers were mostly based on their own sustainability related goals. There were some differences in how much of a connection there was in the company's own goals and the requirements they set for suppliers. This was found to be mainly dependent on the size of the company – bigger companies have more developed and comprehensive sustainability objectives for themselves, while the objectives in smaller companies are more modest. Logically, the requirements for suppliers differ, since smaller suppliers most likely won't have resources to aim as high as a big, globally functioning purchaser.

The requirements for suppliers were found to have little variation among target companies. A high emphasize was put on complying with requirements of both local and global legislation, that are seen as a base for responsibility. Suppliers are also required to comply with several requirements in the field of health, safety, and human rights. This includes requirements regarding for example minimum wage, working hours and vacations, a safe working environment and prevention of child labor, as well as discrimination in the workplace. When it comes to environmental sustainability, the suppliers are required to minimize any harmful effects their processes might have on the surrounding environment, focus on managing waste and sewage, ensuring product safety, and maintaining a strategy related to environmental sustainability. Some target companies also had requirements regarding corruption, reporting and transparency. It was highly emphasized among the interviewees, that the requirements in the code of conducts are non-negotiable in all cases, and all collaboration is terminated if the supplier does not comply with the code of conduct.

## 5.2.2 Towards sustainability and transparency with supplier audits

In general, supplier audits were seen as a useful way in enhancing supply chain sustainability and transparency. In sustainability, supplier audits were seen to have two key roles: ensuring compliance and developing the supplier, and thus spreading suitable ways of working further into the supply chain. One example given by an interviewee was social issues in some of the less-developed countries – they had a case in the past, where the supplier was giving out fines for poorly performing employers. This issue was quickly intervened by the auditors, and the supplier was encouraged to focus more on educating and motivating the employers. In the end, this led to a positive outcome where the productivity of the employers increased, and a better quality was achieved.

*“As a big company, we have responsibility to pass on sustainable ways of working further in the supply chain. The audits we conduct have two main purposes: minimizing risks and an educational aspect.”*

The target companies had some additional ways of ensuring the sustainability of the suppliers. One popular way was sending out surveys and assessing supplier sustainability based on the answers given. The problem with this method however is, that the surveys don't necessarily give a truthful picture of the state of sustainability. This is why audits are seen as a key method in ensuring sustainability – while the supplier may sugarcoat the reality in the survey, it is much more difficult to hide the suspicious factors during an audit. Because of this, the surveys are viewed more as a way of informing the purchasing company of a need for an audit, is the supplier scores low on the survey. Other methods for ensuring supplier sustainability are for example measuring emissions and relying on third-party certifications. Most of the target companies however did not require specific certifications from suppliers, as long as the compliance could be verified in some other way.

Audits were also seen as useful in ensuring transparency of the supply chain. One interviewee noted that they view increasing transparency as an indirect result of audits – when sustainability is increased as a result of auditing suppliers, the company is able to conduct comprehensive sustainability reporting, which in turn increases transparency towards stakeholders. This included being able to communicate the origin of the products and materials more openly, and thus providing information to consumers - transparency in supply chains requires knowledge about where, how and in what conditions the suppliers are operating in. In addition, increased knowledge about the supplier was also seen as a way to enhance transparency.

### 5.3 The future of supplier audits and sustainability

Most interviewees agreed that the significance of supplier audits will most likely increase in the future and that the number of audits conducted will be higher. This is especially due to the increasing demands of legislation, such as the EU CSDD that will set more specific requirements for companies. A few of the interviewees noted, that the demands regarding supply chain transparency and knowing the suppliers will likely place more significance for supplier audits. In the future it will be increasingly important to identify and prevent risks within the supply chain, which will especially affect the number of risk-based audits. One interviewee stated that they will likely sign many new and small suppliers and that it is important to focus on developing these suppliers.

While it became evident that supplier audits are further needed in the future, there might be a need to alter the way they are conducted. It was collectively agreed that remote audits will most likely not be widely utilized in the future, although they might be effective in some situations, such as when auditing smaller suppliers that are viewed less risky. In the future there might be a need to develop less demanding ways to assess suppliers, such as collaborating with other actors in the industry and utilizing third-party rating companies. One interviewee stated that they are already

taking part in some collaboration projects that are meant to help increase the state of sustainability:

*“I strongly believe that these issues can’t be solved by a single company, but rather multiple organizations working in collaboration with each other.”*

Like supplier audits, sustainability will also increase its significance in the future. It was a common opinion among the interviewees that specially issues in social sustainability are likely to receive more attention, but that the environmental aspect will not be neglected. One interviewee stated that they view it as mandatory to increase resources for sustainability actions, since sustainability is likely to maintain its significance. This way, a proper level of sustainability can be assured throughout the entire value chain.

*“While sustainability actions can in a way be viewed as an additional cost, we must simultaneously consider the risks that may be realized, if we do not put enough significance on sustainability. In the end, we hope to achieve a positive outcome with our sustainability investments.”*

## 6 CONCLUSIONS AND DISCUSSION

The aim of this chapter is to conclude the results from the research. The purpose of this paper was to understand how supply chain sustainability and transparency can be increased with supplier audits and identify how companies view the importance of those two aspects. In addition, the benefits and challenges of supplier audits were in the center of discussion. Previous studies around this topic have mainly been focusing on the process of supplier audits, and the effect supply chain transparency can have on supply chain sustainability. While sustainability and transparency have been widely discussed separately, this study was aiming to address the research gap in combining them with supplier audits. To reach this goal, an empirical study was conducted with four semi-structured interviews from four different companies. The research was limited to Finnish companies operating in the manufacturing industry both domestically and globally. In addition, the theories and key concepts behind the empirical study were discussed to help understand the phenomena behind the research.

### 6.1 Discussion of the results

This chapter summarizes the findings from the empirical study and provides answers to the research questions introduced in chapter 1.1. The results are reflected to the existing literature around the subject.

The main research question was:

*“How can supplier audits increase the sustainability and transparency of the supply chain?”*

The main objective of this research was to find out, how supplier audits can help in increasing supply chains' sustainability and transparency. As a result of this

research, it can be said that supplier audits are a useful tool when companies want to increase the sustainability and transparency of their supply chains. By conducting supplier audits, companies can ensure that every actor in the supply chain is acting responsibly and taking the environmental and social effects of their business into consideration. When visiting the suppliers' facilities, the purchasing company has the ability to point out any possible issues in sustainability and require necessary actions from the supplier to fix them before the issues actualize.

All interviewees were unanimous that supplier audits are one of the most important and effective methods in ensuring supply chain sustainability and transparency. As noted previously, while there are other methods in assessing the sustainability of a supplier, those methods have some notable issues. For example, while surveys and phone interviews may provide some insight on the state of sustainability, there is no way of actually ensuring that the information provided by the supplier is accurate and truthful. In addition to ensuring the sustainability of the supplier, one key possibility of them is to develop the supplier and pass on sustainable practices further in the supply chain. This could also lead to the suppliers adapting new sustainable and responsible practices and possible further passing those on to their own suppliers (and sub-suppliers of the purchasing company), which again leads to improvements in sustainability. During the interviews, these were categorized as the two key roles supplier audits have in increasing supply chain sustainability: ensuring compliance and developing the supplier – these two roles were also identified by Alghababsheh & Gallear (2020).

While the effect supplier audits have on supply chain sustainability was more emphasized, this research shows that they are also effective in ensuring supply chain transparency. Supplier audits were found to provide valuable information about the conditions where the purchased materials and products are coming from, and thus enabling transparent reporting to the consumers and stakeholders. An open, two-way communication can be seen as a key prerequisite for a transparent supply chain, which is why it's crucial to be able to provide appropriate sustainability reporting, and simultaneously react to the messages and information coming from



the supply chain. In the best case, supplier audits will enable development that will both improve communication and thus provide better possibilities for reporting and provide information on the origin of the purchased materials and products. The findings regarding supply chain transparency are in accordance with Alghababsheh & Gallear (2020) and Renzo et al. (2016).

The main research question was supported with three supporting sub-questions that were meant to provide more insight on supplier audits, as well as the state of sustainability and transparency in the target companies. The first sub-question was:

*“How do companies view the importance of supply chain sustainability and transparency to their business and in their industry?”*

Both sustainability and transparency were viewed as mandatory for the existence of the company by all interviewees. As stated previously by various scholars (Aguilera et al. 2021; Kronborg Jensen 2012; Ahi & Searcy 2014), sustainability is a key factor in business nowadays and is no more an option, but rather a minimum requirement for companies and is thus requiring an increasing amount of resources from them. The motives for sustainability actions were found to be both internal and external. All target companies have incorporated sustainability concisely in their strategies and processes, and state that as large operators they have a responsibility to act as vanguards in sustainability related questions. It was also noted that especially during the past five years the external pressure regarding sustainability actions has risen significantly as consumers are increasingly aware of sustainability related issues and climate change. In addition, NGOs were found to have a great influence when it comes to the increasing external pressure.

All target companies are operating in considerably environment-heavy industries, which is why environmental sustainability was considered an important factor. The target companies are especially focusing on the emissions caused by their processes using tools such as carbon footprint calculation and ultimately aiming at

carbon neutrality, aiming at improving waste management systems, monitoring water quality, and considering the direct effects their own actions and the actions of their suppliers have on the surrounding environment. Additionally, the significance of social sustainability was considered high because all target companies have outsourced in foreign countries outside Europe, which has been found to increase the risks related to social sustainability. These risks were also identified by Alghababsheh & Gallear (2020), who state that while outsourcing may reduce production and labor costs, it can lead to social hazards such as forced labor or health and safety issues in the workplace.

While all target companies considered transparency as an important factor in their business, some variation was found in how much resources are allocated in improving the transparency of the supply chain. For example, in highly regulated industries and businesses transparency was viewed as more important than in less regulated ones and there was also variation in how the companies saw the possibilities to affect the transparency, and how well they are able to trace their product and materials all the way to their origin. Transparency actions were considered mandatory in today's business, and communication was especially emphasized by some interviewees. The communication included both informing the suppliers about the sustainability requirements and suitable ways of working and communicating the sustainability actions outside the company utilizing for example annual responsibility reports and other forms of sustainability reporting, such as providing information on the sourcing and manufacturing processes, as noted by Montecchi et al. (2021).

The second sub-question was:

*“How are companies utilizing supplier audits?”*

As a result of this research, it was determined that while there are multiple ways of conducting supplier audits, the methods used by the target companies were fairly

similar. The most popular audit type among target companies was risk-based auditing. This is in accordance with the research of Rhoades (2010), who states that a risk-based system for supplier quality management is the most cost-efficient way. Additionally, Rhodes (2010) notes that there is no point in utilizing the same auditing approach for all suppliers, and that especially with large, multinational companies with a high percentage of outsourcing, this isn't even possible. Instead, the individual situation of suppliers should be considered in the context of a defined quality management system. This reasoning was also behind the selection and auditing processes of the target companies.

Another popular auditing method was found to be need-based auditing. While risk-based auditing in the target companies focuses more on the suppliers with a high significance or a unique offering, need-based auditing can be useful in for example project-based companies. In this case, the needed or suitable suppliers can vary greatly between projects, and the suppliers selected for auditing is purely based on what kind of offering is needed in the project. Another situation where a need-based auditing may be useful is when a supplier has been recently performing poorly and not according to the set quality standards and objectives. In this case an on-site audit might be needed to get to the roots of the problems and provide insight on how to solve them and get back on track. According to the interviewees, the target companies rarely audit new suppliers but rather utilize other assessment methods for them, such as surveys and phone interviews.

The use of a third-party auditor varied between the target companies. While some interviewees noted that third-party auditors are rarely used and that the need for them is more need-based, some stated that they have a third-party auditor present in every supplier audit they conduct. The reasoning behind this was two-dimensional: on one hand, third-party auditors were seen to have invaluable knowledge about the cultural factors especially in Asian countries, as well as a deeper understanding on sustainability issues and the way they affect the purchasing company. On the other hand, some interviewees saw the use of third-party auditors as not value-adding, since better results are achieved by internally

selecting and educating auditors. This way it is ensured that the auditor has a deep understanding on the operations of the purchasing company, and that the audit is conducted keeping the purchasing company's viewpoint in mind. With this method it is possible to tackle the issues around the variation in auditor competence and their commitment to compliance that were mentioned by Walker (2014).

A high emphasize was also put on the pre-planning phase of the audit. This way it is ensured that the audit answers to the need of the purchasing company and that the audit focus areas are carefully planned. This is in accordance with the study by Castka et al. (2021), and also includes prioritization of the audited suppliers which was emphasized by Egels-Zandén (2017).

Finally, the third sub-question was:

*“What are the benefits and challenges in conducting supplier audits?”*

Supplier audits were found to have multiple benefits, but also a few challenges. By far the most mentioned benefit was risk management. The interviewees were unanimous that in today's business, it is mandatory to be aware of the possible risks in the supply chain. By auditing suppliers, organizations can detect possible disruptions in the supply chain and assure that suppliers are operating in compliance with the code of conduct set by the purchasing company. Supplier audits were also seen beneficial in improving communication and buyer-supplier relationship – visiting the supplier's facilities was found to enhance collaboration and provide useful insights for both parties.

Additionally, a key benefit was found to be supplier development. This was seen as especially important in ensuring compliance to the purchasing company's code of conduct. By conducting audits, companies can ensure that their suppliers are operating in accordance with the set sustainability criteria and quality requirements.

In some cases, supplier audits can even be viewed as free consultation from the purchasing company to the supplier. This is the case especially in countries with less developed legislation related to labor and human rights, as well as the environment and for example waste management. It was emphasized, that ensuring the compliance of the suppliers is a key factor in sustainable business. In general, the benefits of supplier audits were found to be similar to the ones in the research of Castka et al. (2021).

The biggest challenges in supplier audits were found to be language barriers and cultural differences. Sometimes it is possible that the supplier doesn't have any documentation in English, and they have no ability to speak any language besides the local one. In this case, to ensure the success of the audit, a competent third-party auditor or translator must be present during the audit to ensure that there are no misunderstandings in communication or the review of the supplier's documentation. In recent years, the most influential disruption was found to be the Covid-19 pandemic, that in many industries terminated supplier audits altogether. The target companies have to some extent been utilizing remote audits, and while they were found to be somewhat effective, it is unlikely that they will have a great significance in the future, especially without any further development. This finding is in accordance with the ones made by Castka et al. (2021) in their research.

## 6.2 Limitations and suggestions for further research

While this research resulted in somewhat expected results, there were some limitations that must be considered. The limited number of interviewees and the companies they represent is probably the most significant limitation. Qualitative research with four semi-structured interviews was conducted, and while the four interviewees provided a comprehensive insight on the topic, the limited number of them affects the generalization of this study. Additionally, it must be noted that since the target companies are operating in similar industries, the findings of this research can't be extended to other industries, as the results in those may be considerably

different. However, while the results are not universal, this study was able to provide a somewhat comprehensive overview on supplier audits and their benefits for the purchasing companies. Due to the nature of qualitative research, the reliability of this research is somewhat difficult to evaluate, but it can be seen that the concordant answers given by the interviewees is positively affecting the reliability of this research.

In the future, this research could be repeated with a higher number of interviews, and possibly collect additional data with for example questionnaires. This way, it would be possible to increase the generalization of the research, as well as gain insight from more than one person per company. The research could also be repeated in a different industry, or even collect data from multiple industries to combine. Additionally, the way of conducting supplier audits could be researched in different industries to see if there is any variation or industry-specific factors. One possible idea for future could also be to study, how the different ways of selecting suppliers for audits would affect the sustainability and transparency of the supply chain, and if the results are different in for example risk-based audits and regular, annual audits.

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# APPENDIX 1

## Interview questions

### **Supplier selection and auditing**

1. What kind of motives you have for auditing suppliers? Are the motives internal or external?
  - a. How are the suppliers selected for audits? Are audits conducted more to existing or new suppliers? How often do you audit suppliers?
  - b. Do you have a code of conduct for suppliers? Do you require certifications such as ISO 9001 or ISO 14001?
  - c. What are the key focus areas of audits?
  - d. What are the main challenges in conducting supplier audits?
  - e. What are the main benefits?

### **Sustainability & transparency of the supply chain**

1. In what ways are sustainability and transparency visible in your company? What are the motives for aiming towards them?
  - a. How would you describe the role of audits in sustainability? What other methods you have for ensuring sustainability?
  - b. What kind of sustainability requirements you have for suppliers?
2. How do you view the importance of supply chain transparency in your company? What ways are there to increase transparency?
  - a. How would you describe the role of audits ni transparency?

### **Future development**

1. How do you see the importance of audits in the future?
  - a. Will remote audits have any role in the future? What will the focus areas of audits be?
2. How do you see the importance of sustainability in the future? Will the main emphasize be on environmental or social sustainability?