

# MASTER THESIS

## SUSTAINABLE PROCUREMENT: REDUCING CO2 EMISSIONS WITH SUPPLIERS IN A COST-EFFICIENT WAY

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I hope you enjoy reading this thesis.

Mike Walhof

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## Abstract

Sustainability is becoming increasingly important for organisations worldwide. Company X has also set targets to reduce its emissions and improve its sustainability performance. For their direct emissions (Scope 1 & 2), there are already actions developed and results visible. This is not the case for indirect emissions (Scope 3), mainly caused by the production and distribution of products that are purchased. This research provides an analysis of the current situation and possible actions for the future. Based on this, recommendations are provided to help Company X reduce its emissions with suppliers. Thematic analysis is used to analyse data that is collected by conducting interviews with buyers from Company X, suppliers from Company X, and sustainable procurement experts. By using three perspectives, a holistic view is created. To reduce emissions, Company X could possibly demand more certifications on sustainability or engage/collaborate with suppliers. The results show that there is currently a lack of awareness and training among buyers of Company X. Furthermore, in communication with suppliers, sustainability is not a topic yet. This is partly caused by a lack of management commitment and encouragement of the buyers. Furthermore, the results show that suppliers are willing to collaborate, and experts believe that this is the key to success in the future. Demanding more certifications is not recommended, as Company X has a lot of local SMEs in its supply base. For them, more certifications could be an unrealistic investment. Supplier engagement is recommended, as it helps to collect data to improve the view on the carbon footprint. Furthermore, it helps to show the importance of sustainability to suppliers and gives them tools to work on sustainability themselves. In the last place, it could improve the suppliers' performance in other aspects besides sustainability. This is valuable for Company X, as suppliers should be considered as resources according to the resource-based view.

**Keywords:** Sustainability, Sustainable Procurement, Certification, Supplier Engagement, Awareness

## Management Summary

Sustainability is one of the topics that is appearing more frequently on the corporate agenda and is increasing in importance as well. In the past decades, governments have made agreements like the Paris agreement in 2015 and developed regulations forcing companies to work on sustainability. One of these companies is Company X, a company that provides innovative technologies for several markets, such as defence, security, and transportation. Over the past years, Company X has already worked on its sustainability performance. This mainly focused on Scope 1 and Scope 2, the emissions that can be directly assigned to Company X and the emissions that occur producing the electricity used by Company X. Now, Company X also wants to decrease its emissions in the upstream part of Scope 3, focusing on suppliers. The progress over the past years has been unsatisfactory due to a lack of concrete actions. As Company X is a commercial company, the financial impact of certain actions and decisions should always be considered. To find out possible actions/strategies, research was necessary. This has led to the following research question:

*How can Company X achieve a reduction of CO2 emissions with its suppliers in a cost-efficient way?*

To provide an answer to this question, the first step was to find out what is already known about this topic. Therefore, literature research has been performed, leading to the first insights and expectations of this research. The first topic that appeared in the literature was certifications. Nowadays, several certifications are concerned with emissions, waste, pollution, and other environmental aspects. The most well-known certificate is ISO 14001. Company X could demand certain certifications from its suppliers, ensuring that only suppliers that work in a sustainable way are in the supply base. On the other hand, it appeared that collaborating with suppliers is another possibility. By encouraging suppliers to work on sustainability and working collaboratively both parties could benefit in the end. Finally, the literature showed that it is also important to focus on individual purchasers. They should have knowledge and skills in sustainability so that they can act in the desired way. It is also important to create awareness among these purchasers for sustainability. If they do not realise the importance of sustainability for the company, they will not act towards it. To create this awareness, the managers should be committed to sustainability and communicate this clearly in the procurement department.

On the aspect of costs, it appeared that demanding certification could lead to mixed results. Certificates can be expensive, and as Company X has a lot of local SMEs in its supply base. For these SMEs, getting certificates might not be worth the investment, or the costs could be incurred in the prices for Company X. Looking at supplier engagement and collaboration, the initial costs are expected to be higher compared to demanding certifications. However, the results of this action should also be better. Furthermore, collaboration could also lead to improved efficiency and new market opportunities, decreasing costs or generating additional revenue in the long term. Therefore, this method could be very useful. The costs for training employees should be acceptable, as the current provider for training also developed courses on sustainability recently. Those courses could be integrated into the current training program. Besides this, training is simply necessary to initiate actions in the future, as these should be carried out by the buyers.

This research builds on two main theories in business and psychology: the Resource-based View and the Social Exchange Theory. According to the RBV, a company's supply base should be considered a resource. The SET explains that parties enter a relationship to perceive benefits, and as soon as the costs are higher than the benefits, the relationship is ended.

This research is qualitative and exploratory, as it concerns a 'how'-question. The most appropriate method to do this research is by conducting interviews. These interviews were conducted with buyers, suppliers, and experts in sustainable procurement. In this way, a holistic picture of the situation is created. The interviews were semi-structured, meaning some questions were prepared beforehand to ensure specific topics were discussed, leaving room for follow-up questions or other remarks. The interviews were transcribed and coded afterwards to quantify the data somewhat and draw any conclusions. The results show that demanding certification could lead to mixed results and might not be the best method.

On the other hand, supplier engagement/collaboration could lead to the desired results and is deemed necessary by the experts. Suppliers are generally open to initiatives and would like to be early involved more often. Furthermore, the results show that there currently needs to be more training and awareness on sustainability among buyers, potentially caused by a lack of management commitment as well.

Based on the results, several recommendations were developed to improve the situation and answer the research question. First, there are better methods than demanding certification now. Looking at the supply base of Company X, consisting of many local SMEs with long relationships with Company X, simply requiring certifications is not advised. On the other hand, supplier engagement/collaboration should be the way to the desired results. This should lead to improvements in sustainability and could also lead to improvements in financial performance as well. By involving suppliers early, benefits for both parties could be created, such as easier production and lower costs. Therefore, supplier engagement/collaboration is advised to do. To successfully engage/collaborate with suppliers, it is important that individual purchasers have the skills and knowledge to do this. As this is currently not the case, it is advised that all employees in the procurement department get training on sustainability. In the last place, the management should show commitment to the sustainability goals and communicate clearly through the department to create awareness and encourage buyers to think about sustainability. This has several implications for managers, as they might need to adapt their way of working. Eventually, sustainability should not be a separate topic, but it should be embedded in every aspect of daily work. To get to this point the managers should lead by example and get training if necessary and encourage all employees in the department to do so as well. As soon as the knowledge and skills are up to date, it is important that the buyers start to engage with suppliers on sustainability and possibly initiate a collaboration. The managers have the important task to encourage the buyers to do this. By having the management committed and the buyers and suppliers engaged, the desired results should follow.

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## List of Abbreviations

EMS	Environmental Management System
ESR	Environmental and Social Responsibility
EU	European Union
FTE	Fulltime equivalent
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
MOOC	Massive Open Online Course
PSM	Purchasing & Supply Management
RBV	Resource-based view
SET	Social Exchange Theory
SKAO	Stichting Klimaatvriendelijk Aanbesteden & Ondernemen
SME	Small & Medium-sized Enterprise
SSCM	Sustainable Supply Chain Management
TCO	Total Cost of Ownership
VRIN	Valuable, Rare, Imperfectly Imitable & Non-substitutable

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## 1. Introduction

### 1.1 Sustainability is becoming increasingly important

In the past few decades, there has been a noticeable trend where sustainability is becoming an increasingly important topic in societies and organisations worldwide. One of the first major appearances of the concept of sustainability was in the Brundtland Report in 1987 (Brundtland, 1987, p. 867). Sustainability can be generally seen from three perspectives: economic, social, and environmental. These are also called the triple P (profit, people, planet), as well as the triple bottom line, a phrase coined by John Elkington in 1994 (Elkington, 2018). Sustainability is mostly referred to from the environmental perspective. In the last few years, corporate sustainability has become a norm instead of a trend. The Paris Agreement in 2015 played a prominent role in this shift. Every year more companies and other organisations are trying to become more sustainable. This is necessary, as the current actions taken worldwide are insufficient to reach the goal of maximum global warming of 1.5-2 °C, as set in the Paris Agreement (UNFCCC, 2015). This appeared in the latest report of the Intergovernmental Panel on Climate Change (IPCC, 2022). Therefore, new and more actions must be taken to further decrease the emission of CO<sub>2</sub> and other greenhouse gasses.

Another trend that emerged in recent years is the review and redesign of the organisation's supply chain. Several events in the past few years caused significant disruptions in supply chains worldwide. Some examples are the COVID-19 pandemic, the blockage in the Suez Canal, and most recently, the war in Ukraine. These events seriously impacted many organisations worldwide, leading to many organisations reconsidering and redesigning their purchasing and supply chain management.

Combining these trends leads to Sustainable Supply Chain Management (SSCM). SSCM focuses on the indirect emissions of a company, also called Scope 3 emissions. These are the emissions that occur in the supply chain, both upstream and downstream. The upstream emissions are mainly caused by the production and transport of the goods and services purchased. The downstream emissions cover the use of the delivered product or service by the company and the end-of-life treatment of the product for example. This leads to the concepts of sustainable procurement (upstream) and sustainable marketing (downstream). According to SSCM research, companies need to extend their sustainability programs to their suppliers to improve sustainability outcomes (Wohlgezogen, Hofstetter, Brück, & Hamann, 2021, p. 435). By taking actions that do not solely cover the company but the entire value/supply chain, a large impact can be made to reduce CO<sub>2</sub> emissions. A reduction of Scope 3 emissions is necessary to reach 'Net Zero', a goal set by a lot of governments and companies in the future.

### 1.2 Introduction to Company X

Company X is part of a Group, a multinational company that designs and delivers products and services for several markets like Defence & Security, Digital Identity & Security, Aerospace, Space, and Transport (Company X Group, 2022c). Company X was founded in 1968 and rebranded to Company X in the year 2000. The main business for Company X is defence, with products and services like surveillance systems, ballistic missile defence, and anti-air warfare (Company X Group, 2022a). Company X started in 1922 in the Netherlands and was acquired by the Group of Company X in 1990. This means that the Dutch part of Company X just celebrated its 100<sup>th</sup> anniversary.



### 1.3 Company X has a lack of actions for Scope 3

In recent years, Company X has, in line with the strategy and objectives of the Company X Group, committed to the Paris Agreement and set goals for improved sustainability. These goals were formulated in the 'Low Carbon Strategy' that Company X adopted in 2019 (Company X Group, 2022d). In 2021, Company X published new commitments to accelerate the fight against climate change. The current targets that the Company X Group has set are:

- 50% reduction in operational CO<sub>2</sub> emissions (resulting from internal operations and employee mobility) by 2030, with an interim target of 35% in 2023, aiming for Net Zero by 2040.
- 15% reduction in other CO<sub>2</sub> emissions (resulting from purchasing and use of Company X equipment by customers) by 2030, with an interim target of 7% in 2023.

Company X is committed to reducing not only its own direct emissions but also the emissions that happen in its value chain/supply chain (Company X Group, 2022b). This indicates that Company X has the ambition to reduce emissions in all three scopes, as defined in the widely used accounting standard for reporting emissions by the Greenhouse Gas Protocol (GHG Protocol) (WRI/WBCSD, 2004, p. 25). The three scopes in this model are defined as follows:

<b>Scope 1: Direct GHG Emissions</b>	Scope 1 covers direct GHG emissions that occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment.
<b>Scope 2: Electricity indirect GHG emissions</b>	Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.
<b>Scope 3: Other indirect GHG emissions</b>	Scope 3 is an optional reporting category that allows for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the company but occur from sources not owned or controlled by the company. Some examples of Scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services.

*Figure 1: GHG Protocol Reporting Standard scopes (WRI/WBCSD, 2004, p. 25)*

Company X is also setting its own targets besides those of the group. For all scopes, there are specific targets developed. For the past years, these targets were:

<b>Scope 1:</b>	A reduction in CO <sub>2</sub> emissions of 41% in 2021 compared to 2014.
<b>Scope 2:</b>	A reduction in CO <sub>2</sub> emissions of 83% in 2021 compared to 2014.
<b>Scope 3:</b>	A reduction in CO <sub>2</sub> emissions of 3% for commuting in the period 2017-2021 related to the number of FTE.

*Figure 2: Company X NL 2021 CO<sub>2</sub> reduction targets per scope (Company X Nederland B.V., 2020)*

For the upcoming years, the targets are:

<b>Scope 1:</b>	A reduction in CO <sub>2</sub> emissions of 75% in 2023 compared to 2018.
<b>Scope 2:</b>	A reduction in CO <sub>2</sub> emissions of 25% in 2023 compared to 2018.
<b>Scope 3:</b>	A reduction in CO <sub>2</sub> emissions of 3% for commuting in the period 2021-2024 related to the number of FTE.

*Figure 3: Company X NL future CO<sub>2</sub> reduction targets per scope (Company X Nederland B.V., 2021)*

Serious efforts have been made by Company X in the past years to commit to the targets. Especially in Scopes 1 and 2, there is progress visible. For Scope 1 and 2, a reduction in CO<sub>2</sub> emissions of 62% and 93%, respectively, is realised, meaning that the goals are achieved. What must be noted is that the COVID-19 pandemic had a significant impact on the achievement of these goals. In the years 2020 and 2021, emissions of CO<sub>2</sub> using cars and planes were reduced significantly because of the measurements taken by the Dutch government, which obliged many people to work remotely from home and made international travel impossible for most of the time.

For Scope 3, the goal of a 3% reduction was overachieved by realizing a reduction of 32% for commuting. Remarkable is the fact that for Scope 3, only commuting was integrated into the target, as Scope 3 covers more emissions. In fact, Scope 3 generally covers most of the carbon footprint of an industrial company. Studies estimated that the global cross-industry average of upstream supply chain emissions is about 75% (Eggert & Hartmann, 2021, p. 1). This indicates that there are more aspects in Scope 3 where a reduction of emissions can be achieved. Although there are some numbers available for the total Scope 3 emissions, a concrete action plan is missing. Company X has the ambition to realize CO<sub>2</sub> reduction with its suppliers upstream in the value/supply chain, but knowledge of how to do this is limited. This causes actions to be postponed and a lack of progress. This is the main complicating factor.

Furthermore, Company X wants to reduce its CO<sub>2</sub> emissions, but not at any cost. Therefore, the financial impact of the actions also matters, leading to costs being a complicating factor as well. As Company X is currently also dealing with other problems like market shortages and hyperinflation (van Toorn, 2022), the actions for improved sustainability should not cause financial problems and, therefore, preferably be cost-neutral. This means that the cost savings of the actions are the same as the investments that are necessary for the actions, leading to a net financial result of zero. As this is very ambitious and highly unlikely, it is more realistic to develop cost-efficient actions. This means that the goals are achieved against the lowest possible costs. This leads to the research question:

***How can Company X achieve a reduction of CO<sub>2</sub> emissions with its suppliers in a cost-efficient way?***

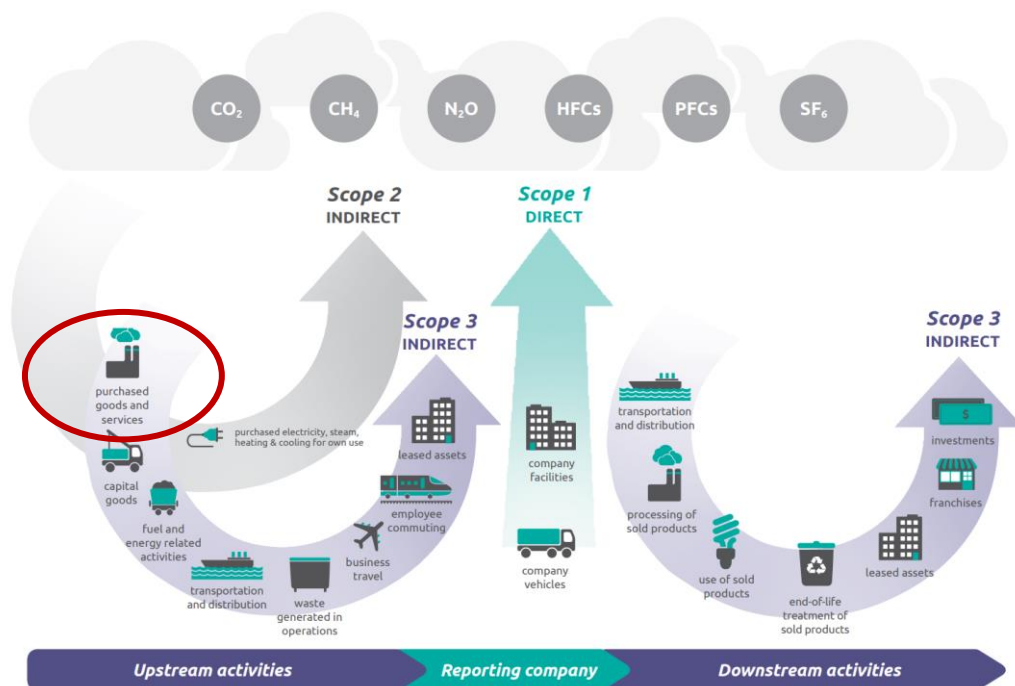


Figure 4: GHG Protocol Categories (WRI/WBCSD, 2011, p. 5)

## 2. Theory

### 2.1 The importance of Sustainable Procurement and Sustainable Supply Chain Management

#### **2.1.1 *Sustainable Procurement is becoming increasingly important***

As mentioned earlier in section 1.1, one of the first major appearances of the concept of sustainability was in 1987 in a report called 'Our Common Future – Call for Action', also known as the Brundtland Report. In that report, sustainability was defined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987, p. 37). Already in 1972, a report was published called Limits to Growth, which discussed the rapid population growth, industrial production and exhaustion of natural resources (Norgard, Peet, & Ragnarsdottir, 2016). Although this is already several decades ago, the topic started gaining more interest from both societies and academics in the past decade, with the adoption of the Paris Agreement in 2015 (UNFCCC, 2015). Especially in recent years, more research was performed on sustainability, as the results of global warming are becoming more visible every year. This also appears from the commitment that a lot of companies make to sustainability targets. Over 3,000 companies are already taking significant actions (SBTi, 2022) and about one-third of the largest public companies in Europe have pledged to reach the goal of net zero emissions by 2050 (Winston, 2021).

Not only sustainability is becoming increasingly important for companies, supply chain management as well. This is caused by increased globalisation. As the supply chain becomes more important, competition is starting to become more “supply chain versus supply chain” and less “firm versus firm” (K.-H. Lee, 2011, p. 1216). Supply chain management can be defined as “The management of a network of relationships within a firm and between interdependent organizations and business units consisting of material suppliers, purchasing, production facilities, logistics, marketing, and related systems that facilitate the forward and reverse flow of materials, services, finances and information from the original producer to the final customer with the benefits of adding value, maximizing profitability through efficiencies, and achieving customer satisfaction” (Stock & Boyer, 2009, p. 706).

This increase in importance has caused purchasing and supply chain management to become a more strategic part of the company. Recent research by Liu, Zhang, Hendry, Bu, and Wang (2018, p. 100) also concluded that “the global competitiveness of businesses is not only about the firms themselves, but also about their supply chains”. Next to this, they mention that “in the face of sustainable development challenges, sustainable supply chain management (SSCM) has become a key strategy for many global businesses not only because of their commitments and agendas on sustainability but also because such strategies can be beneficial in terms of commercial performance, product innovation or risk management” (Liu et al., 2018, p. 100). This expresses the increasing importance of supply chain management (in combination with procurement).

Sustainable supply chain management can be defined as “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” (Seuring & Müller, 2008, p. 1700). As mentioned before, sustainable supply chain management is becoming increasingly important for all types of companies all over the world. What makes it extra important for companies like Company X, is that in their industry, materials, and manufacturing both have absolute and relatively high Scope 3 emissions (Correia, Howard, Hawkins, Pye, & Lamming, 2013, p. 60; Hertwich & Wood, 2018, p. 1). This indicates that for industrial/manufacturing companies, Scope 3 emissions are

relatively high compared to Scope 1 and Scope 2 emissions, and that Scope 3 is the area where the most gains are possible.

As Scope 3 covers procurement, significant results could be achieved through sustainable procurement. Meehan and Bryde (2011, p. 96) mention: "The role of procurement in driving forward the corporate sustainability agenda is critical, given its position and its ability to influence external organizations in the supply chain". Furthermore, they provide a definition for sustainable procurement: 'Sustainable procurement' can be defined as the process used to secure the acquisition of goods and services ('products') in a way that ensures that there is the least impact on society and the environment throughout the full life cycle of the product (Meehan & Bryde, 2011, p. 97).

According to McMurray, Islam, Siwar, and Fien (2014, p. 196), sustainable procurement has five common aspects. They include concern for the environment, diversity, philanthropy, human rights, and the safety implications of products and services and include buying locally and buying from small suppliers.

### **2.1.2 Global Warming can lead to Economic Damages**

The effects of global warming on our nature are generally known, such as the rise of sea levels, changes in biodiversity and an increased frequency and severity of extreme weather events. These include floods, storms, heat waves, and droughts (European Commission, 2023a). For this case, it is also important to address the possible effects on businesses, as it explains why this research is relevant. Changes in weather and climate can have a direct impact on businesses. Extreme weather events, such as the previously mentioned examples, can lead to damage to properties and infrastructure. This in place results in costs and economic losses. Furthermore, in periods of droughts, the availability of water could be at risk, potentially increasing the operational costs for businesses that use water for their operations. Reduced availability could also be the case for other raw materials due to climate change, leading to the same potential increase in operational costs. Next to this, extreme weather events could also cause problems for transportation and disrupt supply chains, also leading to increases in costs.

A recent report from the IPCC also discussed the economic impact of global warming. Several studies are mentioned that tried to estimate the economic damages. These studies found that constraining warming to 1.5 °C rather than 2 °C would avoid global economic damages of 10-26% or would save 1.5-2.0% of the gross world product by the year 2050 and 3.5% by the end of the century (IPCC, 2018, pp. 256-258). Furthermore, Yohe (2017, p. 474) found that the value of achieving a 1.5 °C limit in terms of damages avoided is almost 4% of GDP by 2100 for the USA. This indicates that refraining from actions will also cost money eventually and actions could prevent economic damages. Recent research found that limiting global warming to 1.5 °C will outweigh the costs (Kikstra & Waidelich, 2023; van der Wijst et al., 2023, p. 1). Therefore, simply taking the risk of letting global warming happen will eventually have more economic impact than mitigating the risk by taking action. The IPCC report also mentioned that low-income countries are expected to experience the greatest losses and that some regions might benefit more from constraining global warming to 1.5 °C compared to 2 °C. Due to the rise of global supply chains, developed countries also should have an interest in constraining global warming to maintain their supply chain, and the need for actions in the supply chain becomes evident.

### 2.1.3 Regulations on sustainability

As Company X Nederland B.V. is in the European Union (EU), it must consider several laws, regulations and directives concerned with sustainability. In this section, some relevant information is discussed.

The EU Green Deal is package of policy initiatives that should help the EU to drastically reduce emissions (European Council, 2023a). The goal is to make the EU climate neutral in 2050. Part of this is the European Climate Law. This law sets a legally binding target of net zero CO<sub>2</sub> emissions in 2050 with an intermediate target of at least 55% reduced CO<sub>2</sub> emissions in 2030 compared to 1990 (European Commission, 2023c). To achieve the intermediate goal, the EU presented the 'Fit for 55' package. This package contains proposals for new laws and directives on emissions that should help to achieve the intermediate goal (European Council, 2023b). New proposals for directives are constantly created, such as the 'Proposal for a Directive on corporate sustainability due diligence and annex' recently (European Commission, 2022). Currently, there are already several European directives concerned with emissions or sustainability. Some major directives are presented in the following table:

Name Directive	Description
<b>EU Emissions Trading System (ETS)</b>	The EU ETS is a policy tool to reduce greenhouse gas emissions. The system is 'cap-and-trade' and sets a limit on emissions that participating companies can produce. Companies get allowances for emissions and can buy or sell these on the market. The cap decreases every year, to ensure that emissions are reduced (European Commission, 2023b).
<b>Industrial Emissions Directive (IED)</b>	The IED is the main EU tool to regulate emissions from industrial installations. About 52.000 installations in the EU must operate in accordance with a permit. This permit is granted only if several conditions are met, taking the whole environmental performance into account (European Commission, 2023d).
<b>Renewable Energy Directive (RED)</b>	The RED is a legal framework to develop renewable energy across the EU. The directive sets a target for the share of renewable energy in the consumption of the EU by 2030. There have been several proposals over the last years to further increase the target, with the latest proposal being 45% by 2030 (European Commission, 2023e).

Figure 5: Overview EU Directives on Sustainability

To conclude this part, it is important for businesses in the EU to keep an eye on the changes in the regulations as they can happen every year and make sure that the practices of the company remain compliant with the regulations to prevent problems in the future.

## 2.2 Strategies and Actions for Sustainable Supply Chain Management

### 2.2.1 *Demanding Certification Ensures Sustainability*

The first method that can be used by companies to ensure sustainability with their suppliers, and therefore reach their own SSCM goals, is by demanding certain certifications. There are different certifications possible in terms of sustainability. For example, in the Netherlands, there is the 'CO2 Prestatieladder/CO2 Performance Ladder'. This certification is owned and controlled by an independent foundation called The Foundation for Climate Friendly Procurement and Business (Stichting Klimaatvriendelijk Aanbesteden & Ondernemen (SKAO) in Dutch) (CO2 Prestatieladder, 2022a). This foundation assesses companies and organisations on their sustainability actions. A company will obtain the certificate with a certain level, ranging from level 1 (lowest) to level 5 (highest). Being ranked as a level 5 company, organisations can receive an award advantage for their registration on tenders (CO2 Prestatieladder, 2022b). Next to the assessments, the foundation also functions as a centre for sharing information on sustainability, by hosting events and engaging companies to reduce their CO2 emissions. Company X itself is certified at level 5 on the performance ladder.

There are also international certifications, that could be helpful when dealing with a global supply chain. There are several ISO certifications that involve sustainability, like ISO 14001 (Environmental Management System), ISO 20400 (Sustainable Procurement), ISO 50001 (Energy management), and ISO 26000 (Social Responsibility). The ISO organisation does not certify other organisations itself, but only provides international standards, like the examples mentioned. Previous research has shown that receiving the ISO 14001 certificate indeed could have a positive impact on the environmental performance of the firm (Arimura, Darnall, Ganguli, & Katayama, 2016, p. 565; Campos, de Melo Heizen, Verdinelli, & Cauchick Miguel, 2015, p. 287). There are more organisations that provide international sustainability ratings, like EcoVadis. This organisation assesses companies and provides a rating according to a standardised procedure, meaning that the results are comparable to other companies. With over 90,000 companies assessed in over 160 countries, EcoVadis is a widely recognized sustainability ratings provider all over the world (EcoVadis, 2022).

By demanding certain certifications in purchasing contracts, the buying company can ensure that its supply is managed sustainably, without investing time, money, and other resources. This is helpful for a company, as supplier assessment is deemed a complex task, especially in global supply chains where physical and cultural distances are very large (Matthess, Kunkel, Xue, & Beier, 2022, p. 1). Next to the advantages of the buying firm, the certification also has possible advantages for a supplier. The certification can also be used as a knowledge tool. As many certification organisations also provide knowledge and tools for improved sustainability, obtaining a certificate could also help a supplier to further improve their sustainability performance (Oelze, Gruchmann, & Brandenburg, 2020, pp. 6-10). This in place has the possibility to improve their position in the market. Furthermore, when both the buying firm and the supplier are ISO 14001 certified, the performance levels in the supply chain are significantly higher.

### **2.2.2 *Supplier Engagement, Development and Collaboration is an Effective Strategy***

Another possibility for ensuring sustainability upstream in the supply chain is by engaging suppliers and collaborating with them. In recent research, there has been a lot of attention to this. The conclusions of this research are mixed. There are studies that argue that supplier management, especially monitoring and control, already leads to improvements in environmental performance, such as Klassen and Vachon (2003, p. 347). Others found that assessment alone is insufficient, and that collaboration between buying firms and their suppliers improves sustainability in the supply chain (Tachizawa, Gimenez, & Sierra, 2015, pp. 1557-1560). Saunders et al. (2015, p. 286) also found that engaging key suppliers early in processes is a proactive strategy for improved sustainability performance. At the same time, Awan, Sroufe, and Kraslawski (2019, p. 178) mention that research on green innovation highlighted the importance of collaborations with suppliers to exchange knowledge and enhance learning. Liu et al. (2018, p. 101) even consider supplier development as a core strategy for sustainability.

There are several aspects of supplier engagement and collaborations that must be considered. First of all, the degree of involvement has a direct impact on the suppliers' performance in terms of sustainability. Sancha, Wong, and Gimenez (2019, p. 1) found that "Collaborations improve supplier performance, while assessment causes deterioration. This indicates that a higher degree of supplier involvement leads to a greater supplier performance in terms of sustainability". Although a high degree of involvement positively influences sustainability performance, there is a downside as well. High degrees of involvement demand serious investments of time, money, and other resources to be effective. This is not desirable in every situation but depends on factors like the commitment of the supplier (in €), the current relationship, and the strategic importance. Companies should determine for their own situation if the increase in sustainability performance is worth the investments.

Supplier engagement could be necessary in some cases, as research by Foerstl, Azadegan, Leppelt, and Hartmann (2015, p. 68) found that upstream suppliers often exploit their distanced position from consumers or the end-user of the final product, by satisfying just the legal minimum of the requirements on sustainability. Furthermore, higher-tier suppliers feel less stakeholder pressure to improve their sustainability, because of their distance to the 'point-of-sale'. Hence, these higher-tier suppliers' incentives to take initiative sustainable practices in a proactive way are less obvious (González-Benito & González-Benito, 2006, pp. 1356-1358).

Attitude towards the suppliers also matters for supplier engagement. Wohlgezogen et al. (2021, p. 436) found that "Attitudes matter for supplier engagement because they shape how individuals perceive opportunities for positive change in the supply chain and how they invest themselves in the hard work of transforming business practices". A wrong attitude towards a supplier could lead to low engagement, and low engagement could be problematic for sustainability performance. "Low engagement is particularly problematic in the context of supply chain sustainability efforts. Given the complexity of the transformation toward sustainable business practices, supply chain sustainability requires all partners' initiative and creative problem-solving capabilities and a commitment to iterative, continuous improvements", as Wohlgezogen et al. (2021, p. 438) describe. As attitude matters, there is an important role for individual purchasers in a company to contribute to sustainability goals. This will be discussed in the next part.

To conclude this part, collaboration with suppliers can be an effective strategy for reducing upstream emissions, but it comes with relatively high costs. Therefore, it depends on the company and supplier if this strategy is preferable.

### **2.2.3 Sustainable Purchasing Skills are Important and Changing in the Future**

As mentioned before, there is an important role for the individual purchaser in the company to contribute to the sustainability goals. This is confirmed by research from Neessen, Caniëls, Vos, and de Jong (2021, p. 2), which argues that “the role of the individual purchasers may be just as important” (compared to the role of the organisation itself, respectively). They also mention that “the role of the purchaser is critical in the transition towards a circular economy” (Neessen et al., 2021, p. 2). The circular economy is an ‘extreme’ form of sustainability and can be defined by “its focus on maximizing what is already in use along all points of a product’s lifecycle, from sourcing to supply chain to consumption to the remaining unusable parts for one function and their conversion back into a new source for another purpose” (Esposito, Tse, & Soufani, 2018, p. 6).

As the role of the individual purchaser is so important, there should also be attention to the development of these individual purchasers, so that they are able to execute the sustainable purchasing strategy. This can be achieved by offering training to the employees so that their knowledge and skills on sustainability are up to date. This can be done through organisations such as EcoVadis, which was already mentioned earlier in section 2.2.1. Next to assessing, they also provide tools and knowledge. It is important for purchasers to regularly update their knowledge and skills, as the requirements are constantly changing due to globalisation and the Internet-of-Things for example. ‘Sustainability knowledge’ is one of the skills that is becoming more important in the future, according to Schulze and Bals (2020, pp. 5-8), who also recognize that the needed skill set for purchasers is changing. Next to sustainability knowledge, social and ‘human’ skills become more important, as repetitive tasks will be taken over by computers. Some of these ‘human skills’ that are becoming more important are critical thinking, communication, commitment to change and creativity (Schulze & Bals, 2020, pp. 5-9). Forecasting skills, supplier relationship management, analytics, and technical skills are other future competencies for purchasing and supply management (Stek & Schiele, 2021). Bals, Schulze, Kelly, and Stek (2019, p. 1) mention: “Developments such as: sourcing innovation, handling potential supplier disruptions, ensuring sustainability in the supplier network (Montabon, Pagell, & Wu, 2016), and the implications of technology-based workplace changes due to increased digitisation are challenging previous assumptions about what competencies the modern PSM professional will require”. Skills like creativity also contribute to the sustainability performance of a company (Awan et al., 2019, p. 179).

With the skills and knowledge of purchasers up to date, it is also important to engage them. Neessen et al. (2021, p. 2) found that “many employees are willing to play a role in sustainability projects, but given that employees also have other responsibilities, the key is to engage them”. This makes the implementation of an engagement strategy very important. Training and engaging purchasers are generally important, as an increase in sustainable purchasing knowledge, and even purchasing knowledge in general, is positively related to savings performance and strategic purchasing performance (Schütz, Kässer, Blome, & Foerstl, 2020, pp. 9-11). This implies that this does not only contribute to sustainability goals, but also the performance of the firm in general.

To conclude this part, the training and development of purchasers can contribute to the achievement of sustainability goals. This strategy can, and maybe must be combined with other strategies to make a significant impact.



## 2.3 Costs of Sustainable Procurement

### **2.3.1 *Costs of Sustainability are Relevant***

Most companies are willing to improve their sustainability performance. However, there are some factors that influence the strategies that companies choose. One of these factors, and probably the most important one, is cost. High costs are the main reason for companies to refrain from implementing sustainable practices, or to go with a cheaper strategy that creates a smaller impact. Therefore, it is important and often necessary to take costs into consideration when developing a strategy for sustainable procurement. Different strategies also come with different costs. Accordingly, the strategies and actions explained in section 2.2 will be addressed again and evaluated on costs.

### **2.3.2 *Certification can be Expensive***

Demanding certifications that ensure a certain level of sustainability is a strategy that could be very cost-efficient for the buying firm. The costs for the assessment for the certification are covered by the supplier. This indicates that this method does not bring any extra direct costs for the buying company. What should be noted is that suppliers could incorporate the costs of the certification into the prices for their products, meaning that the buying firm indirectly must deal with extra costs. To improve the relationship, the buying company could offer to pay for (a part of) the certification. This means that demanding certification could mean an increase in costs for the buying company. The exact amount depends on many variables, however. To give an example, for Dutch SMEs, the expected costs for an ISO 14001 certificate are between €8,700 and €23,800 (Cresco Consultancy, 2022).

On the other hand, certification should not only mean extra costs for the supplier, but it also provides them potential benefits. Research has shown that companies that implement ISO 14001 earlier than competitors gain additional financial performance, especially for ROA and ROS. This effect is even stronger when the level of competitive intensity is high (Su, Dhanorkar, & Linderman, 2015, pp. 38-39). Darnall and Edwards Jr (2006, p. 303) also find that an EMS (Environmental Management System) can help companies improve internal operations and achieve greater efficiencies. In his research comparing the costs and benefits of ISO 14001 certification, Camilleri (2022, p. 1079) also argues that successful implementation has a lot of potential benefits: “The systematic review suggested that compliance with ISO 14001 may result in a number of benefits to practitioners like improving their facilities' environmental performance through resource efficiencies. At the same time, they could minimize their externalities to the environment. This research confirmed that such certifiable standards, can create synergistic value to the businesses' financial performance and to the environment. It reported that green supply chain initiatives as well as a better utilization of resources and waste management practices may translate to lower costs and to an improved financial performance”. Camilleri (2022, p. 1080) also mentions that ISO 14001 certification indeed has a downside of high certification costs, an increase in paperwork, and employees' resistance to change. Therefore, support of management and involvement of employees is necessary for successful implementation.

Considering costs, it is also mentioned that ISO 14001 certification can prevent companies from failing to comply with environmental regulations that could lead to fines. Therefore, certification could also prevent costs. This indicates that the implementation of certification could become a win-win situation causing both the buying firm and the supplier to improve their performance.

### **2.3.3 *Supplier Engagement, Development & Collaboration has high initial costs***

Supplier engagement, development and collaboration are relatively expensive actions. They often require serious investments of time and money. Actions like a visit to the supplier or organising a joint activity quickly takes up valuable hours. It is difficult to provide exact numbers, as the costs are dependent on many different factors that are specific for every supplier. Some examples of these factors are the commitment to the supplier (in €), the strategic importance of the supplier and the current relationship with the supplier. Basic, moderate, and advanced supplier development all have a positive impact on the buying performance of a company (Sánchez-Rodríguez, Hemsworth, & Martínez-Lorente, 2005, pp. 295-299). Therefore, all actions, both major and minor, could be helpful. On the other hand, collaborations with suppliers do not only lead to an increase in costs but can also lead to cost savings. Suppliers often appreciate initiatives for collaborations and could award the buying company with operational performance benefits like quality or costs (Sikombe & Phiri, 2019, p. 2). This indicates a decrease in their prices. In this way, costs can also decrease.

It is important to address the importance of relationships with some suppliers. Especially in cases like Company X, where very specific products are developed in low volumes over a long time, the relationship with strategic suppliers is very important. A good relationship and strategic importance make the transactional cost of supplier replacement high. In cases like this, supplier development becomes increasingly important (Liu et al., 2018, p. 101). This could lead to switching costs becoming higher than the development costs, meaning that the company should continue investing in the development of the supplier. Costs for market research, evaluating alternative offers, setting up contracts, and communication with suppliers are all among the costs that could be considered switching costs (Friedl & Wagner, 2012, p. 3070).

With sustainability issues becoming more important and regulations becoming stricter, it is important that long-term suppliers will be developed. Future costs for violations of sustainability laws can also be avoided, making this strategy, in several cases, worth it. Dangelico, Pujari, and Pontrandolfo (2017, p. 502) mention that green innovation is the key factor for not only environmental sustainability but also economic sustainability. This means that investments in sustainable innovations are not only beneficial for the future performance of sustainability but also beneficial for financial performance in the future.

### **2.3.4 *Sustainable Purchasing Skills do not need to be Expensive***

In general, the development of employees is important for any company. With changing circumstances and new challenges waiting, it is important to always have the skills and knowledge of employees up to date. In this light, most companies already offer training opportunities for their employees. Adding training on the topic of sustainability should be added to that. As most companies already offer training to their employees, adding sustainability should not lead to a large increase in costs. Although it seems like a small and easy action, it can be quite important. It creates awareness and internal support for sustainability. Research has shown that when sustainability is a part of the culture of an organisation, benefits can accrue. Individual performance of employees can be enhanced, employee engagement and commitment can increase, and the reputation of the firm may also be enhanced, which makes the firm more attractive to customers and can potentially increase the market share (Galpin, Whittington, & Bell, 2015, p. 13). Investing in the development of employees also improves their commitment to the organisation (C. H. Lee & Bruvold, 2003, pp. 990-992), which in place helps to achieve the goals of the organisation.

Moreover, there are lots of opportunities for training and development of employees against reduced costs. Online learning platforms are suitable for this for example. The interest in massive open online courses (MOOCs) is increasing. MOOCs are web-based courses that could be made available to anyone on the internet. Cost reduction is one of the potential benefits of a MOOC, next to its convenience, capacity, and variety. MOOCs can also be used complementary to face-to-face training in class. It is then used as a knowledge reinforcement tool to follow up on classroom sessions (Ong & Jambulingam, 2016, p. 19). In this way, an organisation can provide their employees with training and development possibilities at low costs. Similarly, Baumgartner and Winter (2014) developed 'The Sustainability Manager', a management game based on a virtual company that can be used as a tool for training employees.

### **2.3.5 Sustainability can save Costs and Innovation plays a Role**

Possibly more important and significant than the costs of a certain action or strategy are the effects of that respective action or strategy on the operational costs of a company. Logically, actions aimed at sustainability influence the sustainability performance of a company. However, these actions also have an impact on other aspects. An improvement in sustainability often also leads to improvements in operational efficiency, as typical actions are the reduction of waste and energy consumption. In this way, the processes of a company become both more sustainable and more efficient, therefore cutting unnecessary costs. For example, a reduction in packaging material results in a reduction of both environmental and financial costs. Dangelico et al. (2017, p. 491) also mention that several firms invest in sustainability initiatives for cost savings and that it could even lead to additional revenue generation and product innovation. Liu et al. (2018, pp. 100-101) confirm this by finding that sustainable supply chain management can be beneficial in terms of commercial performance. This does not only apply to buying firms but also to suppliers, as Foerstl et al. (2015, p. 69) mention: "as end consumers' expectations for more sustainable product offerings have increased, manufacturers have augmented their collaborative efforts with selected FT suppliers to address market demands. Therefore, many FT suppliers have strong justification to invest in and signal proactivity in their SSCM practices to be selected for these collaborative projects, which will improve their competitive position and ultimately their economic performance".

An important factor here is innovation, as "innovation and sustainability form an important link in the pursuit of environmental, economic, and social development" (Kuzma, Padilha, Sehnem, Julkovski, & Roman, 2020, p. 1). Innovation is an important factor in achieving sustainability, as Fagerberg (2018, p. 1568) also mentioned: "To reach this goal (reduction of emissions in line with the Paris Agreement), extensive changes in technology, economic structure, governance, and ways of life will be required. That is why innovation – and policies supporting it – is essential for the transition to sustainability". Innovation is a key strategy or mechanism for addressing sustainable development concerns and contributing to sustainable development (Inigo, Ritala, & Albareda, 2020, p. 550; Maier, Maier, Aşchilean, Anastasiu, & Gavriş, 2020, p. 1). Zhang, Khan, Lee, and Salik (2019, pp. 15-17) found that management innovation and technological innovation have a positive effect on sustainability and the performance of an organisation. Adams, Jeanrenaud, Bessant, Denyer, and Overy (2016, p. 180) say that: "Sustainability-oriented innovation involves making intentional changes to an organization's philosophy and values, as well as to its products, processes or practices to serve the specific purpose of creating and realizing social and environmental value in addition to economic returns". However, innovations require investments, meaning that innovations for sustainability could increase costs and decrease financial performance. Stek and Schiele (2021, p. 10) found a negative relationship between 'cost focus' and 'innovation sourcing', as well as a negative relationship between 'cost focus' and

‘sustainable sourcing’. This can be explained by the fact that innovations require costs in the short term, while they should lead to improvements in the long term. The Dutch saying ‘De kost gaat voor de baat uit’, which means something like ‘the cost comes before the benefit’, perfectly describes this. The essence is that to gain benefits, costs have to be made first. This indicates an increase in costs in the short term leads to benefits in the future. The goal is to make sure that the benefits are larger than the costs. Therefore, it is important to focus on not just the costs in short term, but the total costs over the long term, including the use and disposal of the products or components that were purchased. This view of the costs of a product over its entire lifecycle is called the total cost of ownership (TCO). Legenvre and Gualandris (2018, p. 97) mention that “Purchasing teams need to explore, understand, and gather unmet needs by working closely with R&D, marketing, operations, and clients. They need to look beyond immediate requirements and anticipate factors that could provide future competitive advantage. Purchasing teams need to involve suppliers in innovation projects. Such projects need to look beyond risks, cost, and product development to offer further competitive advantages. This can require extensive collaborations and more straightforward project work”.

It can be concluded that improvements in sustainability do not necessarily lead to increased costs but can also lead to cost savings and improved commercial performance. Therefore, it is important to focus on innovations and the TCO.

## 2.4 Conclusion on Strategies and Costs

To conclude the previous sections, it has become clear that there are several possibilities for companies to reduce their upstream emissions. The available research has shown that the different options all have advantages as well as disadvantages. These include both increases and decreases in terms of sustainability performance and costs/financial performance. Different strategies could work for different situations or different suppliers. This depends on several characteristics of the supplier, like the maturity of the supplier, but also the profit impact and dependency that are linked to the supplier. Therefore, the Kraljic matrix (Kraljic, 1983) could be used to classify a supplier. Then, a strategy could be developed for each segment.

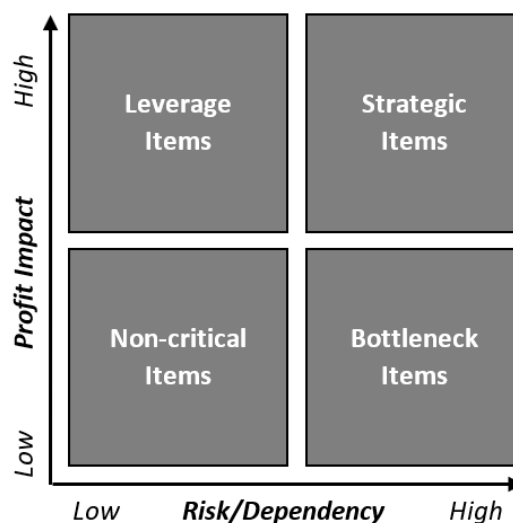


Figure 6: Kraljic Matrix (Kraljic, 1983)

## 2.5 Theoretical Foundation

### 2.5.1 *Introduction Theoretical Foundation*

This thesis is written from the perspective of general theories that form the foundation of this thesis. In this case, these theories are the resource-based view (RBV) and social exchange theory (SET). These theories and their connection to the topic will be explained in this section.

### 2.5.2 *Resource-based View*

The resource-based view (RBV) has been one of the main theories in business and management for the past decades. It describes that the management of resources is one of the key elements of creating a sustainable competitive advantage for a firm. These resources should be particularly valuable, rare, imperfectly imitable and non-substitutable (VRIN) to be able to create a competitive advantage and increase the firm's performance (Battisti, Nirino, Leonidou, & Thrassou, 2022, p. 1058). According to Barney (2012), purchasing and supply management (PSM) should also be considered as a resource. This indicates that companies could create a sustainable competitive advantage and improve their performance through purchasing and supply management. Pereira and Bamel (2021, p. 557) describe RBV as follows: "RBV embraces the idea of firm heterogeneity in terms of its possession of resources and firm capability to manage and utilize those resources innovatively, to harness the environmental opportunities. Therefore, a firm that possesses resource heterogeneity and competencies to manage these resources innovatively is more likely to achieve competitive advantage over its competitors."

Pereira and Bamel (2021, p. 558) also mention different types of resources. Among these are physical and capital resources, which are obvious, but also social relationships. From this point of view, a good relationship with a supplier could be a resource for competitive advantage, confirming that purchasing and supply management could contribute to the performance of a firm. Münch, Benz, and Hartmann (2022, p. 3) further mention that networks and partnerships drive sustained growth and enable a competitive advantage. Chang, Tsai, Chen, Huang, and Tseng (2015, p. 867) also describe: "Building strong partnerships is a corporate strategy that can enhance cooperation among firms, as well as the exchange of knowledge and resources, because such relationships help remove communication barriers and eliminate redundancy, thus increasing efficiency and leading to competitive advantages. The resource-based view also sees partnerships among firms as an important resource or asset that can result in better performance." It is important to note that just the presence of a resource is insufficient and that the proper management of these resources is necessary (Battisti et al., 2022, p. 1059).

### 2.5.3 *Social Exchange Theory*

The social exchange theory (SET) is a theory from psychology and sociology but also applies to businesses. Lambe, Wittmann, and Spekman (2001, pp. 5-6) describe SET as follows: "SET postulates that exchange interactions involve economic and/or social outcomes. Over time, each party in the exchange relationship compares the social and economic outcomes from these interactions to those that are available from exchange alternatives which determines their dependence on the exchange relationship. Positive economic and social outcomes over time increase the partners' trust in each other and commitment to maintaining the exchange relationship. Positive exchange interactions over time also produce relational exchange norms that govern the exchange partners' interactions." In easier words: "The basic assumption of SET is that parties enter into and maintain relationships with the expectation that doing so will be rewarding" (Lambe et al., 2001, p. 4). The social exchange theory and resource-based view are linked to each other, as SET can describe the relationships (with suppliers) that are regarded as resources according to the RBV.

#### 2.5.4 *Supplier Satisfaction and Preferred Customer Status*

Some other theories that are very relevant to this topic involve supplier satisfaction and preferred customer status. As mentioned earlier in the introduction, several events took place in the past years that caused major disruptions in the supply chain and other problems. Currently, a lot of companies are dealing with market shortages caused by both the COVID-19 pandemic earlier and the war in Ukraine most recently, as well as hyperinflation with rates up to 12% in the Netherlands currently (van Toorn, 2022). This had led to an increase in the importance of the purchasing and supply management function of a firm. Suppliers can provide resources such as capabilities and materials that could lead to competitive advantages that might not be achieved without those suppliers (Pulles, Schiele, Veldman, & Hüttinger, 2016, p. 129). Supplier satisfaction is becoming increasingly important as well, as resource allocation is a selective process (Pulles et al., 2016, p. 130). Supplier satisfaction is identified as a primary determinant of this process, where a supplier decides who becomes their preferred customer (Vos, Van der Lelij, Schiele, & Praas, 2021, p. 1). “The buying firm that is able to attain a preferential resource allocation position from suppliers that are shared with competitors is a preferred customer” (Pulles et al., 2016, p. 130). This status as a preferred customer provides a buying company with several advantages over competitors. This includes first access to new technologies or innovations, financial benefits, higher product quality and higher delivery reliability (Vos et al., 2021, p. 1). Therefore, supplier satisfaction should be viewed as a strategic asset for the buying firm (Caniëls, Vos, Schiele, & Pulles, 2018, p. 343). Hüttinger, Schiele, and Veldman (2012, pp. 1201-1202) identified several drivers of supplier satisfaction and preferred customer status. The most important drivers are mentioned below.

<b>Drivers of supplier satisfaction</b>	<b>Drivers of preferred customer status</b>
Early supplier involvement	High purchase volumes
Supplier development	Loyalty
Long-term time horizons	Trust and commitment
Dedicated investments	Early supplier involvement
Communication	Supplier development
Adherence to agreements	Communication

Figure 7: Drivers of supplier satisfaction & preferred customer status (Hüttinger et al., 2012, pp. 1201-1202)

**2.5.5 RBV, SET and Supplier Satisfaction are relevant to Company X**

The previously explained theories are relevant for this Thesis as they have a connection with the situation of Company X Nederland. The products and services of Company X are full of innovative technologies and are very complex. Products are manufactured in low quantities, and therefore Company X' manufacturing process can be considered 'High-Mix Low-Volume', also referred to as 'Make-to-Order'. Company X Nederland has a large supply base with a lot of SMEs, of which a lot are local as well. Many of these local suppliers have been in the supply base of Company X for years, sometimes decades. For Company X, these suppliers are often critical, as they supply very specific parts, or have specific knowledge and tools on certain products or components. Therefore, Company X greatly values these long-term suppliers. The knowledge and abilities of these suppliers allow Company X to create unique and state-of-the-art products, meaning that the suppliers are an important resource for Company X. This is exactly as the RBV theory describes. Furthermore, this also connects to the Social Exchange Theory, as the relationship with suppliers provide Company X with specific components or products that deliver a certain economic value, meaning that Company X will keep these relationships. Next to this, as some suppliers can be critical, it is important that they want to remain their relationship with Company X, meaning that Company X should put effort in being a good customer to keep the suppliers satisfied. This could eventually lead to a status of preferred customer for Company X at these important suppliers, showing the connection to the final theory. Finally, as supplier engagement and collaboration is one of the potential actions appearing from the literature, these theories might become even more relevant.

### 3. Methodology

#### 3.1 Identify Possible Actions by Interviewing Different Stakeholders

The goal of this research is to identify and develop suggestions for concrete actions to reduce upstream Scope 3 emissions that can be implemented by Company X Nederland B.V. To achieve the research goal and provide an answer to the research question, this research uses a qualitative approach. A qualitative approach is suitable as this research concerns a “how” question. More specifically, this research is a case study, executed by conducting interviews with relevant stakeholders, used in most types of qualitative research (DiCicco-Bloom & Crabtree, 2006, p. 314; Fossey, Harvey, McDermott, & Davidson, 2002, p. 726). As this research is concerned with identifying actions based on expectations in the future, this study is mainly exploratory in nature. The participants of this research that are interviewed can be divided into three groups: procurement employees of Company X, representatives of Company X’ suppliers, and experts in the field of sustainable procurement/supply chain management. By interviewing different stakeholders, the research provides insights from different perspectives, creating a holistic picture. Furthermore, the interviews are in a semi-constructed form. This form ensures that certain topics will be addressed and creates a certain structure, but this also leaves space for other questions that arise during the interviews as well (Fossey et al., 2002, p. 727). For each group of interviewees, a specific interview protocol is developed. The interview protocols are based on Chapter 2 of this thesis, which covers the relevant existing literature on this topic. In this way, previous knowledge is presented and elaborated further on. This should lead to new and valuable insights. After collecting and analysing the data, the results are combined with and compared to the existing theory. Therefore, this research is inductive (Gehman et al., 2017, pp. 296-297).

<b>Participant Role</b>	<b>Company Role</b>	<b>Organisation</b>	<b>Country</b>
<i>Buyer</i>	Category Manager	Company X	NL
<i>Buyer</i>	Category Buyer	Company X	NL
<i>Buyer</i>	Category Buyer	Company X	NL
<i>Buyer</i>	Category Buyer	Company X	NL
<i>Supplier</i>	Sales Manager	Supplier A	NL
<i>Supplier</i>	Director Sales	Supplier B	NL
<i>Supplier</i>	QA & Operations Manager	Supplier C	NL
<i>Supplier</i>	Technical Sales	Supplier D	NL
<i>Expert</i>	Sustainable Procurement Consultant	LyondellBasell	NL
<i>Expert</i>	Sustainable Supply Chain Expert	Freelance/SPP	GER
<i>Expert</i>	Sustainability Solutions Consultant	EcoVadis	FRA
<i>Expert</i>	Account Manager	EcoVadis	ESP

*Figure 8: Overview Sample*

The participants for the supplier role were invited based on emission data. These suppliers are part of the categories with the most emissions. Therefore, these suppliers are interesting, as they might already work on sustainability, or there could be a lot of potential gain, based on their relative emissions. Next, the buyers were selected based on these suppliers as well. To also gain insights on the relationships with these suppliers, the buyers connected to these suppliers were selected and invited. In this way, a view is created of both sides of the relationships. Finally, the experts were approached through the ‘Sustainable Procurement Pledge’. This is a group of professionals who are working on sustainable procurement and are passionate about it. Using their LinkedIn-page, members with a potential interesting function were approached. Examples of the functions targeted are ‘sustainable procurement expert’, ‘sustainable procurement specialist’, and ‘sustainable procurement consultant’.



### 3.2 Data Collection via Semi-structured Interviews and Transcriptions

The interviews are conducted orally and recorded. These recordings are transcribed afterwards. The data that are collected from the interviews are text and, therefore, qualitative. To collect data in a successful and diligent way, the interview protocol is developed according to the semi-structured form, as mentioned in section 3.1 earlier. By creating a scheme for the interviews, the information can be processed both during and after the interview in a structured way. This is helpful for the data analysis afterwards. All interviewees are asked for their consent to record the interview for the purpose of this scientific research on beforehand. By recording the interviews, the attention during the interviews is primarily focused on the information that is given and the person itself instead of the processing of the data. This leads to relevant follow-up questions and a constructive and engaging conversation. Next to this, participation in this research is also possible in an anonymous way and the level of confidentiality is discussed with the participant, ensuring that their information and data is processed and stored as they prefer. Next to this, participants are offered the possibility to withdraw their participation in this research at any given moment. Their data is stored safely as prescribed by the University of Twente and on request, the data of participants can be deleted as they wish to no longer cooperate in this research. These ethical matters, along with the consent of the participant are mentioned at the start of every interview. All of this is also done in written form. Considering this, this research did not encounter any ethical problems.

### 3.3 Data Analysis using Codes and Thematic Analysis

Thematic analysis is used as method for data analysis. To do this, coding schemes are constructed. By coding the transcribed interviews, the data can be somewhat quantified. Codes can be seen as the smallest unit of text that conveys the same meaning. "Coding is the actual work of analysing the interview data that have been collected" (...) "coding begins by describing small parts of the data: lines, sentences, and even paragraphs or words" (Deterding & Waters, 2018, p. 712). As the codes are assigned to the transcriptions of the interviews, several categories are be constructed to which the codes can be assigned. By creating these categories, overarching themes are detected in the data. A separate scheme is created for each role in this research (buyer, supplier, expert), as a specific interview protocol was constructed for each role. By combining similar categories that appeared from the data from different roles, the results can be compared and checked for similarities or differences between the different roles. The six phases of thematic analysis, as described by Braun and Clarke (2006, p. 87) were followed as a process for coding:



Figure 9: Phases of thematic analysis (Braun & Clarke, 2006, p. 87)

Interview 1	Interview 2	Interview 3	Code	Category
Information 1.1	Information 2.1	Information 3.1	Code 1	Category 1
Information 1.2	Information 2.2	Information 3.2	Code 2	Category 1
Information 1.3	Information 2.3	Information 3.3	Code 3	Category 2
Information 1.4	Information 2.4	Information 3.4	Code 4	Category 2
Information 1.5	Information 2.5	Information 3.5	Code 5	Category 2

Figure 10: Example Coding Scheme

## 4. Results

### 4.1 Overview of the current situation

In the introduction (section 1), the goal of this research is explained. A plan with actions is needed to achieve the goals for sustainable procurement. To develop a plan, it is important to know what is currently done, and what the current perception of sustainable procurement is of Company X' employees. This is the starting point for the development of actions. To figure out the current situation, most insights can be found in the input of Company X' employees themselves. Next to this, comments by suppliers can provide interesting insights. The main categories discussed with Company X employees are certification, collaboration, cost, innovation, training, and awareness. Certification and collaboration are aimed at the current actions towards suppliers and the relationships with these suppliers. Cost and innovation are focusing on the monetary aspect of sustainability and future developments. Training and awareness focus on the personal aspect, the knowledge, and skills in sustainable procurement and sustainability in general. The used data consists of coding schemes (Appendix A-C) and the transcribed interviews (Appendix D-O). The statements made are followed by one or multiple quotes from participants that support the statements.

#### 4.1.1 *Certification & Collaboration are Underused*

Starting with certification, the responses from the buyers provided a clear image of the current role of certification in procurement processes. Company X is using a 'global purchasing agreement' provided by the Company X Group for contracting new suppliers. When potential suppliers are evaluated and compared, environmental and social responsibility (ESR) is one of the aspects that is considered. Certification is part of this ESR aspect. Recently, the weight of this ESR aspect has increased to a minimum of 15% of the overall score of a supplier. Interesting is that all buyers that participated know to some extent that certifications and ESR should be considered, but there are differences in the perception and the knowledge on details. While one buyer mentions that according to new contracts, suppliers must be ISO 14001 compliant, another buyer mentions that certifications for sustainability do not count towards the ranking of suppliers. Furthermore, certifications of current suppliers are not always checked or updated.

*"We have new contracts, global purchasing agreements from France. This mentions ISO 14001 compliant." (Buyer 2)*

*"Until now, it does not count in the ranking procedure. Currently it's not a qualifier." (Buyer 3)*

Suppliers seem to agree that certification on sustainability is important. One of the suppliers is already ISO 14001 certified, while two other suppliers have it on their agenda. The motivation for this is in all cases at least partly because of demands from customers. Two of the suppliers mention that they are intrinsically motivated as well.

*"We are ISO 14001 certified." (Supplier 4)*

*"ISO 14001 is on the agenda. Customers are asking more and more for these types of certificates." (Supplier 2)*

*"We really want it ourselves... ...find it important. We also want to present that to customers. I'm convinced that it's appealing." (Supplier 3)*

Looking at collaborations, there are both differences and similarities visible among the buyers. While one buyer mentions that engagement or collaborations are not that important, others mention that it is important to work together. This can be explained by the fact that there are differences between buyers and suppliers, creating a lot of variations. Some of these differences are the segments that the buyer is active in (mechanical components, electrical components, etc.) and the relationships with suppliers (length of the relationship, commitment in euros, etc.).

*"It depends a lot. I feel differences in the approaches by buyers. I think that personalities are an underestimated factor." (Buyer 4)*

Although the level of engagement varies per buyer or segment, all buyers agree that it is important to keep suppliers satisfied and keep a healthy relationship. They all mention that it will be important in the future as well. The reason for this could be the conditions in the market that have changed in the past years and will continue to change. Because of shortages in the market and the technical complexity of Company X products', suppliers have gained power.

*"We value a good relationship with a supplier. Switching is difficult and expensive." (Buyer 1)*

*"Supplier satisfaction is important. If you behave badly, you will get the same in return." (Buyer 4)*

*"Components are hard to change. This gives power to suppliers." (Buyer 1)*

*"The market is so saturated that suppliers have power." (Buyer 2)*

In the case of suppliers, they all mention that they value engagement from Company X, and find it important to build a good relationship. All of them mention that working together, based on a good relationship, could provide mutual gains. Therefore, this is appealing to both the supplier and to Company X.

*"You build success together. We are jointly responsible for the results." (Supplier 3)*

*"You always try to cooperate, to make a product easier or better." (Supplier 4)*

*"Mutual gains are important. It leads to fewer errors, quicker delivery, and lower cost." (Supplier 1)*

#### **4.1.2 Current Cost & Innovation are Subordinate**

As described in section 2.3.5, sustainability could lead to cost savings. Innovations play an important role in this. Looking at the responses of the buyers, they mention the same when asked if they look for cost saving opportunities through sustainability. They mention that they are looking for cost saving opportunities, but sustainability does not play a role in this.

*"The last aspect [financial gains] of course. I don't know if the environment is a driver, maybe a side effect." (Buyer 1)*

*"We're looking at developments in the supply chain. How can we organise logistics more efficiently? That is about costs." (Buyer 2)*

Looking at innovation, the response is quite similar. Buyers are looking for innovations, and some of them are also encouraging suppliers to innovate. While two buyers mention that they do not encourage suppliers to innovate, the other two say that they do. This while innovations can play an important role in sustainability, as mentioned earlier in section 2.3.5. It is mentioned that if buyers work on innovations with suppliers, this is almost entirely focused on functionality, decreasing the cost, or adjusting the product in such a way that it is easier to produce. Therefore, efficiency is considered. But the main motivation to use fewer raw materials is to decrease cost, indicating that sustainability is an unintended side-effect. This is confirmed by the experiences of the suppliers.

*"I don't know if sustainability is the driving force [for innovation]. It's especially on costs. I always try to get the optimal value for money." (Buyer 1)*

*"Suppliers are not encouraged to innovate in my category." (Buyer 3)*

*"Innovations are generally focused on functionality indeed." (Supplier 1)*

#### **4.1.3 Current Training & Awareness is Insufficient**

For the personal aspect of the employees, training and awareness are evaluated. This is especially important at Company X, but similar questions were asked to suppliers as well, as their level of awareness, skill and knowledge on sustainability is also important. Training opportunities are present at both Company X and the suppliers. All the buyers and all representatives of suppliers mention that there are a lot of training possibilities for employees and that the training of employees is deemed important.

*"There are a lot of possibilities, specifically for purchasing skills. In addition, there are also many generic courses. This is well arranged." (Buyer 2)*

*"We have a training program for management and engineers for example, they receive all kinds of training." (Supplier 2)*

Despite the possibilities for training, sustainability appears to be a topic that is not part of trainings yet. This is mentioned by both buyers and suppliers. Trainings are until now focused more on other aspects of procurement for buyers, soft skills, and mutual gains for example. At suppliers, training for employees is mostly focused on technical and operational aspects. This covers safety and the handling of machines for example. One of the buyers at Company X also mentions that due to the current workload, there is only little time for the implementation of training.

*"From the group [Company X Group], these are sessions in which sustainability is mentioned, but it is not really picked up yet." (Buyer 2)*

*"There are plenty of possibilities, but not in terms of sustainability." (Buyer 3)*

*"The question is whether there is time to implement them [trainings]." (Buyer 1)*

*"[Training is] very focused on the operation of machines, adjustments in software and programming language. Very technical, nothing on sustainability." (Supplier 3)*

As described in section 2.2.3, individuals have an important role in reaching the goals on sustainability of an organisation. Therefore, it is important that they are aware of the current situation and the goals that they are working towards. Again, the responses of Company X buyers', as well as the responses of suppliers are evaluated. At the buyers, the response shows interesting differences. While one buyer mentions that there is awareness among buyers at Company X, another buyer says the opposite. As sustainability and environmental issues are frequently in the news, there is some awareness at everyone. Company X' buyers were asked if they were aware of the reduction targets of Company X in general, and the procurement department specifically. Most of the buyers did not know that there are targets. The cause of this could be several things, or a combination of them: insufficient communication about the targets, no interest the topic of sustainability, or other priorities. It can be concluded that there is some awareness at Company X, but not sufficient.

*"The awareness is there, but I don't think it's our main motivation. That's delivering" (Buyer 1)*

*"Not heard before [of emission reduction targets]." (Buyer 2)*

*"No, that [emission reduction targets] is not a topic at all during discussions." (Buyer 4)*

For the aspect of awareness, there appears to be more awareness at the suppliers. One of the suppliers mentions that is the heart of their organisation, while another supplier also confirms that there is awareness.

*"[Sustainability] is at the heart of what our organisation does. In addition, I'm not specifically concerned with that, it's also not necessary." (Supplier 1)*

*"Yes, there is [awareness]. We have a list of separate initiatives. This will be the source of a plan to be worked out." (Supplier 2)*

An important factor for awareness is the commitment by the management to sustainability, and the communication to the employees. Managers engaging with employees creates awareness. Starting with Company X, only one of the buyers mentions some encouragement by his manager(s) to think about sustainability. The other three buyers mention that they are not encouraged. One of the reasons mentioned for this is the focus on delivering.

*"I don't experience it as being pushed by my management to be more aware of this or to make other choices. There are always multiple interests and sustainability is not the first I think." (Buyer 1)*

*"It is occasionally mentioned in presentations, but there are no other assignments attached to it." (Buyer 2)*

At suppliers, there are differences noticeable. While one of the suppliers is actively promoting employees to think along and come up with ideas, other suppliers mention that their employee encouragement is limited or not happening yet.

*"Employee encouragement is still limited. It's not actively part of management at this time." (Supplier 2)*

*"People are asked to think along. This is being looked at seriously." (Supplier 4)*

## 4.2 Possibilities for the future situation

To get to the desired situation, possible actions are evaluated, keeping the current situation in mind. The possible actions that Company X could initiate are discussed with both the buyers and suppliers. Next to this, these actions are also discussed with independent experts in sustainable procurement. The topics discussed are again: certification & collaboration, cost & innovation, and training & awareness. All these topics were discussed with buyers, suppliers, and experts to create a holistic picture.

### 4.2.1 *Certification Remains and Collaboration Should Increase*

Starting with certification again, there are differences noticeable between buyers in their perception of certification in the future. While one buyer thinks that the importance will not increase in the near future, others think that it will be more important in the upcoming years already. Yet, they believe that demanding certification could be important to prevent risks in the future or that suppliers that do not meet environmental requirements should be removed.

*"It has been increased recently. I don't expect any further increases in the short term." (Buyer 1)*

*"In the short term, that will be just like ISO 9001, you need to have it." (Buyer 4)*

*"If suppliers do not meet environmental requirements, to must say goodbye to them." (Buyer 2)*

*"Perhaps a potential risk is even more important..." (Buyer 1)*

Among suppliers, there is consensus that certification on sustainability is becoming more and more important. As mentioned earlier in section 4.1.1, more and more demands from customers are coming for these types of certificates.

*"... in line with what is demanded from the market." (Supplier 1)*

*"We get audited every year, so we must be active. That's part of ISO 14001." (Supplier 4)*

The sustainable procurement experts also agree that sustainability certification will become more important in the future. It is also mentioned that there are different types coming, as well as upgrades to existing ones. An important reason for the increase in importance, according to the experts, is greenwashing in the past and upcoming regulations.

*"We have more and more regulations coming, so probably increase [in importance]." (Expert 4)*

*"There are several [different certifications] on the rise. There is already a lot in place." (Expert 2)*

On the aspect of collaboration, buyers mention that it will be important in the future. This also has to do with the complex technical products of Company X. Therefore, long-term suppliers are valued.

*"We really do value maintaining the relationship with the 13 strategic suppliers we work with." (Buyer 1)*

*"If you look at Company X, you have to work with many suppliers to get the necessary products. Simple contracting is almost not possible." (Buyer 3)*

Looking at the suppliers' point of view, it is noticeable that they are all enthusiastic about collaborating (more) with Company X in the future. They all mention that they are open to this. As mentioned earlier in section 4.1.1, suppliers emphasize that the goal is to achieve mutual gains. Therefore, collaborating would have a positive impact on both Company X and the suppliers.

*"When you look at a product, you always want to come up with the most efficient production method."* (Supplier 4)

*"Seeking more cooperation on this theme [sustainability] is the key to the solution for the future. We are definitely willing to do so."* (Supplier 2)

The experts also see collaboration as an important aspect for sustainability. All of them mention that collaboration is the key to success. Some even see it as a must, not an option. The importance of collaboration with suppliers is emphasized. They also mention that it leads to mutual gains. Furthermore, they mention that engaging/collaborating creates transparency, which is needed to evaluate progress and reduce risks.

*"Them performing better means us performing better. For us to decrease Scope 3 emissions, we need to make sure that our suppliers are working on it [sustainability]. Collaboration is the key element to achieve success. We cannot do it on our own."* (Expert 1)

*"Transparency is still one of the largest issues. Therefore, engagement is needed. Communication and raising awareness are crucial. Collaboration has advantages on both sides."* (Expert 2)

*"Without collaboration, the industry does not move forward. No matter how good an organisation does their things, if they don't bring suppliers with them going in the correct direction, they will never be able to cover their supply chain."* (Expert 3)

*"If you want to have a better overview of Scope 3 emissions, you need to know what your suppliers are doing. You want them to share some metrics with you."* (Expert 4)

#### **4.2.2 Future Cost & Innovation should be Considered**

An important aspect of the actions that take place in the future, are the costs that these actions bring. As the goal of this research is to develop cost-efficient actions, the costs of an action should be in proportion to the improvements in sustainability performance.

Looking at the response of the buyers, they believe that demanding more certifications would not directly lead to higher costs.

*"I don't think that it will lead to higher costs."* (Buyer 2)

*"I think the effect on the price is low."* (Buyer 3)

Suppliers show mixed reactions on the change in costs when more certifications would be demanded. Two suppliers mention that if the requirement is from Company X only, they suspect that it would lead to an increase in costs. The other suppliers see it as their own responsibility, and mention that the costs of more certificates would be included in general costs. They believe that it would not automatically lead to increased costs for Company X.

*"If it's a requirement of only Company X specifically, that will probably happen yes." (Supplier 1)*

*"...it [more certification] does involve costs, but we think that's our responsibility. We want to remain a key supplier." (Supplier 3)*

The experts have mixed opinions on certification as well. It is mentioned that it depends on the situation, and that it is not always the solution. Especially for smaller companies, the investment could be not worth it, and it would therefore not be an efficient method.

*"It depends on the type of certification and the number of certificates." (Expert 1)*

*"Certificates in general are quite costly. For smaller companies it's not always efficient." (Expert 3)*

Collaboration is generally more expensive, but should also lead to better results, as described earlier in section 2.2.2 and 2.3.3. From the view of the buyers, it appears that buyers think that collaboration might be a good way to achieve results, as it has the possibility to create gains both financially and on sustainability.

*"I don't think you have to incur a lot of costs if you put the initiative with suppliers and make them aware that it is an important topic for us." (Buyer 4)*

*"If you invest in the supplier at the front end, you can expect a better product and lower price. As a result, it is definitely worth the investment." (Buyer 2)*

Suppliers provide a similar response to the possibility of collaboration. Earlier in section 4.1.1, it was already explained that mutual gains are important to suppliers, meaning that collaboration has positive outcomes for both Company X and the suppliers. Logically, suppliers think that collaboration is a good way to achieve results for Company X, as it could bring them results as well.

*"We try to create a good forecast with Company X. The more we can look ahead, the more it benefits in terms of price and delivery time." (Supplier 3)*

*"Lower cost is often the result of improvements through cooperation." (Supplier 1)*

Experts have a strong opinion on the cost of collaboration. They believe that collaboration is necessary to achieve the desired results, and therefore the costs should not be too important. It is mentioned that it does cost a lot, but it will bring results that are worth it. There would be no result without supplier engagement. It could also have a positive impact on the end product, next to the gains on sustainability. Lastly, they believe that the costs will only increase in the future, which indicates that the sooner the actions, the better. They look at it as an investment instead of just costs. This investment could improve the position of Company X in the market and therefore have a positive impact on the general performance of Company X in the future.

*"Sustainability is a marathon, not a sprint." (Expert 2)*

*"Supplier engagement is not an optional thing. It's never going to be cheap, but it's always going to bring positive results. When you manage to bring your supply base forwards, that will have positive effects on your end-product." (Expert 3)*



*"The market is going towards there [sustainability]. The sooner you advance in that direction, the more you will keep your market share." (Expert 3)*

*"I don't know if it is cost-efficient, but there's no way around it. It's not optional." (Expert 4)*

*"You basically lose money by waiting. I'm not saying it is easy, don't get me wrong, it will cost a lot of time and energy and effort. I think in the end this is what is required." (Expert 4)*

For the aspect of innovations, the experts mention that it is important to encourage suppliers to innovate, and that innovating for sustainability can create opportunities in the market or improve Company X' position in the market.

*"Looking at it from the shareholders, if you position yourself as a company that can deliver certain products in a more sustainable way, you can meet certain objectives in the future that could help improve the company on an overall basis. I would think about this as an impact on the revenue instead of cost. If you as a company don't incorporate sustainability aspects into operations, you might lose market share." (Expert 1)*

*"We're in this together as we discussed earlier, so them performing good equals us performing good. So yes it [engaging with suppliers and pushing them to innovate] is important." (Expert 1)*

*"The more you bring the whole industry together into the direction, the better the outcome will be for everyone." (Expert 3)*

*"They can open up some new market opportunities if they actually focus on sustainability." (Expert 4)*

#### **4.2.3 Training & Awareness should Improve in the Future**

Finally, the personal aspect is discussed again. Earlier in section 2.2.3, the importance of individuals was described. Therefore, the personal aspect might be important in the future. Training is again discussed with buyers, supplier, and experts, while awareness is mainly discussed with experts.

There is consensus among buyers that sustainability should be a topic in training, while this is not happening yet. It is mentioned that sustainability is currently an underexposed topic, and that there is more and more demanded from customers.

*"I certainly think [that it is going to be necessary]. ... also from our customers, more and more is demanded." (Buyer 1)*

*"Yes, I think so [that training on sustainability is needed]. I am working on sustainability myself. I think that it is still underexposed in the work." (Buyer 2)*

The suppliers share this opinion, as they also believe that sustainability will be an important topic in the future, and that employees should be trained accordingly.

*"I think it's an important topic. There is more recognition and attention coming. You will see that in the content of certain studies." (Supplier 1)*

*"Yes, I think that's where it starts. The company is four walls and a roof, what happens is determined by the people themselves." (Supplier 2)*

Finally, there is also consensus among the experts about the importance of training. They emphasize that this is a key element to achieving success. They explain that buyers need to know what they have to do and why they must do it.

*"You can set up the most beautiful program, if you don't get it into practice, it is not worth anything." (Expert 2)*

*"We want to make sure that the relevant actors actually know what they have to do. Definitely very important." (Expert 4)*

For the aspect of awareness in the future, the insights from experts are especially valuable. They indicate that the engagement of employees and the awareness that it raises are important factors in implementing actions for sustainable procurement and achieve success. Next to this, they mention that the commitment by management to sustainability and communicating this clearly is also important. One of the experts mentions that a strong policy with clear KPIs related to the performances of employees is useful and efficient to make sure that sustainability becomes a high-priority topic for them.

*"Commitment by management is the first step. Managers need to understand and buy-in, they can transfer the information down in levels." (Expert 1)*

*"You only get commitment by clear and transparent program management and communication. Management commitment really has an impact on how people receive message and to underline the importance. You might need to hire someone and set up the program. The commitment is absolutely crucial, in both directions." (Expert 2)*

*"It starts with the awareness building. There's something new, but why? Raising awareness is the first step to explain the why's and the how's. Change management is important. Explain the added value and get the employees on board." (Expert 2)*

*"The more aware they are of the impact, the easier it will get for the bigger group of people to move forward. And for their engagement with suppliers, if they don't have the knowledge themselves, how are we expecting them to engage with their suppliers on that topic?" (Expert 3)*

*"I've seen from a lot of buyers that sustainability is somewhat in their head, but unless they actually have very strong company targets pushing them or like specific KPIs related to sustainability, they do not prioritize it." (Expert 4)*

## 5. Recommendations

### 5.1 Advised is to Keep the Current Certification Demands

Based on the results as described in sections 4.1.1 and 4.2.1, demanding more certifications from suppliers might be a way to decrease emissions and improve sustainability. However, this depends on the situation, as explained by the experts. Company X has recently already increased the weight of the ESR aspect in the evaluation and consideration of new suppliers. One of the factors that should be considered, as mentioned by the expert, is the size of the suppliers. Small suppliers often do not have the funds to obtain several certificates, or it might not be worth the investment for them. As Company X has a lot of local SMEs in the supply base, just demanding more certifications might not be a good method, as it could deteriorate relationships with critical suppliers. Company X values these relationships as these suppliers are an important resource. Therefore, in the view of RBV and SET as explained in section 2.5.5, this action might not lead to the desired situation. This is also supported by the fact that if Company X would be demanding certain specific certifications in the future, this might lead to increases in price (see section 4.2.2). This is not desired. On the other hand, as more and more regulations on sustainability are coming, it is important that not only Company X is prepared for this, but the suppliers should be prepared as well. By taking initiative now to make sure that Company X and suppliers will be compliant with future regulations, the risk of problems due to non-compliance is reduced. Therefore, making demands might not be the way to go. A more useful or effective method could be to include this aspect in the engagement or collaboration with suppliers. This will be discussed further in the next section. Furthermore, there is currently no clear overview of the certifications that current/active suppliers have. Therefore, it is recommended that a system is set up that provides this overview. It is recommended that the data in this system are regularly updated.

### 5.2 Supplier Engagement/Collaboration is Advised to Implement

The results in sections 4.1.2 and 4.2.2 show that collaboration is an important aspect in both general business and sustainability. It appeared that both buyers and suppliers recognize the importance of good relationships with suppliers, especially because of the long-term nature of Company X' products. Suppliers mentioned that they would like to be involved early in the processes more often, as it could lead to benefits for both parties. Buyers also recognize that collaboration with suppliers has added value not just on sustainability, but on other conditions as well. Examples of this could be price and delivery time. Improved delivery time would be an appreciated effect, looking at the current market shortages and difficulties to get products delivered. Experts are even more convinced of collaboration, as they believe it is not even an option, but necessary. They emphasize that improving the performance of suppliers will also improve the performance of Company X. Furthermore, engagement or collaboration is needed to have a good relationship. This in place should lead to suppliers sharing data on emissions, creating transparency. These data are also needed to create a precise view of the current carbon footprint of Company X, and to track possible improvements. On the aspect of costs, it is recognized that collaboration requires investments from Company X, either in time and effort or in money. However, this investment is needed to initiate actions, that will lead to results in the future. Therefore, collaboration might lead to increased costs now, but also leads to improved sustainability, and possibly improved general business in the future. Therefore, in the aspect from the perspective of Total Cost of Ownership, collaboration has the potential to be cost-neutral or even profitable in the long term. This indicates that collaboration with suppliers is the key to achieve the desired results for Company X. The same conclusion would be found looking at the theoretical foundation and the link to the situation of Company X as described in chapter 2.5, where is described how important the

relationship with suppliers is. The RBV and SET both describe how a good relationship could lead to benefits for both parties, and the preferred supplier theory describes that putting effort in keeping suppliers satisfied could also lead to benefits.

To provide some guidance or inspiration, some practical examples will be presented. As mentioned earlier, certification could be a topic in collaborations. By not pushing suppliers to get certifications on sustainability, but instead explaining the benefits that it could have, as it also provides guidance and tools to improve the sustainability performance of the supplier. Furthermore, it helps them to anticipate on future regulations as well. Next to this, there are more ways to engage with suppliers on sustainability and make them aware. It is useful to present them practical tools as well. An example was mentioned by one of the suppliers in the interview. The idea of a booklet with best practices was introduced. By gathering best practices from suppliers on sustainability, and distributing these among other suppliers, Company X provides them with practical examples and tools that can be used. This could also be done in the form of a presentation on days that suppliers are invited at Company X. In this way, a lot of suppliers are reached quickly, and the importance of sustainability for Company X is emphasized. The idea of an electric Company X van picking up deliveries in the region was also suggested by one of the interviewees. Letting one electric van drive through the region to pick up orders instead of several vans delivering their products to Company X could quickly decrease the number of travelled kilometres, decreasing emissions as well. These suggestions also show that suppliers are willing to think along and participate in initiatives. Finally, Company X has several offset obligations all over the world. This means that Company X must work local suppliers in the country that placed an order. By integrating supplier engagement on sustainability in these obligations, Company X could create impact all over the world. Especially in countries outside of Europe, where sustainability might not be a topic at all for now, there are a lot of potential gains. By showing leadership and commitment to sustainability there, significant CO2 reductions could be achieved.

Lever	Description
<b><i>Inform suppliers on certification</i></b>	Certification on sustainability can provide suppliers with a legal framework for sustainability. Furthermore, it can provide them with examples and tools for improved sustainability.
<b><i>Best practices booklet</i></b>	By combining best practices from the supply base in a booklet, an overview can be created for other suppliers what possible actions they can take. In this way, suppliers that are lacking actions can be inspired. Also possible in the form of a presentation when suppliers are visiting.
<b><i>Electric van</i></b>	Emissions from transport can be decreased quickly by picking up packages from local suppliers with an electric van instead of letting each supplier deliver their package to Company X.
<b><i>Engage in worldwide offsets</i></b>	Company X has customers and suppliers all over the world. In projects with offset obligations Company X could engage with local suppliers there and show leadership on sustainability. This could lead to significant results, especially in continents where sustainability is underexposed.

Figure 11: Overview Supplier Engagement Levers

### 5.3 Training & Awareness is Advised to Improve

To be able to engage with suppliers on sustainability, it is important that buyers have the knowledge and skills for this. The results in section 4.1.3 show that there is currently lack of training on sustainability, while this is one of the most important aspects, as mentioned by experts in section 4.2.3. They mention that without training, supplier engagement or collaboration is not possible. Therefore, it is necessary that buyers get trainings on sustainable procurement. This could be done by either adding courses on sustainability to the existing training program, or by setting up a separate program for sustainable procurement. This decision should be made by the management after considering if a new course can be integrated in the current program, and other factors that could have any influence. Part of the current training program is currently offered by EIPM. Among the courses that they offer, there are new courses on sustainability and decarbonisation of supply chains (EIPM, 2023). Therefore, integrating these new courses might be possible. Next to EIPM, there are a lot of cost-efficient possibilities for training nowadays, as also mentioned by one of the experts. For example, EcoVadis, a platform for sustainability assessments that was introduced before in section 2.2.1, also offers a large variety in solutions for sustainable procurement. They offer trainings and organise events on sustainable procurement.

To make employees enthusiastic for these trainings, it is important that awareness for sustainability is created by explaining them why this is important and how this will impact their work. As mentioned in section 4.2.3, sustainable procurement experts say that people need to buy-in, and without awareness and commitment from employees, even the best program or strategy is worthless. Therefore, awareness is necessary. To create awareness, it is important that they are encouraged by managers, something not happening now (see section 4.2.3). To strengthen the message, the experts also emphasized the importance of management commitment. They explained that this is vital and should be the first step. As soon as managers are committed to sustainability and communicate this clearly through the organisation, employees will feel the importance. To create management commitment, it would be an option to offer them the same trainings on sustainability as employees. It is also possible to join events and other initiatives on sustainable procurement to raise awareness, increase knowledge, and create commitment. To give an example, on March the 21st, it is World Sustainable Procurement Day, organised by The Sustainable Procurement Pledge (The Sustainable Procurement Pledge, 2022). This online event for procurement professionals offers sessions to equip buyer with knowledge, best-practices and practical solutions to sustainable procurement challenges (The Sustainable Procurement Pledge, 2023). Joining events and initiatives like this might be a useful and efficient way for buyers to strengthen their knowledge. As trainings on several aspects are already offered to employees, the investment will not be too large. As mentioned earlier, there are many cost-efficient training opportunities nowadays. Furthermore, the importance of training and awareness weighs against the potential cost, so this action is recommended to be executed.

To create awareness and include employees into thinking about sustainability, green lever workshops can be organised as well, as described by Aichbauer et al. (2022, pp. 99-103). Aichbauer et al. (2022) also presented an overview of sustainability levers that can be presented to employees for them to think about. These levers can also be included in supplier collaborations.

<b>Smarter use of materials</b>	<i>Refuse</i>	Stop using materials that have a negative impact and find sustainable substitutes or material alternatives.
	<i>Rethink</i>	Challenge the status-quo by pro-actively suggesting materials, new technologies, and innovations from suppliers.
	<i>Reduce</i>	Minimise the use of natural resources. Try to focus on renewable and biodegradable alternatives.
<b>Extend the lifespan of product and its parts</b>	<i>Reuse</i>	Think beyond end-of-life and by designing and developing products and materials that will have a second life – either as part of another product or in another industry.
	<i>Repair</i>	Try to repair and maintain defective products so they can be used with their original functions.
	<i>Refurbish</i>	Restore current products and bring them up to date to ensure their functionality matches current trends.
	<i>Remanufacture</i>	Use parts or materials from discarded products to produce new products with the same functions.
	<i>Repurpose</i>	Use parts or materials from discarded products to produce new products with different functions.
<b>Useful application of materials</b>	<i>Recover</i>	Make sure that product parts or materials can re-enter the production cycle by getting them back from customers and then forwarding them to suppliers.
	<i>Recycle</i>	Ensure that products and materials are recycled so that they re-enter the production process, or that they can at least be used for other products (low-grade quality materials).

*Figure 12: Sustainability Levers, adapted from Aichbauer et al. (2022, p. 99)*

Finally, it could be useful to invest in human resources and hire someone in the role of ‘sustainable procurement specialist’ or ‘sustainable procurement advisor’. This is also mentioned by one of the experts. As sustainability might change the way of working for a lot of buyers, it could be very useful to have someone present in the office that could support the buyers if they have questions or encounter any problems related to sustainability. Also, appointing someone in the role of ‘sustainable procurement program lead/coordinator’ could be useful to coordinate the actions and changes happening. As the changes ahead could be significant, more human resources could be very helpful.

## 6. Conclusion & Discussion

### 6.1 Conclusion

The results of this research provide helpful insights for industrial companies that want to decrease emissions with suppliers upstream in the supply chain. Management commitment and clear top-down communication is found to be an important first step to achieve success. Next to this, employees need to be made aware of the importance of sustainability and should get training to gain knowledge and skills on sustainability. This in place can be used to engage with suppliers to encourage them to work on sustainability as well and provide them with tools and levers. Supplier engagement is crucial, as it provides insights in emission data, which is necessary to initiate the correct actions. Furthermore, supplier engagement creates awareness and improves the relationship. This can lead to improvements in both sustainability and general performance. As the Scope 3 emissions of the focal company include the emissions from suppliers, these improvements on sustainability are necessary to reach 'Net Zero' in the future.

### 6.2 Theoretical Contribution

This research aims to add new insights to the existing literature. This thesis is focused on the reduction of CO<sub>2</sub> emissions upstream in the supply chain at an industrial firm in a cost-efficient way. This thesis contributes to the existing literature by focusing on a specific industry, company, and area where the reduction should be achieved, as the currently available literature is mainly general. Furthermore, this research builds on the Resource-based View and Social Exchange Theory, explained in sections 2.5.2 and 2.5.3. The Resource-based view explains that the supply base of a company should be considered as a resource. The outcomes of this research confirm this, as suppliers were found to be a critical factor in achieving goals for both sustainability performance and financial performance. Next to the gains of the buying company, collaborating with suppliers could also lead to gains for them. Collaboration would in that case lead to mutual gains. This is in line with the Social Exchange Theory, that explains that two parties enter a relationship to achieve benefits and end the relationship as soon as the costs are higher than the benefits. This research contributes to the existing literature by proposing that the RBV and SET theories also apply in the context of sustainability. Next to this, this research also confirms previous findings on sustainable procurement. First, this research shows the important role that individual purchasers have. This is in line with research from Wohlgezogen et al. (2021), Neessen et al. (2021), and Schütz et al. (2020). Furthermore, several previously mentioned papers found that supplier engagement/collaboration is important for sustainability, such as Tachizawa et al. (2015), Saunders et al. (2015), and Awan et al. (2019). This research found that supplier engagement/collaboration is not just one of the ways to go, but a necessary action. This is partly explained by the distance from the supplier to the consumer, confirming the findings of Foerstl et al. (2015) and González-Benito and González-Benito (2006). Finally, Dangelico et al. (2017) and Liu et al. (2018) found that improvements in sustainability can also lead to improvements in commercial performance of a company. This is also in line with the findings of this research. In the last place, the recommendations presented in chapter 5 can also be considered as expectations for the future and possible directions for future research, where these findings and expectations can be tested.

### 6.3 Practical Contribution

This thesis is performed at Company X Nederland B.V. The new insights of this research, in combination with existing literature, can help Company X to achieve its goal of CO<sub>2</sub> reduction upstream in the supply chain. As there is currently a lack of a clear strategy and concrete actions, this research provides Company X with an analysis of the current situation, and recommendations for actions and initiatives that will help Company X to reach its sustainability goals. The main findings on the current situation are that there is currently lack of training and awareness on sustainability among buyers, and that sustainability is currently not discussed with suppliers in a serious way. Furthermore, there is serious lack of commitment by management to the sustainability goals, and communication on these sustainability goals is also insufficient. To improve this situation, recommendations are presented in chapter 5, that aim to be practical. These recommendations are the practical contribution of this research, as they provide the procurement managers of Company X with several insights and concrete actions on how they can improve the sustainability performance of Company X in Scope 3, achieving the goal of this research. Managers must commit to the sustainability goals of Company X and make sure that all other procurement employees are aware of these goals. Next to the creation of awareness, employees and managers should get training on sustainability, so that they understand the importance and get knowledge and tools that can be used to act. Acting in this case should be mainly engaging/collaborating with suppliers. Suppliers form most Scope 3 emissions and are therefore necessary to include in a strategy for improved sustainability. All in all, to get to the desired results, actions should start by the managers. Without them having sufficient knowledge and skills on sustainability, all other advised steps are not feasible. They should take their task of encouraging the buyers to get training and think about sustainability very seriously, as this is where it should all start. When both the managers and buyers have the necessary knowledge on sustainability, suppliers can be engaged. By using these insights and practical recommendations, the procurement managers of Company X should be able to decrease Scope 3 emissions, achieving the ultimate goal.

### 6.4 Limitations & Future Research

The specific topic and insights of this thesis are a limitation of this thesis as well. Because of the focus on a single company in a specific industry with a specific type of products, the insights of this thesis are not generally applicable. Next to this, there are some more limitations to this research. Starting with the research design, a qualitative study using interviews has limitations. As the data consists of text, the results are based on the interpretation by the researcher. To improve reliability, future research could use multiple coders. The interview sample, in combination with time constraints, also has limitations. By interviewing participants from three different roles, the number of interviews per role is limited. This means that the results cannot be generalized. Furthermore, all suppliers interviewed are located in or around Hengelo. This indicates that the results could be biased from a geographical point of view and not be applicable to other regions. For the suppliers, some questions could be considered sensitive as well. As the topic of sustainability is discussed, suppliers might tend to give answers that are socially desirable. This could lead to biased results. This limitation was mitigated by allowing anonymous participation and by clearly stating that honest answers are important to create an accurate view of the current situation. Also, the suppliers were approached based on internal emission data per segment. As all suppliers are from one specific segment, the results might not apply to all other segments. Finally, the last limitation is connected to the exploratory nature of this research. Part of the questions in the interviews covered expectations of the future. These expectations might not become the truth, meaning that this research cannot provide any strict conclusions but only provide insights and recommendations. These recommendations can be tested in future research. Finally, to get results that are applicable in other industries, companies, segments, and other situations, it is recommended that more research is conducted.



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## Appendix A: Coding Scheme Interviews Buyers

Buyer 1	Buyer 2	Buyer 3	Buyer 4	Code	Category
We check certifications. For new supplier, ISO 14001 or similar required	ISO 9001 is a must. ISO 14001 not directly, but is looked at	Certification is considered, not decisive	Certification is considered. ISO 14001 is asked about	Certification demand	Certification
Similar alternatives that meet this requirement preferred. Weighted 5%, recently increased to 15%	Don't know exactly. New contracts mention ISO 14001 compliant	Does not count in the ranking. Certificates can say little, things may look better than they are	Believe ISO 14001 counts for 15% of sustainability aspect	Weighting certification	
Not all current suppliers checked, strategic suppliers undoubtedly	Not tracked in a system	Is looked at, some moments for updates		Check current suppliers	
Recent increase, no more increases expected in the short term	Think it will become more important	Yes, more awareness	Will be as important as ISO 9001 in a few years, need to have it	Future certification	
Social corporate responsibility. Really value social responsibility	Not really, if they have ISO, it will be fine	Impressions when visiting are important, can be decisive	Not really worked with it yet, short time at Company X. Worrying that legislation is needed for good behaviour	Other aspects of sustainability	
In my area, electronics, engagement or collaboration not that important	Currently discussing energy with suppliers, but more cost driven. Sustainability still underexposed	Yes, important to work towards common goal	Working with suppliers on different levels, depends per supplier	Supplier engagement	Supplier engagement
Variation per product or segment, different concerns at different suppliers		Focus mostly on current active suppliers	Lot of variation per buyer and supplier. Personal aspect very underestimated	Variation in engagement	
Value good relationship with supplier. Switching is difficult and expensive	I am focusing on relationships, lot of long-term developments	Voice of supplier should be heard. Also expecting initiatives from suppliers	Important. If you behave badly, you will get the same in return. Market also changing	Supplier satisfaction	
Supplier satisfaction remains important, needs to get more practical	Think it becomes more important, getting courses on mutual gains	Continuously measuring the market. More and more relationship management. Communication and transparency are important	More outsourcing over time, looking for more cooperation. Want to use the knowledge of suppliers	Future supplier satisfaction	
Components in a design are hard to change, gives power to suppliers	Market is saturated, suppliers have power			Power in market	Market
Clean products will be a unique selling point				Unique selling point	

Many training possibilities, less time to implement	Lot of possibilities, both specifically for purchasing and generic courses	Plenty of possibilities	Had training before starting. Down to own initiative	Possibilities for training	Training & awareness
No training on sustainability, training often requires intrinsic motivation	Sustainability not really a topic in training	Not in terms of sustainability, more on mutual gains or soft skills	Not the most serious topic	Sustainability in training	
Will be necessary, awareness is increasing, also from customers	Think it should be, working on it myself, still underexposed in work	Starts with awareness. Sustainability often recognized, always trade-off with interests		Future training sustainability	
	Not aware of the reduction targets of Company X	I am aware, I know that the focus will grow	Not a topic at all	Awareness targets	
Some awareness is there, main motivation is to deliver	No awareness, weekly meetings with segments but is not mentioned	There is awareness, know that it's a topic for 2023	Has to do with culture. Leadership is decisive in behaviour. Lead by example	General awareness	
Not encouraged by manager, sustainability not biggest interest	Not encouraged, just occasionally mentioned	Think that there is some encouragement	No, mainly due to workload. Try to work on it myself. If sustainability comes with savings, people are interested	Encouraged by management	
Preventing risk is important. Avoiding problems in the future	Say goodbye to suppliers without ISO requirements. Don't think it leads to higher cost	You can't force suppliers. Think the effect on price is low		Possible certification demands	Future actions
Not sure if supplier development deals with sustainability	High priority. Investing in suppliers leads to better product and lower price	Buying more and more. Has to be something in return for development. Otherwise, just contracting	Low costs when you give the initiative to suppliers and make them aware. Doing nothing is much more expensive	Possible supplier engagement & collaboration	
	Suppliers are not asked for statistics on their emissions	Suppliers are not asked for statistics on their emissions	Not actively, think it will happen in the future	Supplier emissions	
Environment no driver in cost savings, more side effect	Looking at developments in supply chain, especially on efficiency for lower cost	Not yet looking for		Saving through sustainability	Innovation
Buyers are the link to the market for innovations	Innovations are considered in early involvement	Sometimes, Company X is product-oriented		Looking for innovations	
Encouraging suppliers to innovate, especially on cost	Lot of regular suppliers, intensive contact, it is discussed	Suppliers not encouraged to innovate in my category	Do not think it is discussed at the moment	Encouraging suppliers	
Always balancing money and opportunities	Sustainability still underexposed	Everyone wants to contribute, remains a conflict of interests	This topic needs more attention. You know it's coming, so prepare	Other remarks	Other



## Appendix B: Coding Scheme Interviews Suppliers

Supplier 1	Supplier 2	Supplier 3	Supplier 4	Code	Category
Carbon footprint is not measured	Carbon footprint not calculated	Carbon footprint not calculated	Carbon footprint not calculated	Carbon footprint	Sustainability strategy
Our products focus on energy transition. Already contributing in that way. No specific policy	No plan. New building coming, thinking about solutions there. More individual initiatives	No strategy. Thought about separate possibilities, energy consumption, solar panels on new building		Current sustainability strategy	
No specific goals set		No concrete goal, take action where possible. Maximizing new building	We have certain goals formulated in line with the requirements of ISO 14001	Sustainability goals	
Not developing goals, not really applying to us	Planning to calculate carbon footprint			Development strategy	
We have certain certificates. Qualifier to get at the table. For environment not sure	No certificate on sustainability yet, ISO 14001 is on the agenda	No certificate on sustainability now, ISO 14001 will come in 2023. Want to be ahead of customer demand	We have ISO 14001 certification	Current certification	Certification
In line with demands from the market	Customers asking for it more and more	We want it ourselves, find it important, and is appealing	Demand by automotive, from outside as well. Should not be a must, you must want it. It's expensive, but you will earn it back	Motivation certification	
Varies by sector and link with governments. Customers decide			Audit every year, so have to be active. All part of ISO 14001	Future certification	
Constantly discussing how to work together smarter and better. Mainly focus on functionality	Encouraged on manufacturability, making it efficient. Cost is the driver. Environment benefits indirectly	100%. Topaas grown with Company X over time. Collaboration has grown. Best product for the best price together. Sustainability new	Much appreciated, that's how you get a good relationship. We want to be key supplier	Collaboration initiative	Collaboration
We find supplier engagement important. We are part of a larger thing, important to think together	Supplier engagement is in the interest of all	You build success together. Jointly responsible for results	Always try to cooperate, to make a product easier or better. Environmental aspect is more difficult	Supplier engagement	
Important to build relationship. Creates added value. No other way than working together	You build a relationship by having contact. Something that needs more attention		We have good contact with Company X, which strengthens that relationship	Relationship	
Mutual gains are important: fewer errors, quicker delivery, easier to produce; Lower cost often result of cooperation	Gone through redesigns with Company X, improving the product and efficiency. Mutual gains	Try to create good forecasts. Then you can organise the supply chain together. Benefits on price and delivery time	You try to create mutual gains; you don't always succeed. Market situation is extreme	Collaboration benefits	

Quite some training possibilities. Differs per position, necessary for many roles	Training program in place. Seriously invested in training	Offer a lot, depending on machines	There are possibilities, requirement in IATF	Training possibilities	Training & awareness
Sustainability not part of training yet	Part of sustainability is still limited	Sustainability not a topic, focus on operations	ISO 14001 informs people	Sustainability in training	
Important topic, more attention coming. Will be in more studies	That's where it starts. What happens in a company is determined by the people	Sure, that it comes with ISO 14001. Attention will come		Future training sustainability	
Heart of our organisation	There is awareness. Long list of initiatives	Made certain choices, in that sense, yes		Sustainability awareness	
	Limited encouragement of employees. But topic is more and more on the agenda	Not yet encouraged. Employees see the importance, can feel invited to share ideas	People are asked to think along. This is evaluated seriously	Encouraging employees	
If only required by Company X, then probably yes	Suspect that, investment must be recouped	Costs are our responsibility. Want to remain key supplier	Included in general cost, everyone pays. Looking for mutual gain. Certification is a plus for customers	Certification demands	Future actions
Absolutely open for collaboration, very important	More cooperation is the key to the solution for this topic	Definitely open for initiatives. Want to act customer-oriented	Open for collaboration, always the goal. Also want to be honest	Collaboration initiative	
Not looking for cost savings through sustainability. Especially external impact	Is thought about incidentally. Not proactively working on	Important topic. Cost is coming first, results in the long term. Important to remain in control	This is difficult, often requires very large investments for us. Are looking at efficiency and packaging e.g.	Cost savings through sustainability	Innovation
Lot of applied technology, not really innovating	Innovations usually from customers	Yes, we are innovating	Continuously looking for innovations	Innovation strategy	
If we have innovations that fit, we mention it to customers	Passing on developments when we see them	Always offer ideas. Want to be early involved. Potential gains on this	Difficult to offer, more internal matter of improving processes	Offering innovations	
Innovations are mainly focused on functionality	Focus mainly on product improvement	Innovations are technically driven. Sustainability would be side effect	Looking for both the technical aspect and sustainability	Focus of innovations	
		Open to initiatives, look at IKEA best practices		Other remarks	Other

## Appendix C: Coding Scheme Interviews Experts

Expert 1	Expert 2	Expert 3	Expert 4	Code	Category
Certification is important. It provides a legal framework	Important, request for transparency is increasing	Driver of certification is efficiency. Efforts to be recognized	Used to assess suppliers, to certification plays a role	Role of certification	Certification
Importance will increase. Need to organize and structure things	Getting more important, lot of greenwashing in the past.	Increased a lot the past years, also increase in diversity. More SMEs	As more regulations are coming, probably increase	Importance certification	
Different types coming, new challenges and new realities	Several on the rise. Also, more regulations coming	Different ones coming, also upgrades for existing ones.	More regulations coming, the sooner the start, the better	Future certification	
Supplier engagement is important. Make sure we spend money well. Collaboration creates transparency and reduces risk. All in the same world, must work together with clients and suppliers	In ideal world, whole chain collaborates. Engagement is needed for transparency. Communication is crucial	Collaboration is key. Support supplier so the whole industry moves forward. Many sector initiatives. Without improvement of supplier, no scope 3 improvements	Supplier engagement is key. Without, they don't get the knowledge to improve. Need to know what suppliers are doing, want them to share metrics	Role of supplier engagement	Supplier engagement
Collaboration becomes more important. Them performing better means us performing better. Collaboration is the key	Collaboration has advantages on both sides. Adds value on both sides	Collaboration will become more important. Already seeing sector initiatives with information exchange in healthcare	This will become more important	Future of supplier engagement	
Supplier satisfaction is important. Constant transactions going on	Supplier satisfaction plays a role. Communication is important. Change management is important	Relationship with supplier is key, otherwise no collaboration	A good relationship helps to send the message. Easier to understand why you need information etc.	Supplier satisfaction	
Employees do the job; training is very important. Need to know what to do to reach objectives	Training is maybe the most important thing. Gets things into practice. Only commitment when people understand why and how	Training is key. Without the knowledge, you're not getting anywhere. Lot of information and cost-efficient training out there	Common sense to train employees, especially on sustainability. Make sure the relevant actors know what to do. Very important	Role of employee training	Training & awareness
Humans are resistant to change. They need to understand why	Raising awareness is the first step to why and how. Explain added value	By creating awareness, it's easier for people to move forward. Fundament of knowledge needed	Important, but more useful is a strong policy with KPIs related to employee performance, makes it a topic for them	Sustainability awareness	
Employee engagement is very important. People need to buy it	Engagement is making people part of it. Only commitment by clear communication			Employee engagement	
Management commitment is vital, the first step. Managers need to buy in to transfer the information	Management commitment is crucial. Has impact on the message. In both directions commitment is crucial	Management commitment is very important, see it more and more	Management commitment is super important. Need a 'sponsor' with a strong message to implement a program	Management commitment	

Generally, more budgets for sustainability	Budgets are depending on many aspects. There is ROI on sustainability. Investing in the future. Not moving can be dangerous	Trend is more budget. Big difference in view cost vs investment. In the end, it brings business and income. Faster changes when looking at it as investment	Budget depends, generally more at larger companies. Matter of prioritization. Change of mind we have to accomplish, that sustainability is not an option anymore	Budgets for sustainability	Actions & costs
Costs could be higher in the future. Money is needed for change	Sustainability is a marathon, not a sprint	Market is going towards sustainability. The sooner you move, the more you keep market share	You lose money by waiting. It's not easy, but in the end, this is what is required	Future cost of sustainability	
Certification is very broad, depends on the types and numbers. Yes, in general	Certification would be the result. The investment is in advance. Certification gives you tools	Matter of perspective, not always solution. For smaller companies not worth it possibly.	Is what companies do already. Cost you no money	Certification demands	
Supplier engagement could work. Budget needs to be allocated	Supplier engagement could be cost-efficient. Great driver for sustainability. Always investment and ROI	Definitely needed. Not an optional thing. Never going to be cheap, always brings results. Positive impact on end product	Costs a lot, but worth it. Without engagement no results	Supplier collaboration	
To start an initiative, you must spend money, could save money in the future. Sustainability could improve market share in the future	Companies generally innovate for sustainability. Limited resources, alternatives needed. Also, carbon reduction and savings	Trend is bigger organisations investing to reduce cost and improve reputation	Market opportunities open up if you focus on sustainability. Risk reduction also important, save possible cost in the future	Innovating for sustainability	Innovation
Important to encourage suppliers to innovate, them performing equals us performing	Pushing is not good, collaboration works	Pushing suppliers goes back to sector initiatives. Bring the industry together		Pushing supplier innovation	

## Appendix D: Transcription Interview Buyer 1 (Company X)

Intro & disclaimer
Do we measure the carbon footprint at all?
Yes, that is measured
Then you also want to be able to measure what CO2 reduction yields financially?
Yes, it has two sides. You can invest, but it can also result in a lot of reduction.
Certification requirements would be an easy way to achieve quick results.
We already do that. So, suppliers that we ask, we actually require them to be ISO 14001 certified or similar. Outside Europe, perhaps not everyone uses that standard. We expect a handbook or a management system on it. Actually, for a new supplier to be introduced, this is actually a requirement that it has at least ISO 14001 or something similar. Otherwise, we basically don't do business with them unless we can't do anything else.
For how much does it count? Is it the case that if it is not there, the company will be excluded almost immediately?
If there is a similar alternative that does meet this requirement, it will be preferred. In the past, in a supplier assessment 5% of the weighting when determining which supplier we choose, next to price and quality, was always on environmental standards. I think that has recently even been increased to 15%. So, the environmental aspect weighs 15% in the assessment between suppliers.
Is it also being checked at the current suppliers? Is that occasionally tracked if they continue to comply?
I don't know for sure. I don't know if we monitor whether the ISO certificates are maintained annually. No doubt for our strategic suppliers, but I don't know if that is standard for all suppliers.
Do you think this will become more important in the future, that possibly that weighting will increase?
Has recently been increased. Of course, price and quality also remain important. I don't expect any further increases in the short term.
Are there any other sustainability factors that are taken into account or is ISO really used as a standard?
We have social corporate responsibility documents. That is more than just environmental requirements, it is also about child labour and things like that. We really do look at the social responsibility of our suppliers.
The second topic is looking for cooperation, so supplier engagement, development, collaboration. Are you working on that?
I am responsible for electronics. I don't think that's as important there. I can imagine, especially in the mechanical buyers, that it's a bit more important. Not at the level of our suppliers, maybe the second or third line, really the manufacturers of components. But I can't say for sure whether the impact there is very large.
So that varies a bit by segment?
Yes, or per product. If you look at, for example, child labour, that is much more important when you know that your products come from abroad, especially if it comes from countries that have a bad reputation. If we buy something around the corner, we know that there is no child labour there, but then you may be more concerned about the environment.
Supplier satisfaction/customer status is also important, especially nowadays with market shortages it is important to keep a good relationship with your suppliers. How important is that?
We always say that we value that, a good relationship with our suppliers, but it is not always possible to achieve that. In my segment again, it is not very easy to quickly switch between suppliers. Then you value retaining the existing contacts to avoid having to look for a new supplier every year.
The investment costs to switch are large. We really do value maintaining the relationship with the 13 strategic suppliers we work with.

Do you think supplier satisfaction/customer status will become even more important in the future?
I don't know if it's going to be more important. It remains just as important. I think it needs to get more practical, so that we dare to consider them as partners. It still comes from one side; the aim is that it can become a balanced relationship where we see each other as partners.
This is very much reflected in the literature, that due to globalization the power has switched from buyer to supplier.
When we make a design, we can't easily change a component. In doing so, you are effectively handing over power.
The next topic is sustainable purchasing skills. People have to do it. Apart from sustainability, are there many possibilities for training?
Within Company X for sure. The question is whether the time is there to implement them. Company X does that very well in itself; those possibilities are there. You will certainly be stimulated. Do not know whether there are a lot of training courses on sustainability. Would have to take a look at the learning tool to see what is offered.
So, if it's there then that really requires your own will and motivation?
Sometimes yes, but regularly there is advice to follow certain trainings, such as with inflation.
Do you think that's going to be necessary?
Yes, I certainly think so, the awareness is of course increasing. Certainly, from our own group, but also from our customers, more and more is demanded. I would almost think that at some point it will become a unique selling point, by showing that your products meet those kinds of environmental requirements. If you are the first to deliver a clean product and there are customers who prefer clean products, then you have an advantage. It is then decisive in case of same quotations.
You mentioned awareness yourself. Do you think that it is happening within Company X, that people are being made aware of sustainability?
The awareness is there, but I don't think it's our main motivation, that's delivering and getting the right products on time. I tend to think it's still an afterthought. Delivering is just a really big issue at the moment. So, I would almost say if we can get something, but you know that it's from a coal mine in China, then I think we are more likely to say yes than in the past.
Important for this awareness is management commitment and top-down communication. Does that happen occasionally? Are you also encouraged to think or come up with ideas?
I don't experience it as being pushed by my management to be more aware of this or to make other choices. There are always multiple interests and sustainability is not the first and the biggest, I think. Definitely a part of, but not the driver.
The cost is also important for the actions to come. Certification, could that possibly be a cheap method? Do you think that's also a cost-efficient method?
I don't know what it yields indirectly. If you have to invest to get something CO2 free, you do so because you expect it to yield something in the long term. Less CO2 emissions. But we don't notice that as a company. As human beings, we all notice that the world will get better. But perhaps preventing risk is much more important. If you are not doing that now and sometime in the future it turns out that you have caused problems with it, to what extent can you, as a company, still be held accountable for this afterwards? Perhaps a potential risk is even more important than it directly yields. If you look at how things have deteriorated since I've been alive, say in 15 years, I can only hope that it will not continue for the next 15 years. They have now decided again that 30% of the earth must be protected area. If you live in a poor country, you are not concerned with nature conservation. Then you're surviving.

Collaboration and supplier development may cost more. That just takes more time and money. Would that be a way that could be cost-efficient?
We have a pillar within the purchasing group called supplier performance/supplier development. I can't say for sure whether supplier development deals with environmental aspects. Whether they are indeed trying to push suppliers towards sustainability I can't say with certainty, but I do not rule it out.
The latter is cost savings through sustainability and innovation. On one hand, it can cost money if you must invest, but it can also make money by doing things more efficiently. Are you looking at that as well? Also with suppliers, that things can possibly be more efficient in the sense that it yields something both environmentally and financially.
The latter, of course, is a bit of our profession, but I don't know if the environment is really a driver there. Indirectly, perhaps by buying locally, which means you have less transport, that will have an unintended side effect. If it really saves costs because transport becomes more expensive because the CO2 will be taxed, then you will be more inclined to buy local. As soon as CO2 emission actually has to be paid, we will of course include this in the costs when purchasing. Then someone who emits less CO2 will quickly become cheaper/more competitive.
Innovations are also important, new things in the industry that may be more efficient or cheaper or greener. Are you looking for that in the supply base? Are there any innovations there that could possibly be applied?
It is the wish that we as buyers can inform our own development department about improved processes in the world. We outsource because we think that external parties have more knowledge and can innovate more often. It is up to the buyers to make these innovations known. We are the link to the market. If there are innovations, they have to come in through us.
Are such innovations actively sought?
That depends on the product, we are certainly expected to be aware of what is happening in the world.
Are you pushing existing suppliers to innovate for you?
Sure, but don't know if sustainability is the driving force, especially on costs. Always try to get optimal price/quality.
Any other comments?
Always balance between money and possibilities. Currently hard push to buy in India is in contrast to buying local and perhaps sustainable. Also offers opportunities to create awareness there. We may have the means to facilitate that.
Outro

## Appendix E: Transcription Interview Buyer 2 (Company X)

Intro & disclaimer
Is certification considered when looking for a new supplier?
ISO 9001 is a must, ISO 14001 is not directly looked at but is included. Personally, a lot to do with Dutch suppliers, generally do well.
If the certificate is not present, is a supplier immediately excluded?
ISO 9001 is a must, but ISO 14001 is more of a plus, not necessary.
How much weight does certification/environmental requirements have when choosing a supplier?
Don't know exactly. New contracts, global purchasing agreement from the group in France. This mentions 'ISO 14001 compliant', 'environmental management system which meets the requirements of ISO 14001 or equivalent'
Is certification of existing suppliers maintained?
Not tracked in a system.
Will such certificates become more important in the future?
Think that's going to become more and more important, especially from the head office in France. Don't know if the Netherlands agrees.
Are other sustainability factors taken into account?
A bit of an open door, if they have ISO then it will be fine. Sometimes, however, it's just a piece of paper.
Is Company X engaged in supplier engagement/collaboration focused on sustainability?
Currently, energy is a hot topic with suppliers, sustainability is not explicitly mentioned, it's more driven by costs. Not important topic on the agenda. It is still underexposed.
Was this different before corona/inflation?
No, was no different. At least from my mechanical segment.
How important is supplier satisfaction/customer status for Company X?
I'm on the relationship anyway, a lot of long-term developments, that's why you try to build a long-term relationship. You have to make sure that you become and remain interesting for those suppliers.
Do you think this is going to become more important?
Yes, think so, get courses in mutual gains within Company X. Market is so saturated that suppliers have power, so you have to be considered important.
What are the possibilities for training within Company X?
Lot of possibilities, for purchasing also EIPM, specifically for purchasing skills. In addition, many generic courses, well arranged.
Is sustainability a topic in training?
No, not really, from the group there are sessions in which sustainability is mentioned but is not really picked up yet.
Do you think you should?
Yes, think so, I am working on sustainability myself, think that it is still underexposed in the work. Not concerned with it, emphasis on delivering.
Are you aware of Company X' CO2 reduction target?
No, not heard before.
Is there further awareness among procurement?
No, in segments C and D there is weekly meeting, but sustainability does not come up. Management commitment and top-down communication is important. Are you encouraged by your manager to think about sustainability?
No, it is occasionally mentioned in presentations, but there are no other assignments attached.



Are suppliers asked about emission figures of the purchased products?
No is not asked about; I am also curious how you can measure / calculate that. We are working on 'lean', but in need we can also send a truck with 1 pallet on the road.
Would certification be a cost-efficient way to reduce emissions?
If suppliers do not meet environmental requirements, you have to say goodbye to them. If you set ISO requirements, you get companies that suit you and they already have a certain cost management. Don't think that will lead to higher costs.
Would supplier engagement/development be a cost-efficient way to reduce emissions?
I think it's a high priority. If you invest in the supplier at the front end, you can expect a better product and lower price. As a result, it is definitely worth the investment.
Are we looking at possibilities to save costs through sustainability? Also with suppliers?
We look at developments in the supply chain to do things more efficiently, this also results in lower prices. On the other hand, the technical requirements are so high that high costs quickly come into play. Technology is leading.
Are you looking for innovations at suppliers?
In the early involvement, this is considered, also about other techniques. We're pretty conservative.
Do you approach suppliers to innovate?
A lot of regular suppliers, a lot of intensive contact in which that is discussed.
Any comments?
Sustainability is still underexposed; we are not yet working on it.
Outro

## Appendix F: Transcription Interview Buyer 3 (Company X)

Intro & disclaimer
Do you look at certification [for sustainability] when looking for new suppliers?
Is considered, but not decisive.
How much weight does this have in deciding for a supplier?
So far not really, doesn't really count towards the ranking. You know that certification is going to be an important topic for sustainability, so it should become a qualifier. Is also just a certificate, says little. Certificate can be present and at the same time a company can use bad packaging, etc.
Will such certification possibly become more important?
Yes. You should argue well. Think there is more awareness. Certificate can be beautiful theoretically, but bad in execution, especially done for reputation. Good example: small pins. Because there must be grease on the pins, each pin goes into a separate tube and bag. Then the technical aspect takes precedence, while you know that you are creating a lot of waste. You could also send it here first and put the grease on it here.
Is the certification of current suppliers tracked?
Yes, it is being looked at. Are some update moments.
Are there other sustainability factors besides certification that are taken into account?
We look at how they deal with laws and regulations. The first impression when visiting is important. That can be decisive.
Are you actively involved in supplier engagement? Both in terms of sustainability and in addition.
Yes, I think it is very important that you work towards common goals. It is important that the focus is clear to us and the supplier, not only passing on information but also including them in the process.
Does this happen with all suppliers or only with, for example, strategic suppliers?
Mostly the current suppliers.
In what way does that happen?
Different moments, quarterly business reviews for example. 16 best practices to address things.
Is sustainability already a topic in this?
Not yet, not really a topic.
Are most suppliers open to engagement/collaboration?
Most want to be involved early, in all kinds of areas.
Is supplier satisfaction/customer status important to you?
Subordinate. If you think the supplier's voice needs to be heard, you should also do something with it. Also, a bit of responsibility. You also expect initiatives from a supplier.
Do you think supplier satisfaction is becoming more important now that suppliers are gaining more power?
We continuously measure how the ratios are in the market. Is tracked. If you look at collaborations, you have different goals than with a traditional relationship between customer and supplier. If you look at Company X, you have to work with many suppliers to get the necessary products. Simple contracting is almost not possible. More and more relationship management. A large part of my package is in the 'bottleneck' and 'strategic' parts of the Kraljic matrix, you have to adjust your actions accordingly. Important in this is communication and transparency.
Are there many opportunities for training at Company X?
There are plenty of possibilities, but not in terms of sustainability. For example, for mutual gains and soft skills.
Do you think sustainability training will be needed?
I think it starts with awareness. It is often recognized, but it is continuously a trade-off with other interests. It's not always easy. Our annual reports contain a lot on sustainability, but a lot is allowed at the lowest level.

You already mentioned awareness, are you aware of the sustainability goals?
Yes, and that the focus will continue to grow in the coming years.
Are you actively encouraged to engage with it by people above you?
Yes, think so.
Do you think it is also awareness among your colleagues?
Yes, by making it a topic for 2023. Everyone wants to contribute to that.
Back to suppliers, do you ask for data on emissions?
No.
Do you think costs would increase if more certifications were required?
No, you can't force suppliers. Have to see for themselves. Think the effect on the price is low.
Do you think supplier engagement/collaboration is worth the time/cost?
We are buying more and more parts, that is the trend. We ask for more than just a product. Think of quality reports. The spend at many suppliers is reduced, which changes the balance. Can you put someone to work on that and continue to give that service, or are you going to charge for that? Those are aspects that play a role. It takes time on both sides, you might want to develop a supplier, but there has to be something in return. Otherwise, you should stick with contracting.
Are you looking for opportunities to save costs through sustainability and are suppliers encouraged to do so?
No, not yet.
Are you looking for innovations in the sustainability market?
Yes, sometimes, but Company X is very product oriented. Especially driven by engineering.
Are suppliers encouraged to innovate your products?
Not in my category.
Do you think that's going to happen?
Think suppliers are working on that. Can become a satisfier. That's how it started with ISO 9001. Sustainability will become a qualifier.
Any other comments?
Think everyone basically wants to contribute. But always remains a conflict of interests.
Outro

## Appendix G: Transcription Interview Buyer 4 (Company X)

Intro & disclaimer
Is certification considered when looking for a new supplier?
Yes, companies without, for example, ISO 9001 are a no-go, almost everyone has it. Different for ISO 14001. Is part of the RFI, is asked about. More and more attention is being paid to it though. I believe ISO 14001 counts for 15% of the sustainability aspect.
Could certification become more important in the future?
Think that in the short term that will be just like ISO 9001, you just need to have it.
In addition to certification, is sustainability included in other aspects?
Haven't really worked with it yet, not long at Company X. Thinking about it more and more. It's kind of crazy that it's a topic. If you want to act well as a person or company, you should not prove it and be basic. I do find it worrying that you should be encouraged by legislation to show good behaviour. That's why I think ISO 14001 is a bit crazy, you just have to want that. For companies that don't want to, I wonder how their business operations generally go. Many companies present themselves well, but a lot of bad practices as well.
Is Company X engaged in supplier engagement/collaboration focused on sustainability?
Difficult to assess, also varies a lot per buyer. Also work with suppliers at different levels. With a party you work with at a high level, you can exert more influence. Also depends on the supplier, lot of differences.
So does it vary a lot per supplier or buyer?
Yes, think that's grossly underestimated. Everyone has a personality, and you bring that into your work. You have people who are open to suppliers and others are not, for example.
How important is supplier satisfaction/customer status?
Think that you can apply many things from purchasing in private situations. They have a lot in common. If you behave badly, you will also get such a reaction in return. Some people think that it is different in business. A market can also change. Some people have difficulty adjusting their behaviour. It amazes me that studies are being spent on it and people suddenly find out that you achieve more with good behaviour.
Heard something about a strategic collaboration review, can you tell a bit about that?
Company X does indeed want to seek more cooperation with suppliers. Over time, more and more outsourced. What is striking is that mainly companies in the area have been sought. Often with crazy reasoning. As a result, we occasionally have parties that are insufficient. That is why Company X wants to have more dialogue and cooperation with strategic partners. Company X was dictating, but now really wants to work together and use the knowledge of suppliers. In that SCR, we will look at how we are going to shape such a collaboration. Think it's good that that's recorded.
What are the training opportunities at Company X?
Before I started, I had some training. Having a training platform, but it is also a bit down to your own initiative.
Is there training focused on sustainability?
It's sometimes a topic in a conversation, but it is not the most serious topic.
Change management might also be important?
Yes, a company is somehow a reflection of society. In society you also have many differences in thoughts about the environment and other things.
Looking at awareness, are you aware of Company X' goals for CO2 reduction?
No, that is not a topic at all during discussions. Also has to do with culture. This applies to all organisations; I think the leadership is decisive in the behaviour of people. Lead by example. Starting with small things can create momentum for bigger things.

Like starting to separate waste. You really have to launch initiatives and also give people the opportunity to do things differently.
Do you notice top-down communication from people above you?
No, very honestly, especially because of workload. Sustainability quickly fades into the background, must hope that it is already settled. There are also things I can do myself, which I also discuss, such as the packaging. Is sustainable wood used, for example? Mention sustainability if it's not a topic yet at the supplier. I'm definitely working on it myself. If sustainability comes with savings, then people are interested.
Back to suppliers, do you ask for emission data?
No not actively, think that it will happen in the future. Pretty sure that small businesses aren't working on that. Applies to more topics for such companies, such as safety or air quality. Most of the time they aren't thinking of it, or it is too expensive.
Is certification or supplier engagement/collaboration possibly a cost-efficient way to reduce emissions?
I don't think you have to incur a lot of costs if you put the initiative with suppliers and make them aware that it is an important topic for us. Then you can get them on board, let them know that we want to improve and make it clear that they are part of our supply chain and have to keep up. Can be very broad and start with small things. Start with the combination of saving and being more sustainable, see what the possibilities are there. Sometimes it also costs money but doing nothing is much more expensive. An electric car may be expensive, but you don't know what the price of petrol will be in the long run. At the end of the day, it's people who decide. You should also look at what kind of people make those calls, also linking to the personal aspect.
Are suppliers encouraged to innovate for sustainability?
Not sure, don't think it's really being discussed at the moment.
Any other comments?
Curious about the outcome of your research. Think the topic needs a lot more attention. Already because the consumer becomes much more aware. IKEA has had bad publicity in the past due to a bad supply chain, learned a lot from it. You know you have governments as customers, so you know it's coming, just prepare your supply chain.
Outro

## Appendix H: Transcription Interview Supplier 1 (Supplier A)

Intro & disclaimer
Company X is a key account for us
General sustainability, do you measure CO2 emissions/carbon footprint?
No, not as far as I know
Do you have a sustainability strategy?
Our activities/products are focused on energy transition. This already provides a contribution to sustainability. Products have more impact than our own buildings/vehicles. No specific policy, but pragmatic approach. No unnecessary travel, more mindset than a described process.
Specific goals set for sustainability?
No
Goals in development?
Not really a topic. Company X dependent on governments, does not apply to us, just like other companies that are further in the supply chain. Our clients don't ask about it.
Do you have environmental management certificates?
Yes, we have certain certificates, is a qualifier to get somewhere at the table. For the environment not sure.
What is the motivation to obtain such certificates? Requirements from customers?
Yes, in line with what is demanded from the market.
Do you expect certificates for the environment to become more important/new standard?
Varies by sector. Depends on link with governments. If it gets spread through the industry, it has to be top-down, then it will happen there. Ultimately, the customer decides. If it is asked from customers, those movements will come.
Another topic is supplier engagement/collaboration. Do you feel the initiative from Company X for green products?
We are constantly discussing how we can work together smarter and better, also for product development. Mainly focused on functionality. Not a main goal, but when there are possibilities, we handle it together.
Do you think supplier engagement/development is important?
Yes, those are things that are an interaction. This is also because we supply parts of a larger thing. That is why it is important to consider the bigger picture and think about it together.
Also important for the relationship? That both sides are making an effort.
Important to build relationship and not have one-time shopping. This way you can create added value and respond to customer-specific requirements and optimize. For that you have to work closely together, there is no other way.
Can a customer expect benefits if he makes an effort/invests?
Yes, mutual gains. Improved functionality, fewer errors, better manufacturability (therefore also cheaper), shorter delivery times, better maintainability, more insight into future expectations and risks. Lower cost is often the result of improvements through cooperation.
Next topic is skills. Are there many opportunities for training with you?
Yes, there are quite a few possibilities. Differs per position in the organisation and where you stand in your career. Necessary for many roles, especially in the field of safety for people on-site.
Is sustainability part of training?
Not a part yet, that I know. Possibly a specific component for a particular role, not in general.

Will that come?
Think it's an important topic, more recognition and attention coming. You will see that in the content of certain studies, but do not know exactly how and what.
Is there awareness of sustainability among employees in your company?
Is at the heart of what our organisation does. In addition, not specifically concerned with that, is also not necessary.
Cost matters. Would certification requirement result in more costs?
If it's a requirement of only Company X specifically, that will probably happen yes.
For supplier collaboration, are you open to that?
Yes absolutely, very important.
Sustainability can also save costs. Are you looking for such opportunities?
Not directly, sustainability is mainly in the solutions we deliver. For example, in uranium enrichment, a solution is supplied that saves a lot of power consumption, so that the rest of the green electricity can enter the grid. This has a lot of impact. For many projects, decisions are made on this. Especially impact outside the door.
Are you innovating yourself/looking for innovations in your market?
Doing a lot in applied technology. Underlying technology is not new, but the way it's applied. Not really innovating, but very cleverly thought about it. Aren't many out there who can. Innovative ways of thinking and working, aren't doing research for new breakthroughs. Not very innovative ourselves, but refreshing in a certain way.
Are you trying to push innovations to customers?
If it fits, yes. Can't go everywhere, but if there are possibilities, yes.
Mainly focused on functionality and not yet on sustainability?
Could be, but generally functionality indeed.
Any other things about this topic?
No
Outro

## Appendix I: Transcription Interview Supplier 2 (Supplier B)

Intro & disclaimer
Do you have a policy for emissions/sustainability?
No plan. New building and thought about gas consumption and solar panels on the roof etc. Not energy-neutral yet, many machines that consume a lot of power. There's no escaping it.
Do you keep track of your carbon footprint?
Not calculated or tracked.
So, no concrete plan for sustainability?
No, some individual actions, such as electric cars. Individual initiatives are not part of a plan.
Do you have certificates focused on sustainability?
No, ISO 14001 is on the agenda, we want to achieve in the future, but no timeline yet. Customers are asking more and more for these types of certificates.
Motivation is mainly customer requirement, then?
Yes, especially reactive honestly. Busy in the office, had little time to be proactive.
Are you encouraged by Company X to think about sustainability?
Encouraged on manufacturability, to make it efficient and thus reduce the cost price and selling price. That's often the driver. At the same time, efficiency also contributes to the environment. Driver is cost, environmental aspect indirectly benefits from efficiency.
Do you find engagement by a buyer important?
Yes, is in the interest of all, everyone is aware of global warming. Intrinsic motivation to improve is certainly there.
Is engagement also good for the relationship in general?
Yes, think so, you build a relationship by having a lot of contact, is something that needs to be paid much more attention to.
Are companies that put effort into you being rewarded?
Yes, have gone through a redesign which has improved the product with Company X. Within that, we also look at efficiency.
Do you offer a lot of training for employees?
Have a training program for management and engineers for example, they receive all kinds of training. Is seriously invested in training.
To what extent is sustainability a topic in this?
Is still quite limited.
Do you think that's going to happen?
Yes, think that's where it starts. The company is 4 walls and a roof, what happens is determined by the people themselves. From there, that will grow.
Do you have awareness for sustainability?
Yes, there is. Have a whole list of separate initiatives. Will be the source for a plan to be worked out. ISO 14001 is coming.
Are employees encouraged by their managers to think along?
Still limited, from the market more and more demand, more and more topic on the agenda. Not actively part of management at this time.
Because it's long term or because of other problems right now?
Yes, 'bigger fish to fry'. There should actually be more pressure on the business community from the government. Think the change has to come from your generation.
Cost is also important. Is it expensive to get such a certificate?
Think it's not so bad in our case because we don't pollute much. If you also want to improve the sustainability of production with heavy machines, there will be some costs.



In case Company X demands certificates, would this have an effect on the price?
Suspect so. Certificate must be paid. Investment must be recouped, can be through efficiency, otherwise it may be passed on to the customer.
Are you open to more intensive cooperation? Mainly focused on sustainability
Seeking more cooperation on this theme is the key to the solution for the future. Definitely willing to do so.
Sustainability can also save costs. Are you looking for such opportunities?
Is thought about but is incidental. As a company, we are not yet proactively working on sustainability, in addition to always wanting to work efficiently. This ultimately leads to cost savings, regardless of green goals.
Are you innovating/looking for innovations aimed at sustainability?
Product innovations usually come from the customer. Drawings are made and they are sent to us, we then check if it is useful. Final design comes from the customer.
If you have ideas for a customer if it can be better/easier, is this being passed on to the customers?
Keeping an eye on solutions and innovations, passing on such developments to the customer when we see them. Keeping a close eye on new technology and adapt it when possible. Especially because it improves the product, not focused on sustainability
Is it mainly about quality?
Yes, quality first, also efficiency and costs.
Are you planning to calculate carbon footprint?
Yes
Are you also trying to motivate the chain to go green?
Yes, slowly starting to.
Outro

## Appendix J: Transcription Interview Supplier 3 (Supplier C)

Intro & disclaimer
Do you keep track of your carbon footprint?
No, we have machines and vehicles, have thought about it to see where it's possible to make that more sustainable. Have switched to green energy from a local supplier. Electric bus is not yet an option for us. In the future it will.
Do you have a sustainability/strategy in place?
First looked internally to minimize energy consumption, LED lighting everywhere. In the case of the machines, the technical possibilities are mainly evaluated. Is now better from a business point of view. Machines still focus on performance, everything around it is thought about (lighting / heating). Working on new building with solar panels.
Do you have a concrete goal for sustainability?
No, no concrete goal. Well, we do take action from where we can. Especially in the new building, we are looking at the possibilities to make maximum use of this.
Do you have certificates focused on sustainability?
No, not yet, will come in 2023, ISO 14001 can be linked to ISO 9001. Does result in paperwork. Think it's important. Want to be ahead of customers' demands and be proactive. Is a handle.
What is the motivation to get certification?
Twofold, really want it ourselves, find it important. Also, to profile towards customers. Convinced it's appealing.
Do you feel that Company X is looking for cooperation with you?
Sure, 100%. Topaas has been around for a long time and has grown with Company X in all these years. Company X is, I think, the largest customer in terms of turnover. What you see is that the collaboration and sharing of knowledge and skills has grown. Company X engineers also come here to look at manufacturability and consult with our people. You notice that together we want to get to the best product for the best price. We do work together intensively. In the field of sustainability, this is the first introduction.
Do you think it is important that a customer puts effort into a collaboration?
Yes 100%, no matter what subject, you build a success together. If you look at the chain, you are jointly responsible for the end result. The better you tune, the easier it is and the better the product becomes. Together you have to ensure that the chain runs as smoothly as possible.
The collaboration is aimed at a win-win situation, then?
Certainly, we try to create a good forecast with Company X. At Company X, this is an option because they usually have long-term orders. Using a good forecast, you can organize the supply chain smarter together. If production can be grouped more, this has an effect on which machine is used and therefore also on efficiency and price. The more we can look ahead, the more it benefits in terms of price and delivery time. Thinking about transport movements as well, preferably sending a full truck out.
Are there many opportunities for employee training?
Yes, we offer a lot. Also depends on the development of the machines. If there are updates for machines, the employees are included. Are busy with new premises and new machines, this offers people opportunities for new roles and developments.
Is sustainability a topic in trainings?
No, no in-company training, is outsourced. Very focused on the operation of machines, adjustments in software and programming language. Very technical, nothing on sustainability.
Do you think that's going to be necessary or coming?
Yes, I am sure, when we start working with ISO 14001 next year, there are a number of roles that will have to deal with this. Processes in the organisation that need to be adjusted. They are going to get training in that. So yes, attention will come.

Are employees themselves encouraged to think along for sustainability?
Encouraged not yet. Everyone has to deal with it. As a company made certain choices, training has been included. In that sense, awareness yes. Employees have not yet been asked directly for input or ideas. Especially individual initiatives. The employees see that sustainability is important to us as employer. Then you can feel invited to share ideas. We can also actively ask the question as an employer. Next year, ISO 14001 will make it even more of an item on the agenda.
Are you open to initiatives from Company X in the field of sustainability?
Yes, definitely. Applies to all customers. If a customer finds something important, we have to act in a customer-oriented way and see if we can go along. Has to come from two sides, easy to put demands on paper. I don't think that's a partnership. It is important to have open communication about things that have a lot of impact. I can imagine that Company X wants to do something with sustainability, and they have many local suppliers, they could buy a number of electric buses themselves and drive around the region. Such initiatives are better conceived as a customer, possibly also in collaboration.
Think it could be a good fit for Company X, lots of small deliveries.
Yes, there are many suppliers in the region, if you let 1 van drive around, you can save quickly.
Are there a lot of costs concerned with certification?
Yes, it does involve costs, but we think that's our responsibility. Want to remain a key supplier, think that this is part of it, is not immediately incorporated in the price.
Sustainability can also save costs, are you looking for such opportunities?
Think it's an important topic, winning on cost and sustainability. Also, on the solar panels too, you first have to incur costs, in the long run it will provide more independence and continuity for the organisation for price and delivery. Less dependent on fluctuations in energy price. As a supplier, there is also a profit in this, you are less dependent on the issues in the market. In this way, sustainability can indeed contribute to a stable organisation. It is important that you ensure that you remain in control. I think it's great that sustainability also allows you to guarantee that for your organisation.
Do you innovate yourself/are you looking for innovations?
Yes, initially technically driven. Possibly less consumption in energy/cooling liquids, but that is a positive side effect. In the new building, we are working hard, preferably no more gas, underfloor heating, and a heat pump. Is more environmentally friendly and saves in the long term, looking for the win-win. That is why we are not investing in the old building. Due to the entire situation with Russia, there is much faster return on investments. The problem now is the availability of parts, heat pump for example 1.5 years. But of course, you can't predict. Do find that when you are intrinsically motivated, it does not always have to be win-win. But any commercial organisation will eventually look like this. As a large organisation, you also have a social role. If it becomes a hard requirement from the government, you no longer have a choice in terms of costs.
Are new innovations/ideas pushed to customers?
Yes, we always do. We offer them, take us into the initial phase, let us watch. Do want to provide input that ultimately benefits the product. Can perhaps be made easier, saves costs. That early involvement doesn't always happen, surprisingly. Perhaps to do with the large organisation of Company X. In the initial phase, you can steer even more easily and identify weak spots. There is still a lot of potential gain in this on all fronts.
Any other things?
No, not really, are open to initiatives and good that it happens. IKEA best practices!
Outro

## Appendix K: Transcription Interview Supplier 4 (Supplier D)

Intro & disclaimer
Do you keep a carbon footprint?
Not specifically, but seriously working on sustainability/less waste
Do you have a strategy/policy for sustainability?
Goals are formulated, in line with ISO 14001.
So, you have ISO 14001 certification?
Yes, we have, within a year. Automotive demands that, as does IATF.
So, the reason behind that is customer demand?
More or less yes, more and more customers are asking for it. Tendency that it is also being asked for outside automotive. Then you automatically start thinking about that. But it should not be a must, you have to want it. Is an expensive certification, but you will reap the benefits, you will earn it back.
What are the effects that you notice?
Many automotive customers have that as a big plus, if not as a requirement. If you don't have it, you'll get lower in the rankings and you'll only be an emergency supplier. Many other companies experience it as very pleasant that you are actively working on it. They don't demand it, but they do hint at its presence.
Will this become more important in the future?
If you get an audit every year, you have to show something. So, you have to be active, we evaluate the offices, lighting, cars. That all fits in with that ISO 14001 plan.
Do you find commitment and cooperation important?
You always try to do that. You look at processes to see if you can make the product easier or better, especially technically. Environmental aspects are often more difficult. We do try to search a lot in the region to limit transport movements.
Do you think it is important that Company X or another customer puts effort into you?
Certainly, is very much appreciated. That's how you get a good relationship. This also means that you are and remain a preferred supplier. We like to see ourselves as key suppliers. We have good contact with Company X, which strengthens that relationship.
Are there advantages to this on both sides?
You try, but you don't always succeed. The market situation is extreme, everything is becoming more expensive.
Do you generally offer a lot of training for employees?
Yes, is a requirement in the IATF. We always have to look at how we get employees to a higher level. We have a training plan present. Can be very simple courses, but also awareness courses. Recently had an employment expert who came to take a look. That's checked a lot. In addition, technical training for employees.
Is there already training for sustainability?
ISO 14001 informs people internally and explains what it entails. People are asked to think along. This is being looked at seriously.
If Company X were to demand certification, would this affect costs?
It is included in the general costs of the company. Is in the overhead, everyone pays. The intention is that all our customers benefit. Automotive often demands it and also encourages to encourage further suppliers. Mutual gains. Especially governments, relevant to Company X, are already seriously looking at the environment. Having a certificate is a plus for all our customers.
Are you also open to sustainability/efficiency in collaboration?
Yes, of course, that's always the goal. When you look at a product, you always want to come up with the most efficient production method. If something does not work or succeeds, we also want to say that honestly to the customer, that you will not have any problems afterwards. That's how you keep the relationship good.

Sustainability can also save costs, are you looking for opportunities for this?
Is difficult, insurance for solar panels for us is very expensive. We'll look at it. Also, green electricity, we are looking at it, but our consumption is so high that it must be possible. We are going to build a new building, which will allow transport movements to be limited. That's what you're going to look for. We're looking for ways to keep it affordable. We just have to make a profit. That is the primary goal of a company. And also, a bit of social involvement. Otherwise, the company won't make it. For example, we look at our packaging.
Are you looking for innovations in your industry?
Yes, continuously. Focused on both technical aspect and sustainability. New machine, for example, that works more precisely and uses fewer raw materials. Is both environmental gain and financial gain in the end.
Do you also try to bring innovations to the customers?
Is difficult in our branch. We get drawings from the customer and work on them. We can only look at how we can save raw materials and energy in our process. More internal matter.
Outro

## Appendix L: Transcription Interview Expert 1 (LyondellBasell)

Intro & disclaimer
What is the role of certification in sustainable procurement?
Necessary, all large companies have it themselves, to do business in a compliant way. If the scale of a company gets bigger, the compliance aspect increases. Certifications provide legal frameworks for organisations to do business in an accepted way. It is important, always was, and always will be.
Will the importance increase in the future?
Yes, it is increasing in general. As humans, we did not treat the environment well. To change certain things, we need to organize and structure things. Standards should be the same and certifications and regulations help with that.
Are there more and different types of certificates emerging?
There are different types coming, facing new challenges, and dealing with new realities. There are many different certifications. We work with systems that use certifications. We want to influence our suppliers. Need to make sure that certifications are there, on all human right aspect. Want to know if they operate in a good manner, these certifications help. Don't check these certifications ourselves, working with companies that do this, working on scorecards.
What is the role of supplier engagement/development/collaboration for sustainability?
Very important, it is my job. There are many companies in the industry. We have certain expectations from our suppliers. We want to make sure that we spend money in a good way. There are certain risks.
Collaboration is important to create transparency and reduce these risks?
Exactly. Transparency is difficult and limited. Important that we are aware of what our suppliers are doing. Transparency would be relevant. All in the same business and same world. If we want to make the world better and profit in a good manner, we have to work together with our clients and suppliers. We're all in the same boat.
This is also becoming more important?
Exactly. We focus on the performance of our supplier. Them performing better means us performing better. For us to decrease scope 3, we need to make sure that our suppliers are working on it [sustainability]. Collaboration is the key element to achieving success. We cannot do it on our own.
What is the role of supplier satisfaction/customer status for sustainable procurement?
Yes, it is important. It's end-to-end supply chain. There are constant transactions going on.
How important is training/developing employees?
Employees do the job. It makes sense that people know what they are talking about. It goes down from trainings and trainings, that is very important [for sustainability]. Making people understand and buy into the idea that they need to change the way they work. Then it's trainings. They need to know what to do to reach certain objectives. To get to a point where people are efficient enough to work autonomously in a way: volumes of trainings, retraining. Everything needs to be created in a way that they have access to information.
So, for sustainability in procurement training is important?
Yes, first they need to know why we ask to change the way they work. We are all humans and have the tendency to be resistant to change. This is not only creating profit, also doing good for the world. Of course, there are targets. People need to understand why, otherwise it's just more work on their plate, not everybody likes that.
Therefore, the engagement of employees is also important?
Very much. Very important, constant communication. Let it sink in for the people. People need to buy it and start operating on in.
That's basically awareness, that's important?
Yes, pretty much.

How important is commitment by management and top-down communication?
Vital. First step. Managers need to understand and buy-in, they can transfer the information down in levels. If managers ask for something to be done, it mostly happens. Not in a dictating way. If managers buy in, they can transfer information and engage employees. People need to buy-in.
How important are costs for sustainability in general? More budgets?
Seems so. Many agreements among governments dictate certain changes.
If you don't take action now, the costs will be higher in the future?
Could be. The world is changing. If we don't allocate budgets now, we could be in a bad position in the future. More companies are aware. It would be good if companies allocate bigger budgets. If you want to go towards a more sustainable way of working, you need to make change happen and for that money is needed. Important aspect.
Could demanding certification be a cost-efficient method to achieve sustainability goals?
Depends on the type of certification and the number of certificates. Very broad topic.
And for the case of Company X, with high mix low volume, and small local suppliers?
In a way yes. It makes sense because it is a regulatory framework for companies. So, yes in general.
Could supplier engagement/collaborations be a cost-efficient method? This normally comes with more costs. You explained earlier that it is vital/necessary.
Yes agree. Budget needs to be allocated. Some people need to start changing things because the world is not going into a nice place.
Are companies generally looking for cost savings through sustainability?
To start an initiative, you need to spend money. In the future, it could save money. Looking at it from the shareholders, if you position yourself as a company that can deliver certain products in a more sustainable way, you can meet certain objectives in the future that could help improve the company on an overall basis. There is operational reduction as well. It could increase market share in the future. But it's not a short-term thing, at least mid or maybe long-term. I would think about this as an impact on the revenue instead of cost on a very high-level perspective. If you as a company don't incorporate sustainability aspects into operations, you might lose market share. To get to a level of competence, you need to spend money, time, and effort on a program. Otherwise, you're lagging behind as the world is changing. Governments are asking for more and more sustainable operations. You need to position if you want to be in business at some point.
So, it should not be seen as increase in cost but as investment in future market position?
From monetary aspect, yes.
Is it important to engage with suppliers and push them to innovate?
We're in this together as we discussed earlier, so them performing good equals us performing good. So yes, it is important, we are in this business together.
Outro

## Appendix M: Transcription Interview Expert 2 (Freelance/SPP)

Intro & disclaimer
What is the role of certification in sustainability and is the importance increasing?
Yes, getting more important. The request for transparency is definitely increasing. Lot of greenwashing in the past, about net zero commitments and more. Need for transparency is increasing on both sides, buyer, and supplier. We're all part of one network. Certifications are also ratings and are becoming more a standard to create and communicate on their sustainability.
Will the importance of certification increase? It might become a standard?
Absolutely, we already have some standards in place. It will increase and also become more complicated. The environment that we're acting in is changing from a legislated perspective. More regulations on human rights and emissions. Standard are evaluating. The importance will increase.
Are there other types/different certifications appearing?
There are several on the rise, already a lot in place.
What is the role of supplier engagement/collaboration in sustainability?
In an ideal world the whole supply chain would work together. Seeing a little transformation when it comes to supplier relationship management and the role of procurement. The supply chain is the biggest lever and driver for emission reduction, but also for human rights/social safety. To achieve transparency, it's necessary that procurement and suppliers work together. Transparency still one of the largest issues. Getting into the supply chain and identify what is going on upstream in the supply chain is difficult, therefore engagement is needed. Transparency is the baseline. The first step to improvements on different topics. Communication and raising awareness are crucial. Telling them in an understandable way why and how they can act also. Initial long term best practice is code of conduct.
Will this become more important?
Collaboration has advantages on both sides. The transparency and reliable prove of their sustainability performance becomes a lever for business and credibility. Added value on both sides. Sometimes suppliers even more advanced and requesting buying organisations to think about it.
Does supplier satisfaction/customer status play a role in sustainability?
For sure. The important thing is the collaboration/engagement/communication. During covid we've seen sustainability performance of companies helped them in the crisis. They were more agile and used to change management processes. Setting up a sustainability program involves a lot of change management. To get everyone on board is crucial. To get commitment from the suppliers is vital. Seen a lot of disruptions the past years, fear was that this would negatively impact sustainability commitments, but many cases showed the upper side. Nevertheless, also cases of forced labour for face masks, human rights vs human rights. In general, crisis shown we need to rethink the supply chain and that sustainability can be an important driver for resilience and stable supply chains.
During crisis, being preferred supplier helps to maintain business?
In general, with regards to sustainability, there has been better communication from supplier to buyer about potential lockdown. So yes.
How important is training employees?
From my background, training employees is maybe the most important thing. You can set up the most beautiful program, if you don't get it into practice, it is not worth anything. When you set up a program, for example for sustainability, you need to get the people on board, and you need commitment. You only get commitment if they understand the why and how. Training therefore is crucial, not only to inform them, also to give them knowledge on the tools/processes/KPIs. One of the most important things to support change management, also to deliver success for any program.



How important is engagement of employees? Training part of engagement?
Training more empowering instead of engaging. Engagement is not only informing but making people part of it. That you get commitment, you only get commitment by clear and transparent program management and communication. On sustainability, engagement is special. Normally, every human being should be interested in sustainability. This is different from many other corporate topics, like anti-corruption. Sustainability is affecting everyone. Therefore, a huge opportunity to engage different departments on this topic.
How important is awareness?
It starts with the awareness building. There's something new, but why? Raising awareness is the first step to explain the why's and the how's. Company X only reporting scope 1 and 2. Raising awareness on scope 3 had a wow-effect on many people. Change management is important. Explain the added value and get the employees on board.
How important is management commitment/top-down communication?
Absolutely crucial. Makes the commitment not only done by some department. Really has an impact on how people receive message and to underline the importance. It's not about some people but a transformation of the entire company. If people don't buy in, it will get difficult. You might need to hire someone and set up the program. The commitment is absolutely crucial, in both directions. Also seeing other side, where professionals are engaging with management, but they are refusing. Then coming back to employee satisfaction, normally everyone should have interest in sustainability. Also important for HR, marketing, credibility. Sustainability goes through all departments. Should be supported by the management.
How important are the costs for sustainability in general? More budgets coming?
Depending, in Germany new due diligence act, also depending on maturity of organisation. Really small companies might not have the resources to invest in sustainability. I tell them to look around to identify internal resources. The more advanced it gets, more costs appear. What has been proven, is that there is an ROI on sustainability. Different cases from shifting energy consumption or reduction of water use. Lot of ROI that have been shown. We're investing into the future and into the next generations to save the planet, but also to save the business. In the future, business without proven sustainability will not exist. Things are changing. There is a lot of movement in the market, suppliers are innovating a lot. They see advantages. If the company is not moving, this can be dangerous for the company's future.
Looking at costs, you can say that they are necessary so you could better invest now than wait and it will get more expensive?
Yes, sustainability is a marathon, not a sprint. Most companies start with low-hanging fruit. Needs to be done step by step. Still an investment but more than worth it.
Could demanding certification be a cost-efficient method?
Certification would be the result for me. You don't get certification if you haven't done anything. The investment is in advance. Certification gives you the tools to see where you are now and what the next steps are.
Could supplier development/collaboration be a cost-efficient method?
Could be, depending. Collaboration is a great driver to get sustainability practice forward and to identify innovations. Here talking about costs, there is always investment and return on investment.
Are companies generally considering cost savings through sustainability?
Depending again. Some companies are very advanced. Could lead to cost savings in general. In other cases, people don't even think about it. Some simple things are not even considered.
Are companies generally innovating for sustainability? And should buyers push?
Yes, for different reasons. Limited resources, so need alternatives. Also, carbon reduction and cost savings. Companies are struggling with energy. Pushing not good. Collaboration approach. Sustainable innovation can be embedded in RFP. Innovation can change industry.
Outro // collaboration is crucial, internal, and external emphasized

## Appendix N: Transcription Interview Expert 3 (EcoVadis)

Intro & disclaimer
What is the role of certification in sustainability?
The main driver of certification is making things more efficient. You want all efforts to be recognized. A lot of information in RFP/RFI can be solved through certification. Instead of asking several questions on policies, you can just ask for certification. Makes it more efficient. Certificate sign of quality and that certain processes are put in place.
Will this increase in importance?
Has already increased a lot the past years. Increased in diversity, so different types. Also, for smaller companies. Traditionally it has been something for large companies, but more and more SMEs are starting to consider or implement themselves too. It does account for that efficiency later on.
So, it's good for your position in the market?
100%
There are more and different certificates coming?
Yes, for sure, not only different but also upgrades of existing ones. Different standards are being asked, comes together with industry development. Creates by nature with innovation new standards to which the certificates keep up to.
What is the role of supplier engagement/collaboration for sustainability?
Keyword is here collaboration and being able to support engagement of suppliers as industry. Both bigger ones and smaller ones. So that the whole industry can move forward. We're moving a lot towards industries collaborating together and therefore also a lot of sector initiatives. Rather than the traditional way of competition, like not putting resources into a supplier because it is also a supplier of a competitor. The collaboration has definitely increased throughout the years and is definitely key. Without collaboration the industry does not move forward. No matter how good an organisation does their things, if they don't bring supplier with them going in the correct direction, they will never be able to cover their supply chain. Without improvement of supplier, they will never improve their scope 3.
Collaboration will become more important in the future?
Definitely. You can see that from stronger industries like chemical. There is a sector initiative, they have very strong collaboration and very strong framework set up in which not only they exchange information and have peer-to-peer learning, they also put resources together to support the whole supplier network to improve. Those initiatives are already there and will be stronger in the future. Few of them, also for healthcare and automotive. TFS (together for sustainability)
How important is supplier relationship for sustainability?
Key, otherwise, you don't manage to collaborate with them. The better the relationship and the better they're satisfied; the more positive collaboration can happen. Very much the nature of our human being.
As collaboration is needed, this will only become more important?
Yes, for sure.
How important is training employees?
It's key right. Organisations want to improve in different areas. The main group of people who will manage to bring the organisation to that level in the people who work in the organisation. If they don't have the knowledge or information to get there, then you can pack your things. That would not bring you anywhere, so training is definitely key. It is something that is picked up a lot. There is a lot of information out there. Lot of cost-effective training opportunities as well.
For sustainability also important?
Yes, lot of misperceptions about sustainability. Setting a basis of general understanding makes a big difference. The more the people inside the company are convinced, the easier it will get for the whole organisation to get there.

How important is engagement of employees?
It's exactly what I was talking about, by creating awareness and training them, they will become more aware of what the issues are. Especially clarify how their daily actions really influence the companies impact on society and the environment. The more aware they are of the impact, the easier it will get for the bigger group of people to move forward. And for their engagement with suppliers, if they don't have the knowledge themselves, how are we expecting them to engage with their suppliers on that topic. Not going to happen by magic. It does need to have a strong basis of fundamental knowledge or information so they can act up on that.
How important is management commitment and top-down communication?
Very important, we see that more and more. The very first step is setting up a policy. So, a commitment for the company to act upon. If that commitment is not embodied by the management team, it does not have any strength. Management bodies need to be aware and fully committed. And a direct connection of their daily work towards those topics.
How important are costs for sustainability in general? More budgets coming?
Trend is positive to more budget. Depends on size of company or industry. The more advanced the market is, the more market pressure. Costs will be easier brought on the table. The more flexible the budgets are, the easier it will be for a company to invest. It makes a big difference when they start looking at it much more as an investment than as a cost. In the end, it does bring a lot of business to you, making things right, increasing satisfaction of the customer, supplier, all the stakeholders around it. That brings more business and income. So, companies that start changing the balance having this as investment rather than cost, that's where you see bigger changes happening faster.
Could certification be a cost-efficient method to improve sustainability?
Certificates in general quite costly. For smaller companies not always efficient. They might tick the boxes, but not worth to invest in certificate. Matter of perspective. Not always the solution. But it is something that can move you forward.
Could supplier collaboration be a cost-efficient method?
Don't know if it's better or worse. Definitely needed one. Supplier engagement is not an optional thing. Basic for all organisations to integrate. The better you engage and the more you can get out of that engagement, the better it is for your organisation. It's never going to be cheap, but it's always going to bring positive results. That created satisfaction so your collaboration will always be better. When you manage to bring your supply base forwards, that will have positive effects on your end product.
Are companies generally looking for cost savings through sustainability?
The trend is bigger organisations investing a lot and bringing technology into processes that makes things more automatic and reduces costs. Investing into sustainability is connected to reputation. Reputation is key for a company, especially those more exposed. Doing things right, having those standards met reduces the risk of reputational scandals and cuts cost on reputation.
Maybe the costs of actions will increase so better take action now?
The market is going towards there [sustainability]. The sooner you advance in that direction, the more you will keep your market share. If you're one of the innovators or early birds, that will always be positive.
Is it important to push suppliers to innovate for sustainability?
For sure, goes back to those sector initiatives. The more you bring the whole industry together into the direction, the better the outcome will be for everyone. Most of the times not a matter of willingness. [more lack of resources or other issues]
Outro

## Appendix O: Transcription Interview Expert 4 (EcoVadis)

Intro & disclaimer
What is the role of certification in sustainable purchasing?
We use certifications in order to assess suppliers, so it definitely plays a role.
Will the importance of certifications increase in the future?
Will still be playing a big role, not sure if it will increase, but will not decrease. We have more and more regulations coming, so probably increase.
Are more types and different certifications emerging?
To be honest, don't know.
What is the role of supplier engagement/collaborations to improve sustainability?
Supplier engagement is very important and actually key. Without supplier engagement, there is no way that they will be able to get to the level of knowledge that they need to improve. Definitely a very big topic. If you want to have a better overview of scope 3 emissions, you need to know what your suppliers are doing. You want them to share some metrics with you.
Will this increase or decrease in importance?
I think increasing, otherwise how can the supplier know what they need to know for you to be happy with them? When it comes to regulations, they're not really sure always.
How important is supplier satisfaction/customer status?
If you have a good relationship with suppliers and a strong message, I would say that's important. It would be easier if the supplier understands why you need information, and a good relationship would facilitate it. Depends a bit on the level of engagement of the company.
Will this increase or decrease in importance?
Don't know, always plays a role in business relationships. Sustainability will play a bigger role in supply chains in the future. For supplier satisfaction would say the same, it's always going to be important.
How important is it to train employees in general?
Like common sense to train employees, right when it comes to sustainability. It plays a role in building up a sustainable procurement program to have old employees trained and sustainability and not just the ones in procurement, but actually all of the company. We want to make sure that the relevant actors actually know what they have to do. Definitely very important.
How important is general awareness for sustainability among employees?
Think it's important but would not be my wish. What I think is more useful or more efficient is to have a strong sustainable procurement policy in places with KPIs related to performances of different employees to make sure that sustainability becomes a high priority topic for them. I've seen from a lot of buyers that sustainability is somewhat in their head, but unless they actually have very strong company targets pushing them or like specific KPIs related to sustainability, they do not prioritize it.
How important is commitment by management and top-down communication?
Super important. If you have a 'sponsor' with a strong message, that will be what you need in order for the program to be implemented. And the top management pushes it.
Therefore top-down communication is also important?
Yes
How important are costs for sustainability in general? More budgets available?
Depends on the company. Bigger companies get budget for sustainability, for smaller ones it's always a bit more difficult, they are struggling more. It's a matter of prioritization. It depends on if there is a crisis or not. We had a company few weeks ago struggling with the business, they said that sustainability was the least of their problems, needed to make sure the company was not going to fail. It's a change of mind we have to accompany. That sustainability is not an option anymore and you need to include sustainability within your procurement strategy. We're not at the moment where we should aim.

Change management is also important for that?
Yes, it's a big one, definitely. It's a shift in mind, and also a generational shift. You cannot ignore the topic sustainability anymore in 2023.
Could demanding certification be a good way to improve sustainability in scope 3?
That's definitely what companies are doing already. It's the first step actually for a status quo on where you are at, and certification proves that. You need the third-party verification to make sure that you know to understand where you are in your sustainability journey.
Could this method be cost-efficient?
Sure, if you want somebody to evaluate you that will cost you money. That's the case for all certifications in general. If you want to improve processes, you will need to pay for it.
Could supplier engagement/collaboration be a cost-efficient method?
It does cost a lot [time, effort, money], but it's worth it because if you don't engage with your suppliers, they don't know what you expect from them and how to change them, then you will never get the results you want. I don't know if it is cost-efficient, but there's no way around it. Then you can think about how to make it more efficient in the way that you want to communicate with your suppliers or how you might want them to take some trainings etc. There is no way around supplier engagement. It's not optional.
Is it also the case that if you don't act now, the costs will be higher in the future?
Yes, so you basically lose money by waiting. I'm not saying it is easy, don't get me wrong, it will cost a lot of time and energy and effort. I think in the end this is what is required. This is the way that we're moving in with all of the regulations, this is what's going to happen.
So, it is more a long-term investment in the market position of your company?
Yes
Are companies generally taking cost saving opportunities through sustainability?
Yes, for sure. Their own customers will actually ask for that. They can open up some new market opportunities if they actually focus on sustainability. The other thing is risk reduction. If you do some due diligence and you and your supply chain are actually really checking what suppliers are doing, you might save yourself costs in the future in case of an accident somewhere. If you did not check, you might be involved or responsible some way. Sure, there are some win-win situations if you invest in sustainability.
Are companies generally innovating for sustainability?
Don't know to be honest.
Should you push your suppliers to innovate for sustainability?
No opinion on innovation actually. Think it's important to push suppliers to work more on sustainability, not sure on innovation.
Any other remarks?
Companies need to prepare to comply with regulations that are coming. The sooner the start, the better.
Outro