

# Antecedents for Triple Bottom Line supplier development in the manufacturing industry

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## ABSTRACT,

*The last several years has seen an increase in the necessity for sustainability at the corporate level. Not only the economic impact of organizations should be considered, but also the social and environmental impacts. In addition to this not only should sustainability exist at the own organizational level, it should be extended to the entirety of the supply chain. The importance of sustainability is becoming more known, however what makes organizations decide to extend this sustainability towards its suppliers is less known. The purpose of this research is to get a clear understanding of the different types of antecedents that precede the decision for buying firms to sustainably develop their suppliers. In order to study these antecedents, five interviews were conducted with different types of manufacturing companies. The results gathered are in line with the already existing literature on the antecedents of sustainable supplier development, antecedents such as environmental awareness, leadership pressure, economic advantage, customer pressure, regulatory pressure and market dynamics were identified through the interviews. However there were also some barriers found to sustainable supplier development, namely that the buying firms are reluctant to implement it due to the increase of the firm's costs but also the lack of capabilities to implement advanced sustainable supplier development practices. The focus of future research should look to firms that actually collaborate with their suppliers to gain increased performances and actually measure the economic impact of the implementation of sustainable supplier development practices.*

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## Keywords

Triple bottom line, supplier development, supplier development antecedents, supplier development barriers, sustainable supplier development practices.

# 1. INTRODUCTION

For some time now there has been an increase in the interest in social and environmental issues, such as climate change and social inequality. This interest has not just been exclusive to the political landscape, but also on the corporate landscape. Consumer awareness has significantly increased and the consumers have been more critical in the way they view the companies they purchase from and the way these companies have an impact on an environmental and social level, this can be proven by the fact that consumers are more involved with environmental-caring activities and they are willing to pay more for products that environmentally friendly products or services (Leonidou et al., 2010). The reputation of firms that do not operate in a corporate responsible manner is at risk among consumers, as there is positive correlation between corporate responsibility activities (CSR) and the consumer trust and loyalty meaning that if a company does not engage in CSR activities consumers are less likely to trust and stay loyal to them (Stanaland et al., 2011). CSR is also strongly linked with the competitiveness of a firm, even more if a firm takes on a proactive strategy regarding CSR. This is because proactive firms have the capabilities to predict and react to possible future responsibilities and they will also be able to spread this amongst stakeholders and create a positive image of the firm regarding CSR activities (Marín et al., 2012).

Adding to that in today's competitive market there is a growing importance of corporate social responsibility activities amongst businesses, external stakeholders have been increasingly pressurizing companies to hold accountability regarding social and environmental issues created by the operations of the business (Porter & Kramer, 2006). Despite these increasing pressures from stakeholders, many companies and their managers have been faced with difficulties in implementing sustainability measures to tackle these issues. Difficulties arise when companies are confronted with the sheer amount of sustainability initiatives and the complexity of the current state of the global supply chain and cannot seem to find the strategy most applicable to their situation (Barbosa-Póvoa et al., 2018). For a company to be able to improve on their sustainability along their entire supply chain, it is of great importance that they work closely and collaborate with the stakeholders on sustainable practices (Gimenez & Tachizawa, 2012).

As mentioned above suppliers are very important for the operations of a buying company and also its performance. therefore it is important to align the suppliers in the same sustainability goals as the buying company. There is a positive correlation between the quality of the products/services of a supplier and the quality and the competitiveness of the buying firm (Kannan & Tan, 2002). Therefore if a supplying company does not operate in a sustainable manner, this means that the buying company will not be able to operate sustainably as well. With today's international markets, suppliers can be hundreds of organizations from all over the world, with these global supply chains there is also an increased complexity for the supply chain, due to the large number of global actors it is difficult to coordinate close collaborations with all of them (Lund-Thomsen & Lindgreen, 2014). For that reason, it is important to ensure access to information, and increased transparency to reduce confusion paired with these change processes and guide the entirety of the supply chain towards sustainability (Gardner et al., 2019). Thus it is important for buying companies to develop their suppliers, to make sure that suppliers operate in a sustainable desired manner and if not that, they are developed with help from the buying company, however if the supplier is not able to improve it might be better to make the strategic decision of

switching to a more compatible supplier to ensure a competitive supply base (Jain et al., 2019).

Supplier development can be defined as helping the supplying firm by improving its capabilities which results in the increase of the quality of its products and services (Wagner, 2006). The improvement of the capabilities serves the purpose of meeting both the short-term and the long-term needs of the buying firm (Krause, 1997). Even though it might seem that supplier development is only done to benefit the buying firm, it does also have positive effects for the supplying firm. Supplier development activities develop the skills of the supplying firm which subsequently improves its competitive advantage and increases mutual trust and the willingness to participate in future supplier development activities (Nagati & Rebolledo, 2013). It supports improving suppliers' sustainable outcomes by doing supplier development activities such as the training of employees, onsite visits to assist in the operations and setting up work teams which consist of employees of both the buying as the supplying firm (Krause et al., 1998). These activities give suppliers the possibilities and the capabilities to operate in the sustainable manner that the buying firm desires (Nagati & Rebolledo, 2013). However, it is not entirely clear why buying companies decide to implement supplier development for sustainability as can be read above buying firms do generally benefit from supplier development as it gives the supplying firm the capabilities to fulfill the needs of the buying firm, however on the other hand supplier development is a practice that is cost intensive and requires much time, effort and capital to complete these supplier development activities.

The rationale of the research is thus as follows, it is well known that there is a growing importance and interest in sustainable supply chain practices and the way environmental and social issues could be addressed whilst as a firm maintaining your competitiveness on the market. However there is still a gap in understanding the antecedents that drive these sustainable practices in the manufacturing industry, we want to investigate these antecedents and the results of the implementation of triple bottom supplier development so that we can paint a clear picture for firms that are actively trying to increase their sustainability in their supply chain.

The research objective is to identify all of the antecedents for sustainable supplier development that are currently present in the manufacturing industry. Adding to that we want to find out the certain conflicts that happen when a firm wants to switch to sustainable supplier development, such as trade-offs between economic results and sustainability. And finally we want to know what the effects of the implementation of sustainable supplier development is and if they have the desired effect on the environmental and social issues that are meant to be tackled.

The research question thus will be as follows,

*‘What are the antecedents for triple bottom supplier development in the manufacturing industry, and what are the barriers?’*

The research will have the following structure: the next chapter will contain a review of the existing literature regarding important concepts of the research namely, triple bottom line (TBL), supplier development and antecedents for sustainable supplier development. The third chapter of this research will contain the research methodology, which contains what type of research we will conduct, how the data will be collected and how this data will be analyzed. In the fourth chapter the results will be presented, which we collected by doing expert interviews. In the fifth chapter these results will be summarized and discussed how this research compares to the already existing research. Further on a conclusion will be given, as well as the theoretical

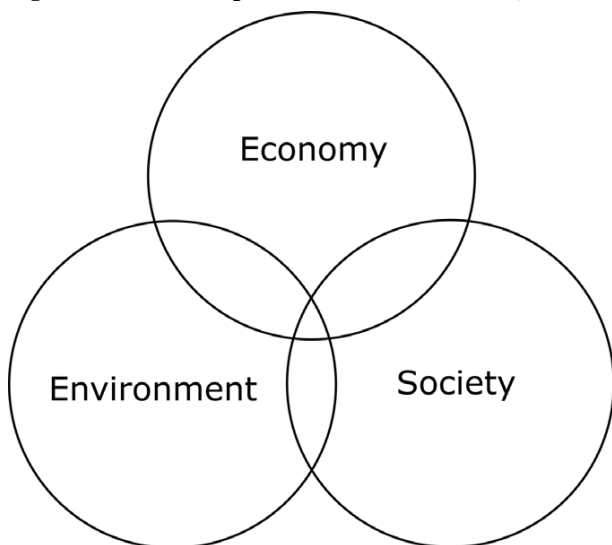
and practical implications of the research and how future research could move forward.

## 2. LITERATURE REVIEW

### 2.1 Triple Bottom Line (TBL)

Triple bottom line is an accounting framework that consist of three different aspects of corporate performance, apart from generally the most important performance, financial performance, it also incorporates environmental and social performance. These dimensions are generally called the three P's: people, planet and profit (Slaper & Hall, 2011). Triple Bottom Line (TBL) is centered around the fact that corporations should feel an increased responsibility to the impacts they have on their environment and their stakeholders. These responsibilities are much more intricate than just the economic aspects and makes sure that corporations are aware of the implications of their operations (Hubbard, 2009). However it is still difficult to measure the three aspects of the triple bottom line and actually finding out how sustainable an organization truly is (Slaper & Hall, 2011). One way to describe triple bottom line and sustainability is by the use of figure 1, the nested spheres model. In this model you can see the different aspects of bottom line, namely economy, environment and society. Where all three of the spheres overlap is which is commonly known as sustainability.

Figure 1. The nested spheres model (Sandhu et al., 2014)



What has thus been mentioned about triple bottom line makes it seem like it only has negative implications for corporations and increases their costs due to the addition of different types of accounting, however by adopting TBL corporations can increase their transparency and extend the information available to the public which can have a positive impact on their competitiveness (Arowoshegbe et al., 2016).

### 2.2 Supplier development

One of the aspects of triple bottom line was the consideration of all the stakeholders of the firm, one of the main stakeholders in a firm are the suppliers. The performance of manufacturing firms for instance is massively influenced by the performance of their suppliers and there is a crucial role for the purchasing function of a company to maintain a good performance (Watts & Hahn, 1993). This has made it so that manufacturers tend to work more

closely with their suppliers to ensure preferred performance. One of the ways to ensure supplier performance is supplier development. Supplier development helps suppliers increase their capabilities and operations, this can be done in several different manners, such as training of employees, financial incentives or investments (Jin et al., 2019).

Wagner (2006) divides supplier development in two main types of supplier development, namely direct and indirect supplier development. Direct supplier development involves the buying firm to have an active role and commit capital and other types of resources to the designated supplier. Examples of direct supplier development are educating or training employees, supplying certain equipment or even the transfer of employees from the buying firm to the supplier, which is a strategic approach of supplier development and requires buying firms to form long-term relationships with their suppliers (Krause et al., 1998). Indirect supplier development on the other hand requires hardly any investments from the buying firm, rather it develops the suppliers via practices such as the assessment of suppliers and providing them with feedback (Wagner, 2006). This is a reactive approach of supplier development and is used to mitigate the risks suppliers pose for the performances of the buying firm (Krause et al., 1998). Krause et al. (1998) also mention that the reactive approach generally precedes the strategic approach but that the two approaches could also be used at the same time. Even though supplier evaluation is a type of supplier development in itself, the usage of it can trigger a more complicated strategic supplier development process. Suppliers are generally evaluated on their capabilities regarding technology, quality, delivery and costs and it is important to know if the weaknesses of these capabilities are related to the product, the process or the operating systems. Based on the results the next step is to implement the necessary supplier development programs and evaluate the results after implementation, and finally make the decision whether to keep doing business with the supplier or make the switch (Hahn et al., 1990). The manner in which buying companies make efforts to develop their supplier also has its effects on the success of supplier development. The exchange of information, ways of communicating, frequency of communication and generally higher involvement of the buying firm have a positive effect on the success of supplier development (Krause & Ellram, 1997). It is important for buying companies to be able to express that there are shared values and goals and that the alignment of these values and goals with the supplier is important for the performance of supplier development practices. The communication of these values and goals can be done more effectively and accurately in face-to-face interactions (Krause et al., 2007).

In line with Wagner (2006) and Krause et al. (1998), Vachon and Klassen (2006) make two distinctions in the type of green supply chain practices, environmental monitoring and environmental collaboration. Environmental monitoring focuses on the way in which suppliers operate according to certain standards or certifications, following regulations regarding things such as CO2 emissions or the usage of certain banned materials and having the proper documentation regarding environmental issues, this type of approach is typically deemed more reactionary and less cost intensive (Vachon & Klassen, 2006). On the contrary there is environmental collaboration which typically requires a more close relationship between the supplier and buyer, this cooperation to tackle environmental issues generally requires the buying firm to allocate some of its resources to the supplier which is more cost intensive however the benefits that a buying firm can get from these green supply chain practices is more significant (Vachon & Klassen, 2006).

These two different types of green supply chain practices are also mentioned by Sancha et al. (2019) al, they define environmental monitoring as indirect sustainable supplier development and environmental collaboration as direct sustainable supplier development. They support the motion that indirect sustainable supplier development is indeed less costly than direct sustainable supplier development, however depending on the objectives of the buying firm there is big implications for the supplier. If the buying firm wants to show its customers it behaves sustainably along the entirety of the supply chain but wants to keep costs low, it will choose indirect sustainable supplier development as most of the costs in this type of supplier development are for the suppliers and negatively impacts their economic performance (Sancha et al., 2019). On the contrary, if the buying company does actually want to make a sustainable change in the supply chain it would be best for them to take on direct supplier development practices, which is beneficial for the performance of both the supplier and the buying company (Sancha et al., 2019).

However we have also to take into consideration the stage in which the buyer-supplier relationship is. Wagner (2011) argues that the effectiveness of direct supplier development is dependent on the buyer-supplier relationship, in established buyer-supplier relationships the impact of the supplier development practices is the largest for the buying firm. In contrast if direct supplier development practices were to be implemented in new or old relationships, it would negatively affect the effectiveness and it would be more wise to implement indirect supplier development practices (Wagner, 2011).

Supplier development has several outcomes for the supplying firm, it increases the performance of the supplying firm in different aspects such as lead times, quality and the amount of on time deliveries which are all positive for the buying firm (Nagati & Rebolledo, 2013). Added to this supplying firms' costs were reduced after supplier development. Generally there are positive impacts for both firms after the implementation of supplier development, and the relationship and trust that is shared between the firms becomes even greater too (Krause, 1997). However we should not only consider the outcomes of regular supplier development, but also the outcomes of sustainable supplier development. Simple indirect supplier development can give suppliers insights as to how sustainable improvements can be made, Locke et al. (2009) even mentions that there is a role for auditors rather than merely evaluating the sustainability performances of the suppliers, auditors are helping factory managers understand the importance of sustainability and helping them comply. Especially the social aspects of TBL, such as creating safe working environments and ensuring that factory workers do not work overtime can be improved in this manner (Locke et al., 2009). Next to the social aspects of TBL, sustainable supplier development also has its effects on environmental performances, buying firms can motivate suppliers to rethink their environmental impact and make changes in the manufacturing processes or even require certain environmental management systems. These changes impact environmental aspects such as the efficient use of energy and resources and help the suppliers to be more sustainable (Lee & Klassen, 2008).

## **2.3 Antecedents for TBL Supplier Development**

As mentioned above, one of the reasons for buying firms to use supplier development is when one of their suppliers has a negative impact on the buying corporation's operations, such as

insufficient qualities of the supplied product or service. This underperformance could mean that the buying firm decides to develop the underperforming supplier and therefore could be antecedent for the supplier development. Other antecedents for supplier development could come from within the firm itself but also from the environment of the firm. We divide the antecedents into two parts, internal and external.

### *2.3.1 Internal antecedents*

#### *2.3.1.1 Cost reduction*

Attending to environmental issues does not only help the planet, however it can also reduce the costs of a company and thus its profitability. One way of increasing the company's economic performance is done in cooperation with your suppliers, namely the implementation of sustainable activities such as the reduction of waste, energy and other resources (Bansal & Roth, 2000). These sustainability activities can decrease the input needed for production and thus lower the costs and thus the price of a supplier's product, which can result in the increase of profitability for a buying company (Green et al., 1996). The desire to reduce costs is an internal antecedent, as this precedes the decision to implement sustainable supplier development.

#### *2.3.1.2 Top Management*

Top management can also influence the decision to implement sustainable supplier development, in fact top management decisions are needed to be able to implement direct sustainable supplier development practices (Blome et al., 2014). If the top management values the purchasing function of the firm as a competitive factor, the buying firm is more likely to engage in supplier development (Krause, 1999). The size of the top management team does also influence the decision-making regarding sustainability practices in the supply chain, according to Tacheva et al. (2020) the size of the top management team is relevant because the more roles, the more knowledge a company has available to be able to tackle sustainability along its supply chain. However in contrast to this notion that top management themselves decide to implement sustainable supplier development practices by themselves, they do generally need the support of governments as well (Ilyas et al., 2020).

#### *2.3.1.3 Environmental Awareness*

Whereas top management perhaps partly decides to implement sustainable supplier development practices because of its strategic values, there is also a case to be made that the environmental awareness of top and middle management can drive the company to be more sustainable. Gadenne et al. (2009) found that there is a positive correlation between environmental awareness of managers of small-medium enterprises and the implementation of environmental practices. It is important for companies to have a certain level of environmental awareness amongst its employees for them to be able to properly implement sustainable supplier development practices and reap the benefits that come with it (Perron et al., 2006).

#### *2.3.1.4 Internal Resources*

In order for buying companies to be able to implement sustainable supplier development practices it requires certain capabilities to do so. According to Paulraj (2011), an organization needs a certain set of capabilities in the form of skills and knowledge which are valuable and inimitable to be able to properly implement sustainable supply chain practices and through the cooperation with its suppliers a buying company will be able to gain even more capabilities and gain specific resources. These unique capabilities can ensure that buying firms

are protected from the threat of their competitors (Gold et al., 2010).

### 2.3.2 External antecedents

#### 2.3.2.1 Competitiveness

However, there also ways other ways of increasing your competitiveness, by showing to your stakeholders that you engage in environmental activities, customers can be more inclined to do business with your company rather than competitors and thus environmental activities can boost sales (Ellen et al., 2006; Walker et al., 2008).

#### 2.3.2.2 Customer Pressure

So sustainable supplier development practices can imply that potential customers are more likely to do business with your company rather than your competitors. However how about the current customers, well the current customers are also of big influence whether a firm implements sustainable supply chain practices as well. The pressure from customers drives manufacturing firms to develop sustainable practices in their own organization but also extend them to their suppliers (Laari et al., 2016). With customers doing environmental audits and requiring companies to have certain environmental standards, these companies will have to do the same for their suppliers to keep their customers happy and keep doing business with them (Chavez et al., 2016).

#### 2.3.2.3 Regulatory Pressure

Governments have the power to make organizations comply with a certain set of rules and regulations. These rules and regulations are also put in place to make companies behave more sustainable. According to Darnall et al. (2019) regulatory policies do indeed encourage the implementation of sustainable supplier development, however this could be done because of two reasons. Firstly companies can be inclined to develop sustainable supply chains because they fear that they will be imposed with penalties or other sanctions that would have negative effects on their profitability. Secondly companies can be inclined to do further sustainable supplier development in order to anticipate further restrictions and position themselves better in the market (Darnall et al., 2019). Governments generally have great power compared to companies and therefore buying firms are more likely to undertake sustainable supplier development practices if its required by the government (Dai et al., 2021).

#### 2.3.2.4 Societal Pressure

Apart from governments and customers with which buying firms have to deal with on a day-to-day basis, there are also other stakeholders which do not necessarily deal with these buying firms however they do exert pressure to behave sustainably. These stakeholders are the public or non-governmental organizations which have a large influence on the public opinion of a company (Meixell & Luoma, 2015). Purchasing managers are aware of the impact that public opinion has on their reputation and therefore can be inclined to implement sustainable supplier development practices to ensure that they avoid reputational damage (Reuter et al., 2012).

#### 2.3.2.5 Supplier capabilities

Finally, an antecedent for supplier development could be when a supplying firm who has specific capabilities has too high costs and there is not a capable supplier to switch to. The decision to develop rather than switch suppliers could also mean that high switching costs will not have to be made (Friedl & Wagner, 2012).

## 3. METHODOLOGY

### 3.1 Research design

A case study is a form of research where the most important part is to find out why a certain decision was made and what the result of this decision was. Case studies are the best option if the research question contains a why or how question, if the research has no influence on the events its studies and if the research is set in the present. A case that is studied can be all kinds of things such as individuals, organizations and events (Yin, 2018). In this research we want to study what the antecedents are for manufacturing firms to develop their suppliers regarding triple bottom line practices. So why do the buying firms apply triple bottom line supplier development, adding to that the events/the decisions that we want to study have not been influenced by the research and the study is set in the present.

Case study and qualitative research are closely linked together, both have an interpretive framework which has subjective experiences and its influences on individuals and organizations at the center of it. Case studies are thus generally qualitative in its nature (Starman, 2013). In case study there could be multiple cases that are chosen because of certain qualities or characteristics and these cases will be explored for certain variables and experiences in a certain situation. Key informant interviews are often used which can be structured and unstructured but generally all questions are open-ended, it is important for the interviewer to lead the interview and make sure that the structure is followed if there is one (Sofaer, 1999).

The literature available gives us a slight insight into the already known antecedents for using triple bottom line supplier development, with this knowledge and wanting to explore new angles we will ask organizations and its employees open-ended questions to get the most out of the questions. The type of interviews that will be used are semi-structured interviews, semi-structured interviews are often used in qualitative interviews because it contains open-ended questions based on the subject that the researcher wants to know more about. The fact that the questions are open-ended helps clarify the subject of the research while also giving the interviewer and the respondent the chance to go into more detail on certain subjects (Hancock et al., 2001).

### 3.2 Case selection

The criteria for the organization's selection is firstly that they are indeed involved in using supplier development, otherwise we cannot receive the answers to the questions we want to ask. Secondly the organization has to operate in the industry that we want to research, which broadly is the manufacturing industry, simply put these are organizations that purchase products from external suppliers to manufacture their own products, preferably these organizations have to be business-to-business organizations, meaning that they sell to other organizations rather than to consumers. The criteria for the interviewees is that within the organizations they work with, they represent a function which is involved on a daily basis with the suppliers of the organization. Such as purchasing managers, supplier relationship managers or supply chain managers or they are involved with monitoring the sustainability performances of a company such as a QHSE manager. They have to have the technical knowledge of the different kinds of supplier development, and should be able to argue why certain decisions have been made and the effects of these decisions.

In Table 1 we can see the different anonymized companies that were interviewed, the functions of the different interviewees, the business type, company size and the industry that the

company mainly operates in. This gives us a clearer picture of the characteristics of the different companies.

**Table 1: Selected cases**

Case	Function of interviewee	Business type	Company size (employees)	Industry
C1	Purchasing manager	B2B	117	Automotive
C2	QHSE manager	B2B	65	Chemical
C3	Purchasing manager	B2B	150	Sanitary
C4	Purchasing manager	B2B	600	Automotive
C5	Purchasing manager	B2B	220	Marine

### 3.3 Interview structure

As mentioned earlier the interviews were conducted in a semi-structured manner, this is done because this gives clarity on the subject and makes it easier to guide the interview whilst still being able to go into further detail if the interviewee gives interesting answers. For the interview we made a questionnaire to help us guide the interview in a logical manner. Each of the interviewees were asked the same questions in order to ensure there was no variety in that case.

Before the interview the participants were informed with the goals of the research and what type of questions they could expect. Apart from the information on the subject, all of the participants were asked to give written approval for the participation of the interview. They were informed regarding the ethical principles of the University of Twente and were ensured that the results of the interviews would be presented anonymously. Therefore the participants and their companies are anonymized and will be referred to in the results in the following manner, namely C1, C2, C3, C4 and C5.

Each interview started with a short introduction about the company the interviewees work at, the function they represent within that company and how far the company is sustainable and which sustainable programs it has already implemented. Then the next part of the interview contained questions regarding the suppliers of the buying firms and the role and characteristics of these suppliers. Adding to that it was asked what types of supplier development practices they have and what types of sustainable supplier development practices they have implemented. The next part of the interview the participants were asked what motivated the company to implement these sustainable supplier development practices, both internally and externally and what were barriers to it.

### 3.4 Data analysis

The interviews will be conducted online via Microsoft Teams, these interviews will be recorded and at the same time transcribed by the program. The transcription function of Microsoft teams however is not fool proof and therefore the transcripts will have to be proofread and corrected if needed. After we have the full transcripts of all the interviews, the next step is to code the transcript, this will be done manually via Microsoft Word.

The coding process can be done in two different ways, firstly deductive coding which is coding based on the existing theories of the subject. Secondly inductive coding will be used which is the process of coding without having presets (Gale et al., 2013). We will use coding to analyze the transcription and thus the sentences said by the interviewees to create certain categories. Different categories will be assigned by different color schemes

to give a clear overview of the all the results. These results will be used in the next section of the research to be able to present the findings of the interviews.

## 4. RESULTS

### 4.1 Sustainability at the firm

To get a greater understanding of the firms and how far they take sustainability in their own firm we asked the firms how sustainable they are. All of the firms mentioned that they try to make their own company sustainable in all different kinds of ways. The main way of increasing sustainability amongst all of the firms was the usage of green energy, multiple companies mentioned they had installed solar panels in the last several years, to decrease the usage of fossil fuels in the process of manufacturing their products. Another example of energy-saving activities were the installation of LED lighting, the usage of electric vehicles and the insulation of the companies' buildings. Company 3 was even more resourceful in the making energy more sustainable, they mentioned the following:

*‘‘We have been using the heat that is released during the production process and have designed a way to capture that heat and use it to warm the building during the winter.’’*

Mentioned above are mostly the environmental practices that the several companies have implemented, on the social aspect less detail was given. All of the companies ensured that their employees are able to do their job safely and health risks were mitigated, but also monitoring mental health was deemed important.

Generally none of the companies were of the opinion that sustainability was the most important part of the company, however they were aware of the impact that they have environmentally and socially. Also they recognized that sustainability is becoming more and more important and that ensuring sustainability can also be of strategic importance for them.

### 4.2 Relations to suppliers

The manner in which companies behave sustainably can give us an insight into whether they are likely to extend this amongst their stakeholders and in our case along the supply chain. However it also important to know what the relationship is between the supplying companies and the buying companies. How important are the suppliers for the buying companies and does this influence the decision to develop the suppliers.

In the interviews we asked if the companies differentiate between their suppliers and how important suppliers were to their company. All of the companies made it very clear that they do differentiate between their suppliers, with the main argument being that the strategic value of suppliers is very different. Strategic value could be differentiated because of multiple reasons, the main one being that the product that the suppliers delivers for the buying company. Because of the fact that all of the firms were manufacturing firms one of the most important products that were supplied were raw materials. Suppliers of raw materials however do not add as much value to the product they supply and therefore they are more easily replaced if they do not meet certain requirements set by the buying company.

One exception of this case was C2 as they work with a material that is only supplied by a small group of companies, therefore they do not have the luxury of switching as easily as possible. However because the company has niche capabilities and also buys quite large quantities of this material, losing this customer would have great impacts on the supplier as well. In this case the relationship between both companies is more mutually beneficial. Apart from the raw materials, the interviewed

companies also buy products which have more unique capabilities and are not as easily replaced if requirements are not met, in this case the buying companies mentioned that they develop a more close relationship with the supplier because of its strategic value. The purchasing manager of C5 even mentioned the following regarding the management of supplier relationships:

*“We manage our suppliers based on the Kraljic Matrix and differentiate our suppliers and put them into different categories such as routine, bottleneck, leverage and strategic. If a supplier falls into the strategic category we strive a partnership, if a supplier falls into the routine category we manage them based on performances regarding quality, price and sustainability.”*

The interviewed companies recognize the great importance of suppliers as they can have large effects on quality, lead times and other factors and know that suppliers are essential for their own companies. However not every supplier is as important as the other and therefore it is important to treat the suppliers based on their value to the buying companies.

### 4.3 Sustainable supplier development practices

As mentioned above the relationship between suppliers and buying companies is an important factor as to how the buying firm manages these suppliers. The interviewed companies are also aware of the increasing importance of sustainability. Just as it is important for companies to behave sustainably, it is also important to make sure that sustainability is extended along the entirety of the supply chain. Thus we asked how do buying firms ensure that their suppliers are behaving sustainably and what kind of sustainable supplier development practices have they implemented. We make distinctions between indirect and direct sustainable supplier development practices. The most common type of sustainable supplier development practice that was used by all of the interviewed companies is the remote evaluation of the suppliers' performance regarding sustainability. This type of supplier development is regarded as an indirect type of supplier development. All of the companies evaluate the performances of the suppliers on different kinds of factors, such as quality, price and thus sustainability. The purchasing manager of C1 mentioned the following regarding supplier evaluation:

*“Each year we evaluate our suppliers on their quality, price, delivery reliability and sustainability. If they have an ISO 14001, which is a standard that shows that you as a company comply certain sustainability rules, we give a higher rating to the supplier. But also other sustainability practices outside the ISO 14001 can increase the score of a supplier.”*

The scores that are given by the companies ultimately decide whether they are willing to continue doing business with the supplier. Too low of a score means no more business, this way of evaluating your suppliers encourages them to behave in the way desirable for your company.

Apart from the indirect sustainable supplier development practice mentioned above, two companies mentioned the usage of direct supplier development practices. Firstly C1 has implemented a cooperation with the suppliers in which they collect the raw materials waste from their own manufacturing processes and deliver them back to their suppliers to create a more circular production process. This circular process means that the supplying firms needs less new raw materials for their input and thus has positive environmental effects.

Added to this C3 recently made their yearly visit to one of their suppliers in China, to take a closer look at the factory and the circumstances there. By going there they could see with their own eyes what the working conditions for the employees were

like and make sure that there is no child labor. The following was mentioned by the purchasing manager of C3:

*“We went to China to visit our suppliers to ensure they follow the sustainable requirements we set them and specifically the social aspects such as employees' health and rights. At the same time IKEA employees were doing their evaluation as well, but even more detailed and monthly.”*

As mentioned in the quote a large multinational such as IKEA does the same type of supplier development, however even more intense and more frequently. This could be an example that the larger multinationals are more capable of more intense supplier development than the type of companies that were interviewed in this research.

Table 2 gives us an overview of the results whether the interviewed companies behave sustainably in their own firm, whether they differentiate between their suppliers and what type of sustainable supplier development practice they have implemented.

**Table 2: Buying firms' sustainability, supplier relationships and sustainable supplier development types**

	RESPONDENTS				
	C1	C2	C3	C4	C5
<b>Sustainability activities at own firm</b>	X	X	X	X	X
<b>Defines supplier relationships</b>	X	X	X	X	X
<b>Indirect Sustainable supplier development</b>	X	X	X	X	X
<b>Direct Sustainable supplier development</b>	X		X		X

### 4.4 Sustainable supplier development antecedents

There are several reasons why companies would make use of sustainable supplier development practices, however it is not quite clear what the actual antecedents are. Therefore the interviewed companies were asked about the influences for the decision to develop their suppliers. We make two distinctions between the types of antecedents, namely internal and external antecedents. Internal antecedents are the ones that come from within the company and the external antecedents are the ones that come from outside the company.

#### 4.4.1 Internal antecedents

One of the internal antecedents that was mentioned by all of the companies was environmental awareness, all of the interviewees mentioned that they themselves and other employees at the company recognize the environmental impact they have and feel an increased responsibility to mitigate the environmental impact. They also recognize that this mindset does not stop at their own firm, but that their suppliers also have a great impact on the environment. The purchasing manager of C1 said the following on:

*“Sustainability is something that is worldwide and it is important that it lands at different companies, we are negatively affecting the climate and the world is slowly going to hell.”*

Environmental awareness is not the only internal antecedent found at the interviewed companies. It also mentioned by

interviewees that there is internal pressures from leadership in the company or the company's group. 4 out of the 5 companies are a part of a bigger corporation and therefore are deemed to behave as the overarching corporation desires. 3 of the 4 companies mentioned that extending sustainability along their supply chain is desired by their overarching corporation. They simply have to align themselves with the sustainability goals of the overarching corporation. However the remaining company, C4 is part of a global corporation that is established in the United States and their purchasing manager said the following about leadership influence:

*"Being part of an American corporation means that even though sustainability is seen as important, the short-term focus is on making money."*

So leadership influence from overarching corporations can steer companies towards a more sustainable supply chain, however in one case sustainability becomes a little less important if it affects short-term financial results. In this case it seems that the geographical location of the overarching corporation has an impact on the way sustainability is seen. Finally C2 does not have an overarching corporation and its requirements to follow, however their top management also values the increased sustainability of the supply chain and encourages it. They also think it is best to already make changes before it is required, rather than wait and face the consequences later.

The final internal antecedent found for sustainable supplier development was economic advantage, only one company mentioned that the motivation for the implementation of a sustainable development practice was economic advantage. This economic advantage came in the form of the cutting of costs, by working with the supplier to return the raw materials waste produced by the manufacturing process. As a result C1 was able to negotiate a lower price and save money down the line. The following was said about the process by their purchasing manager:

*"Recycling has many benefits, the motivation for implementing recycling however is not only sustainability, but it also has to make sense commercially."*

#### 4.4.2 External antecedents

The external antecedent for sustainable supplier development that was found in all of the interviews was Customers pressure, all of the companies mentioned that they were experiencing an increase in demand and pressure from customers to ensure a sustainable supply chain. As all of the companies that were interviewed were business-to-business company, most of their customers were large corporations and or governmental organizations. These customers are under even greater pressure from the government or NGO's to behave sustainably because of their size. The purchasing manager of C3 said the following about this.

*"The EU obliges large companies to become more sustainable and these companies are our customers and therefore they extend this obligation to behave sustainably down to us as well"* And *"We also deliver a lot to the project market and they work closely with municipalities who also require products used in the projects to be sustainable from the starting point in the supply chain."*

Not only do the existing customers drive the interviewed companies to sustainably develop their suppliers, new customers can also be acquired by differentiating in ways such as sustainability. 3 out of the 5 interviewed companies mentioned that the implementation of sustainability can give them advantages compared to their competitors and can make it more likely that potential buyers purchase from them rather than

competitors. The antecedent in this case is Market Dynamics. The following was said about Market Dynamics influencing the decision to extend sustainability across the supply chain by the purchasing manager of C1.

*"If a potential customer of ours evaluates us and we and our competitor score equally on aspects such as quality, price, etc. then operating sustainably and having sustainable suppliers can be decisive to the potential customer do to business with us rather than our competitor."*

The final external antecedent found in the interviews, was the influence of the regulatory environment of the companies. As said above the EU already obliges large companies to behave more sustainably, however the EU is starting to extend this to smaller companies as well. Several ways in which the regulatory environment is influencing the interviewed companies to behave more sustainable, are legislation, the necessity for Life Cycle Assessment (LCA) as mentioned by the purchasing manager of C4.

*"Per product that we sell, we need to know what parts that product was made of, and for every part of the product we need to know its origin, how its made and how much CO2 was emitted in its production."*

The LCA gives companies an insight into the environmental impact of the product and can make sustainability improvements on the basis of this LCA.

Another type of regulation regarding sustainability that was mentioned is the mandatory corporate social responsibility directive that was implemented by the EU, making companies report on the impact of its activities on the environment and society. Through this directive companies can reflect on their sustainable performances and make improvements to these performances.

**Table 3: Found antecedents of sustainable supplier development**

Antecedents for sustainable supplier development	RESPONDENTS				
	C1	C2	C3	C4	C5
Environmental awareness	X	X	X		X
Leadership pressure	X	X	X		X
Economic advantage	X				
Customer pressure	X	X	X	X	X
Market dynamics	X		X		X
Regulatory environment	X	X	X	X	X

#### 4.5 Supplier development barriers

Apart from the antecedents we also found some barriers to sustainable supplier development. The main barrier that was mentioned by all of the interviewed companies was the costs that were related to sustainable supplier development. All of the companies know the strategic value of sustainability however they are still hesitant to do major investments and partner up with their suppliers because of the large costs involved. Costs made



for sustainability activities at the own firm gives its advantages by reducing the amount of energy for example costs can be cut. However doing this at suppliers does not give such immediate benefits. The main concern that was mentioned by C2 and C4 is that if they would invest more money towards the suppliers, their costs would also significantly increase which can have negative impacts on their profit but also it could make them less attractive for potential customers. The QHSE manager of C2 said the following regarding the implementation of a recycling partnership with its suppliers.

*“We have looked at implementing processes to repurpose our waste and mutate it back to raw materials, however this is not viable economically.”*

This covers the negative effects that sustainability can have on the profitability of a company, the negative effect on the market position can be told by the following quote of the purchasing manager of C4.

*“Our customers are giving us certain requirements to comply with regarding sustainability in the supply chain, however they are not willing to pay for it. The increasing price of our product and consequently the increasing price gap between us and countries such as China or India results in the fact that these customers will make the switch.”*

Another barrier that was mentioned by company C3 was simply the lack of capacity, they were not unwilling to implement sustainable supplier development practices however due to being understaffed they can not tackle the sustainability issues in the supply chain with the urgency they would like. They simply do not have the human resources that are necessary to be able adopt as fast as possible.

## 5. DISCUSSION

The aim of this paper was to find out what the antecedents were for Dutch manufacturing firms to develop their suppliers on a sustainable level. Following the aim of this research, the research question was as follows:

*“What are the antecedents for triple bottom supplier development in the manufacturing industry, and what are the barriers?”*

Through conducting interviews with experts in the field we were able to identify a certain set of antecedents and what withheld the companies from implementing sustainable supplier development. First and foremost however it was researched in what way the companies have implemented sustainable practices themselves, it was found that all of the interviewed companies have implemented some type of sustainability practices, with most being projects to reduce the amount of energy which was being used at the factory, or the usage of green energy. Further it was researched how the buying firms define the relationship between them and the suppliers, with all interviewed companies mentioning that they make distinctions between their suppliers based on the strategic value of them to the buying firm. The fact that all companies had sustainable practices and valued their suppliers differently was not an indication for the type of sustainable supplier development practices however. All of the companies were involved with indirect supplier development, however only three of them actually paired indirect with direct supplier development practices. The reason for this difference can perhaps be explained by what influenced these buying firms to start with, the most influential antecedents that were found were customer pressure and regulatory pressures., both external antecedents. Not following regulations and losing customers are both detrimental for the economic performances of the firm, this is in line with Darnall et al. (2019) who mentions that companies are inclined to implement sustainable supplier development

practices in order to avoid penalties, the customer pressure is supported by Chavez et al. (2016) who mention that the implementation is done to keep customers satisfied. It seems that the buying firms at the basis use indirect sustainable supplier development to comply with the requirements of the government and its customers however are reluctant to implement direct sustainable supplier development because of its costs, this is also supported by Sancha et al. (2019) who imply that firms that only use indirect sustainable supplier development practices want to look sustainable without the costs involved. The internal antecedents, environmental awareness and leadership pressure were not as strong to make buying firms implement sustainable supplier development practices however they were of great importance to make sure the process ran smoothly. This is in line with the literature, which says that environmental awareness is important to properly implement sustainable supplier development practices (Perron et al., 2006). Regarding top management support Ilyas et al. (2020) mention that top management generally does not make the decision but rather that they are pushed by for instance legislation, which is in line with our results.

Another takeaway of the research was that all the buying firms that had implemented direct sustainable supplier development practices all of them mentioned that market dynamics were an antecedent for this decision. These companies recognized that with the implementation of direct sustainable supplier development practices they could gain a competitive advantage compared to their competitors and therefore thought that potential customers were more likely to do business with them. Literature mentions the same, namely that if you as a company show your entire supply chain is sustainable, they are more likely to do business with you (Ellen et al., 2006; Walker et al., 2008). Finally the economic advantage antecedent was only found at one company, this company knew that the implementation of a specific sustainable supplier development practice, namely recycling the waste back to their suppliers meant that they could negotiate a lower price. The strength of this antecedent thus can be seen as lower, however it is line with Green et al. (1996) who also mention that sustainability practices at the supplier can decrease the inputs and thus decrease the price.

In contrary to the antecedents there were also some barriers to sustainable supplier development. Where one company managed to reduce their costs, two other companies backed down from direct sustainable supplier development because they thought that the increased costs would implicate that they were less attractive for their customers. This view is in line with Watts and Hahn (1993) who mention that most buying firms still lay their focus on current costs rather than future costs. Another barrier was simply the lack of resources and capabilities to be able to implement the supplier development practices, this is in line with research from Paulraj (2011) who mentions that for companies to be able to implement sustainable supplier development they need a certain set of skills and knowledge.

We can conclude from the research that the antecedents for implementation and the barriers against implementation have an impact on the type of sustainable supplier development. Buying firms that merely see the increased costs are reluctant to implement direct sustainable supplier development practices whereas buying firms that see the potential future improvements are more likely to implement direct sustainable supplier development practices.

### 5.1 Theoretical implications

The aim of this research was to identify the antecedents which are present at manufacturing firms from the Netherlands if they decide to implement sustainable supplier development practices.

This research builds on the already existing research on antecedents of sustainable supplier development, the antecedents that we found were already recognized in research. However due to the nature of the case study we were able to ask the experts themselves how they viewed sustainability and the extension to their suppliers. This gives some different insights than the prior research, multiple interviewees mentioned that they thought that sustainability was becoming some kind of constraint on the company rather than it moves the company forward. It is apparent that the costs that are paired with sustainability still are a barrier to further sustainability practices and it could motivate researchers to find out what the balance is between sustainability and profitability and how the experts think what the role of sustainability should be moving forward.

## 5.2 Practical implications

Besides the theoretical implications, this research also has some practical implications for buying firms, policymakers and other stakeholders that are generally involved in supply chain management to enhance the supply chain on the aspects of sustainability.

By identifying the key antecedents for sustainable supplier development such as environmental awareness, leadership pressure, economic advantage, customer pressure, market dynamics and the regulatory pressure buying firms should be able to make better strategic decisions regarding sustainability practices in cooperation with their suppliers. Managers can recognize the moment that they need to adapt more clearly and can increase their overall performances, but most importantly their sustainability performances. It is also important that buying firms recognize which type of sustainable supplier development is more catered to their needs, whether that is short-term or long-term.

But also policy makers can use the research to ensure a more sustainable supply chain, from the research we can conclude that regulatory pressures are effective in making the supply chain more sustainable. However not only making buying firms operate according to certain regulations can be effective, also offering subsidies for certain sustainable practices can reduce the overall costs of these practices and make buying firms more inclined to implement them.

## 5.3 Limitations

There are several limitations to this research, the first being the small sample size. Due to the large difficulty of being able to find ten interviewees that matched the desired requirements we only managed to get 5 interviewees. The small sample size limits the significance of the data and results in a limited generalizability and therefore the results may not be as applicable to different contexts.

Other limitations to the research could be that the research focuses merely on Dutch manufacturing firms, meaning that there were no differences on the geographical factors that could impact the research such as regulations and culture.

Finally due to the fact that the data of this research was collected via open-ended questionnaires it might be that the respondents gave answers that they deemed were desirable rather than they give an honest insight into the company.

## 5.4 Future research

For the future research it might be interesting to merely interview companies that fit with different requirements than this research. For instance, rather than interviewing companies that have direct and or indirect supplier development practices in place. It could be valuable to merely interview companies with direct supplier

development practices, as these require larger investments. The difference in supplier development practice could mean a different set of antecedents related to the decision, but also the type of relationship with the supplier and the outcomes of the implementation. Especially the outcomes could be interesting to research, whilst most research mentions increased competitiveness as a result of implementing sustainable practices in cooperation with suppliers, this increased competitiveness is hardly ever measured. It could be valuable to measure the differences in economic value before and after implementation, and see whether the sustainable supplier development practices actually benefits the company financially as this is till a major driver for businesses.

## 6. ACKNOWLEDGMENTS

I would like to express my appreciation for my supervisor Dr. C. Belotti Pedrosa for overseeing the research, providing me with feedback and organizing sessions to guide me and my fellow students from the circle through the different parts of the thesis. I would also like to express my appreciation to the participants of the interviews, for agreeing to be interviewed and making time in their busy schedules.

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