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The effect of sustainable supply chain management factors on preferred customers status outcomes.

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Abstract

The concept of sustainability and more specifically sustainable supply chain management has gained increasing awareness among firms and society. The purchasing function can significantly affect corporate performance along environmental dimensions. Purchasing and supply chain professionals are in an exceptional position to impact sustainability practices. Yet, there is still the belief among some practitioners that sustainability will only be an added cost and benefits do not weight up to this cost.

This study tries to explore whether there could be unknown benefits of SSCM factors. The factors that are considered are sustainable supply chain collaboration and the sustainability image of the buyer perceived by the supplier. Additionally, the moral sustainability motive of the supplier will be examined as a moderating variable. The benefits that are chosen from this study come from 'preferred customer status' theory. Current literature about preferred customer status does not consider whether sustainable supply chain management and more specifically collaboration could be an antecedent of the preferred customer status benefits. A firm that has preferred customer status at its supplier, enjoys benefits such as preferential resource allocation and benevolent pricing.

The empirical quantitative data is collected from 91 suppliers of a company operating in a high-tech machines industry based in the Netherlands. This study uses partial least square structural equation modelling to examine the influence of sustainable supply chain collaboration, the sustainability image of a buyer and the moral sustainability motivation of a supplier on preferential resource allocation of physical and innovational products and benevolent pricing.

The analysis and results show that sustainable supply collaboration has a positive effect on preferential resource allocation of both physical and innovation products, but not on benevolent pricing. The sustainability image of the buyer did not have a positive impact on benefits of being a preferred customer. The moral sustainability motive of a supplier had a strong significant effect on sustainable supply chain collaboration and moderated the effect between sustainable supply chain collaboration and allocation of innovation resources.

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Index of abbreviations

AVE	Average variance extracted
CR	Composite reliability
CSR	Corporate social responsibility
H	Hypothesis
HTMT	Heterotrait-monotrait
PCA	Principal component analysis
PLS	Partial least Squares
PLS-SEM	Partial least square structural equation modelling
SCM	Supply chain management
SPSS	Statistical package for social sciences
SRMR	Standardized root mean square residual
SSCC	Sustainable supply chain collaboration
SSCM	Sustainable supply chain management

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Introduction:

The most recent decade witnessed remarkable interest in both environmental management and supply chain management (SCM) challenges (Lu, Wu, & Kuo, 2007, p. 4317). Increasingly, managers and policy makers are coming to the realization that purchasing can significantly affect corporate performance along environmental dimensions (Handfield, Walton, Sroufe, & Melnyk, 2002, p. 71). The concept of sustainability emphasizes the interrelationships among ecological, social and economic systems. The need for sustainable development and corporate social responsibility (CSR) are driving the establishment of decision making tools (Hutchins & Sutherland, 2008, p. 1697). The need for sustainability development stems from stricter regulations, customer interests, reputation impacts, competition, and public pressures. Globalization, dependencies on foreign markets, outsourcing and risks of supply chain disruption are also influences on the need of sustainability (Lee, 2010, p. 62). An example of supply chain disruption risk is the increase in the scarcity of raw materials. An assumption is that raw materials provided by suppliers are not defect-free, defect such as failure in transportation, technological issues and human error might occur (Jabbarzadeh, Fahimnia, & Sabouhi, 2018, p. 5). Raw materials are considered to have potential issues in their supply chain and limited substitutes exist. Disruptions in supply of critical materials in several industries can have serious negative consequences for firms, consumers and economies. Because modern supply chains are becoming increasingly complex and interrelated, predicting uncertain developments or the impact of any action became almost impossible (Heckmann, Comes, & Nickel, 2015, p. 120). Some examples of supply chain disruption are supply disruption, logistics/delivery disruption, in house/plant disruption, natural hazards/regulatory and political issues (Ambulkar, Blackhurst, & Grawe, 2015, p. 116).

A strategy for firms to deal with scarce materials issues is the implementation of circular economy principles in their supply chain (Gaustad, Krystofik, Bustamante, & Badami, 2018, p. 1). Yet, there is still the belief among practitioners that sustainability will only be an added cost and the benefits do not weight up to this cost (Braithwaite, 2007, p. 95). Therefore, the World Business Council for Sustainable Development commissioned a report to outline the benefits for companies. Sustainable development can make organizations more competitive, more resilient to shocks, more flexible in a fast changing world, more unified in purpose, more likely to attract and retain customers and employees and more at ease with regulators, banks, insurers and financial markets (World Business

Council for Sustainable Development, 2002). Supply chain professionals are in an exceptional position to impact sustainability practices. Activities such as reduction in packaging, bettering working conditions in warehouses, increasing the usage of fuel efficient transportation, and requiring suppliers to undertake environmental and social programs are some of the examples that can decrease costs while improving corporate reputation at the same time (Carter & Rogers, 2008, p. 361). Sustainability is becoming a key element in supply chain management as both manufacturers and researchers are forced to explore options to improve the sustainability of operations across the supply chain (Linton, Klassen, & Jayaraman, 2007, p. 1080). Supply chains have a wide range of impacts and influences and are therefore well positioned to support sustainable development (Reefke & Sundaram, 2017, p. 2). It is essential that sustainability considerations are being integrated into supply chain functions such as procurement, manufacturing, distribution, warehousing, usage, recycling and disposal (Jayaraman, Klassen, & Linton, 2007, p. 1080). As to be noticed, sustainability is a broad concept. In this paper the focus will be on different factors within sustainable supply chain management. The factors are sustainable supply chain collaboration for the sake of achieving a more sustainable supply chain, the sustainability image of a buying firm and the moral sustainability motive of a supplying firm.

Commodity and price-based supplier relationships are no longer acceptable for organizations that seek to develop innovative supply chain management solutions, especially those that focus on social and environmental concerns (Bai & Sarkis, 2010, p. 252). According to Seuring and Müller (2008, p. 1705) joint initiatives between the focal firm and suppliers may lead to sustainable products, not only with the first tier suppliers but the whole supply chain has to be integrated. Meaning from raw materials to final consumers. Similarly Ashby, Leat, and Hudson-Smith (2012, p. 497) stated that it is frequently argued that deeper and closer relationships with a longer part of the supply chain are important elements of SSCM. They also conclude that a key research direction for progressing SSCM would be the role of supply chain relationships in achieving sustainability. Dubey, Gunasekaran, Papadopoulos, et al. (2017, p. 1121) argue that collaboration with strategic suppliers is key for the success of SSCM and is seen as one of the main drivers for SSCM. Strategic supplier collaboration can help firms through knowledge and resource sharing, but also through joint R&D. Collaboration can also help to ensure easy access for the local and lower-tier suppliers in the supply chain. Grekova,

Calantone, Bremmers, Trienekens, and Omta (2016, p. 8) suggest that sustainable supply chain collaboration can improve the focal firm's overall performance. This research will therefore try to contribute to the literature by further examining the role of buyer-supplier relationships in achieving sustainability.

As mentioned before, some practitioners believe that sustainability activities are only a cost and the benefits do not weight up to the costs. This study tries to explore whether there are unknown benefits of SSCM factors. A concept that also deals with the benefits between a focal firm and supplier is 'preferred customer status'. For many types of industrial materials, the number of suppliers become scarce, resulting in supplier scarcity. Suppliers in scarce markets become selective and do not allocate resources to each potential buyer (Schiele, Calvi, & Gibbert, 2012, p. 1179). A business that fails to resource its materials or risks obtaining enough resources in the future might not be considered as sustainable in the long run. Buying organizations start to recognize that securing their key supplier's benevolence is essential for future success (Schiele, Veldman, Hüttinger, & Pulles, 2012, p. 134). A buyer who has preferred customer status at its supplier gets access to supplier resources and preferential treatment, consisting of additional benefits such as earlier access to innovation, better prices and delivery in times of scarcity (Pulles, Veldman, Schiele, & Sierksma, 2014; Schiele, Veldman, & Hüttinger, 2011; Vos, Schiele, & Hüttinger, 2016). Vos et al. (2016, p. 10) used the following items to measure whether the buyer has preferred customer status; according to the supplier the buying firm is the preferred customer of the supplier, when the supplier cares more for the buyer, when the supplier goes out on a limb for the buyer, and when the supplier's firm prefers collaborating with the buyer's firm compared to its other customers. By attaining preferred customer status, the exclusivity and sustainability of the buyer-supplier relationship can be established (Schomann, Sikora, & Mirzaei, 2018, p. 231).

The existing literature highlights different antecedents for obtaining preferred customer status. Those antecedents can be categorized into; economic value, relational quality, instruments of interaction, and strategic compatibility (Hüttinger, Schiele, & Veldman, 2012). Profitability, commitment, satisfaction, strong bonds, and supplier development are some of the topics that fall into the PCS antecedent categories. Currently there are no studies that include the concept of SSCM to PCS research. Comparing the current antecedents of PCs (strong bonds, commitment and development), similarities can be found in sustainable supply chain collaboration aspects (commitment, devoting

resources, strong feelings of trust, working together) and therefore SSCC might also be an effective antecedent in obtaining PCS benefits. Thus, by collaborating for sustainability through SSCC, the buying firm might also receive PCS benefits from the supplier, and this might justify investments made in SSCC by the buying firm. Since, in case of SSCC, the buying firm usually invests personnel, time, and resources to increase the capabilities and performance of the supplier (Gimenez, Sierra, & Rodon, 2012, p. 533). On the other hand, these investments might not be necessary if being perceived sustainability is enough to receive PCS benefits. This study aims to find out whether a buying firm can obtain PCS benefits through sustainable supply chain collaboration. So, besides looking at the effect of SSCC on PCS, this study will also explore whether the sustainability image of a buying firm influences the benefits as well. In the meantime, the moral sustainability motive might influence how far the before mentioned sustainability issues translate into PCS benefits and therefore is included in this study as well.

The emerging research question in this study is:

RQ: "Can buyers use sustainable supply chain management to obtain preferred customer status benefits and what influence does the moral sustainability motive of the supplier have on this relationship?"

The following sub questions have been developed to help answer the main research question:

SQ1: Which drivers and barriers are mentioned in SSCM literature?
SQ2: What is known about sustainable supply chain collaboration between buyers and suppliers?
SQ2: What is known about the sustainability image of a buyer perceived by the supplier?
SQ3: What types of motivations exist in engaging in sustainability activities in companies?
SQ4: What are the benefits of having a preferred customer status at the supplier?

This study contributes to and extends the growing research stream of SSCM. In particular, it examines the relationships among sustainable supply chain collaboration and the potential benefits that can be allocated by this collaboration. This study aims to combine the above-mentioned questions that assume a relation between SSCC and the benefits of preferred customer status. These PCS benefits consist of benevolent pricing and preferential resource allocation of both physical and innovation resources. This study also adds to researcher's and practitioner's understanding of the effect between these factors

through empirical findings from the suppliers of a high-tech company in the Netherlands. There is also a lack in the literature when it comes to large-scale quantitative analysis (Paulraj, Chen, & Blome, 2017, p. 252), with the aim of filling that gap this study is set up as quantitative research with empirical data. Moreover, a majority of the studies on SSCM look at outcomes rather than antecedents (Aguilera, Rupp, Williams, & Ganapathi, 2007), this study looks to both. It tries to fill the gap by looking at whether moral sustainability motive could act as an antecedent for sustainable supply chain collaboration, and at the same time it looks at the outcome in terms of PCS benefits that could be obtained from it. As far as known, the concept of SSCM and more specifically SSCC has never been incorporated in PCS studies before (Pulles, Schiele, Veldman, & Hüttinger, 2016; Schiele et al., 2011; Vos et al., 2016). So, another contribution to the literature is trying to cover this gap by exploring whether SSCC could act as an antecedent for PCS benefits. Furthermore, this study also looks at whether the sustainability image of a buyer has an influence on the supplier. In existing literature usually the customer has been taken as stakeholder and target group to examine sustainability image, yet Pérez, Martínez, and Del Bosque (2013, p. 478) stated that future research should also consider additional targets such as suppliers and governments. Therefore, the usage as suppliers of the target group of sustainability image is a contribution to literature. So, in summary, the contributions to the literature are examining if moral sustainability motive is an antecedent for SSCC, whether SSCC and sustainability image could be implemented to obtain PCS benefits and whether SSCC has a positive influence on the sustainability image of a company.

In the following section, a conceptual framework is developed from a review of the literature. The literature review starts with general information about SSCM and then dives deeper into the topics SSCC, sustainability image and moral sustainability motivation (2) and continues with theory about preferred customer status and its benefits (3). Overall, the theory chapters will be useful for generating ideas for this research and understanding complex problems that arise. After assessing the theory, hypothesis can be drawn in chapter (4), followed by a conceptual research model. The research model will give an overview of how the different factors mentioned in this study relate to each other. The methods chapter (5) is designed to explain how data and information for this research will be obtained, here it becomes clear what will be done and why it will be done in a certain manner. The last two chapters discuss the results and provide insights about the limitations of this study and suggestions for further research (6,7).

2. Review of sustainable supply chain management and identifying factors

2.1 Sustainable supply chain management: extending traditional SCM

In this chapter, the topic sustainable supply chain management will be explained. Furthermore, drivers and barriers of SSCM will be gathered from the existing literature and presented in a table (table 1). In the end drivers and barriers will be chosen for this study.

The management of sustainability, in terms of economic, social and environmental dimensions, has become a top priority for researchers and practitioners. The rise of interest in the sustainability topic has many different reasons, one of them is for example customer's expectations of more environmental friendly products and services rather than traditional operations (Diabat, Kannan, & Mathiyazhagan, 2014, p. 401). According to Markman and Krause (2016, p. 9) sustainable practices consist of two principles, (1) they must raise ecological health, follow ethical standards to advance social justice, and improve economic vitality, the second principle is that (2) the environment must be a priority, society second, and economics third. In order to be a truly sustainable firm (meaning that all supply chain partners are sustainable), the concept needs to be extended to other members of the supply chain (Sancha, Longoni, & Giménez, 2015, p. 1). As a result of fast exhaustion of natural resources and concerns over wealth disparity and corporate social responsibility (CSR) sustainability has become increasingly important to business research (Govindan, Khodaverdi, & Jafarian, 2013, p. 1). Sustainability is a broad topic which can be applied to many settings. This chapter will therefore provide descriptions of several sustainability concepts in business settings in order to explain what sustainability means and how it can be beneficial to companies and organizations. It will start with some general explanations of sustainability and continue with a focus on sustainable supply chain management. The Bundtland Commission Report was one of the first to bring up the concept of sustainability to global prominence. The report described sustainable development as: "meeting the needs of the present without compromising the ability of future generations to meet their needs" (Keeble, 1988, p. 20). Similarly, Starik and Rands (1995, p. 909) described sustainability as: "the ability of one or more entities, either individually or collectively, to exist and flourish (either unchanged or in evolved terms) for lengthy timeframes, in such manner that the existence and flourishing of other collectivities of entities is permitted at related levels and in related systems". Another more

specific description of sustainability is: the potential for reducing long-term risks associated with resource depletion, fluctuations in energy costs, product liabilities, and pollution and waste management" (Shrivastava, 1995, p. 995). According to Carter and Rogers (2008, p. 361) organizational sustainability, consists of three components: the natural environment, society and economic performance. This perspective is in line with the idea of the triple bottom line by Elkington (2004), which at the same time considers and balances economic, environmental and social goals from a microeconomic standpoint. Meaning the triple bottom line suggests that there are activities in the middle of social, environmental and economic interfaces, that organizations can engage in which the natural and social environment are positively affected, but also harvest long-term economic benefits and competitive advantage for the firm. Similarly, Pagell and Wu (2009, p. 38) stated to be truly sustainable, a supply chain would at worst do no net harm to natural or social systems while still producing a profit over an extended period of time; a truly sustainable supply chain could, customers willing, continue to do business forever. The pillars of the triple bottom line are incorporated in this statement.

Sustainability is a broad topic with many possible definitions and meanings for different settings. This research will focus on sustainable supply chain management and more specifically on the purchasing function, as in incorporating suppliers for sustainable supply chain management (SSCM). The purchasing function is at the beginning of the value chain, which means that a firm's sustainability efforts will not be successful without integrating the company's sustainability goals with purchasing activities (Carter & Rogers, 2008). Sustainable supply chain practices appeared with an aim to integrate environmental concerns into businesses or organizations by reducing unintended negative consequences of production and consumption processes (Genovese, Acquaye, Figueroa, & Koh, 2017, p. 354). SSCM can be explained as supply chain management focusing on maintaining environmental, economic and social stability for long-term sustainable growth (Dubey, Gunasekaran, Papadopoulos, et al., 2017, p. 1212). A more simple description for SSCM is the extension of the traditional supply chain concept, by including social, economic and environmental aspects of sustainability (Wittstruck & Teuteberg, 2012, p. 142). Another explanation for SSCM is given by Pagell and Shevchenko (2014, p. 45), SSCM is the design, coordination, control and organization of a supply chain to make it truly sustainable with the expectation to reach economic viability, while at the same time ensuring no harm to the environment and social systems over an extended period of time.

The authors also argued that SSCM can be understood from a cycle and push/pull view, the cycle view for example focuses on embracing sustainability in the procurement process among other processes. Dubey, Gunasekaran, Childe, Papadopoulos, and Fosso Wamba (2017, p. 5) argued that push/pull interface focuses on collaboration between suppliers and manufacturers. Similarly, Wolf (2011, p. 225) had stated before that sustainability in supply chain management can be achieved through adequate collaboration. Beske, Land, and Seuring (2014, p. 133) identified five SSCM categories, which consist of orientation, supply chain continuity, collaboration, risk management, and pro-activity.

It can be concluded that the relationship, in terms of incorporating and collaborating with suppliers is important for SSCM. Sustainability factors play an essential role for the long term achievements of a supply chain and the purchasing process becomes more complex with social and environmental supplier criteria (Azadi, Jafarian, Saen, & Mirhedayatian, 2015, p. 1). This chapter gave an overview of different explanations of sustainability in the literature. Since sustainability is a broad topic, sustainable supply chain management is chosen as a focus for this study. Now that the meaning of SSCM is clear, the next chapters highlight drivers and barriers of SSCM. By identifying drivers and barriers it will become clear which factors are important for research development and need to be taken into consideration when modeling the hypothesis and research method for this study.

2.2 Drivers of SSCM: sustainable supply chain collaboration, involvement and perceived value supplier.

In this chapter drivers, benefits and enablers of SSCM will be outlined. This section will help in identifying which factors are important in achieving SSCM. In the literature, many enablers and drivers can be found for SSCM. Some of the enablers and drivers from different articles and research may have some overlap. In 2017, Ansari and Kant (2017) published a literature review with a 15 year focus on sustainable supply chain management. Their state-of-the-art literature review provides a list with drivers and barriers of papers from the past 15 years. Their sample consisted of 286 articles from the years 2002 until 2016. Their comprehensive literature review on SSCM will form the base for this chapter. In order to include articles after 2016, additional papers from 2016 until now will be assessed and included if necessary. In the same vein as the authors of the used literature review (Ansari & Kant, 2017), the drivers and enablers will be presented in chronological order. In this way it will also be clear which are additional papers published

after 2016 and added to this study besides the articles from the literature review that is being referred to. In the end of the section a table (Table 1) will be presented with a list of all the drivers from the assessed papers. The drivers which are relevant for this study will be highlighted in the same table. After the table, an explanation will be given on the selection of relevant variables.

In a study done by (Faisal, 2012, p. 409), the following enablers for SSCM were identified: information sharing, strategic planning to implement sustainable practices in the supply chain, the concern of consumers towards sustainable practices, collaborative relationships, metrics to quantify sustainability benefits in a supply chain, top management commitment, awareness sustainable supply chain practices, and availability of funds. A year later, Wolf (2011, p. 230) stated that leadership commitment, organizational structure, interaction with NGOs and other stakeholders, supplier selection strategy, supplier relationship management, and supplier performance measurement are enablers of SSCM. Government legislations, organizational culture and involvement, supplier management were some of the drivers mentioned by Gopalakrishnan, Yusuf, Musa, Abubakar, and Ambursa (2012, p. 196). In the same year, Walker and Jones (2012, p. 17) mentioned government policy, competitors, customers, top management commitment and competitiveness as some of the drivers. Similarly, Wittstruck and Teuteberg (2012, p. 142) found that top management support, IT and interfaces, provision of information, pressure from competitors, mutual learning and strategy commitment as some of the important drivers. Other interesting findings were stated by Kim and Rhee (2012, p. 2467), written policies and communication materials, questionnaires and audits, supplier meetings, training and technical assistance, collaborative research and development, and restructuring relationships with supplier and customers were mentioned as strategies used to work with supply chain partners for sustainability. Büyüközkan and Çifçi (2013, p. 3939) stated that price strategy, supply chain optimization, forecast accuracy, lifecycle management, supplier management, flexible and cleaner technology, delivery performance, usage of effective systems and tools, environmental management system (EMS), environmental product design, efficient handling and storage, reverse logistics, green packaging, collaboration with partners, employee practice, stakeholders as drivers for SSCM. Beske and Seuring (2014, p. 324) identified dedication to SCM, supply chain partner development, long term relationships, supply chain partner selection, enhanced communication, joint development, innovation, and life cycle management as some of the

enablers of SSCM. In the same year Grimm, Hofstetter, and Sarkis (2014, p. 7) published an article with trust between focal firm and suppliers, trust between direct supplier and sub-supplier, focal firm's buyer power, direct supplier's buyer power, involvement of direct supplier, perceived value of direct supplier, and geographical and cultural distance between focal firm and supplier as some of the enablers of SSCM. Supply chain design, supplier development, transparency and traceability, reward and incentive system were mentioned by Stiller and Gold (2014, p. 56). Later in the study of Jabbour, Neto, Gobbo Jr, de Souza Ribeiro, and de Sousa Jabbour (2015, pp. 1-2) environmental training, performance evaluation, environmental team work, and support from senior management were some of the mentioned enablers of SSCM. Chkanikova and Mont (2015, p. 12) also mentioned regulations, customer demands, risk of negative publicity, increased investor appeal, and competitor strategies as some of the drivers.

The drivers mentioned up until now in this section come from the literature review of Ansari and Kant (2017). Since that review had been done a couple of years ago, additional drivers published in papers after 2016 are assessed. Thus, the following drivers come from literature after published 2016. According to Dubey, Gunasekaran, Childe, et al. (2017, p. 8) supply chain collaboration, green product design, environmental management, green procurement, green packaging, green warehousing, reverse logistics, minimization of greenhouse gas emission, and institutional pressure are enablers of SSCM. Similar drivers were stated by Maria V Ciasullo, Cardinali, and Cosimato (2017, p. 149), namely law, pressure from NGOs, destination markets, corporate value, research and innovation. The same authors published a paper one year later Maria Vincenza Ciasullo, Cardinali, and Cosimato (2018, p. 430), this time the drivers were co-evolution, supply chain design, knowledge management, risk management, and relationship management. Another study conducted by Biswal, Muduli, and Satapathy (2017, p. 426) mentioned top management vision, economic benefit, government policies, competitor's action, corporate social responsibility, and highlighted that academic involvement, customer's expectations, stakeholder's pressure as the most important drivers. Lastly, Ocampo, Villegas, Carvajal, and Apas (2018, p. 80) mentioned five types of SSCM practices, which are orientation, collaboration, continuity, risk management, and pro-activity. The SSCM practices are driven by drivers such as; long term relationships, partner development, joint development, enhanced communication, technical and logistic integration, pressure group management, stakeholder management, learning, and innovation.

In the table below, recurring enablers and drivers are listed. Many of the drivers and enablers mentioned above have overlap, yet they are expressed in different words. Some of the enablers and drivers in the same vein are therefore clustered into categories. In order to give a clearer overview, the drivers have been categorized as internal, external and relational drivers.

Table 1: Drivers of SSCM

Overarching category	Enabler/Driver	Reference
Internal	Management commitment/support	(Faisal, 2012), (Wolf, 2011), (Jabbour et al., 2015), (Wittstruck & Teuteberg, 2012), (Biswal et al., 2017), (Walker & Jones, 2012)
	Metrics to quantify sustainability benefits	(Faisal, 2012)
	Availability of funds	(Wolf, 2011)
	Buyer power focal firm	(Grimm et al., 2014)
	Green product design/packaging	(Büyüközkan & Çifçi, 2013), (Dubey, Gunasekaran, Papadopoulos, et al., 2017)
	Green procurement	(Dubey, Gunasekaran, Papadopoulos, et al., 2017)
	Technology/IT	(Wittstruck & Teuteberg, 2012)
	Price/economic issues	(Büyüközkan & Çifçi, 2013), (Biswal et al., 2017)
	Supply chain optimization (inventory management, reverse logistics, forecast accuracy, strategic supply chain planning, lifecycle management)	(Büyüközkan & Çifçi, 2013), (Faisal, 2012), (Stiller & Gold, 2014), (Maria V Ciasullo et al., 2017), (Ocampo et al., 2018)
	Reward & Incentives	(Stiller & Gold, 2014)
External	Awareness/pressure (customers, stakeholders, employees, culture)	(Faisal, 2012), (Wolf, 2011), (Gopalakrishnan et al., 2012), (Büyüközkan & Çifçi, 2013), (Chkanikova & Mont, 2015), (Maria V Ciasullo et al., 2017), (Biswal et al., 2017), (Ocampo et al., 2018), (Walker & Jones, 2012)
	Geographical & cultural distance	(Grimm et al., 2014)
	Government regulations	(Gopalakrishnan et al., 2012), (Chkanikova & Mont, 2015), (Maria V Ciasullo et al., 2017), (Biswal et al., 2017), (Walker & Jones, 2012)
	Competitive pressure/advantage	(Wittstruck & Teuteberg, 2012), (Chkanikova & Mont, 2015), (Biswal et al., 2017), (Walker & Jones, 2012)
Relational	Information sharing/communication/transparency	(Faisal, 2012), (Kim & Rhee, 2012), (Beske & Seuring, 2014), (Wittstruck & Teuteberg, 2012), (Stiller & Gold, 2014), (Maria Vincenza Ciasullo et al., 2018), (Ocampo et al., 2018)
	Collaboration/relationship suppliers	(Faisal, 2012), (Wolf, 2011), (Kim & Rhee, 2012), (Beske & Seuring, 2014), (Jabbour et al., 2015), (Dubey, Gunasekaran, Papadopoulos, et al., 2017), (Büyüközkan & Çifçi, 2013) , (Maria Vincenza Ciasullo et al., 2018), (Ocampo et al., 2018)
	Supplier (joint) development	(Beske & Seuring, 2014), (Stiller & Gold, 2014), (Ocampo et al., 2018)
	Innovation	(Beske & Seuring, 2014), (Büyüközkan & Çifçi, 2013), (Maria V Ciasullo et al., 2017), (Ocampo et al., 2018)
	Trust between buyer and supplier	(Grimm et al., 2014)
	(Environmental) Training/learning	(Kim & Rhee, 2012), (Jabbour et al., 2015), (Wittstruck & Teuteberg, 2012), (Ocampo et al., 2018)
	Supplier selection & evaluation	(Wolf, 2011), (Kim & Rhee, 2012), (Beske & Seuring, 2014), (Jabbour et al., 2015)
	Involvement and perceived value supplier	(Grimm et al., 2014)
	Supplier management	(Gopalakrishnan et al., 2012), (Büyüközkan & Çifçi, 2013)

Now that some of the general enablers and drivers of SSCM are listed, the relevant drivers and enablers for this study can be chosen and explained further. As mentioned

before, the focus of this study will be on the procurement function. Therefore, the drivers/enablers that have a close link to procurement have been highlighted. The drivers that are not highlighted are drivers that are not directly linked to the procurement function of organizations and therefore are excluded in the continuation of this study. For example, government regulations are an important driver of SSCM, but cannot be affected directly by procurement functions, the same goes for other drivers like competitive pressure, and IT. When looking closer at table 1, information sharing/communication and the importance of supplier collaboration and relationship are drivers that are frequently mentioned in the literature. It can be concluded that these drivers are important in realizing SSCM. When looking at the relational drivers, sustainable supply chain collaboration could be a construct that covers all the drivers that fall into the category of relational drivers. Therefore, sustainable supply chain collaboration is chosen as the first factor for this study. Additionally, Grimm et al. (2014, p. 7) mentioned the perceived value of the supplier as a driver of SSCM, unlike collaboration, this concept is not frequently mentioned. Yet by linking SSCC to PCS, it can be examined whether the supplier perceives SSCC as something valuable by giving the customer preferential treatment. In the next section, barriers and disablers of SSCM will be explained.

2.3 Barriers of SSCM: lack of supplier commitment, lack of training and competencies of suppliers, integration issues supply chain partners

Besides exploring drivers and enablers of SSCM, it is also useful to look at barriers and limitations of SSCM. In this way it becomes clear what needs to be taken into consideration when aiming at a sustainable supply chain. It is known that relationship management and collaboration with suppliers is important and enablers of SSCM. It is also useful to look at what holds companies and organizations back if the equation is that simple. There might be barriers that also could stand in the way of supplier collaboration. To find that out, literature about the barriers of SSCM is reviewed. Again, the review of Ansari and Kant (2017) is used as a starting point, additional papers after 2016 will be assessed as well. Just like the previous section, barriers that are relatively the same but are named differently will be placed in the same category. In the end of this table 2 provides an overview of SSCM barriers.

Lack of goal setting, limited communication between functions, limited availability of data and information on sustainability, lack of additional human resources, and limited

integration of supply chain partners are barriers to implement SSCM according to Wolf (2011, p. 225). Walker and Jones (2012, p. 17) listed the following barriers for SSCM: regulation, competitive pressures, consumer desire for lower prices, poor supplier commitment, less regulated industries, lack of management commitment, cost, lack of training, lack of understanding how to incorporate purchasing and other SCM priorities, and lack of corporate structures and processes. Furthermore, cost for environmental friendly packaging, lack of clarity regarding sustainability, cost of sustainability and economic conditions, lack of regulations, misalignment of short-term and long-term strategic goals, lack of effective evaluation measures about sustainability, lack of training and education about sustainability, lack of top level management to initiate sustainability were some of the barriers for SSCM according to the research of Al Zaabi, Al Dhaheri, and Diabat (2013, p. 898). Another study conducted in the same year was by Rossi, Colicchia, Cozzolino, and Christopher (2013, p. 595), industry specific barriers, costs, lack of legitimacy, poor commitment, and regulations were mentioned as barriers for implementing SSCM. Other similar barriers were argued by Grimm et al. (2014, p. 4), such as lack of financial resources, lack of competencies, lack of personnel commitment, lack of commitment and trust between supply chain partners, lack of supplier competencies, lack of information and transparency, cultural and language differences. Chkanikova and Mont (2015, p. 12) mentioned lack of financial resources, conflict of interest between product sustainability policy and free trade provisions, lack of governmental leadership in outlining the vision for sustainability, lack of governmental initiative to harmonize labeling requirements, lack of knowledge and expertise, lack of power over supplies, complexity of supply chain configuration, higher prices of sustainable products, tradition of established supplier relationship, lack of ability of supply, and lack of customer awareness and interest about sustainability as some of the barriers for implementing SSCM. These were the barriers from the literature review of (Ansari & Kant, 2017). Additional literature has been assessed to assure the quality of this review in terms of incorporating the most recent literature. The barriers that will be explained next are found in papers published between 2017-2019. Lack of training and support from senior management, environmental culture, and economic factors were considered barriers by Aragão and Jabbour (2017, p. 48). In the same year, lack of coordination, demands from NGOs, performance management, supply chain partner have been mentioned as barriers by Biswal et al. (2017, p. 426) In 2018, Moktadir, Ali, Rajesh, and Paul (2018, p. 14) published a paper identifying key barriers for SSCM, lack of awareness from customers and lack of commitment from top

management seemed as crucial barriers in the country of their study (Bangladesh), followed by cost of sustainability, lack of integration or knowledge supply chain partners, absence of society pressure, lack of training & knowledge about sustainability, lack of information, and lack of cleaner technology. Lastly, Movahedipour, Zeng, Yang, and Wu (2018, p. 41) identified 14 barriers and discussed that inadequate information technology, lack of moral social ethics and values, organization's vision and mission, and company human skills were the most important barriers of SSCM.

Table 2: Barriers of implementing SSCM

Overarching category	Barrier/Disabler	Reference
Internal	Higher cost & price	(Seuring & Müller, 2008), (Walker & Jones, 2012), (Al Zaabi et al., 2013), (Rossi et al., 2013), (Chkanikova & Mont, 2015), (Moktadir et al., 2018), (Aragão & Jabbour, 2017)
	Lack of (financial) resources	(Rossi et al., 2013), (Chkanikova & Mont, 2015),(Aragão & Jabbour, 2017)
	Lack of evaluation measures	(Al Zaabi et al., 2013)
	Lack of management support	(Al Zaabi et al., 2013), (Walker & Jones, 2012), (Moktadir et al., 2018), (Movahedipour et al., 2018), (Aragão & Jabbour, 2017)
	Lack of cleaner technology	(Moktadir et al., 2018)
	Lack of moral social ethics and values	(Movahedipour et al., 2018)
	Organization's vision and mission	(Movahedipour et al., 2018)
	Company human skills	(Movahedipour et al., 2018)
External	Competitive pressure	(Walker & Jones, 2012)
	Lack of customer awareness	(Chkanikova & Mont, 2015), (Moktadir et al., 2018)
	Lack of governmental regulation	(Al Zaabi et al., 2013),(Walker & Jones, 2012). (Chkanikova & Mont, 2015)
Relational	Poor communication	(Seuring & Müller, 2008), (Wolf, 2011)
	Limited (supplier) commitment	(Walker & Jones, 2012), (Rossi et al., 2013), (Grimm et al., 2014), (Movahedipour et al., 2018)
	Lack of (supplier) sustainability training and competencies	(Walker & Jones, 2012), (Al Zaabi et al., 2013), (Grimm et al., 2014), (Chkanikova & Mont, 2015), (Rossi et al., 2013), (Moktadir et al., 2018), (Aragão & Jabbour, 2017)
	Goals (misalignment)	(Al Zaabi et al., 2013), (Wolf, 2011)
	Lack of info & transparency	(Rossi et al., 2013), (Moktadir et al., 2018), (Movahedipour et al., 2018)
	Cultural & language differences	(Rossi et al., 2013)
	Integration issues supply chain partners	(Rossi et al., 2013), (Wolf, 2011), (Moktadir et al., 2018)

There is a total of 15 types of barriers, which is slightly less than the number of existing drivers in the literature. It is also notable that some barriers are the opposite of some of the barriers or that some drivers can tackle barriers. For example, when the drivers and barriers tables are compared, it can be seen that the driver information sharing/communication/transparency is the opposite of poor communication and lack of information & transparency. Another example is management support, when present it can act as a driver, when lacking it acts as a barrier of SSCM. In that vein, the concepts of higher cost & price, poor communication, lack of sustainability training & competencies,

lack of resources, lack of governmental regulations, lack of evaluation measures, lack of management support, lack of information & transparency, lack of customer awareness, and lack of cleaner technology seem like opposites of before mentioned drivers. Only lack of supplier commitment and lack or misalignment of goals seem like new factors that have not been explicitly mentioned in the literature about drivers. It is safe to say that when drivers are being implemented, most of the barriers can be tackled simultaneously. It becomes clear in the table that higher cost & price, limited commitment, lack of sustainability training and competencies are barriers that are mentioned most frequently in the literature.

In this chapter the barriers are categorized into three main categories as well; internal, external, and relational. Again, the barriers that deal with the procurement function are highlighted in the table. Which are limited (supplier) commitment, lack of (supplier) sustainability and training), and integration issues of supply chain partners. When looking at all the drivers and barriers, sustainable supply chain collaboration seems a topic that covers most procurement related drivers and could at the same time tackle some of the highlighted barriers. For sustainable collaboration, involvement and perceived value of the supplier could also be important, the barriers section showed that limited commitment of the supplier could be an issue. Therefore, the motivation of the supplier will be examined as well. Furthermore, it became clear that customer and stakeholder pressure is important in SSCM, therefore this concept will also be considered but from the supplier point of view. The following chapters therefore will be about SSCC, sustainability image of the buyer as perceived by the supplier, and the sustainability motive of the supplier.

2.4 Sustainable supply chain collaboration: trust, knowledge-sharing, joint activities

After assessing the drivers and barriers of SSCM, supply chain collaboration for sustainability purposes is chosen as main driver and focus of this study. Table 1 in the SSCM drivers chapter showed clearly that relational drivers such as collaboration, information sharing, supplier development are frequently mentioned in the SSCM literature as important drivers of sustainability. Sustainable supply chain collaboration can serve as one overarching category that includes all the relational drivers mentioned in the table. SSCC is also mentioned as one of the most important practices in SSCM. Many researchers have highlighted the importance of collaboration between firms to improve performance of firms related to sustainability (Blome, Paulraj, & Schuetz, 2014; S. Vachon

& Klassen, 2008). Touboulic and Walker (2015b, pp. 20-22) stated that a greater understanding is needed in terms of transforming sustainability practices in the manufacturing industry rather than simply exploring drivers and barriers. Therefore, in this section existing theory about supply chain collaboration will be reviewed to see if sustainable supply chain collaboration is sufficient enough to serve as the main category. The begin of this section covers general information about supply chain collaboration. Later, the review will go deeper into sustainable supply chain collaboration (SSCC). In this way, it will be clearer what distinguishes sustainable SCC from usual supply chain collaboration (SCC).

According to the resource-based view (RBV) theory, collaboration helps partnering firms, so buyers and suppliers to build a set of valuable, rare and difficult to copy resources that result into competitive advantage (Barney, 1991). Collaboration in a supply chain refers to two or more autonomous firms and their ability to work effectively together, by planning and executing supply chain operations for common goals (Cao, Vonderembse, Zhang, & Ragu-Nathan, 2010, p. 6632). Supply chain collaboration is a vital dynamic capability, it enables firms to have a differential performance (Fawcett, Fawcett, Watson, & Magnan, 2012, p. 44). Supply chain collaboration has been identified as working together with trading partners in order to develop competitive advantages (Kumar & Nath Banerjee, 2014, p. 184), in this study the focus will be on suppliers as partners. By working together, the members can create competitive advantage by sharing information, making joint decisions and sharing benefits. In this way, greater profitability can be attained, rather than when acting alone (Simatupang & Sridharan, 2002, p. 15). Supply chain collaboration also refers to working directly with suppliers, for example by providing suppliers with training and support. In case of supply chain collaboration, the buying firm is willing to invest personnel, time, and resources to increase the capabilities and performance of the supplier (Gimenez et al., 2012, p. 533). The relationship between important factors of supply chain collaboration (planning, execution and decision making) and success of collaboration have a significant link to each other. Especially the success of the collaboration and consistent execution of the supply chain processes are encouraging constructs. By executing supply chain plans in an appropriate way, supply chains can benefit from sales growth, market share, and satisfaction in supply chains (Ramanathan & Gunasekaran, 2014, p. 258). Scholten and Schilder (2015, pp. 479-481) found that information sharing, collaborative communication, joint relationship efforts, and mutually

created knowledge were antecedents for improvement of the supply chain. A lack of information can, for example, cause a decrease in the flexibility that is needed to respond to disruptions. Site visits, meetings and daily phone contact between the partners can improve the supply chain. One of the subjects in joint relationship effort is resource-sharing, which can be applied by sharing transportation or personnel visiting the other firm's site to find solutions to problems. Mutual dependency can be created through dedicated investments made to enhance the performance that at the same time tie two partners together. Similarly, Kumar and Nath Banerjee (2014, p. 187) stated that collaboration is an antecedent of supply chain performance and identified joint planning for executing schedule, joint planning for increasing market share, collaborative culture, operational resource sharing, joint problem solving and performance measurement, and market-based information sharing as main dimensions of SCC. Yang, Lu, Haider, and Marlow (2013, p. 55) also examined the effect of SSCC on sustainability performance and found that external collaboration, so collaboration with suppliers has a positive influence on sustainable performance and the firm's competitiveness.

So far, supply chain collaboration has been discussed in this section. The concept will be more specified now by looking at supply chain collaboration for sustainability. In the beginning of the chapter the Resource-Based View is mentioned, this theory was later extended, by including environmental issues which led to the Natural-Resource-Based View (Hart & Dowell, 2011, p. 1466). The Natural-Resource-Based View claims that by working together with suppliers, firms can develop resources that lead to better environmental results. More specifically, extending sustainability to suppliers can be distinguished between assessment and collaboration, whereas assessment means any activity in evaluating the supplier, collaboration means working directly together with the supplier. It is argued that both supplier assessment and supplier collaboration improves the environmental and social performance (Gimenez et al., 2012, p. 536). In contrast, Sancha, Gimenez, and Sierra (2016, p. 1944) argued that supplier assessment helps in improving the buying firm's reputation, but in order to improve performance, collaboration is necessary. Therefore, the focus in this study will also be collaboration rather than assessment. Collaboration is driven by the strategic level of the purchasing department and the environmental commitment of the focal firm. Although environmental commitment influences assessment directly, for supplier collaboration, capabilities of the purchasing department are needed as well (Large & Thomsen, 2011, p. 276). Reefke and Sundaram

(2017, p. 20) found six themes that offer guidance in supply chain collaboration in SSCM, which are supply chain visibility, trust, common strategy and vision, effective change management process, and active relationship management. In the same vein, strategic purchasing which enables close relationships with supply chain partners, allows integrating knowledge from different parties via communication and networking. Building trustworthy relationships with members of the supply chain can raise the focal firm's ability to improve its sustainable supply chain (Vargas, Mantilla, & de Sousa Jabbour, 2018, p. 239). Touboulic and Walker (2015a, p. 186) also revealed that a strong feeling of trust between the focal firm and supplier enables collaboration for sustainability. Commitment, connection, and benefits from complementary resources were mentioned as well. It is important that each party brings its knowledge and assets to the table in order to build more successful collaboration on sustainability. Sustainable supply chain collaboration reflects "a good understanding of each other's responsibilities and capabilities in regard to environmental management" (S. Vachon & Klassen, 2008, p. 301), sharing know-how and expertise with supply chain partners is necessary to improve sustainable performance. Blome et al. (2014, p. 655) stated that it is important that the focal firm adapts its internal sustainability practices to that of the supply chain in order to fully benefit from co-alignment of an ideal supply chain collaboration profile. The authors defined sustainable supply chain collaboration (SSCC) as the willingness of devoting specific resources to joint activities between the focal firm and its suppliers to address sustainability goals. Joint goal setting, shared planning and mutual understanding, exchanges of (technical) information and feedback, and working together are aspects of SSCC that may lead to performance improvement. Readiness of firms to collaborate in sustainability initiatives is called collaboration capacity (van Hoof & Thiell, 2014, p. 239). Companies that develop and implement pollution reduction efforts that help fulfil joint objectives exhibit higher levels of collaboration capacity, companies with a low level of collaboration capacity fail to do so (Huxham, 1993).

After reviewing the literature, it can be concluded that SCC means that firms work together and create competitive advantage by doing so. Making joint decisions, sharing resources and benefits, investing time and personnel are some of the means used in this collaboration. The main goal is improving the overall supply chain performance. SSCC includes sustainability issues to the concept of collaboration. Trust knowledge-sharing, visibility, and devoting resources to joint activities are means of SSCC, with the aim of

making the supply chain more sustainable. Whereas the aim of SCC is improving the general supply chain performance for issues like efficiency or competitive advantage, in SSCC the aim is to work together for improvement of environmental, social, and economic issues. Although the means are the same (information sharing, joint development etc.), the goal is slightly different and more extensive in SSCC. The next section is about the sustainability image of the buyer as perceived by the supplier.

2.5 Sustainability image of the buyer as perceived by the supplier

Issues like sustainability and corporate social responsibility have been gaining attention since the beginning of the financial crisis in 2008 (Pérez et al., 2013, p. 459). The strategic value of corporate sustainability behavior has attracted an increasing number of researchers to explore the topic from a stakeholder point of view (Zhang, Ma, Su, & Zhang, 2014, p. 2). Sustainability initiatives are in some cases used by companies to enrich their reputation as trusted partners in competitive marketplaces (Brockhaus, Fawcett, Knemeyer, & Fawcett, 2017, p. 14). Han, Yu, and Kim (2019, p. 8) tested the effect of sustainability activities and found a significant positive effect on overall brand image, brand love and brand respect. Companies have been working on their corporate sustainability image in order to increase customer's trust (Chousa, Castro, & Vizcaíno-González, 2009), but also to improve the motivation of employees, the desire to be perceived as an innovative organization, or to establish beneficial relationships with stakeholders (Server & Capó, 2009). Similarly, Pérez and Rodriguez del Bosque (2015, p. 23) tested how dimensions of CSR image, affected customer responses in terms of recommendation and repurchase. The authors also include customer satisfaction to their model and concluded that the image of a firm in terms of sustainability is relevant for customer satisfaction and loyalty. Another paper published by Tingchi Liu, Anthony Wong, Shi, Chu, and L. Brock (2014) studies the relationship between sustainability performance and brand preference of customers. According to Chernev and Blair (2015, p. 1412), sustainability is usually seen only as a tool for enhancing company reputation and gaining goodwill among customers, but their research shows that the impact can extend beyond public relations and perception of customers. Despite the positive effects of CSR and corporate sustainability, a great debate remains regarding the consequences on mainly stakeholders and customers. It is argued that the marketing capability of firms will be higher when the corporate sustainability activities have verifiable benefits for stakeholders such as consumers, employees, channel partners, and regulators (Mishra & Modi, 2016, p. 1). Yet, the effect on suppliers is again

not examined. The influence of corporate social responsibility or performance on suppliers has rarely been investigated (Zhang et al., 2014, p. 2).

All actors, including manufacturers and suppliers, take their own responsibilities on environmental and sustainability issues. Sustainability activities usually need a big amount of investment, companies choose to make this investment for different types of reasons. Usually the reasons are not directly influenced by suppliers of a firm, but there are some aspects that could influence suppliers. For example; not creating unlawful pressures on suppliers, favoring any supplier over another supplier because of personal preferences, and supporting supplier to implement the right processes are some of the ethical practices in sustainability that might affect suppliers. Sustainability pressure varies by the company dimensions and environment. However, this pressure may impact supply chain behavior including buyer-supplier relationships (Tekin, Erturk, & Tozan, 2015, pp. 2-4). Zhang et al. (2014, p. 14) found that sustainability activities can help a firm in enhancing firm image, establishing good relationships with suppliers, and obtain economic benefits or achieve long term business objectives.

When searching for papers with the key words ‘sustainability’, ‘CSR’, ‘suppliers’ and ‘buyers’, the results show that a majority of the papers is about the buyer assessing, developing or evaluating the sustainability of a supplying firm. There seems to be a lack in the literature when it comes to examining the view of the supplying firm on the topic of the sustainability of the buying firm. Many scholars have studied the effect of sustainability on customer satisfaction, yet there does not seem to be specific literature about the effect of sustainability image of a buying firm on the supplying firm and their satisfaction. The existing literature mainly focusses on the impact of sustainability image on customers and/or stakeholders. On the other hand, suppliers are being assessed by buying firms on sustainability matters, but the view on how the supplier perceives sustainability efforts of a buying firm have not been thoroughly explored yet. Although in the existing literature, suppliers have not been the focus of how sustainability activities or image is perceived, it is important to question whether a firm’s sustainability image influences a firm’s relationship with suppliers. It is important to include suppliers in this topic because suppliers are important stakeholders and have decisive influence on firm operations (Zhang et al., 2014, p. 11). So far it can be concluded that the effect of a buyer’s sustainability image (or how the supplier perceives it) on supplier satisfaction has not been dealt with yet in the previous literature. Although it has not been studied yet thoroughly, it will be incorporated into this

study to find out if only being perceived sustainability is enough to receive benefits from the buyer-supplier relationship. Next, the moral sustainability motive of the supplier will be examined in order to check whether it influences the relationship between sustainability issues and PCS benefits. Therefore, in the next chapter sustainability motive of the supplier will be explained in detail.

2.6 Moral sustainability motive of the supplier

2.6.1 Different levels of sustainability motive

Sustainable supply chain collaboration has been discussed in the previous part of this study. As expected, collaboration requires two or more parties to work together. It is required that a supplier is willing, capable and ready to collaborate with the focal firm with the aim to initiate or improve sustainable supply chain practices. Readiness of firms to collaborate in sustainability initiatives is called collaboration capacity (van Hoof & Thiell, 2014, p. 239). Companies that develop and implement pollution reduction efforts that help fulfil joint objectives exhibit higher levels of collaboration capacity, companies with a low level of collaboration capacity fail to do so (Huxham, 1993). Similarly, many studies stated the important moderating nature of environmental concern (Han et al., 2019).

The readiness and willingness of a firm to engage in sustainability activities might be affected by the sustainability motive of the firm. The level and nature of motivation influences how a company establishes competitive priorities and allocates the needed resources to reach a sustainability capability. Not all motivations have the same amount of power or effectiveness. Enhancing image, maximizing efficiency, acquiring resources and believing truly in sustainability have been classified as motivations for sustainability. Image enhancement relates to firms seeking the spotlight with the aim to attract customers, in this case through sustainability. The efficiency maximization is when firms engage in sustainability with lean operations and efficiency in mind. The resource acquirer relates to a previously mentioned theory, the resource-based view, whereas companies are motivated to preserve their resources. Lastly, for a relatively small number of firms, sustainability is a core value proposition, and truly care about impacting the world positively and proactively (Brockhaus et al., 2017, p. 12). Another study also states that reasons that motivate firms to go sustainable can be very different. Compliance with regulations, competitiveness, new market opportunities, ecological responsibility driving from concerns companies have for social obligations and values, and customer satisfaction are highlighted by a study of Dangelico and Pujari (2010, pp. 474-476) as main reasons for companies to engage in

sustainability activities. Similarly, Windolph, Harms, and Schaltegger (2014, p. 272) distinguished three types of motivation; seeking corporate legitimacy, market success, and internal improvement. Paulraj et al. (2017, p. 243) also distinguished three types of motives for sustainable supply chain management practices. The motives consist of instrumental, relational, and moral motives. Instrumental motives are a representation of consequentialism (Anscombe, 1958), meaning the actions are only favorable for the firm if the positive consequences are larger than the negative consequences. One form of consequentialism is ethical egoism, presence of ethical egoism results in SSCM practices only if there is a net positive effect for the firm. Another motive is relational motive. Firms need to establish social legitimacy to survive, and legitimacy is a relational motive because it deals with how firm's actions are seen by others (Aguilera et al., 2007, p. 845). Meaning, some firms have relational motives to engage with sustainable supply chain practices such as SSCC. Moral motives is the last type of motive for companies to engage in SSCM practices and comes from the notion that organizations have an ethical duty to make a positive contribution to the environment and society and create an improved world for the future (Brønn & Vidaver-Cohen, 2009; Hahn & Scheermesser, 2006). So, with moral motives, the motivation comes from a genuine concern for the environment, rather than performance or stakeholder concerns. Bettinazzi, Massa, Neumann, and Zollo (2015, p. 3) also distinguishes between three types of overarching sustainability motives, namely instrumental (firm competitiveness), ethical motives (general sense of socio-ecological responsibility) and reputational motives (legitimacy). It seems that these before mentioned studies have overlap, therefore the next table provides an overview of all the motives, divided into three main categories.

Table 3: Sustainability motives

Overarching category	Motive	Reference
Instrumental	Maximizing efficiency	(Brockhaus et al., 2017)
	Acquiring resources	(Brockhaus et al., 2017)
	Compliance with regulations	(Dangelico & Pujari, 2010)
	Competitiveness	(Dangelico & Pujari, 2010)
	New market opportunities	(Dangelico & Pujari, 2010)
	Market success	(Windolph et al., 2014)
	Ethical egoism	(Paulraj et al., 2017)
Relational/legitimacy	Enhancing image	(Brockhaus et al., 2017)
	Customer satisfaction	(Dangelico & Pujari, 2010)
	Corporate legitimacy	(Windolph et al., 2014)
Moral	Social legitimacy	(Paulraj et al., 2017)
	Believing truly in sustainability	(Brockhaus et al., 2017)
	Ecological responsibility	(Dangelico & Pujari, 2010)
	Internal improvement	(Windolph et al., 2014)
	Ethical duty / responsibility to improve the world	(Paulraj et al., 2017)

Table 3 shows that instrumental motives relate to actions that mainly have a positive (economic) consequence for the firm, like competitiveness and maximizing of efficiency. Sometimes they are related to the fact that a firm is simply obligated to act in a certain way due to regulations. Relations motives relate to how the world perceives the firm, in other words how the firm's actions are seen by others. At the other hand, moral motives relate to actions that come from truly believing in sustainability and trying to make a positive contribution to the environment and society. Instrumental and moral motives seem to differ the most from each other, they are the two extremes, whereas relational motives are closer to instrumental motives because how a firm is seen can also for example play a role in competitiveness and market success.

2.6.2 Empirical findings on sustainability motives

Firms with a strong focus on the financial bottom line, see sustainability as a financial goal rather than something valuable in itself (Bansal & Roth, 2000, p. 732). Companies with such instrumental motives tend to incorporate less riskier sustainability initiatives.

Relational or legitimacy-oriented companies are keen to adopt more initiative and defensive approaches to sustainability. The development of social agendas represent an insurance against social costs for these firms (Bettinazzi et al., 2015, p. 4).Requirements from the customer base and market and their growing environmental expectation can form the primary pressure for firms to practice sustainable supply chain management Relational motives reflect business ethics which follow the theory of utilitarianism, accordingly actors should choose the action that harvests the most good (Aguilera et al., 2007).

Contrary to instrumental and relational motives, moral motives are related to the belief that companies have a direct responsibility both towards sustainability and to its stakeholders. Companies get inspired by such moral motives to engage in sustainability initiatives out of sense of duty and responsibility towards the society and environment. In cases where firms are motivated through morality, sustainability is not a means to an end, but becomes and end in itself (Bettinazzi et al., 2015, p. 4). The research of Paulraj et al. (2017, p. 252) resulted in that firms driven highly by moral motivations perform better than those with high levels of instrumental/relational motivations. Yet, a significant relationship between relational motives and SSCM practices was also found, these findings support the before mentioned utilitarianism theory, and suggest that multiple stakeholders, including customers, can be driving forces behind sustainability practices. Interestingly, the study of Paulraj et al. (2017, p. 253) revealed that firms with high moral motives perform better in SSCM than those who are driven by relational or instrumental motives. It was also stated that moral motives induce stronger involvement in sustainability activities and correlates highly with performance. Yet, the empirical studies on moral sustainability motives are limited.

To summarize, firms can have different motives to engage in sustainability practices and activities. The three overarching types of motives are; instrumental, relational and moral motives. Instrumental and moral motives are the most contrary to each other. Recently the study of Paulraj et al. (2017, p. 244) showed that moral sustainability motives are strong to engage in SSCM activities yet there are not enough empirically tested studies. This study therefore tries to explore whether the sustainability motive of the supplier, more specifically the moral sustainability motive of suppliers influences other variables in this study.

So far, different aspects of sustainable supply chain management have been discussed and reviewed. Now, there is a better understanding of which factors will be

incorporated in this study. These factors will be examined on whether they have an effect on the outcomes of preferred customer status. Therefore, the next chapter provides a literature review of PCS and its outcomes.

3. Review of preferred customer status

3.1 Antecedents of PCS: customer attractiveness and supplier satisfaction

A study has shown that the percentage of companies that rely on external support for innovation. increased from 20% a decade ago to 85% nowadays worldwide (Roberts, 2001, p. 31). As previously mentioned, companies become increasingly dependent on their suppliers. Such a thorough shift in the management of buyer-seller relationships raises several challenges for customers and suppliers at the same time (Ulaga & Eggert, 2006, p. 119). This section gives a brief overview of the most important literature on preferred customer status (PCS) as a buyer. Explanations as well as drivers and antecedents of preferred customer status will be reviewed. The aim of this section is to make clear what preferred customer status is and how it can be linked to SSCM factors. At the end of this section a table will be provided with an overview of the antecedents of preferred customer status. highlighted.

The importance of having suppliers which are satisfied in a relationship with the buying firm was first highlighted by Leenders and Blenkhorn (1988). The term 'reverse marketing' was used to point out the concepts relating to buyers advertising their company to suppliers, to gain more benefits from the relationship. Through the years this basic concept has evolved now to many academic articles and applications of preferred customer status and supplier satisfaction. For many types of industrial materials, the number of suppliers become scarce, resulting in supplier scarcity. Suppliers in scarce markets become selective and do not allocate resources to each potential buyer (Schiele, Calvi, et al., 2012, p. 1179). Another reason for the relevance of becoming a preferred customer comes from the scarcity of suitable suppliers (Wagner & Bode, 2011, p. 471). Current developments also showed that supplying firms are increasingly collaborating with each other or merging, which decreases the total number of suppliers for a source even more and forces organizations to buy from the same sources (Deloitte, 2017). As a consequence, buying organizations start to recognize that securing their key supplier's benevolence is essential for future success (Schiele, Veldman, et al., 2012, p. 134). These factors may have driven the increase in preferred customer research. Ellis, Henke Jr, and Kull (2012, p. 1266) found through a survey among 233 sales personnel, that (1) the buyer's attitude towards supplier

involvement, which includes aligning design specifications and cooperative product development, and the (2) relational reliability influences the supplier's choice of a preferred customer. According to Schiele, Calvi, et al. (2012, p. 1179), obtaining the preferred customer status is dependent on two important constructs; customer attractiveness and supplier satisfaction. Yet, studies show a stronger relation between supplier satisfaction and factors of PCS compared to customer attractiveness and PCS. The authors therefore identified that both preferred customer status and supplier satisfaction are inherently linked to each other, called 'the circle of preferred customership'. Additionally, it was stated that there are four main categories of drivers of PCS: economic, relational, instruments of interaction, and strategic drivers. Hüttinger et al. (2012) build further on this by creating a table with the antecedents they found in the available literature, the results are shown in the table below.

Table 4: Antecedents of PCS from Hüttinger et al. (2012)

Economic Value	Relational Quality	Instruments of Interaction	Strategic Compatibility
High purchase volumes	Loyalty	Early supplier involvement	Strategic fit
Profitability	Trust	Involvement in product design	Shared future
Business opportunities	Commitment	Supplier development	Cluster membership
Total cost as basis for purchasing price	Satisfaction	Response to cost reduction ideas	Geographical proximity
Low cost to serve the customer	Customer attractiveness	Communication and feedback	
	Respect	Quality initiatives	
	Fairness	Schedule sharing	
	Strong bonds	Action-oriented crisis management	
		Simple and coordinated business procedures	
		Predictable decision process	

According to the social exchange theory, the more a supplier perceives its expectations to be fulfilled, the more that supplier reciprocates this feelings by making relational investments (Nyaga, Whipple, & Lynch, 2010; Pulles et al., 2016). Later, Pulles et al. (2016) studied PCS as well and found that preferential resource allocation can be achieved by a buyer's selection and relational capabilities, it also showed that receiving

preferential resource allocation showed to be directly linked to competitive advantages for the buyer. The study also showed that supplier satisfaction is a key aspect in achieving preferred customer status. Vos et al. (2016, p. 10) used the following items to measure whether the buyer has preferred customer status: according to the supplier the buying firm is the preferred customer of the supplier, when the supplier cares more for the buyer, when the supplier goes out on a limb for the buyer, and when the supplier's firm prefers collaborating with the buyer's firm compared to its other customers. By attaining preferred customer status, the exclusivity and sustainability of the buyer-supplier relationship can be established (Schomann et al., 2018, p. 231).

The next chapter will provide a deeper understanding of the benefits that can be achieved through becoming a preferred customer, i.e. achieving preferred customer status.

3.2 Benefits of PCS: preferential treatment, resource allocation and benevolent pricing.

The relationship between a buying firm and its suppliers is very important in obtaining resources that are needed for achieving firm-level competitive advantage (Ellram, Tate, & Feitzinger, 2013; Hitt, 2011). Suppliers can have particular preferred customers to whom they choose to allocate preferential resources (Baxter, 2012). A buyer that is awarded a preferred customer status receives preferential resource allocation from the supplier. As top preferred customer, the buyer receives better treatment than its competitors, which can lead to an advantage when competing over scarce or valuable resources (Steinle & Schiele, 2008, p. 11). Another benefit is having access to resources first, so being the first who's needs are being responded to, whereas other less preferred customers have to wait (Williamson, 1991, p. 83). Suppliers dedicating their best personnel to the relationship with preferred customer, sharing newest technologies or sharing new innovations and/or best ideas with preferred customers are also benefits that could be gained from being a preferred customer (Hüttinger et al., 2012; Pulles et al., 2016). Nollet, Rebolledo, and Popel (2012, p. 1186) stated that better treatment can also exist of higher product quality and availability, lower prices, faster delivery or support in the sourcing process. Customers with a preferred status can benefit from their status in case of capacity bottlenecks, meaning in cases where a supplier has to choose to which buyer the remaining production capacity will be allocated. This type of situation can take place when for example a base resource is scarce, or a natural disaster happens (e.g. earthquake or tsunami) and the supplier must again decide which customer gets the remaining products or production

capacity (Pulles et al., 2016, p. 8). Vos et al. (2016, p. 10) used allocation of supplier's best employees (most experienced, trained, intelligent) to the relationship with the buyer, allocation of more financial resources to the relationship with the buyer, granting the buyer the best physical resources and sharing more capabilities with the buyer as preferential treatment indicators. Pulles et al. (2014, p. 8) made a distinction between physical and innovation resources. Physical resources consist of better utilization of supplier's production facilities, priority in the allocation of supplier's products in the case of extreme events, allocation of capacity bottlenecks in the case of extreme events (e.g., natural disasters), allocation of scarce materials in case of capacity bottlenecks, and dedication of more specialized equipment to the relationship with the buyer. Innovation resources consist of supplier willing to share key technological information with the buyer, sharing their best ideas with the buyer first, and dedicating more innovation resources with the buyer.

Besides benefits related to the allocation of resources, benevolent pricing is also a benefit that can be obtained by a buying firm through being a preferred customer. The first author to highlight this was Bew (2007, p. 2), the results showed that savings between 2 to 4 percent were possible. Later in 2011, Schiele et al. (2011) performed a study about the role of preferred customer status in supplier innovativeness and supplier pricing. The study showed a significant positive relationship between being a preferred customer and receiving benevolent pricing of the supplier. The study was tested empirically through a survey among 166 respondents. Pricing is becoming more important due to factors such as increased environmental pressures. Industrial markets usually deal with flexible prices and therefore with negotiations. Credit terms, delivery schedules, promotion and quantity discounts are all part of pricing mechanisms (Jain & Laric, 1979, p. 80). Companies can have different types of pricing strategies. Types of some of the pricing situations are for example: New Product, Competitive, Product Line, Value-based and Cost-Based Pricing. A pricing strategy is the means by which a pricing objective is achieved. Most of the pricing strategies imply a pricing structure related to costs, competition, or customers (Noble & Gruca, 1999, p. 432). Another type of pricing is benevolent pricing. Pricing by a supplier can become benevolent when the attractiveness of a buyer increases, usually supplier satisfaction leads to buyer attractiveness (Schiele et al., 2011). There is quite some repetition in the literature about the benefits of PCS. The table below provides an overview of the most varied benefits of preferred customer status.

Table 5: Benefits of PCS based on Vos et al. (2016), Pulles et al. (2014), Schiele et al. (2011)

Preferential treatment	Allocation of physical resources	Allocation of innovation resources	Benevolent pricing
Allocation of best employees to the relationship with the buyer Allocation of more financial resources (capital, cash) to the relationship with the buyer	Better utilization of supplier's production facilities Allocation of capacity bottlenecks in case of extreme events Allocation of scarce materials in case of capacity bottlenecks Dedication of more specialized equipment to the relationship	Supplier shares key technological information Supplier shares best ideas with the buyer first Supplier dedicates more innovation resources to the buyer	Receiving benevolent pricing from the supplier

To summarize this section, the most important benefits of becoming a preferred customer are preferential treatment, allocation of tangible and intangible resources, and benevolent pricing. These benefits lead to competitive advantage for the buyer and are important for the buyer to strive for at its most important suppliers. There is a gap in the existing literature in terms of examining whether different factors of SSCM might be an antecedent for the benefits of PCS as well. This thesis attempts to find out whether different sustainability issues perhaps influence PCS. In the next chapter, all before mentioned factors will be hypothesized and a conceptual framework will be created.

4. Hypotheses and research model

4.1 Hypotheses related to SSCM

This chapter will present hypotheses derived from the literature review. The hypotheses are mainly concerned with different factors of SSCM and their relation to the sustainability image of the buyer as perceived by the supplier and benefits of preferred customer status.

Sustainable supply chain practices appeared with an aim to integrate environmental concerns into businesses or organizations by reducing unintended negative consequences

of production and consumption processes (Genovese et al., 2017, p. 354). SSCM can be explained as supply chain management focusing on maintaining environmental, economic and social stability for long-term sustainable growth (Dubey, Gunasekaran, Papadopoulos, et al., 2017, p. 1212). This study tries to find out the relation between different concepts of SSCM and supplier satisfaction. After assessing theory about SSCM in the literature review, three factors in SSCM have been chosen to be tested as hypothesis for this study. The factors are SSCC, sustainability image of the buyer and moral sustainability motive of the supplier. In the next chapters, hypotheses have been constructed related to SSCM variables.

4.1.1 Hypotheses related to sustainable supply chain collaboration as independent variable

Collaboration with strategic supplier is key for the success of SSCM and is seen as one of the main drivers of SSCM (Dubey, Gunasekaran, Papadopoulos, et al., 2017, p. 1121). Sustainable supply chain collaboration could have a positive influence on the sustainability image of the buyer as perceived by the supplier. Studies showed that sustainability activities have a positive influence on the overall image of a firm (Han et al., 2019, p. 8), but this was tested from a consumer's point of view. Cho and Yoo (2012) also found before that the sustainability activities increase the reputation of firms and overall brand image. This study looks more specifically at the sustainability image of the buyer. Aiming to collaborate with suppliers for becoming more sustainable is a sustainability activity and therefore could enhance the sustainability image of the buyer, this time from a supplier's point of view.

Hypothesis 1A: SSCC has a positive effect on the sustainability image of the buyer.

Sustainable supply chain collaboration has benefits for both the buyer and supplier who are working together. Some of the mentioned benefits for suppliers include achieving environmental objectives, improving waste reduction, development of source reduction strategies, help from buyers in term of materials, equipment and parts in order to achieve common goals (Paulraj, 2011, pp. 35-36). On the other hand, a buying firm can receive benefits back from the supplier like preferential resource allocation for innovation and physical resources, and benevolent pricing by becoming the preferred customer of a supplier (Pulles et al., 2014; Schiele et al., 2011; Vos et al., 2016).

As previous PCS studies showed, there are several antecedents for PCS like; supplier satisfaction, supplier development, profitability, commitment, customer

attractiveness, strong bonds etc. Sustainable supply chain collaboration has common grounds with those antecedents of PCS. The before mentioned benefits of SSCC (Paulraj, 2011) might come over as commitment from the buyer, can strengthen the bond between buyer-supplier and be a driver in supplier development. The social exchange theory implies that relational behavior is caused by reciprocity of actions. According to the social exchange theory, the more a supplier perceives its expectations to be fulfilled, the more that supplier reciprocates this feelings by making relational investments (Nyaga et al., 2010; Pulles et al., 2016). So, if a supplier receives benefits of a relationship with the buyer and feels satisfied, that supplier is more likely to reciprocate these feeling by making relational investments to the buyer. At the same time, if the supplier wants to maintain those benefits, the supplier might engage in benevolent behavior in order to maintain those benefits (Pulles et al., 2016). If the supplier views sustainable supply chain collaboration as a benefit, this might result into the supplier reciprocate these benefits by allocating the buyer PCS benefits. Therefore, this study tries to find out whether sustainable supply chain collaboration has a positive effect on the three benefits of PCS, namely benevolent pricing, resource allocation physical and resource allocation innovation.

Hypothesis 1B: SSCC has a positive effect on benevolent pricing from the supplier.

Hypothesis 1C: SSCC has a positive effect on physical resource allocation from the supplier.

Hypothesis 1D: SSCC has a positive effect on innovation resource allocation from the supplier.

So far it has been discussed that SSCC might have a positive influence on the sustainability image of the buyer as well as on preferred customer status benefits. This reasoning leads to the first set of hypotheses in this study.

4.1.2 Hypothesis related to sustainability image buyer as independent variable.

Companies tend to use sustainability as an image enhancer. Zhang et al. (2014, p. 14) found that sustainability activities can help a firm in enhancing firm image, establishing good relationships with suppliers, and obtain economic benefits or achieve long term business objectives. Sustainability activities enhance image and a positive image could encourage customers to choose a firm over another firm (Han et al., 2019), this might also be the case for a supplier. Choosing a firm over another firm is also a concept that comes back in ‘preferred customer status’. When a supplier gives a buyer the preferred customer

status, it chooses that buyer over other buyers by giving that buyer preferential resource allocation and even benevolent pricing.

At the same time, sustainability activities make firms more attractive and could enhance their competitive advantage (Han et al., 2019). Previous research showed that customers care for sustainability image and that companies could strengthen their bonds with customers through sustainability image, yet suppliers as a target group has not been examined yet but should be taken into account as well (Pérez et al., 2013). Thus, the sustainability image of the buyer will be examined as perceived by the supplier. At the same time, buyers with a good image can be attractive for suppliers. When buyers get more business because they become more attractive to their customers and have competitive advantage through sustainability image (Pérez et al., 2013), they also must purchase more from their supplier, and this relates to the PCS antecedent 'profitability'. Customer attractiveness is also stated before as an antecedent of preferred customer status benefits. It is stated that pricing can become benevolent as the attractiveness of the buying firm increases (Schiele et al., 2011). So again, there are common grounds between sustainability image of the buyer and some antecedents of PCS benefits. Suppliers might also bet more on a forward looking company, since sustainability practices require a forward-looking view and information (Soderstrom, 2013, p. 36).

Furthermore, it is important to find out whether only being perceived sustainable is enough to obtain benefits of PCS, instead of going through the efforts of SSCC. It is shown before that sustainability image helped in strengthening bonds with customers (Pérez et al., 2013) and those companies would be less sensitive to market changes. It might be that this is also the case with strengthening bonds with suppliers. With this information a firm could take into consideration whether to implement SSCC or more simple measures that would enhance their sustainability image. The sustainability of the buyer will be measured as perceived by the supplier (Pérez et al., 2013). Again, the PCS benefits; benevolent pricing, resource allocation physical and resource allocation innovation have been chosen as dependent variables. Followed by this reasoning, the following hypotheses have been constructed:

> *Hypothesis 2A: Sustainability image of the buyer has a positive effect on benevolent pricing from the supplier.*

Hypothesis 2B: Sustainability image of the buyer has a positive effect on physical resource allocation from the supplier.

Hypothesis 2C: Sustainability image of the buyer has a positive effect on innovation resource allocation from the supplier.

4.1.3 Hypothesis related to moral sustainability motive

Besides looking at SSCC and sustainability image of the buyer, it is also important to look at the motivation of the supplier when it comes to sustainability activities. An overview of motives was presented before in table 3. The motives can be categorized into three categories; instrumental, relational, and moral motives. Instrumental and moral motives are opposites to each other. With instrumental motives a company engages in sustainability activities from own interest, such as competitiveness or just simply because regulations make it obligatory to do so. With moral motives, companies do it because they truly believe in sustainability and want to have a positive impact on the world. Morality-based motives have an important influence in the actions taken by supply-chain organizations (Aguilera et al., 2007). SSCM practices like sustainable supply chain motivation may be costly for a firm, therefore the firm might not choose to engage in them if it does not have a strong sense of 'moral duty'(Paulraj et al., 2017, p. 244). Etzioni (1988) stated before that moral motives are more essential than economic motives in the aim of sustainability, especially in times when there are economic difficulties. The study of Paulraj et al. (2017) showed that moral motives are the strongest motives for sustainability activities, in contrast to instrumental and relational motives. The readiness and willingness of a firm to engage in sustainability activities might be affected by the moral sustainability motive of the firm. The level and nature of motivation influences how a company establishes competitive priorities and allocates the needed resources to reach a sustainability capability. Not all motivations have the same amount of power or effectiveness. Vachon and Mao (2008) stated that the concept of justice and fairness, which is similar to moral motives, have shown to effect SSCM practices significantly.

Moral sustainability motives are thus concerned with good intention for the triple bottom line rather than only having the intention to gain profit, reputation or power. Also, in contrast with instrumental or relational motives, moral motives embrace the concept of 'good will'. Firms that feel responsible for the environment and have a high moral sustainability motive, might be likely to incorporate those characteristics into their practices. The moral sustainability motive of a supplier might enhance the willingness of

the suppliers to engage with buyers in SSCC. The higher the moral sustainability motive of the supplier, the more SSCC occurs due to the willingness and readiness of the supplier to work for becoming more sustainable together. Therefore, the following hypothesis is constructed:

> *Hypothesis 3A: Moral sustainability motive of the supplier has a positive effect on sustainable supply chain collaboration.*

As mentioned before, a supplier with a moral motive might be thrilled to work with the supplier for SSCC and therefore allocate the benefits of PCS to the buyer. On the other hand, a supplier with instrumental motive could see this as an extra effort or extra pressure and therefore could be affected negatively. Similarly, Han et al. (2019) hypothesized the moderating effect of environmental concern and found significant effects. Environmental concern moderated the effect between brand love and loyalty of the customer. It might be possible that in this study, the moral sustainability motive moderates the relationship between the independent variables (SSCC & Sustainability Buyer) and dependent variables (RAP, RAI, BP) of this study. So for example, the MSM of a supplier might moderate the effect between sustainable supply chain collaboration and resource allocation innovation.

This study tries to explore whether the moral sustainability motive of the supplier has a positive moderating effect between sustainable supply chain collaboration, sustainability buyer and the benefits of PCS. Hypotheses related to moral sustainability motive as moderating variable are therefore:

> *Hypothesis 4A: MSM moderates the effect between SB and BP positively.*
>
> *Hypothesis 4B: MSM moderates the effect between SSCC and BP positively.*
>
> *Hypothesis 4C: MSM moderates the effect between SB and RAP positively.*
>
> *Hypothesis 4D: MSM moderates the effect between SSCC and RAP positively.*
>
> *Hypothesis 4E: MSM moderates the effect between SB and RAI positively.*
>
> *Hypothesis 4F: MSM moderates the effect between SSCC and RAI positively.*

4.3 Conceptual framework

The figure below (Figure 1) presents the conceptual model that corresponds to the above-mentioned hypotheses of this study. The next chapter continues with an outline of the procedures and statistical methods used to test the hypotheses.

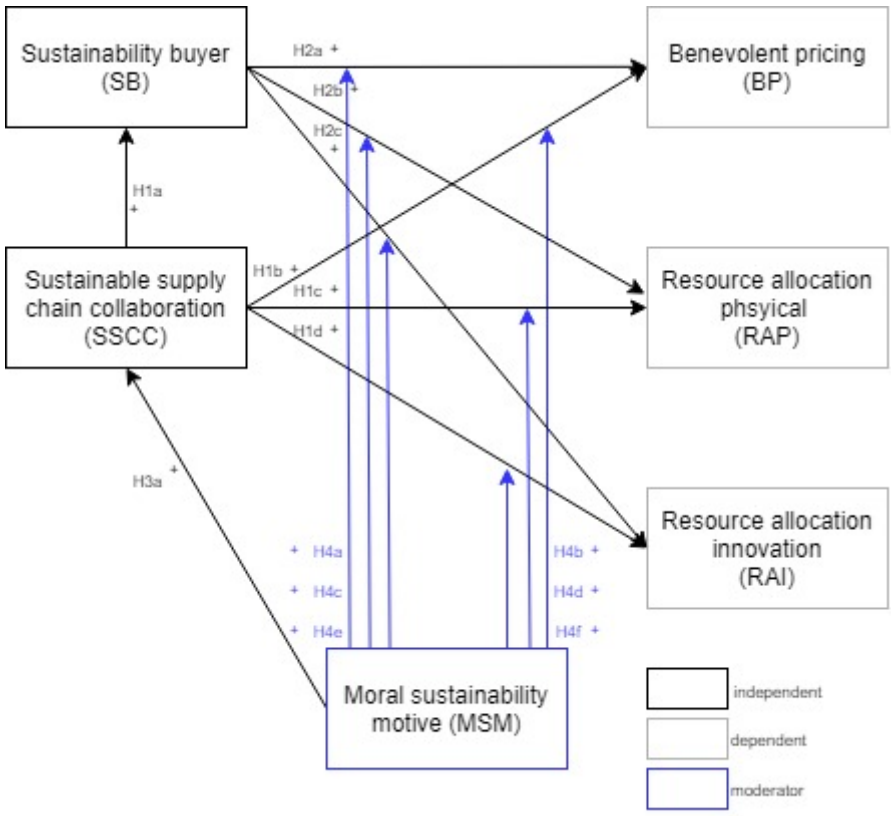

Figure 1: Conceptual framework

5. Methods

5.1 Method for reviewing literature

First, based on the literature, the key drivers and barriers of SSCM were identified. Then sustainable supply chain collaboration was chosen as the focus of this study and further explained. The factors sustainability buyer and sustainability motives were also thoroughly reviewed in order to get an understanding of the existing literature. By doing so, a conceptual framework was developed to form a base for the hypothesis and research model.

This section provides an overview of the key words that have been used to conduct a qualitative literature review. The scientific database Scopus is used mainly in the search for usable papers. In the appendix (Appendix A) an overview is given of the used key words and methods to filter out papers that are not relevant for this study and to discover usable and key papers. After the initial hit, the papers have been filtered out on years (usually from 2014-2019). In case of low amount of initial hits (<100), no time limit has been used. Relevant subject areas were Business, Management and Accounting, and occasionally

Engineering. Document type was set on ‘Article’ and source type on ‘Journal’. The papers were sorted on Cited (by highest) to ensure that key papers on the subject area have been assessed.

5.2 Survey design and measures used

This study uses multi-item scales to measure the independent and dependent variables in order to test the hypotheses. With multi-item scales, the attitude of the supplier towards more than one attribute to the stimulus object can measured. Each item is a single question or statement that needs to be evaluated. The questionnaire is measuring various variables regarding sustainable supply chain collaboration, sustainability buyer, sustainability motive supplier, preferred customer status, and resource allocation. The constructs have been retrieved from literature and all have been tested before. Next to the dependent and independent variables, the questionnaire includes an assessment of the characteristics of the suppliers and supplier-buyer relationship, such as relationship length and supplier size. This study also includes sustainability motivation as a moderating variable.

The first part of the questionnaire is preferred customer status and allocation of resources, so first the initial status of the buyer can be measured. The questions preferred customer status, resource allocation and benevolent pricing stem from the research of Vos et al. (2016), Pulles et al. (2014) and Schiele et al. (2011). All dependent and independent variables are rated on a 5-point Likert scale ranging from “strongly disagree” to “strongly agree”.

The second part of the construct introduces the items about sustainable supply chain collaboration, sustainability buyer and moral sustainability motive of the supplier. The constructs have been retrieved from literature and were adapted to the content of this study where needed. These measures stem from the research of Yang et al. (2013), Paulraj et al. (2017) and Pérez et al. (2013). Again, the variables were rated on a 5-point Likert scale ranging from “strongly disagree” to “strongly agree”. In the next section (6.2.1) it will be explained why and how the measurements about the sustainability variables are chosen to measure these constructs.

In addition to the above mention constructs, the last part of the questionnaire includes control variables about characteristics of the supplying firm, the individuals taking the survey and the general relationship between the buying (Company X) and the supplying firm. Questions regarding length of relationship, turnover, firm size, complexity of

supplied products, industry, country and gender are added as well. All questionnaire items (except for turnover) will be arranged as mandatory to avoid unusable questionnaires due to missing answers. The survey took approximately 25-30 minutes to fill out. In the next section, it will be explained how the sustainability variable measures are chosen.

5.2.1 Research instruments for sustainability variables

This study adds questions about SSCC, sustainability of the buyer, and the moral motivation of the supplier to engage in sustainability activities. Various measurement methods of sustainable supply chain collaboration are gathered from the literature. The aim is to choose appropriate questions from the existing literature in order to use it in the research model of this thesis. Supply chain collaboration can be explained as a partnership process wherein at least two independent parties work together to mastermind and execute supply chain operations for the accomplishment of common goals and mutual benefits (Chen et al., 2017, p. 1). Soylu, Oruç, Turkay, Fujita, and Asakura (2006) stated before that supply chain collaboration is a way for organizations throughout the supply chain to share information, conduct strategic alliances with the aim to better performance, and reduce overall cost and inventories. Sancha et al. (2015, p. 157) concluded that supply chain collaboration has a statistically significant impact on sustainability.

After assessing several papers, measures for sustainable supply chain collaboration were identified and these are listed in the table below.

Table 6: Measurements for sustainable supply chain collaboration

Reference	Scale	Questions/Measure
Gavronski et al. (2011)	Seven-point scale	-We achieve environmental goals collectively -We develop a mutual understanding of responsibilities regarding environmental performance -We work together to reduce environmental impact of our activities -We conduct joint planning to anticipate and resolve environmental-related problems -We make joint decisions about ways to reduce overall environmental impact of our products
Schoenherr et al. (2014)	Five-point scale	-We develop a mutual understanding of responsibilities regarding environmental performance -We try to achieve environmental goals collectively -We conduct joint planning to anticipate and resolve environment-related problems -We make joint decisions about ways to reduce overall environmental impact of our products
Yang et al. (2013) p.62	Five-point scale	-We achieve sustainable common goals collectively with suppliers -We develop a mutual understanding of sustainable risk and responsibilities with suppliers -We work together with suppliers to reduce environmental impact in operations -We jointly provide resources, skills, and knowledge with supplier for SSCM
Kim & Rhee (2012) p.2472	Seven-point scale	-We hold regular meetings with partners for eco-product and R&D -We keep the open co-operation with partners for eco-tech -We exchange environmental information -We joint develop environmentally friendly products
Lu et al. (2012)	Seven-point scale	-We allocate our personnel to improve the supplier's capabilities in CSR implementation -We pay regular visits to the supplier to help improve ethical performance -We train/educate supplier's personnel about CSR practices and the required skills

A view on table 6 shows that most of the studies have similarities in their measurements, even though the language differs between different authors, there is a common idea for measuring SSCC. For this study the measurements that have been used in the study of Yang et al. (2013, p. 62)) seem the most suitable since they cover the enablers that this

study aims to focus on, since it is not only about collaboration but also about providing resource, skills, and knowledge to the supplier. The measures are adapted to: Achievement of sustainable common goals collectively with this buyer, development of mutual understanding of sustainable risk and responsibilities with this buyer, working together with buyers to reduce environmental impact in operations, and jointly providing resources, skills, and knowledge with buyers for SSCM purposes. The authors used a five-point Likert scale to score the items, where 1 corresponds to "strongly disagree" and 5 to "strongly agree". The questions from the study of Yang et al. (2013) are constructed from a buyer's point of view, so the questions must be restructured to the supplier's point of view.

There will also be a construct about the sustainability of the buyer, this construct is measured by measuring the perception of the supplier about the sustainability of the buyer. Items from the study Pérez et al. (2013, p. 479) is used to measure this construct. For the last sustainability construct, which is moral sustainability motivation of the supplier, the measure in the study of Paulraj et al. (2017) is been used. The authors originally used three different types of motives: which are instrumental, relational and moral but found that the moral motive was the most significant motive for engaging in sustainability activities. It was stated that moral motives can be a much stronger driver than the other motives, and that a high level of moral concerns for the environment seem to outperform those mainly driven by immoral considerations. Therefore, only the construct about moral motives will be taken to assess the motivation of the supplier in this thesis. The next chapter explains how data is collected.

5.3 Sample definition and data collection

This study uses quantitative data from a Dutch Company X, which is a manufacturer of high-tech measurement systems and machines. Their products are sold to a wide range of industries. The suppliers of the company are based in different countries all over the world but mainly in Europe and China. In collaboration with the purchasing department of Company X, the surveys designed for this research was sent to their supplier. Company X has nearly 1000 suppliers, but for this research only the suppliers of plants based in the Netherlands and UK are taken into account. The reason for that is because the purchasers related to this study have direct contact with those suppliers. Only suppliers with a value above the threshold of 10,000 euros in the year 2018 and with more than 3 contact moments per year will be considered in order to only contact relevant suppliers which are

able to give relevant responses. A spend analysis of the company is used to determine the suppliers who meet this threshold. The survey has been sent to 401 direct materials suppliers and 31 indirect materials suppliers. The language of the survey was in English, yet it was also translated by a translation firm to Chinese for a handful of Chinese suppliers in order to protect the reliability of their responses and make sure they understand the questions correctly. A Chinese speaking employee of Company X has read the translated version to make sure it was translated correctly. Chinese suppliers had the option to choose in which language they would respond.

Company X provided an internal data base with e-mail addresses and other contact information about their suppliers. In case of no availability of the right e-mail address, the purchasing employee responsible for that supplier was asked to provide the right contact details. The e-mails will be personalized to directly address recipients in order to increase response rate. The process for data collection through surveys is furthermore designed by following Dillman (2000) total design method. The total design method consists of three mailings; a cover letter, an instruction sheet and the survey. Qualtrics Research Suite was used as the survey tool to collect data. Qualtrics Research Suite is a user-friendly web-based survey tool and can be used to conduct the surveys of this study. The questions were created in this tool and sent to the suppliers of the focal firm by e-mail. The respondents were able to anonymously fill in the online survey. The survey also indicated that it is for research purposes only and the focal firm will not be able to see individual answers. In this way the respondent could be fully honest in answering the questions. A homogenous population of the respondents was tried to accomplish by asking especially sales representatives of the supplier to fill in the survey. On 16th of May 2019 the first mail with a link to the online mail address was sent to the suppliers of Company X. The mail was sent via a company e-mail address created for the researcher. Within the following three weeks, two reminders were sent again through e-mail. Occasional phone calls have been made to increase the response rate and employees of Company X were asked to remind the suppliers of the survey during their contact moments with the suppliers. In the end of the data collection period, 91 useable responses were collected consisting of 80 direct and 11 indirect suppliers, which resulted in a response rate of 21% percent. Commonly response rates for surveys fluctuate between 15 and 25% (Caniëls, Gehrsitz, & Semeijn, 2013, p. 138; Vos et al., 2016), meaning the response rate of this survey lies in the average range.

Table 7: Characteristics of the sample

Length of relationship		Number of employees		Percentage turnover with Company X as share of the total turnover	
<5 years	9 (10%)	<50	36 (40%)	<1%	10 (11%)
5-10 years	26 (29%)	51-500	38 (42%)	1%-5%	54 (59%)
11-20 years	27 (30%)	>500	16 (18%)	6-10%	11(12%)
>20 years	28 (31%)	Not specified	1 (1%)	11-30%	12 (13%)
Not specified	1 (1%)			>30%	3 (3%)
				Not specified	1 (1%)
N		91			

Industry of respondent		Influence of Company X on product design in %	
Primary sector	14 (15%)	<1%	11 (12%)
Secondary sector	50 (55%)	1%-5%	40 (44%)
Tertiary sector	19 (21%)	6-10%	7 (8%)
Quaternary sector	7 (8%)	11-30%	20 (22%)
Missing	1(1%)	>30%	12 (13%)
		Not specified	1 (1%)
N		91	

Notes: N = sample size

Furthermore, the quantitative data was be tested for non-response bias. Early and late respondents will be compared among dependent and independent variables, because late respondents are most similar to non-respondents (Paulraj, Lado, & Chen, 2008, p. 51). By using a parametric t-test, the early respondents (first week) will be compared to the late respondents (last week). Respondents taking longer than four weeks to respond will not be included in the sample.

A common worry of survey studies collecting quantitative data is the non-response bias. Non-response bias relates to the difference between people who participated in the survey, and those who decided not to participate in the survey. If this difference is too strong, the observations that were collected do not speak for the rest of the potential respondents and therefore are not representative for the whole population (Armstrong & Overton, 1977, p. 396). As mentioned before, to check for non-response bias, early and late respondents were compared among the variables. This was controlled by comparing the first quartile (N=23) with the last quartile (N=23) of respondents with an independent t-test, the last quartile was

in this case a representative of the non-respondents. The results in Appendix C show that there is no significant difference between early versus late respondents, all p-values are below 0.05. It can therefore be assumed that the participants of the survey in this study represent the whole sample.

5.4 Statistical analysis: PLS Path Modeling with Smart PLS 3.0

Regarding statistical analysis, Partial Least Squares (PLS) path modeling was used to analyze the collected data, which was also used in the research of Vos et al. (2016). PLS path modeling enables modelling complex relationships with multiple observed latent variables (Wang, Henseler, Vinzi, & Chin, 2010, p. 2), and is seen as a second-generation Structural Equation Modeling (SEM) technique (J. F. Hair, Sarstedt, Pieper, & Ringle, 2012, p. 321). The software that will be used to model the relationship between the constructs is Smart PLS 3.0 (Ringle, Wende, & Becker, 2015a). This software is chosen because it has a graphical interface which is easy to use (Temme, Kreis, & Hildebrandt, 2006, p. 12). PLS path modeling is chosen over covariance-based SEM (CB-SEM) because it has less restrictive assumptions (Streukens & Leroi-Werelds, 2016, p. 5). Another reason to choose PLS is the non-normal and small sample size which is considered inappropriate for CB-SEM, hence it is suggested to use PLS (J. Hair, Sarstedt, Hopkins, & G. Kuppelwieser, 2014; J. F. Hair et al., 2012, p. 321). In research about PCS high skewness can be expected, which again makes PLS path modelling suitable because it does not require specific measurement scales and does not make assumptions about the population (Henseler, Ringle, & Sarstedt, 2015, p. 566). There are two popular ways to define the minimum sample size for a PLS model in order to achieve higher statistical power: (1) ten times the largest number of formative indicators used to measure on construct, or (2) ten times the largest number of inner model paths directed at a particular construct in the inner model (J. Hair et al., 2014, p. 109). The largest number of formative indicators to measure one construct is five, so the sample size should be at least 50. Since the sample size in this study is usable 91 cases, sample size requirements are met and PLS can be performed without concerns.

Because the data is expected to be skewed, a confidence interval bias-corrected and accelerated bootstrap was chosen. The method that was chosen for bootstrap is better than a regular bootstrap when looking at power, accuracy and error rate. Using a 5,000-bootstrap for this confidence interval is recommended (Streukens & Leroi-Werelds, 2016,

p. 5). More on, IBM SPSS Statistics 25 is used for calculating descriptive statistics and tests for data and sample characteristics.

5.5 Quality assessment of data and research model: reliability, validity and model fit

In order to assess data structure quality, a principal component analysis (PCA) is performed to examine if the used items to measure a construct measure the same. This is the first step of data structure quality assessment. This method is used to calculate factor loadings, and retains the unique variance of items on their intended components (Petter, Straub, & Rai, 2007, p. 614). So, herewith the factor loadings and the unique variance of each item is examined. PCA is applied for default option Varimax and Direct Oblimin (Delta = 0), they reveal similar results. The expected number of factors is six. The varimax rotation extracts the expected six factors with Eigenvalue > 1. It stands out that the items of Resource Allocation Physical and Resource Allocation Innovation load on the same factor. Which makes sense because both items measure benefits of PCS, but when looked further at the statements of the items the benefits differ from each other (physical versus innovation), so all items of RAP and RAI will stay in the analysis. Furthermore, the items of BP load on two different factors instead of one factor. This factor stands for: Compared to other customers…we go out on a limb for BuyingFirmXY. It might be the case that this item is not understood correctly and therefore will be removed from further analysis. PC_benevolent_Pricing_128_1, PC_benevolent_Pricing_128_4 and PC_benevolent_Pricing_128_5 load on factor six, whereas PC_benevolent_Pricing_128_2 and PC_benevolent_Pricing_128_3 load on factor seven. It is hard to understand why this is the case for BP, since when looked at the items, they seem quite close to each other in terms of questioning the same thing. The second and third item of BP will still be removed because they create a second factor.

Deleting the two above mentioned variables (PC_benevolent_Pricing_128_2, PC_benevolent_Pricing_128_3) results on 5 factors with Eigenvalue > 1, this makes sense because benevolent pricing was before loading on 2 separate factors and now it loads on one factor. Pre-setting the factors to six does not help because only one variable of RAP becomes a separate factor. The full rotated component matrix with Eigenvalues > 1 can be found in Appendix D. The statistical analysis was performed using SPSS version 25 (IBM Corporation, 2017).

For further assessment of data validity and reliability, indicators and latent variables were assessed within SmartPLS 3.0 by using a 5,000 bootstrap sample (Ringle, Wende, & Becker, 2015b). To keep as much information as possible, pairwise deletion in case of missing data was used. Since almost all questions were set as mandatory to answer, this only is applicable for the data about the control variables. A case wise deletion would reduce the sample size too much, and therefore is not used (Parwoll & Wagner, 2012, pp. 538-539). The outer loadings in SmartPLS are comparable to factor loadings calculated beforehand in SPSS. The bootstrap shows that all indicators load above the threshold of 0,7, meaning the items are a reliable measure for the latent variable. Which makes sense because the items that did not load were already removed during the PCA in SPSS. Next, the internal consistency reliability of the construct measures is evaluated. Usually Cronbach's alpha is being used for this purpose (Cronbach & Meehl, 1955, p. 281) All values for Cronbach's alpha are above the threshold of 0,7 (Field, 2013, p. 710). Composite reliability (CR) is assessed as well because it takes differences in loadings into account. Also, CR is recommended for PLS path modeling (J. Hair, Ringle, & Sarstedt, 2011, p. 147). It is stated that CR should be above 0,7 (Bagozzi & Yi, 1988, p. 82). The figures in the table below (table 8) show that, just like Cronbach's alpha, CR is also above the threshold for all items, yet Cronbach's Alpha is slightly lower than CR, the use of Cronbach's alpha would have let to an underestimation of reliability. An additional construct that is assessed is discriminant validity of the constructs, to ensure that the constructs measure what they are supposed or intended to measure (Campbell & Fiske, 1959, p.83). Therefore, te convergent validity with the average variance extracted (AVE) and discriminant validity heterotrait-monotrait ratio (HTMT) are examined. The acceptable value for AVE is a value which is higher than 0.5 (Farrell, 2010, pp. 324-325; J. Hair et al., 2014, p. 111), as shown in the table below, that threshold is met in this study. For testing discriminant validity with HTMT, the suggested threshold of Henseler et al. (2015) is a value below 0.85. A table in Appendix E presents that all values for HTMT for the direct effects are below the threshold, thus meaning that the requirements are met and therefore validity is given according to the HTMT method. Only for the moderating effects the HTMT values are higher, and for RAP-RAI, which is expectable since the measurements are similar. The HTMT values in the bootstrap analysis of the upper confidence intervals also do not contain values above the threshold of 1.0 (Henseler et al., 2015). It can be concluded that convergent and discriminant validity are established.

Table 8: Data quality assessment

	Composite Reliability (CR)	Cronbach's alpha	AVE
Sustainable Supply Chain Collaboration (SSCC)	0.936	0.897	0.830
Sustainability Buyer (SB)	0.958	0.946	0.821
Moral Sustainability Motive (MSM)	0.958	0.942	0.852
Benevolent Pricing (BP)	0.910	0.858	0.771
Resource Allocation Physical (RAP)	0.895	0.828	0.740
Resource Allocation Innovation (RAI)	0.930	0.887	0.815

The last step of data quality assessment is the examination of the model fit. The standardized root mean square residual (SRMR) is used to assess model fit, in which a value close to zero determines a perfect fit (West, Taylor, & Wu, 2012, p. 216)(West, Taylor 2012, p. 216). Values between 0,05 and 0,10 are acceptable below 0,08 is recommended as a cut-off point (West et al., 2012, p. 219). The SRMR for this model is 0,062 and therefore model fit is established.

6. Results

6.1 Hypothesis testing with Smart PLS

To test the hypotheses presented in chapter four, a PLS path modelling as discussed in the previous chapter is calculated. The model is tested using a 5,000-sample bootstrap with 0.05 level of significance. A one-tailed test is recommended because the relationships in the model are expected to either be positive or negative (Kock, 2015, p. 5). R2 values of the endogenous variables and the value and significance level of the path coefficients are used to determine outcomes of the model in this study. R^2 is a value that defines the amount of variance of a latent variable explained by other latent variables (J. Hair et al., 2014, p. 113). The coefficient of determination R^2 determines the predictive power of a model. The common rule of thumb for an acceptable R^2 relies on 0.75. 0.50, and 0.25 respectively, which describes substantial, moderate, or weak levels of predictive accuracy (J. Hair et al., 2014, p. 113). Almost all variables in the model are affected by another variable and therefore endogenous, except for MSM. The R^2 level of BP is 0.082, RAI is 0.250, RAP is 0.169, SB is 0.372 and SSCC is 0.268. The predictive power of the variables in the model lie between weak and moderate.

Next, the path coefficients are examined on value and significance level. There is empirical support for the hypothesis when the path coefficient is significant, then the

outcome can be generalized from the sample to the population. In case the paths are insignificant or have contrary signs, the prior hypothesis from chapter 4 is not supported. When there is a significant effect present, the hypothesis is supported (J. Hair et al., 2011, p. 147). More on, Cohen's effect size f^2 is examined, which checks whether R^2 changes when a variable is removed from the model. A large change means a large effect and results in a high effect size f^2 (J. Hair et al., 2014). Effect sizes of 0.02, 0.15 and 0.35 can be viewed as small, medium and large effects (Cohen, 1998, pp. 413-414). The tables below present the significance levels for the path coefficients and the values for R^2 and f^2.

Table 9: Effect statistics of the research model

	Path	t	β	f^2
H1a	SSCC → SB**	7.03**	0.61	0.59
H1b	SSCC → BP	0.95	0.16	0.02
H1c	SSCC → RAP*	2.01*	0.28	0.05
H1d	SSCC → RAI*	1.65*	0.26	0.05
H2a	SB → BP	0.56	0.11	0.01
H2b	SB → RAP	0.56	0.09	0.01
H2c	SB → RAI	1.25	0.22	0.03
H3	MSM → SSCC**	4.70**	0.52	0.37

Notes: t= t-statistic; β = standardized coefficient beta; f^2 = effect size of variance explained by predictor;= p <0.05 (one-sided); **= p <0.01 (one sided); SSCC = sustainable supply chain collaboration, SB = sustainability buyer, MSM = moral sustainability motive, BP = benevolent pricing, RAP = resource allocation physical, RAI = resource allocation innovation*

The results show that hypotheses H1a, H1c, H1d and H3 are supported. The results in the table show that sustainable supply chain collaboration has a strong significant effect on the sustainability image of the buyer (H1a: t=7.03; β=0.61; f^2=0.59). SSCC also has a significant effect on resource allocation for both physical (H1c: t=2.01; β=0.28; f^2=0.05). and innovation (H1d: t=1.65; β=0.26; f^2=0.05) resources. Sustainability of the buyer has no significant effect on any of the independent variables, therefore hypotheses 2a, 2b and 2c are rejected (H2a: t=0.56; β=0.11; f^2=0.01; H2b: t=0.56; β=0.09; f^2=0.01; H2c: t=1.25; β=0.22; f^2=0.03) . The moral sustainability motive of the supplier also has a significant effect on sustainable supply chain collaboration (H3a: t=4.70; β=0.52; f^2=0.37), even at an alpha level of 0.001 the hypothesis is supported. In summary, these results show that the hypotheses H1a, H1c, H1d and H3a are supported with statistical evidence, H1a and H3a with a strong significant effect. A graphical overview is presented of all the hypothesis and their respective path coefficients in figure 2.

Furthermore, moderating effects of moral sustainability motives were hypothesized. The table below shows that almost none of the hypotheses about MSM as moderating variable are supported. Table 10 shows that only one hypothesis is supported followed by

this reasoning. Moral sustainable motive moderates the effect between sustainability buyer and resource allocation innovation (H4f). Some hypotheses have a negative direction instead of the expected positive effect (H4b, H4c, H4e). Although the effects are non-significant, it is interesting to find out that the direction is negative.

Table 10: Effect statistics of moderating effects

	Path	t	β	f^2
H4a	MSM → SB x BP	0.74	0.14	0.01
H4b	MSM → SSCC x BP	0.57	-0.09	0.01
H4c	MSM → SB x RAP	0.59	-0.10	0.01
H4d	MSM → SSCC x RAP	1.47	0.22	0.04
H4e	MSM → SB x RAI	1.40	-0.23	0.05
H4f	MSM → SSCC x RAI*	2.18*	0.33	0.10

*Notes: t= t-statistic; β = standardized coefficient beta; f^2 = effect size of variance explained by predictor; *= p <0.05 (one-sided); **= p <0.01 (one sided); SSCC = sustainable supply chain collaboration, SB = sustainability buyer, MSM = moral sustainability motive, BP = benevolent pricing, RAP = resource allocation physical, RAI = resource allocation innovation*

The figure below (figure) presents the results from path modelling for the entire model.

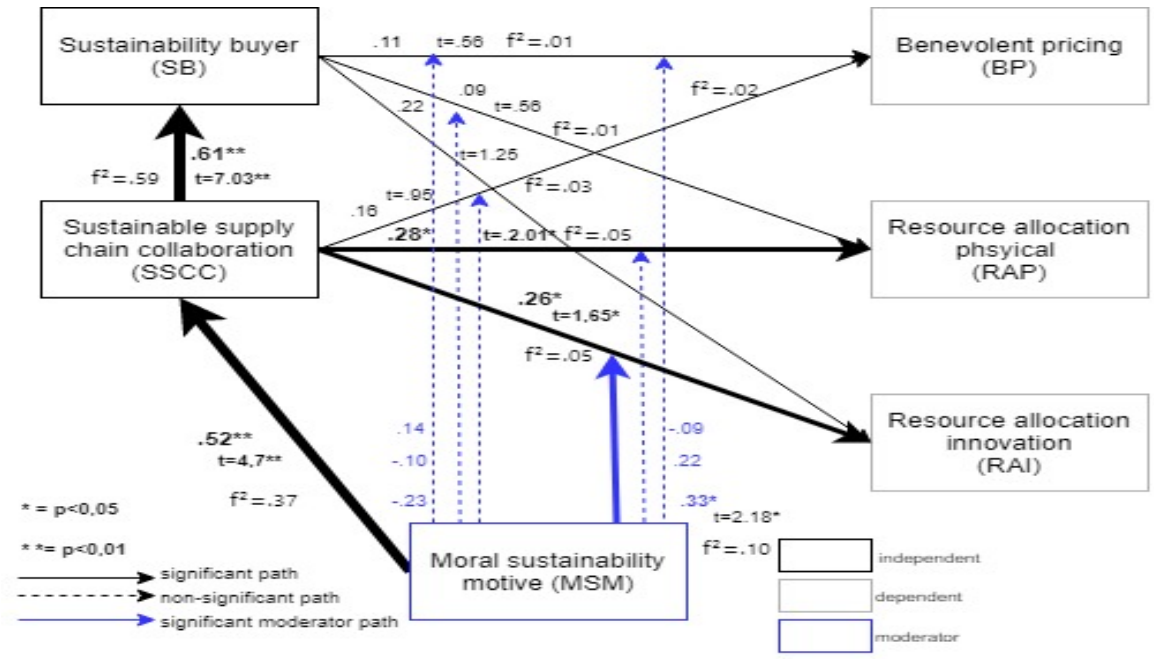

Figure 2: Results from path modelling

7. Discussion & Conclusion: Significant effect of SSCC on physical and innovation allocation

7.1 Evaluation and discussion of the results

The purpose of this thesis was to combine SSCM research with preferred customer status research in order to explore whether the different aspects of SSSM would have an influence on the benefits of preferred customer status. In essence, whether sustainable supply chain collaboration and sustainability image could be used to gain the benefits of preferred customer status, which consist of; benevolent pricing, resource allocation physical and resource allocation innovation. Furthermore, the effect of the moral sustainability motive of the supplier was considered as well, especially as a moderating effect.

The first variable that will be discussed is the effect of sustainable supply chain collaboration on the independent variables. Sustainable supply chain collaboration does have a significant effect on the sustainability image of the buyer, meaning that sustainable supply chain collaboration significantly influences the sustainability image of the buyer. Firms that engage in sustainable supply chain collaboration are perceived more as a sustainable firm by their suppliers. Likewise, there is a significant positive effect of SSCC on both physical and innovation resource allocation. As expected, sustainable supply chain collaboration leads to resource allocation in physical and innovation resources from the supplier to the buyer. On the other hand, the effect on benevolent pricing is not significant ($p=0.071$). A reason for this could be that sustainable supply chain collaboration needs investment or because sustainability activities are usually regarded as an extra cost since many authors have stated higher cost as a barrier for sustainability activities (Moktadir et al., 2018; Rossi et al., 2013; Seuring & Müller, 2008; Walker & Jones, 2012). The supplier might be less benevolent in pricing when their cost is likely to increase due to sustainability practices and collaboration.

The second independent variable, which is sustainability image of the buyer as perceived by the supplier did not have as much influence as SSCC on the outcomes of PCS. Pérez et al. (2013, p. 477) the sustainability image of firms before and found that the results had direct implications for managers since it came out that customers care about sustainability issues. In this study, instead of the customers the suppliers have been studied. Contrary to the study of Pérez et al. (2013), this study did not result into a significant effect of sustainability image. None of the hypotheses that relate to sustainability buyer as an

independent variable are supported. The sustainability image of the buyer does not result in gaining the benefits of preferred customer status as expected. An explanation for this might be that in the end suppliers are also businesses with an aim of making profit and they do not differentiate in whether their buyer has a sustainable image or not. It is argued that companies engaged in sustainability measures seek either economic profits or legitimacy (Schaltegger & Hörisch, 2017). The sustainability of the buyer might not lead to either one of the before mentioned economic profits or legitimacy for the supplier, and therefore the sustainability of the buyer does not influence the PCS benefits. Thus, only being perceived as a sustainable company is not enough in obtaining benefits like resource allocation and benevolent pricing. It might be that the sustainability of a buyer does not have a direct benefit for the supplier, so it does not result in giving benefits like resource allocation back to the supplier. So, it is not the general appearance of sustainability, but actually acting on it through SSCC that leads to preferred customer status benefits for the buyer. An explanation for this might be that SSCC does have a direct benefit for the supplier as well, such as for example shared cost reduction (Yan, Chien, & Yang, 2016, p. 1).

Lastly, the results related to moral sustainability motivation of the supplier will be discussed. In order to examine moderating effects, direct effects had to be examined first. The results show that moral sustainability motive has a significant positive effect on sustainable supply chain collaboration. It can be concluded that moral motivation does influence sustainability practices positively and that the higher moral motive for sustainability results in higher sustainable supply chain collaboration between buyer and supplier. This result is similar to the study of Paulraj et al. (2017), wherein moral motives were found to be key drivers for SSCM practices. So, it can be assumed that it is more likely and effective for a buyer to engage in SSCC with suppliers that have a high moral sustainability motive. This might be because the supplier is more willing and motivated to engage in sustainable supply chain collaboration activities with the buyer. Buyers could identify suppliers who have a high moral sustainability motive and invest their time and money in them for SSCC, rather than into supplier that have a low moral motive.

Furthermore, the moderating effect of moral sustainability motive was examined. Moral sustainability motive only moderates the effect between sustainable supply chain collaboration and resource allocation of innovation. In other words, moral sustainability motive changes the strength between the variables sustainable supply chain collaboration and resource allocation innovation. The effect is positive, so the effect is stronger when the

moral sustainability motive of a supplier is high. This finding is similar to the study of Paulraj et al. (2017), wherein was found that moral motives were the strongest type of motive to engage in SSCM. In this study this finding is tested with quantitative data in another industry and with a more specific sustainability factor namely SSCC. The other expected moderating paths did not have a significant moderating effect between the variables.

To summarize, interesting results have been found regarding the variables of this study. Sustainable supply chain collaboration showed a significant positive effect on physical and innovational resource allocation. Another important finding was that the moral sustainability motive of the supplier did have a positive effect on sustainable supply chain collaboration. Furthermore, by engaging in SSCC activities, the buying firm appeared more sustainable to the supplier.

It is inferred that for the case company, collaboration for sustainability has more influence on PCS outcomes than simply having the image of being sustainable. So, in order to benefit from resource allocation, the case company should enhance its SSCC activities with its suppliers. Business aiming to benefit from preferred customer status outcomes, might consider SSCC with supplier that have high moral sustainability motive. The PCS benefits might also be an extra motivation to engage in SSCC activities. Unfortunately, for companies seeking benevolent pricing from their supplier, SSCC is not an effective antecedent. Since no significant effect was found on benevolent pricing from any of the independent variables, managers should not expect benevolent or better pricing from suppliers when they engage in sustainability activities mentioned in this study. Yet, a negative significant relationship was not found either between SSCM factors and benevolent pricing. Which is good because it means that supplier might not charge higher prices when the sustainability image of the buyer is higher or when the buyer engages in SSCC activities with the supplier.

In the next section, the limitations of this study will be stated, alongside with suggestions for future research.

7.2 Limitations and future research

Despite the considerable contributions explained above, it is important to highlight limitations of this study that might open a window for future research. To start with, only one case company was used to test the hypotheses in this study. The hypotheses have been

tested for only one industry due to time limitations. In future research, different case companies from different industries can be used to gather more data to obtain a more generalizable result. It might be a good idea to look at companies where sustainable supply chain collaboration is done more actively or also consider looking at the importance of sustainability in different industries.

The response in this study is 91, this amount is relatively low and is not suited to find small effects. The sample size is unfortunately small and the advised amount of at least 100 respondents is not met. Future research should include more potential respondents so the sample size will be larger.

Although the survey was anonymous and the case company could not see which supplier was responding, the suppliers did have the opportunity to leave their mail addresses for results. This might have let the suppliers think that the survey was not completely anonymous, and they could have been reacting accordingly. Since the questionnaire included questions about sustainability, social desirability might have occurred when the respondents were answering the questions. This might especially be the case about the questions for the item moral sustainability motive.

Another issue as with most SSCM studies, this study examines a 'snapshot image' of sustainable supply chain collaboration (Yang et al., 2013). In future research it could be useful to examine both short-term and long-term effects of the variables and pathways proposed in this study.

Even though this study has limitations, it can act as a base for further research on including SSCM factors in preferred customer studies. These two concepts were never combined in the literature before, yet the results show that there are significant effects between different SSCM factors and PCS benefits. This study has found that sustainable supply chain collaboration has a significant positive effect on different benefits of preferred customer status such as physical and innovation resource allocation. In further investigations, it might be possible to use different methods and variables of SSCM for verifying the results in this study.

Several questions remain unanswered at present. Unlike Paulraj et al. (2017), this study found a negative effect of moral sustainability motive as a moderating variable on the relationship between the independent and the dependent variables. It is not clear why the moral sustainability motive has a negative effect on some of the dependent variables or

as a moderator. Future research might focus more on finding out why negative effects occurred related to moral sustainability motive, when it was not expected in the first place.

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Appendix A – Literature Review

Keyword	Initial hits	Years	Hits after year limit	Hits only relevant in subject areas	Which are articles in journals	Usable and assessed papers	Search key
"Sustainable supply chain management" (in article title)	269	2014-2019	192	121	92	10	TITLE ("sustainable supply chain management") AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (SRCTYPE , "j"))
"Sustainable supply chain management" AND drivers	52	2017-2019	22	17	15	7	TITLE-ABS-KEY ("sustainable supply chain management" AND drivers) AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (SRCTYPE , "j"))
"Sustainable supply chain management" AND barriers	40	2017-2019	23	17	12	4	TITLE-ABS-KEY ("Sustainable supply chain management" AND barriers) AND (LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017)) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SRCTYPE , "j"))
"Supply chain collaboration" (in article title)	552	2014-2019	227	142	96	9	TITLE (supply AND chain AND collaboration) AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (SRCTYPE , "j"))
"Supply chain collaboration" AND sustainability	37	2012-2019	35	24	20	4	TITLE-ABS-KEY ("supply chain collaboration" AND sustainability) AND (EXCLUDE (PUBYEAR , 2008) OR EXCLUDE (PUBYEAR , 2006)) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SRCTYPE , "j"))
Supplier satisfaction (in article title)	72	2003-2018	53	36		10	TITLE (supplier AND satisfaction) AND (LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-TO (PUBYEAR , 2009) OR LIMIT-TO (PUBYEAR , 2008) OR LIMIT-TO (PUBYEAR , 2007) OR LIMIT-TO (PUBYEAR , 2006) OR LIMIT-TO (PUBYEAR , 2005) OR LIMIT-TO (PUBYEAR , 2004) OR LIMIT-TO (PUBYEAR , 2003)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ENGI") OR LIMIT-TO (SUBJAREA , "ECON")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j"))
Sustainability AND supplier AND price	163	2014-2019	89	65	46	2	TITLE-ABS-KEY (sustainability AND supplier AND price) AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014)) AND (LIMIT-TO (SUBJAREA , "ENGI") OR LIMIT-TO (SUBJAREA , "ENVI") OR LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SRCTYPE , "j"))
Effect sustainability on price	1127		1051	121		2	TITLE-ABS-KEY (effect AND sustainability AND on AND price) AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-TO (PUBYEAR , 2009) OR LIMIT-TO (PUBYEAR , 2008) OR LIMIT-TO (PUBYEAR , 2007) OR LIMIT-TO (PUBYEAR , 2006) OR LIMIT-TO (PUBYEAR , 2005) OR LIMIT-TO (PUBYEAR , 2004) OR LIMIT-TO (PUBYEAR , 2003)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (SRCTYPE , "j"))
"Pricing strategy" AND supplier	224	None	224	140	94	1	TITLE-ABS-KEY ("pricing strategy" AND supplier) AND (LIMIT-TO (SUBJAREA , "ENGI") OR LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SRCTYPE , "j"))
"Sustainable supply chain management" and competitive	55	None	55	55	55	5	TITLE-ABS-KEY ("sustainable supply chain management" AND competitive)
"Corporate social responsibility" AND benefit AND supplier	1,612	2014-2019	962	616	442	5	(TITLE-ABS-KEY ("corporate social responsibility" AND benefit)) AND (supplier) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014))
"Corporate culture" AND sustainability	107	2014-2019	51	43	27	4	TITLE-ABS-KEY ("corporate culture" AND sustainability) AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015)) AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ECON") OR LIMIT-TO (SUBJAREA , "ENVI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SRCTYPE , "j"))

Appendix B – Survey Items

Sustainable supply chain collaboration (SSCC)	**Yang et al. 2013**
S_SustColab_1	…we achieve sustainable common goals collectively.
S_SustColab_2	…we develop a mutual understanding of sustainable risk and responsibilities.
S_SustColab_3	…we work together to reduce environmental impact in operations
S_SustColab_4	…we jointly provide resources, skills and knowledge for sustainable supply chain management
Sustainability Buyer (SB)	**Perez et al. (2012)** I believe that company X..
ADD_Sus_Perception_291_1	… is concerned with improving the general well-being of society.
ADD_Sus_Perception_291_2	… is concerned with respecting and protecting the natural environment.
ADD_Sus_Perception_291_3	… always respects rules and regulations defined by law.
ADD_Sus_Perception_291_4	… is concerned with fulfilling obligations vis-à-vis its shareholders, suppliers, distributors, and other agents with whom it deals.
ADD_Sus_Perception_291_5	… is committed to well-established ethic principles.
Sustainability Motive (SM)	**Paulraj et al. (2017)** We engage in sustainable activities…
ADD_Sus_MorMotive_293_1	… because we feel responsibility to the environment
ADD_Sus_MorMotive_293_2	… because of genuine concern for the environment
ADD_Sus_MorMotive_293_3	… as top management considers environmental responsiveness as a vital part of corporate strategy
ADD_Sus_MorMotive_293_4	… because it is the right thing to do
Benevolent Pricing (BP)	**Schiele et al. (2012)** Compared to our other customers…
S_Price_1	...we grant frequently better prices to BuyingFirmXY.
S_Price_2	...we always offer acceptable prices and conditions to BuyingFirmXY.
S_Price_3	…we do not have exhibited unfair pricing behavior to BuyingFirmXY.
S_Price_4	… we are more flexible in business negotiations with BuyingFirmXY.
S_Price_5	… we often work with the minimum viable margins when listing products and / or services for BuyingFirmXY.
Resource Allocation Physical (RAP)	**Pulles et al. (2014)** Compared to our other customers…
PC_PrefTreat_Physical_122_1	… we grant BuyingFirmXY better utilization of our production/service facilities.
PC_PrefTreat_Physical_122_2	… we would choose to give BuyingFirmXY priority in the allocation of our products in the case of extreme events (e.g., natural disasters).
PC_PrefTreat_Physical_122_3	… we allocate our scarce materials to BuyingFirmXY in case of capacity bottlenecks.
Resource Allocation Innovation (RAI)	**Pulles et al. (2014)** Compared to our other customers…
PC_PrefTreat_Innovation_124_1	… we are more willing to share key technological information with BuyingFirmXY.
PC_PrefTreat_Innovation_124_2	… we share our best ideas with BuyingFirmXY first.
PC_PrefTreat_Innovation_124_3	… we dedicate more innovation resources to the relationship with BuyingFirmXY.

Appendix C – Comparison of early and late respondents

		t-test for Equality of Means				
		N	Mean	P-value	Std. Deviation	Std. Error Mean
Resource Allocation Physical	first quartile	23	3,30	0,59	0,55	0,11
	last quartile	23	3,39		0,54	0,11
Resourc Allocation Innovation	first quartile	23	3,38	0,77	0,63	0,13
	last quartile	23	3,43		0,69	0,14
Benevolent Pricing	first quartile	23	3,36	0,13	0,59	0,12
	last quartile	23	3,64		0,60	0,13
Sustainable Supply Chain Collaboration	first quartile	23	3,52	0,92	0,64	0,13
	last quartile	23	3,50		0,83	0,17
Sustainability Buyer	first quartile	23	3,86	0,97	0,70	0,15
	last quartile	23	3,87		0,92	0,19
Moral Sustainability Motive	first quartile	23	3,53	0,67	0,70	0,15
	last quartile	23	3,63		0,85	0,18

Appendix D – Factor loadings matrix

Rotated Component Matrix[a]

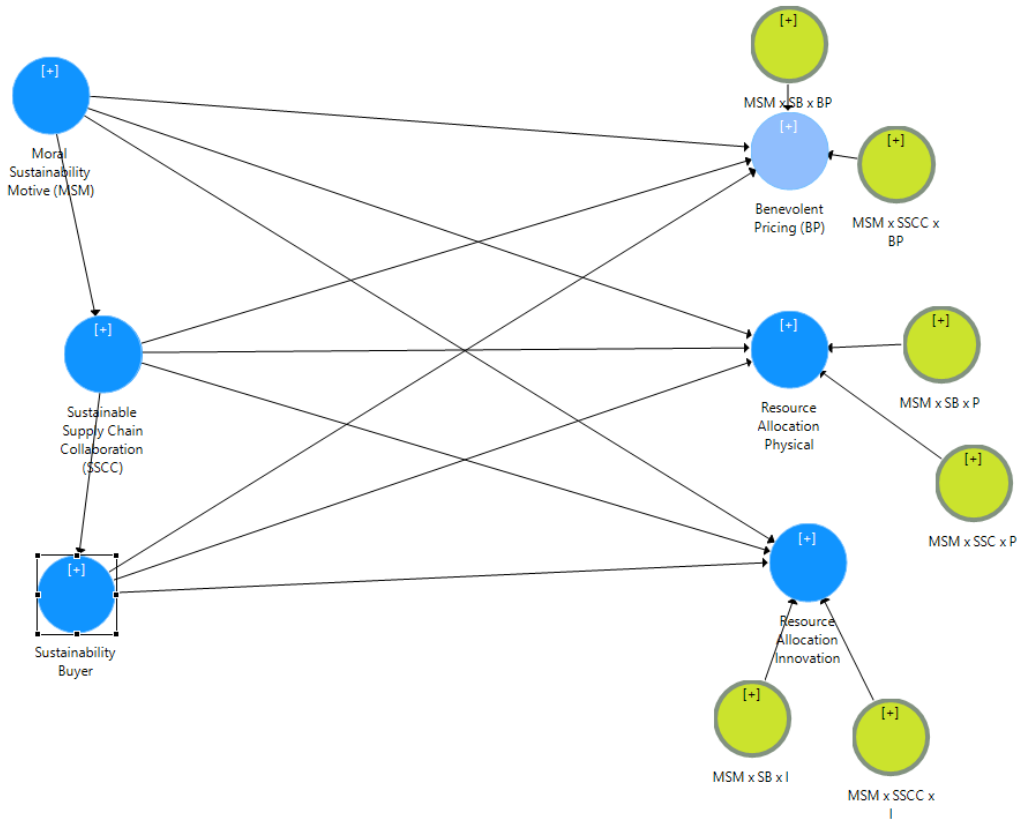
	Component				
	1	2	3	4	5
PC_PrefTreat_Physical_122_1	0,747	0,011	-0,051	0,211	0,290
PC_PrefTreat_Physical_122_2	0,633	0,044	0,099	0,059	0,411
PC_PrefTreat_Physical_122_3	0,845	-0,010	0,066	0,027	0,146
PC_PrefTreat_Innovation_124_1	0,823	0,002	0,036	0,181	0,102
PC_PrefTreat_Innovation_124_2	0,874	0,172	-0,065	0,029	0,108
PC_PrefTreat_Innovation_124_3	0,810	0,182	-0,080	0,187	0,189
PC_benevolent_Pricing__128_1	0,243	0,086	0,166	0,091	0,832
PC_benevolent_Pricing__128_4	0,372	0,156	-0,023	-0,030	0,769
PC_benevolent_Pricing__128_5	0,266	-0,024	0,083	0,065	0,848
ADD_Sus_Perception_291_1	0,128	0,778	0,182	0,376	0,140
ADD_Sus_Perception_291_2	0,094	0,798	0,247	0,381	0,082
ADD_Sus_Perception_291_3	0,082	0,870	0,228	0,105	-0,048
ADD_Sus_Perception_291_4	0,077	0,838	0,250	0,171	0,030
ADD_Sus_Perception_291_5	0,031	0,845	0,259	0,282	0,135
ADD_Sus_MorMotive_293_1	0,044	0,266	0,885	0,255	0,026
ADD_Sus_MorMotive_293_2	0,018	0,323	0,843	0,220	0,000
ADD_Sus_MorMotive_293_3	-0,043	0,127	0,842	0,205	0,183
ADD_Sus_MorMotive_293_4	-0,064	0,399	0,831	0,125	0,072
ADD_Sus_SustColab_294_1	0,077	0,365	0,150	0,772	0,050
ADD_Sus_SustColab_294_2	0,193	0,309	0,132	0,826	-0,046
ADD_Sus_SustColab_294_3	0,177	0,231	0,280	0,811	0,086
ADD_Sus_SustColab_294_4	0,198	0,198	0,316	0,773	0,103

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

Appendix E – Heterotrait-monotrait table

	BP	SB - MSM - BP	SB - MSM - RAI	SB - MSM - RAP	SSCC - MSM - RAP	SSCC - MSM - BP	SSCC - MSM - RAI	MSM	RAI	RAP	SB	SSCC
BP												
SB - MSM - BP	0.333											
SB - MSM - RAI	0.333	1.000										
SB - MSM - RAP	0.333	1.000	1.000									
SSCC - MSM - RAP	0.024	0.851	0.851	0.851								
SSCC - MSM - BP	0.024	0.851	0.851	0.851	1.000							
SSCC - MSM - RAI	0.024	0.851	0.851	0.851	1.000	1.000						
MSM	0.205	0.244	0.244	0.244	0.232	0.232	0.232					
RAI	0.547	0.045	0.045	0.045	0.248	0.248	0.248	0.067				
RAP	0.670	0.123	0.123	0.123	0.260	0.260	0.260	0.094	0.888			
SB	0.228	0.222	0.222	0.222	0.197	0.197	0.197	0.610	0.265	0.192		
SSCC	0.235	0.197	0.197	0.197	0.019	0.019	0.019	0.558	0.396	0.356	0.648	

Appendix F – Model in Smart PLS 3.0



Appendix G – Research Paper

A research paper has been written based on this thesis with additional polynomial regression and multi-group analysis. The paper is not attached due to confidentiality reasons.