Sustainable Supply Chain Management Implementation–Enablers and Barriers in the Textile Industry

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Abstract: The distinct definition of accordance in the perceived barriers and enablers for sustainable supply chain management (SSCM) policy implementation has been the subject of various research studies, but a distinct focus on the textile sector has been the object of limited previous attention. However, it has been found that it affects the approach to developments in company approaches to sustainable supply chain management within that industry. This article presents the results of an in-depth comparative case study analysis, drawing on 23 interviews with managers of 10 companies from the textile industry. The analysis demonstrates that specific modes of collaboration can both enable an effective SSCM and diminish barriers for policy implementation. The width and depth varies between a collaborative management approach for an effective internal SSCM versus industry collaboration and buyer supplier collaboration to address external barriers and enablers.

Keywords: sustainable supply chain management; case study research; textile industry; responsible procurement; sustainable development

1. Introduction

A key challenge for companies operating in global textile supply chains is the balance between achieving a competitive advantage and acting sustainably while fulfilling their different stakeholders' expectations in order to preserve reputation, legitimation, and credibility. Companies face a strong reputational risk of negative public perception by important stakeholders such as regulators, customers, shareholders, media, and non-governmental organizations (NGOs) [1,2]. Furthermore, focal companies are generally held responsible for their suppliers [3]. However, social and environmental issues constitute operational risk, including inconsistent and poor product quality or supply chain disruptions [4,5]. As a result, sustainability issues along the supply chain might lead to a decrease in financial performance [6] or a loss of competitiveness [7]. This risk-oriented strategic approach to managing sustainability along supply chain processes is effected through supplier evaluation, whereas a focus on supplier development seeks to develop a business case from sustainable supply chain policy implementation [8].

Thus, previous research has found that the strategic approaches of companies focus either on managing supply chains to create sustainable products or on managing the supplier base to diminish risks and ensure performance [3].

Therefore, sustainable supply chain management (SSCM) has become a salient issue in recent research. SSCM combines the concepts of supply chain management and sustainability [9] and entails all activities of companies to increase the sustainability of their supply chains [10]. For this research, we draw on ([3], p. 170), who define SSCM as "[. . .] the management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e., economic, environmental, and social, into

account which are derived from customer and stakeholder requirements". The overall barriers and enablers for sustainable supply chain management have been subject to previous research [11]. Diabat et al. (2014) identified that the enablers for SSCM are sector and cultural context-specific enablers and correlate [12]. It has been found that textile firms make particular use of a CoC (code of conduct) to ensure a supplier's compliance with issued sustainability standards, set specific sustainability criteria for suppliers, and reduce reputational and operational risk by monitoring and self or third-party auditing [9]. Distinct social supply chain policies within the textile industry involve not only working conditions and wages, but also housing and home worker conditions. Through the complexity of the textile supply chain, it has been found that there is a need to implement the SSCM strategy towards the sub-tier supplier level [13]. Thus, previous research is concerned with the sustainable management of supply chains, analyzing the textile sector, but, due to the complexity of the issue, there are still various research gaps. In this research we have therefore focused on the internal aspects of the buying firm within the supply chain network as a central point of reference for the successful development of sustainable supply chains through different sustainability policies and actions. As such, our study had the objective to analyze the rationale behind and mechanisms through which environmental and social supply chain policies are implemented. Additionally, we examine formal and informal structures within the collaborative buyer-supplier network, which support successful policy implementation. Thereby, the impacts of a collaborative management approach are examined.

Based on this, targeted contributions were highlighted by the derivation of two research questions:

1. What are the enabling factors for the implementation of sustainability policies along the supply chain in the textile industry and to what extent and how are collaborative structures used?
2. Which barriers occur during the implementation of sustainability policies in the textile industry and how do companies within the industry seek to overcome them?

2. Literature Review

2.1. Enablers for SSCM

2.1.1. Internal Enablers

A prerequisite for a successful implementation of supply chain sustainability standards is the compliance of the company's employees. Scholars consistently mention the commitment of the top management [14] but also their involvement and specific support [15] as being beneficial. In the same way, an overall supportive culture for sustainability [16], the existence of an environmental mission [10,17] and the history of an organization [18] are acknowledged enablers for SSCM. This also includes the involvement of employees [19].

In addition, the academic literature advocates strategic aspects. Hereby, the existence of a sustainability strategy for supply chain management [20] and its alignment with the overall corporate strategy [21] have been identified as crucial. The basic strategic planning of the implementation of sustainable supply chain policies has already been recognized as conducive to their successful implementation [22]. Further, strategic supplier collaboration has been defined as the "collaborative paradigm" that is essential to achieve a competitive advantage through sustainable supply chain management [23].

Furthermore, previous research highlights the resources and expertise of companies in the context of enablers for SSCM. More specifically, the availability of resources and the overall size of a company constitute enablers for SSCM since they determine the possible sustainability effort of a firm [15]. Likewise, the existence or development of capabilities related to sustainability and general supply management are highlighted in the academic literature [24]. In particular, this relates to the training of people within the purchasing department [18]. Moreover, prior studies suggest evidence for well performing operational metrics as an enabler for SSCM [25].

2.1.2. External Enablers

External enablers are strongly related to the overall context in which a firm operates. In this regard, the national culture of a supplier can constitute an enabling factor for SSCM [2]. Moreover, a technological and logistical integration of supply chain members [26] and information sharing [27] are conducive to successful implementation. According to [28] this can also reduce the need for audits through an enhanced understanding of suppliers' processes. However, SSCM is only supported when the relationship between the focal firm and its supply chain members is characterized by trust [2] and transparency [29]. In this respect, long-term collaborative structures within but also outside the supply chain generally support SSCM. This applies in particular to collaboration within a sector [26] with NGOs [30] or with competitors [10].

2.2. Barriers for SSCM

2.2.1. Internal Barriers

Firstly, people-related issues have been defined as internal barriers for the implementation of SSCM. Here, a lack of commitment and support by the top management level [31] a lack of awareness and understanding [7] and having other priorities [32] are identified obstacles. Apart from this, considering strategic-related issues, a lack of strategic prioritization for sustainability issues [7] or financial constraints [33] act as barriers. In this regard, a small overall firm size can hinder the level of engagement in SSCM due to a lack of available resources [20]. Moreover, a lack of corporate structures and processes also constitutes an internal barrier for SSCM [11]. With regard to function-related issues, a lack of necessary management skills [17] adequate training, knowledge [34] or incentives [35] constitute internal barriers.

2.2.2. External Barriers

External barriers particularly concern regulatory issues. In this context, regulation only requires compliance with minimum criteria, which, in turn, inhibits innovative SSCM processes or restrains proactive behavior [7]. Furthermore, price-conscious buying decisions [36] or a lack of demand for sustainable products are customer-related issues. Another significant aspect of potential barriers is related to the buyer-supplier relationship. In this case, suppliers are unwilling to share information or to comply with introduced policies because they do not see the necessity [37]. Moreover, suppliers might lack capabilities and resources [2] or understanding due to unappropriated communication or unclear criteria [38]. In addition, cultural differences may impede the implementation of SSCM practices. More specifically, suppliers consider environmental and social standards as additional costs and an intervention in their business operations [39]. There are also public-related issues. Sustainability practices can be misinterpreted as an attempt at green washing, which, in turn, limits their positive effect on companies' reputations [40]. Industry-related issues comprise less regulation within a sector [41].

2.3. Sustainable Supply Chain Management in the Textile Sector

Different scholars highlight the sensitivity of the sector to each dimension of sustainability according to the triple bottom line (TBL) [3]. Furthermore, textile companies' supply chains are not only globally dispersed [42] and characterized by a strong social and environmental impact [43], but are also linked to a significant number of sustainability issues related to suppliers [44]. As a result, market participants in the textile sector are increasingly under the spotlight for their involvement in social and environmental issues [45]. Considering that, sustainability constitutes a major concern for textile companies' practice of placing increased emphasis on the implementation of sustainability policies along their supply chains [46].

In general, the textile sector is determined by certain industry-specific characteristics and mechanisms that require a sustainable approach to supply chain management. Firstly, the industry

is characterized by a highly competitive environment. In order to be successful, market participants need to be responsive to changing customer needs and efficient enough to offer affordable prices at the same time [9]. Consequently, the supply chain approach of textile firms is dominated by just-in-time production and fast fashion [47]. This, in turn, encourages partnerships with low-cost suppliers in developing countries with less strict social and environmental regulations with a view to staying competitive [44]. Secondly, textile firms offer products that have a significant social and environmental impact during their lifecycle. Each stage of production is linked to specific considerations relating to sustainability policies. This particularly concerns those that take place in the upstream supply chain such as raw material sourcing, yarn or fabric production, or the manufacturing of the final product [48]. Therefore, textile companies indirectly influence the natural environment, including biodiversity and bio-productivity, as well as the health and wages of local communities [9]. More specifically, the sourcing of raw materials as well as production and manufacturing involve the use of chemical ingredients and non-renewable resources and thereby harm the natural environment [49]. Equally, cost and time pressures drive suppliers to employee concepts based on the exploitation of disadvantaged local people [50].

Given the above, enhancing sustainability along the supply chain is often difficult. Li et al. (2014) [51] notice that textile firms separate the maximizing of economic benefits from their social responsibility. Correspondingly, Turker and Altuntas ([9], p. 839) outline that "[. . .] apart from the impact of globalization, the nature of the industry itself imposes further environmental and social burdens". Paradoxically, customers pressure textile companies with their consumption behavior by demanding variety and affordability of products. At the same time, a growing awareness for sustainability arises [43] Moreover, sustainability issues in textile supply chains increasingly attract the concern of other stakeholders, including NGOs, local governments and the media, creating additional pressure to address sustainability issues [49].

But how do market participants in the textile sector respond to the growing need for the implementation of adequate sustainability policies along their supply chains? Based on the work of [9,49] two groups of textile companies can be distinguished. The first group of textile companies prioritize surviving in the highly competitive market environment and thereby resist sustainability practices to the greatest possible extent by engaging in the minimum required regulatory compliance. In contrast, the second group comprises market participants that try to adopt and improve sustainability along their supply chains by using different practices. This includes, for example, the usage of certification and labelling schemes, standards, CoCs, or social and environmental audits in addition to participation in initiatives and networks with other market participants [9,49].

As mentioned in the course of the introduction, the prior evidence addressing the rationale and mechanisms of the implementation of sustainability policies in the textile sector by using the concept of SSCM and referring to all dimensions of the TBL is very limited. The lack of theoretical and empirical evidence emphasizes the demand for sector-specific SSCM research and outlines the research gap of this study.

3. Methodology

3.1. Case Description

A qualitative and primary dataset of 10 case studies was analyzed. Firms were exclusively sampled that hold a distinct sustainable supply chain certification showing a comparatively strong engagement in a sustainable management of their supply chains. Suitable textile companies were identified on the certifications website and initially contacted either by email or telephone. Following this sampling methodology, of the initial firms identified as potential participants, 10 agreed to participate in the study. The number of companies is in line with the suggestions in previous literature in operations management, wherein studies consider a number of cases ranging from three to eleven [10]. In any case, interviews allowed us to get close to the saturation [52] point as well as to the amount of data

and information that can be processed in one study [10,53]. Table 1 depicts the range of interviews conducted in each country, displaying the department and position of each interviewee. In total, 23 people from 10 companies were interviewed. This implied that the number of interviews and functions involved in the interviewing process varied within the overall sample.

Table 1. Case Study Sample.

	Company	Description	Country	Position
1	A	Backpack/bag brand manufacturer	Germany	Head of CSR
				CSR Team Member
				Head of Logistics
2	B	Work clothing brand manufacturer	Germany	Director Global Procurement
				Sustainability Manager
3	C	Mountain sport	Germany	Sourcing Manager
				Sustainability Manager
4	D	Mountain sport	Germany	CEO
				Head of Production
5	E	Sportswear	Sweden	CEO
				Head of Marketing
				Production Manager
				Supply Chain Manager
6	F	Outdoor clothing, equipment	Norway	Sustainability Manager
				Supply Chain Manager
7	G	Menswear clothing	USA	Sustainability Manager
				Sourcing Manager
8	H	Outdoor clothing, equipment		Sustainability Manager
				Supply Chain Manager
9	I	Mountain Equipment	Canada	Materials Development & Sourcing Manager
				Director Sustainable Business Innovation
10	J	Bodywear	Germany	Sourcing Manager
				CSR Manager

3.2. Data Collection and Analysis

The study has an exploratory approach, and the research was conducted according to the recommendations of Eisenhardt (1989) and Yin (1984) [53,54]. The in-depth interviews were conducted in three parts, covering internal sustainability approaches, the process of SSCM policy development, and the SSCM implementation process. The use of semi-structured interviews allowed the same topics to be discussed with each and every interviewee while at the same time guaranteeing sufficient flexibility for new or specific issues to emerge [53,54]. For this purpose, we used a qualitative research approach to draw on in-depth management experiences, illustrate best practices, and, therefore, explore the interplay of organizational factors within the specific textile market that underpin the development and implementation of social and environmental policies along the supply chain. In this study, best practice certification is prevalent as all participants have the same full certification that requires policy implementation along their supply chain. To investigate the research questions, companies from the textile sector were deliberately selected by requiring a proactive stance towards supply chain sustainability.

Each face-to-face interview lasted for 60–120 min. In addition, each interviewer also took notes about impressions so as to also rely on perception-related data.

The case studies were conducted in 2016 and applied a semi-structured interview approach. In this context, an interview guideline in the German and English language was used to ensure that the data collection satisfies the research questions. The guideline consisted of 24 open questions and was divided into five major sections: (1) corporate sustainability; (2) environmental and social standards in the supply chain; (3) certification; (4) development, preparation, and implementation of social and environmental supply chain standards; and (5) implementation of sustainability standards based on examples. By these means, a holistic picture of each company's sustainability approach could be created while obtaining answers regarding the research questions during the course of this process. Before the interview started, the project was introduced briefly and opportunity was given to the interviewee to describe and explain his or her role within the organization.

The interviews were analyzed in accordance with the approach of Corbin and Strauss [55]. by clustering the outcomes into core categories and taking into account previous research in the process of defining them. The barriers and enablers identified from the interview data were divided into internal and external implications. The findings are clustered into the sub-categories analyzed in the results section. Quotes were coded in a detailed in-depth and subdivided matrix spreadsheet, presenting the statements of the interviewees concerning all categories.

Data analysis included two main steps. The first step of data analysis required the interviews to be coded manually by going back and forth among the cases to evaluate the answers and identify the most relevant factors in the analysis; this was also compared to what had already been discussed in the literature. The analysis was aimed primarily at identifying communalities or differences across the various firms within the textile industry.

The analysis considered both those factors that had already emerged in literature as significant positive or negative antecedents of SSCM implementation and potential new elements.

4. Discussion of Results

4.1. Enablers for SSCM in the Textile Industry

From the case company data, we identified that a supportive culture within the organization, the commitment of the management, the involvement of a company's employees, the overall strategic sustainability approach, and the training of employees that are involved in supply chain related business activities are prevailing enablers. All these internal enablers are closely related to the degree of collaboration within the company. External enablers encompass external collaborative structures with competitors and suppliers outside the organizational boundaries.

4.1.1. Internal Enablers

Collaboration

The findings suggest the beneficial effect of collaboration within organizational boundaries in order to implement sustainability policies along the supply chain. This includes both formal and informal interaction between the different departments that are involved in supply chain and sustainability related processes.

> "[. . .] my position is consciously attached to the purchasing department because one says [. . .] here, you are directly connected to other persons [. . .] connected to all areas that are relevant for social and environmental standards along the supply chain including purchasing or product development and design. Considering that, we have short distances and it is a relatively informal exchange" (Sustainability Manager–H)

In order to achieve a collaborative approach to implement sustainability policies, the following supportive determinants have been defined.

Cultural conditions as a result of collective values and beliefs cause a topicality of sustainability within an organization. These constitute a basis for engagement in SSCM, whereas considering social and environmental issues within the supply chain becomes part of the self-conception and company philosophy. Thus, sustainability is rooted in a firm's culture and affected through collaboration.

"[. . .] I believe that it is also the culture of the company" (Director Global Purchasing–B)

Furthermore, the commitment of the management was identified as a central enabler for the sustainable management of supply chains. In this regard, the results indicate that commitment strongly refers to open-mindedness towards social and environmental issues and the implementation of adequate solutions.

"[. . .] Basically, I think it is important that the management is fully committed. Otherwise, stones are placed in your way when you want to achieve something. It is important that commitment and open-mindedness basically exists" (Sustainability Manager–B)

We found that not only a supportive culture and the commitment of the management of an organization but also the direct involvement of responsible employees enable the implementation of SSCM. This entails, in particular, those employees whose scope of tasks includes supply chain related activities from departments such as members of the sustainability, purchasing, product design, and development departments.

The results of our study are in accordance with previous research regarding the importance of a strategic approach towards sustainability along the supply chain. Noticeably, the companies investigated benefit from embedding the issue of sustainability in their overall corporate strategy. Once the strategy or the mission becomes clear, we discovered that this not only enables SSCM but also directly motivates employees to work on a commonly shared and promoted sustainability mission.

"A clear strategy [. . .] in terms of what do we mean with sustainability" (CEO–D)

"[. . .] we tried to create goals that the different departments can then form themselves. And we released it down to the whole management team and think about what do we want to do, what is our sustainability mission, what is our approach, what is our identity" (Sustainability Manager–F)

Moreover, we found that the implementation of sustainability policies is also enabled by internal training, workshops, and briefing sessions. The rationale behind this behavior is to establish a collective understanding of the status quo as well as the goals set with regard to sustainability performance.

"We do it [training] from time to time at our standard meetings so that we simply inform our representatives and our sales team again and again about what standards exits. That way we inform our sales team about our strategic standards and of course also all our employees who are responsible for sourcing. They do need to know what to keep it in mind" (Head of Production–D)

4.1.2. External Enablers

Collaboration

The enabling effect of collaboration is not limited to the internal dimension. We found that external collaboration with different stakeholders such as suppliers and competitors also supports the implementation of sustainability policies. In particular, collaboration with other brands within the sector can be beneficial. We found that textile companies collaborate with competitors to save resources and to keep up with sustainability improvements on the supplier side through the joint carrying out of audits. Further, sharing knowledge on sustainability issues is a widespread incentive for interacting with other firms.

"[. . .] it is certainly the case that we began to collaborate with other brands, for example through the joint conduction of audits. This means we are able to share costs. We believe it is a valuable resource expeniture to keep track of sustainability improvements" (Corporate Social Responsibility (CSR) Manager–J)

The results outline the importance of long-term supplier relationships. Close collaboration over a longer period of time is beneficial since it significantly enhances the successful implementation of sustainable supply chain policies.

"[. . .] if you just change factories from producer every six months or every year, you would never build up that trust [...]" (Head of Marketing–E)

In this context, mutual understanding and trust were reported as conducive. Thereby, intrinsic motivation to engage in sustainability issues and to respond to the social and environmental requirements of the focal firm is central.

"[. . .] when the suppliers show no willingness to improve, little will be achieved [. . .] Basically, I believe that it is important that open-mindedness exists" (Director Sustainable Business Solution–I)

4.2. Barriers for SSCM in the Textile Industry

Alongside the many drivers and enablers of the development of sustainable supply chain management, there are barriers. Internal or company specific barriers include a lack of structures and processes, as well as costs. A supplier's lack of knowledge and the non-existence of intrinsic motivation, competitive pressure, and regulations were identified as external barriers to SSCM. As such, our interviews reveal a highly diverse set of barriers, which extend beyond the findings of existing studies. Within this section, we focus on how both internal and external factors can negatively influence engagement with sustainable supply chain management.

4.2.1. Internal Barriers

A lack of certain corporate structures and processes complicate a company's ability to effectively address sustainability issues. To give one example mentioned by participants in the study; the non-existence of budget controlling processes. Within the companies, decisions are made based on requirements and meaningfulness instead of an investment plan. Furthermore, we found that it can be advisable to transfer responsibility for the implementation process to the supply chain instead of the Corporate Social Responsibility (CSR) department. The respective employees are already familiar with the given requirements of changes within the supply chain that can reinforce the whole implementation process.

"[. . .] it's not like we say we don't want to be working in Bangladesh. If it would be possible for us to be there and do good for society that would be a great aim for us, since we would contribute to a country with high needs. But due to a lack of resources we cannot control operations afar at the moment because we are too small so we have to operate where we have control" (Head of Marketing–E)

One way to overcome that barrier is by collaborating with other brands that have a bigger organizational size. By this means, a company obtains more capabilities to enforce planned sustainability activities.

"For us, as small company, [...] we would be ill-advised when we produce in Bangladesh because we cannot dominate [or control] the process chain in Bangladesh" (CEO–E)

"Without networks, you would not make it [implementing SSCM practices]. Especially for us [as a] small company, it is even more important to have contacts to other brands" (Director Sustainability-I)

Cost has emerged as a significant barrier. As such, companies recognize that being sustainable involves personnel and financial costs.

> *"[…] also regarding personnel and financial [costs] because you have, of course, to dip into your purse for such an auditing process or a certification process" (Materials Development and Sourcing Manager-G)*

The entry costs to a sustainable supply chain management hold companies back from becoming sustainable or diminish the level of willingness to adapt new certification schemes because of the auditing costs. However, participants admit that existing experience within a certification scheme helps to identify unnecessary processes. That result goes along with former research, which indicated that the barrier is often more of a perceived barrier than an actual cost factor. Once companies finally implement cost-controlling processes for their sustainability engagement, the actual cost becomes easier to calculate, which helps companies to become more aware of how much sustainability process development and implementation actually costs. Through industry collaboration, the most adequate certification scheme can be identified.

4.2.2. External Barriers

In addition to the two internal barriers, four external barriers were also identified during our case studies. These barriers deal with problems that can arise on the supplier, buyer, or customer side.

Lack of Knowledge

The goal of becoming more sustainable requires that both the buyers and the suppliers have the necessary knowledge. Noticeably, a lack of knowledge at any stage of the supply chain seems to impede a company's ability to more effectively address sustainability issues. It is therefore important to minimize information asymmetries to imposing sustainability along the whole supply chain. Observed companies with plenty of experience in the field of implementing sustainability standards overcome the problem of knowledge gaps by hiring intermediaries who are aware of both sides' concerns and knowledge stages, i.e. both those of the company and the suppliers.

Lack of Intrinsic Motivation

However, the observed companies stated that, even if they recognize that a lack of knowledge can hinder the implementation process, they often face a second problem; the non-existence of intrinsic motivation on the supplier's side.

> *"[…] they do not feel any pressure or see any relevance with regard to sustainability" (Sustainability Manager–F)*

The barrier goes one step further. In addition to a lack of intrinsic motivation, our study reveals the existence of suppliers and importers that are simply unwilling to comply with raised sustainability standards or to cooperate in this matter generally.

Contrary to expectations, commitment tended to be more of a problem among European suppliers. In the interviews, we found that companies have more difficulty convincing European suppliers to be certified than Asian producers. Therefore, forcing those suppliers to be more sustainable was complicated because they lack the commitment to sustainability or they lack the ability to bear the additional costs of being certified.

In summary, the suppliers often do not see any reason to be certified at all.

Competitive Pressure

In addition, competitive pressure was reported as a barrier for the implementation of sustainability standards.

> *"[. . .] the price of the product would increase higher than the market level at the moment so we wouldn't be able [. . .] you know, we can make one showcase per backpack with the point that we are not able to produce and then make money off them" (Sustainability Manager–F)*

Companies must ensure that there is a demand for a price premium relying on a sustainability strategy. As sustainable textiles is still a niche market, companies suffer from shifting their whole production to sustainable products. They are afraid of risking their wellbeing. Moreover, the occurrence of price pressure was described as a possible issue to reduce the focus on sustainability concerns, leading to difficulties in reaching set goals. However, the existence of this barrier was not reported at present.

Regulation

Even if new regulations are usually made in favor of a more sustainable future, there are cases in which companies have to deal with legal and governmental regulations that negatively influence their SSCM. For example, there are legal requirements in some countries that they cannot fulfill or directly influence. In that case, they have to deal with these external circumstances. Another example is the changing legal requirements concerning chemicals that have been listed as prohibited recently.

> *"There are many barriers that hinder sustainability, that is absolutely clear. There are sometimes legal requirements which exist in certain countries that we cannot influence. Where it definitely has to be reworked or where we simply avoid those countries" (CEO–D)*

Thus, this article highlights some interesting suggestions and indicates directions for future literature development. As shown by the two models (Figures 1 and 2), findings highlight how effective collaboration enables internal and external collaboration, whereas, by contrast, a lack of collaboration leads to barriers, both on an internal and external level. Both research questions have been addressed thoroughly.

1.　What are the enabling factors for the implementation of sustainability policies along the supply chain in the textile industry and to what extent and how are collaborative structures used?

Starting from the perception of internal enablers, we found that there is a widespread common understanding of what supports effective implementation. The results are in alignment with previous research in terms of the importance of a supportive culture [19], the involvement of the leadership team in a clear strategic approach [23], and training [20]. But the results go a step further. The study found that internal collaboration needs to be comprehensive across all departments, rather than just those involved in purchasing and sustainability through a distinct employer involvement that includes a mutual understanding of the definition and vision in terms of understanding the distinct approach to sustainability and SSCM. In terms of external enablers, external collaboration, and the supplier relationship are core categories for a successful supply chain policy implementation, which is in alignment with previous research [35]. However, the article extends previous research by defining the modes of internal and external collaboration that enable a successful sustainable policy implementation in textile supply chains.

2.　Which barriers occur during the implementation of sustainability policies in the textile industry and how do companies within the industry seek to overcome them?

In alignment with Walker et al. (2008) [11] in the perception of internal barriers we found that the case companies merge a lack of structure and a lack of procedural advancement for policy implementation. Similarly, cost and resources are adjoined, outlining that the price for committing resources into sustainable supply chain management is significant. However, we found that the existing experience within a certification scheme advances the efficiency of processes. That result goes along with former research, which indicated that the barrier is often more of a perceived barrier rather than

an actual cost factor [23]. These perceived barriers can be overcome through industry collaboration by learning from best practices and committing to structural advancements through certification.

In terms of external barriers, the lack of intrinsic motivation and an understanding of the topic is perceived as a major barrier, which is in alignment with previous research [46] but confirms its applicability for the textile industry. Contrary to previous research claiming that regulation only requires compliance with minimum criteria that, in turn, inhibits innovative SSCM processes or limits proactive behavior, we found that the case companies feel limited in their proactivity but not in terms of product innovation [7]. The textile industry is characterized by high competitive pressure and globally fragmented supply chains [9]. Thus, all case companies have emphasized the importance of competitive pressure as an external barrier for SSCM policy implementation. Close buyer-supplier collaboration is essential to diminish the barriers to successful policy implementation within the highly competitive textile industry.
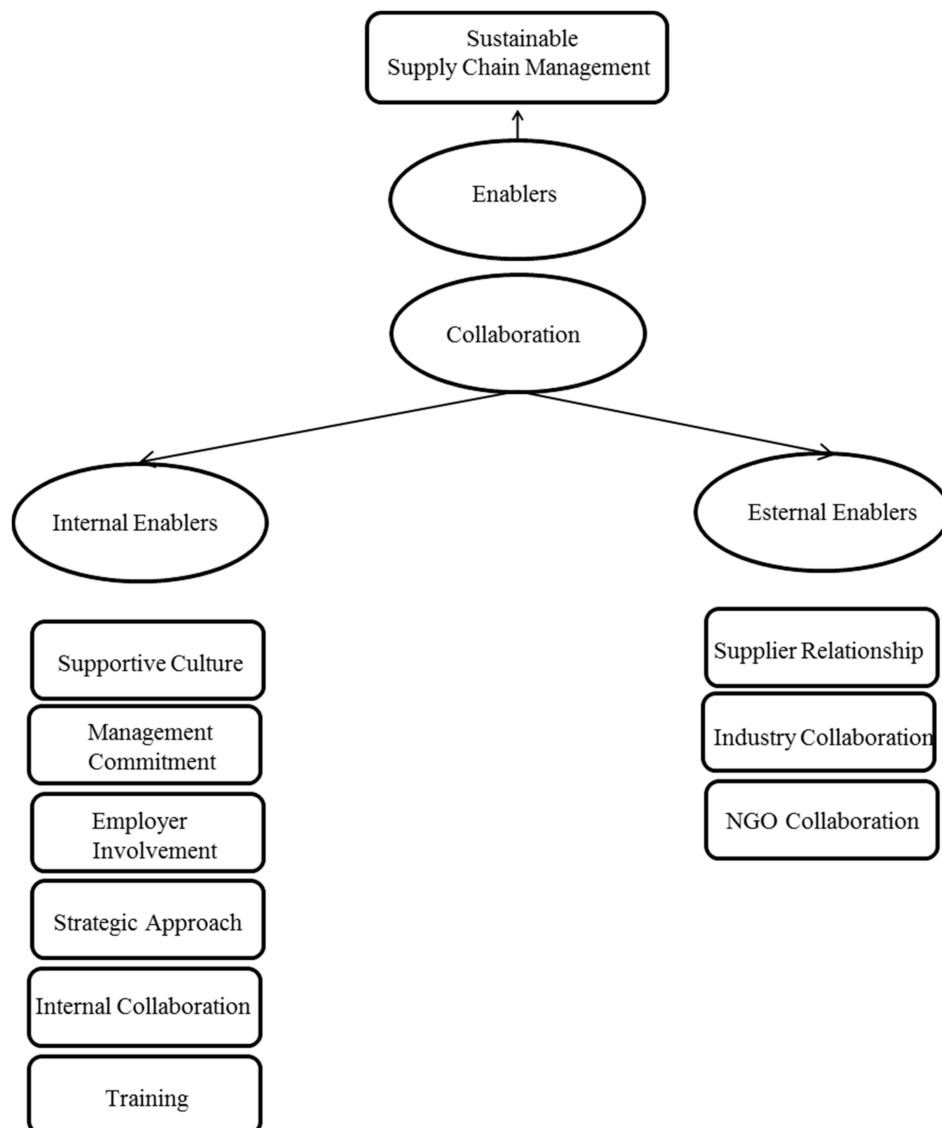
Figure 1. Collaboration as an enabler for internal and external sustainable supply chain management (SSCM).
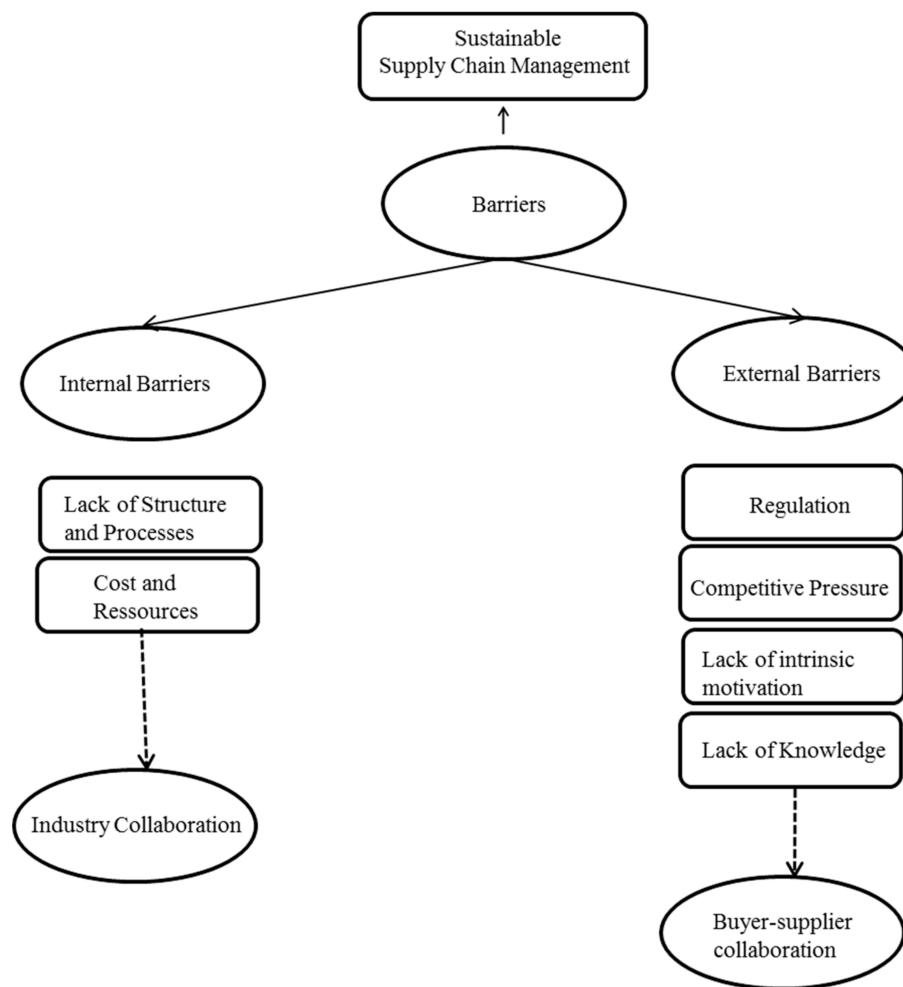
Figure 2. Collaboration to diminish barriers to SSCM.

5. Conclusions

In this article we empirically investigated and confirmed the existence of consensuses in the perception of barriers and enablers to sustainable supply chain implementation within the textile sector.

The results show that the industry has a key role in developing accordance with regard to the perceived barriers and enablers in sustainable policy implementation along the supply chain. In this sense, our findings are in alignment with previous research focusing on barriers and enablers for SSCM. The results extend insights into the highly competitive textile industry with its globally fragmented supply chains. However, the study shows that specific forms of collaboration can enable sustainable policy implementation and decrease the barriers in place.

We found that a collaborative internal approach to SSCM, including a joint sustainability mission, can form the groundwork for a collective conscience for sustainability within the organization and instill a sense of urgency for social and environmental issues along the supply chain regarding their being adequately addressed. However, effective sustainable supply chain management requires anchoring in the corporate strategy as well as continuous alignment with strategic areas of action, which can be operationalized in departmental and functional objectives. The creation of cross-functional teams and the encouragement of informal collaboration between those departments that are widely concerned with supply chain-related processes and sustainability enable an effective policy implementation. Conversely, a barrier is created where this is lacking. Thus, the establishment of an organizational culture by developing organizational structures and processes in which new ideas or innovations can be contributed by every employee and discussed with the board enables a collaborative

culture around SSCM. This in turn ensures effective policy development and implementation. In accordance with this, the study shows that a lack of distinct structural processes for policy implementation hampers a successful approach to SSCM. Additionally, the perceived barrier of resource constraints and costs can be minimized through industry collaboration and emphasized by commitment to a specific certification scheme. The study shows that there is a trend of using external pressure as an opportunity to make proactive changes related to sustainability to ensure that the firm will still be viable in the future instead of just following new demands. The research found that intra-industry collaboration is essential to save resources, benefit from knowledge exchange on sustainability issues, and strengthen communication with certain suppliers.

The results of the study have several implications for both scholars and practitioners.

First, at a theoretical level, it acknowledges SSCM as fundamentally embedded within the textile industry and its fragmented global supply chains. Particular modes of collaboration that are essential or hinder sustainable policy implementation within the textile industry have been developed. Furthermore, research should investigate the consensuses within the industry with a more extensive comparative study into the relationship between the textile sector and SSCM implementation practices.

Moreover, the study suggests that the implications of the institutional setting of the case companies should be considered in the analysis of the global supply chains within the textile industry.

As anticipated, the study also has implications for practitioners, both firm managers and policy makers. Through a collaborative approach, managers should be clear of a firm's values and priorities in sustainable policies. In addition, it is essential to communicate them internally and externally in order to implement them successfully along textile supply chains. Effective implementation enables the usage of sustainability to generate competitive advantages in order to address new markets or customer segments in the highly competitive market segment.

On the other hand, policy makers should focus their interventions on removing potential barriers for the specific industry to support and facilitate the development and implementation of widespread SSCM initiatives through industry collaboration.

The author is aware of the limitations, as anticipated. Even though the number and in-depth analysis of the cases allowed for the provision of the relevant insights into the persisting barriers and enablers for SSCM within the textile sector, therefore contributing to further research in the field, in future research this sample could be extended. Moreover, the study could be extended by conducting a cross-cultural comparison of the sample or by expanding the sample to further institutional contexts. However, the study provides extensive new insights into the status quo of barriers and enablers for SSCM policy implementation within the textile industry.

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