

Exploring barriers to collaborative innovation in supply chains – a study of a supplier and two of its industrial customers

Innovation in
supply chains

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Abstract

Purpose – The purpose is to identify and explore barriers to overcome for developing collaborative innovation between a global service supplier and two of its industrial customers in Sweden.

Design/methodology/approach – The research had an action-based research approach in which the researchers were interacting and collaborating with the practitioners in the companies. The empirical part includes primary data from multiple interviews, and two workshops with dialogues with participants from the involved companies. The use of complementary data collection methods gave rich input to understanding the context for collaborative innovation, and to uncovering barriers, to develop solutions for collaborative innovation. The empirical barriers were analysed using theoretically derived barriers from a literature review. The analysis generated four broad themes of barriers which were discussed and led to conclusions and theoretical and practical implications on: the customer's safety culture, the business model, the parties' understanding of innovation and the management of collaborative innovation in supply chains.

Findings – The thematic analysis generated four broad themes: the customer's safety culture, the business model, the parties' understanding of innovation and the management of collaborative innovation. These themes were analysed using theoretically derived barriers from a literature review. The industrial context, the understanding of innovation and its management created barriers.

Originality/value – The unique access to the service supplier and its two independent industrial customers adds a rich contextual framing to the process of identifying and exploring the barriers to collaborative innovation. The conclusion emphasizes the importance of an industrial business context, the business logic in terms of business models and for the understanding and management of collaborative innovation.

Keywords Innovation, Collaboration, Barriers, Context, Business model, Supply chains, Interaction, Management

Paper type Research paper

Introduction

Collaboration between organisations is an area of research that is continuously gaining interest (Powell *et al.*, 1996; Greer and Lei, 2012; Latusek and Vlaar, 2018). Numerous aspects

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of collaborative efforts have been the subject of study (see [Majchrzak et al., 2015](#) for an overview). The goal for collaboration is often to share cost and resources ([Zhang and Cao, 2018](#)) or to share competence and capabilities ([Deken et al., 2018](#)) but can also be to create complementary capabilities and share value and work for common improvement and to create innovation ([Alexiev et al., 2016](#); [Kuhl and da Fonseca Costa, 2019](#)).

A particular area of interest for studies on interorganisational collaboration is supply chain management ([Touboullic and Walker, 2015](#)). Collaboration between a supplier and a customer may offer potential benefits for both parties, which additionally creates more stable and long-term relations between them ([Duong and Chong, 2020](#)). A recent stream of research acknowledges the importance of collaborative innovation between suppliers and customers ([Zimmerman et al., 2016](#)). Depending on whether the focus is up- or downstream in the supply chain, collaborating on innovation can yield different benefits for the participating organizations. For the customer, it can be a way to create and harvest value from the success of its suppliers or by sharing costs and minimizing risk in innovation. For the supplier, it can be a way of moving upstream in the value chain or downstream to its suppliers.

Collaboration between suppliers and customers is not without challenges and problems. In several studies, barriers to collaboration in supply chains have been identified ([Ekanayake et al., 2017](#); [Fawcett et al., 2015](#); [Gruenhagen et al., 2022](#)). [Yström and Agogué \(2020\)](#) describe this type of collaborative effort between suppliers and customers as an “in-between space”, characterized by several difficulties. Collaborative engagement in innovation involving suppliers and customers open important questions on the readiness for collaborative organizations to work jointly on innovation in a trustful manner. A growing body of research also takes a more development-oriented approach by emphasizing the need to not only focus on barriers but also on what facilitates collaboration. Both aspects are important, but we claim that understanding and overcoming barriers is an important prerequisite for successful collaboration in supply chains. We follow the argument from [Kazantsev et al. \(2022\)](#) that horizontal collaboration between independent companies face several challenges and that these challenges are underexplored.

The extant literature typically reconstructs collaborative efforts through interviews and surveys with individuals participating in these efforts. Although this can yield insights on how the collaborative efforts are perceived from the individual’s perspective, it fails to capture the collaborative dynamics when supply chain partners engage in collaborative innovation efforts. There is, furthermore, a lack of studies that uncover the context of collaborative innovation. The barriers that are detected are often mentioned without a deeper, holistic understanding for how they emerge and how they operate to hinder collaborative innovation; We agree with [Zahorr and Al-Tabbaa \(2020\)](#) in proposing that the antecedents for successful supply chain collaboration in general are poorly understood and even more so for collaboration with an innovation ambition. Similarly, [Zhao et al. \(2021\)](#) argue for more comprehensive situational awareness in studying business processes.

The methodological approach of action research in this paper was applied to reach beyond reporting only on the individual’s views on collaboration. Through the participative aspects of action research that were applied in the workshops conducted for this research project, the sharing of views between client and supplier representatives created an understanding of the dynamics of barriers to collaborative innovation.

The purpose is to identify and explore barriers to overcome for developing collaborative innovation between a global service supplier and two of its industrial customers in Sweden.

The customers operate on a mature and technically advanced market with a standardized and controlled production process, while the service supplier represents a large fast-growing multinational company. The analysis of barriers aims to contribute to an understanding of the perceived and identified barriers in their common context and business, to explore how to

overcome barriers to strengthen organizational readiness for collaborative innovation and collaborative value creation.

Barriers to collaborative innovation in supply chains – a literature review

In the literature on innovation, barriers to innovation are a recurring theme, and several barriers that hinder innovation processes in organizations have been suggested. Research has highlighted and categorized different barriers and groups of barriers to innovation. Earlier research has mainly been directed to finding and naming general barriers. Based on a systematic review of studies on radical innovation, Sandberg and Aarikka-Stenroos (2014), identified 15 barriers to innovation. In a similar vein Gruenhagen *et al.* (2022), empirically derived barriers to innovation in five generic areas. Innovation is found to be hindered by both internal and external factors, such as lack of staff and competence (D'Este *et al.*, 2012; Torres de Oliveira *et al.*, 2022), lack of resources (Wipulanusat *et al.*, 2019; Madrid-Guijarro *et al.*, 2009) and lack of governmental support and regulation (Gruenhagen *et al.*, 2022; Hewitt-Dundas, 2006).

Earlier research on barriers to innovation typically focused on innovation work within one focal organization (Freel, 2000). Considering the increased importance of collaborative innovation, few studies have focused on the specific barriers in collaborative innovation contexts. Newer studies suggest that external partners and collaboration are important means of innovation (Bustinza *et al.*, 2017; Feng and Sivakumar, 2016) and in a supply chain context. Asree *et al.* (2019) demonstrate a positive correlation between strategic supply chain collaborations and innovation performance. Increasing innovation work is taking place in supply chain settings, which opens new and challenging questions on the conditions for innovation, for instance, in terms of opportunistic behaviour, lack of trust and issues of control (Anzola-Román *et al.*, 2019; Cabigiosu and Campagnolo, 2019; Skipari *et al.*, 2017).

Moreover, in the collaborative innovation process, there are external and internal dimensions that influence innovation work in supply chain relationships (Anzola-Román *et al.*, 2019; Roy *et al.*, 2004). The culture in the supplier's organization (Nguyen *et al.*, 2020), identity (Öberg, 2016) and trust levels play important roles in the success of buyer-supplier relationships (Kazantsev *et al.*, 2022). There is substantial literature on the joint efforts of suppliers and customers for new product development, early supplier involvement and innovation in general in manufacturing and technologically intensive industries (Fliess and Becker, 2005). Although collaborative innovation has been the focus of a growing stream of research, there is still a need for research that specifically focuses on the barriers to collaborative innovation in supply chains.

The broader field of collaboration in supply chains has identified numerous barriers to collaboration (Ramesh *et al.*, 2009; Fawcett *et al.*, 2015). Turning to this field of research can provide important insights for the study of barriers to collaborative innovation in supply chains. Although these studies often have a broader scope than just innovation for example, by focusing on change and renewal, they are still highly relevant for the purpose of this article. A literature review was conducted to identify and systematize barriers to collaboration in supply chains. Based on a literature review, Mahmud *et al.* (2021), identified four main categories of barriers in supply chain collaboration between SME's: information-related, communication-related, intra-organizational and inter-organizational. Wu and Chiu (2018) identified two major issues for building supply chain collaboration: sharing behaviour and technology use behaviour.

The articles on collaboration that were identified as relevant were all focusing on collaboration in supply chains, and all presented one or more barriers to collaboration. Based on the literature review, the researcher's team created an aggregated list of eight categories

of barriers that were recurring in the literature review. The results from this process are presented below.

- (1) *Professional differences, attitudes, values.* The most frequently mentioned category of barriers was labelled professional differences, attitudes and values, which was mentioned more than twice as often as any of the other categories (Haas *et al.*, 2011; Carr, 2002). Roy *et al.* (2004) emphasize the need for network partners to create a shared attitudinal commitment to succeed in collaborative endeavours. Greer and Lei (2012) illustrate how different understandings between suppliers and customers rest on cultural patterns in collaborating parties. Öberg (2016) stresses the need to create an identity that goes beyond the single participating organization. Skippari *et al.* (2017) take a sense-making approach to show how the participants' cognitive basis can possibly inhibit collaborative innovation. In a similar way creating a collaborative culture can also be an important mediator for successful innovation (Shehzad *et al.*, 2021). Differences in attitudes and values among various professional groups can create lack of trust between the parties (Chapman and Corso, 2005). An important theme in the research on collaboration in supply chains is the trust between the collaborating parties. Lack of trust is indeed an important barrier mentioned by several authors (Panahifar *et al.*, 2018; Mahmud *et al.*, 2021). The lack of trust is further enforced in situations of high uncertainty (Latusek and Vlaar, 2018). Seeking the roots for a lack of trust indicates that differences in attitudes and values is an important explanation for lack of trust. We therefore view lack of trust as an integrated part of this category of barriers.
- (2) *Structures.* Another group of identified barriers is created by organizational structures in the collaborating supply chain parties. Collaboration often takes place between companies representing different regulatory systems, which creates formal problems for the collaborating parties (Goldsmith *et al.*, 2010). Differences in organizational and management structures can severely hamper initiatives for innovation between collaborating organizations. Fawcett *et al.* (2015) show empirically how territorial boundaries and poor system connectivity act as structural resistors to supply chain collaboration.
- (3) *Lack of resources, staff and skills.* The parties in the collaborative effort sometimes work under tight budget restrictions, which makes the lack of resources a problem (Pratt *et al.*, 2018; McCullough *et al.*, 2018). This can be perceived as lacking both within and between organisations (Freel, 2000; Brown and Eisenhardt, 1995; Iachini *et al.*, 2015; Rieley, 2014). Participation in joint innovation efforts can be hindered by a lack of necessary skills and shortage of people. Even though skills are available in the participating organisations, collaborative effort might not be prioritized. A further problem that is mentioned is a lack of knowledge about the other parties in the collaboration (Pratt *et al.*, 2018).
- (4) *Organizational policies and rules.* Internal bureaucracy is often mentioned as a significant barrier, especially in contexts with large organizations collaborating with small firms (Goduscheit and Knudsen, 2015). The existence of internal standard operating procedures in the participating organisations can create barriers to collaboration (Swink, 2006).
- (5) *Lack of management.* Lack of management refers to a broad set of issues that reflects the ways in which managers support, facilitate and organize collaboration efforts. A lack of managerial support and low commitment to collaboration are often mentioned as managerial problems (Sloper, 2004). Davis and Eisenhardt (2011)

discuss the role of dynamic organisational processes and the ability to manage across boundaries to achieve re-combinations among the collaborating parties. In a similar way, silo thinking and the inability to make cross-functional and interorganisational collaboration work can seriously hinder collaboration (Hansen and Schmitt, 2021).

- (6) *Communication*. Lack of communication is a broad category that covers numerous aspects of communication. It sometimes refers to a lack of systems for sharing information and data (Pratt *et al.*, 2018). Zhang and Cao (2018) emphasize both the lack of information sharing as well as collaborative communication as critical variables for supply chain collaboration. Mahmud *et al.* (2021) describe information-related and communication-related barriers as two broad categories of barriers to supply chain collaboration. Information-related barriers deal with aspects such as reluctance of actors to share information and communication-related ones are lack of communication as well as poor connectivity (Oyedijo *et al.*, 2022).
- (7) *Distance*. The physical (and mental) distance between the collaborating parties is sometimes referenced up as a barrier to collaboration (Fickel *et al.*, 2007). Anzola-Román *et al.* (2018) discuss the strategic fit between collaborating parties, with distant partners posing special challenges for collaboration.
- (8) *Relations, conflicts*. This factor acknowledges the importance of having a shared history between the collaborating parties that forms the basis for current and future relations (Touboulic and Walker, 2015). Fawcett *et al.* (2015) launch the concept of relational resistors, consisting of sociological and structural factors that, potentially, can undermine collaboration efforts.

The list could have been longer including which have been suggested by some researchers. It can be concluded from the literature review that there is a lack of a clear definition of what constitutes a barrier. Although the list of possible barriers could be extended, incorporating for instance time and technology, which is suggested by some researchers (Greer and Lei, 2012; Goduscheit and Knudsen, 2015; Edmunds, 2017), there were common denominators and overlap among the different labels that justify the generic list above. It is, however, important to keep the conceptual differences in mind when applying this theoretical framework in the analysis below.

Method: empirical context, studied companies and data collection

This study was based on a close dialogue between the researchers and the practitioners. The researchers took on the role as a catalyst and involved representatives from the companies in different phases of the research effort (Coghlan and Brannick, 2014; McNiff, 2012). This process was initiated by the service providing company – the supplier’s subsidiary headquarters in Sweden. The company envisioned developing service business through close collaboration with customers focusing on collaborative innovation creation. Thus, the researchers’ role was to undertake an action research approach with a clear ambition to develop an understanding of the conditions and requirements for collaborative innovation in services, as well as an intention to design and implement new solutions among involved companies. Through these dual ambitions, knowledge development and intention to redesign existing solutions, the researchers were given access to people and information that otherwise are unavailable to outsiders (Middel *et al.*, 2006; Gummesson, 2006).

Steps were taken to involve the participating companies. The researchers created conditions for a collaborative setting to explore and support change and transformation. The intervention with developing innovative efforts was made through observations at the customers’ production sites, interviews with key staff members of all three involved

companies at their respective production sites and later workshops with staff from each company (see Table 1). Principles of critical self-reflection were applied to understand the ongoing development processes (McIntyre, 2008).

The team of three senior researchers was involved in a development effort with a service supplier (named supplier in this paper), aimed at developing its innovative capabilities. The supplier is a multinational company that provides facility management and maintenance, including cleaning, property, catering, security and support services in several countries and to different industries, such as the nuclear industry. The supplier provides both standardized services and completely customized service solutions. The supplier had as business model to:

“... win, grow, and retain customers ...”, (Wording according to the annual report from 2018).

and was driven by the vision to become the best in the world in service organisation with the mission:

“Service performance facilitating our customers’ purpose through people empowerment” (Wording according to the annual report from 2018).

The ambition to involve employees was also articulated in interviews:

“Through satisfied employees, we create added value for the customer.” (Respondent S3: manager at supplier subsidiary headquarters in Sweden)

Interviews and workshops

Interview with respondent S1: manager consultant at Service Supplier subsidiary headquarters in Sweden

Interview with respondent S2: manager at Service Supplier subsidiary headquarters in Sweden

Interview with respondent S3: manager at Service Supplier subsidiary headquarters in Sweden

Service Supplier and Customer A

Interviewees from Supplier to Customer A

Respondent S4: manager operations
 Respondent S5: white-collar worker
 Respondent S6: blue-collar worker
 Respondent S7: manager operations
 Respondent S8: manager

Participants in workshop with Customer A

7 from Supplier (local)
 2 from Customer
 1 from Supplier’s subsidiary headquarters

Service Supplier and Customer B

Interviewees from Supplier to Customer B

Respondent S9: manager operations
 Respondent S10: manager operations
 Respondent S11: white-collar worker
 Respondent S12: blue-collar worker
 Respondent S13: blue-collar worker

Participants in workshop with Customer B

4 from Supplier (local)
 5 from Customer
 2 from Supplier’s subsidiary headquarters

Interviewees from Customer A

Respondent C1: white-collar worker
 Respondent C2: white-collar worker
 Respondent C3: management support
 Respondent C4: manager operations
 Respondent C5: manager operations

Interviewees from Customer B

Respondent C6: manager operations
 Respondent C7: manager operations
 Respondent C8: manager operations
 Respondent C9: manager operations
 Respondent C10: manager operations
 Respondent C11: manager operations
 Respondent C12: white-collar worker

Table 1.
 Overview of respondents in interviews and participants in workshops

The innovative effort to:

“... find models to improve our ability to be innovative and create added value together with our customers ...”. (Respondent S3: manager at supplier subsidiary headquarters in Sweden)

was an invitation by the supplier to include two of its customers (named customer A and customer B in this article) in a joint effort. The middle managers at the supplier headquarters expressed a strong ambition to develop their innovative efforts for both customers with the researcher team as facilitators:

“And our strategy is to perform so well so we become the natural partner for these services ... with both customers.” (Respondent S3 manager at supplier subsidiary headquarters in Sweden)

The project initiative came from the global supplier's subsidiary in Sweden. Thus, the Swedish context was a natural platform for this research. The customers are two production sites in Sweden, both owned by large international companies within a rigorously controlled industrial production process. One of the customers is international and publicly owned, and the other customer is a large, international, privately held company. The industrial context is characterized as strict with high security operations and producing a homogeneous output. Any extended involvement of external suppliers to provide basic services such as cleaning, maintenance, personnel restaurants and storage has been limited. The supplier provided customers with basic and similar services to their respective production installations in Sweden. Being competitors on the same market, both customers had limited communication with each other and interaction between them had been restricted by their own lack of actions and not by any legal means, albeit they provided similar products and services.

Both customer production sites are in relatively remote and rural geographical places, which is one reason why personnel turnover is very low. The service contracts with the two customers had slightly different conditions, though the supplier was the contractor in both and had been so for some years. The data collection for the project comprised interviews with 25 persons, both managers and workers and two full-day workshops at their respective sites (see [Table 1](#)).

As action researchers we had free hands to design the process. The two chosen customers are the only business operators in their industry in Sweden. We purposefully selected interviewees at different organizational levels, functions and departments to develop a comprehensive understanding of the context, conditions and expectations from a multitude of perspectives. The intentional approach, to developing and implementing collaborative solutions, was also an argument for the involvement of several groups of people in the process. The choice of interviewees and participants in workshops was conducted on the recommendations from peers and key individuals based on the skills and knowledge of people. We selected interviews and workshops as complementary methods. The purpose of interviews was to create an understanding based on employees' experience and knowledge.

At least two researchers were present in most of the interviews. One researcher conducted three interviews. The interviews lasted between one and two hours and were conducted as open dialogues. They have been recorded and transcribed verbatim. The purpose of the interviews was to obtain a first-hand view of the conditions for innovation at the two sites (customer A and customer B) to prepare for the workshops to follow. The researchers explored how the supplier and buyer representatives perceived innovation and what barriers they saw to engage in innovation together. Some of the interviewees were invited to participate in the workshops.

The researchers applied a workshop approach to create an arena for joint exploration, learning and development of solutions. The combination of interviews and workshops was an intensive and intentional approach. The workshop design was iterative and adjusted to the process. The first interactive workshop was organised after the interviews with ten

participants from customer A and the supplier. A second workshop was conducted with eleven participants from customer B and the supplier. [Table 1](#) summarizes the data collection.

The working model for the workshops was based on active interaction by a mix of representatives for both suppliers and customers. The goal for the research approach was to identify and articulate the barriers for innovation in an interactive process between supplier and customer. Each workshop was video recorded, and photos were shot of the categories that were written on post-its and presented on a whiteboard. The workshops were held with the question: What prevents us from being innovative together with our supplier/customer? Gradually we realised that both customers were facing similar barriers to collaborative innovation.

In the workshops with supplier and customer A respective to customer B, the individual participants were first asked to list all barriers they perceived to engage in innovation work together with the customer/supplier based on the findings from the interviews. Every individual described and presented barriers on a whiteboard. The workshops then moved into an interactive phase. The barriers were grouped into broader categories where care was undertaken to work close to the industrial setting and not to have the researchers impose categories on the participants in the workshop. At the end of each workshop, the participants had developed an articulated shared view of their perceived most significant barriers in the interaction between supplier and customer. The two independent workshops resulted in similarities and overlapping findings.

The analytical processes followed the principles of thematic analysis described by [Braun and Clarke \(2012\)](#). The analysis included a combination of the data from both interviews and workshops. The goal was to uncover meaningful themes based on the contents derived from the participants in their common context rather than from the literature. In the qualitative analysis performed interactively by the three researchers, four themes appeared to be quite consistent between the two customers. The researchers' interpretation of data was made through repeated readings of the transcripts of the interviews and listening and watching the videorecorded workshops. All three researchers participated in both workshops. The barriers in the literature served as a theoretical construct for our analysis. The understanding of the business context and the interaction between supplier and customers were interpreted by the researchers into four major themes presented below. The themes aim to serve as a bridge from identifying barriers to constructing steps to overcome barriers.

Was there a strong researcher effect that provoked a certain type of result? First, although the analysis arrived at four broad themes, the two customers contained much variation in detail on how the experience worked in collaboration. Second, measures were taken to ensure that the participants in the workshop were passing through the stages of the workshop with as little input from the researchers' team as possible. In a similar way, the interviews were conducted to give the participants an open space to reflect upon the conditions for collaborative innovation. No suggestions were made in workshops or interviews by the researchers regarding specific barriers or guide them in the process of merging categories.

Result

In this section, the result from the content analysis of the data is presented in four themes which serves as areas to address to overcome barriers.

Theme 1: The customers' safety culture created special conditions

The special features of the customer industry are important to understand to uncover specific barriers to collaborative innovation work. Customers' business is governed by strict safety regulations, which constitute a general reluctance to be involved in creative interactions with

external partners. Even though the safety regulations primarily apply to the customers' core business and not the maintenance services that the supplier provides, the organisational culture of carefulness and precaution still heavily influenced the overall collaborative climate at the two customers. Moreover, it formed the point of departure for both customers irrespective of their different ownership and management structures. According to a white-collar worker at customer A:

"It is not so easy to make changes. You must consider a lot of instructions, rules and routines that are out here." (Respondent C2)

Similar comments came from a white-collar worker at customer B:

"... that is the disadvantage in our industry, just look, we have fences, there are guards everywhere for getting in and out ..." (Respondent C12)

The supplier's knowledge and understanding of the customers' security and safety culture had been developed as part of its contract. The supplier offered to test new methods for basic maintenance, such as cleaning. According to the supplier, the reaction from the customer had been, "do it!"

"... then we will investigate it further later if we can do it in any other way ..." The supplier continues: *"... the management at the customer thought it was good that we test different variants ... they do not dare to test themselves ... the first times we tested there was worry on the customer staff but now it's more of a normal thing ... and by now most people actually think it's really good."* (Respondent S2: middle manager at supplier subsidiary headquarters in Sweden)

By suggesting new ways of working, the supplier gained confidence in performing tests of new operation methods for maintenance. The initiative by the supplier to invite innovative collaboration with the two customers can, given the contextual characteristics, be interpreted as a first innovative step. The supplier confirms its knowledge about customer culture.

"The customers are very controlled in the process ... so this is very regulated ..." (Respondent S2: manager at supplier subsidiary headquarters in Sweden)

This focus on the production process is similar for both customers. In the workshop with Customer A, discontent with the production processes was expressed as:

Slow processes for giving supplier personnel access to the facilities.

The quote regards the production process, but it also reflects that there are protocols regulating safety and security. These regulative procedures imprinted the everyday work within the customers' production processes and its hampering character was formulated in the workshop with customer B as:

The overarching focus on daily operations in the industry hinders future development.

The expression mirrors the importance that the regulations of production are known by everyone and always followed. This theme, which is related to the customers' production processes, was acknowledged as one group of barriers in the workshops following the interviews.

Theme 2: The current business model was a barrier to collaborative innovation

The interviewees with both customer A and B described a situation imprinted by an upcoming contract renewal in which the supplier was eager to develop its maintenance work. One reason for the supplier to enter the research project was related to the content of its present customer agreements. The customers were used to select suppliers on contracts renegotiated every 3–5 years. This created uncertainty for the supplier. Regardless of what

the supplier offered, the main criterion for choosing the supplier was the price (cost). Thus, the supplier had worked to lower cost for basic maintenance services and gained revenues on services delivered as additions to the original contract. The supplier had come to realize that this situation was not favourable for either the supplier or customer. The situation had been recognized by management within the supplier:

“... if we reach a certain number of quality levels, we can get kickbacks ... if we can keep the budget, even go further, then we can share the cost reduction.” (Respondent S3: manager at supplier subsidiary headquarters in Sweden),

and similar thoughts were expressed on the shop floor:

“You do a lot of extra work that is not charged, so that will go under goodwill ...” (Respondent S12: supplier blue-collar worker at customer B).

At the start of the research project, both customers independently raised an interest in opening for renegotiating the content of their contracts with the supplier. In the interviews, both customers expressed that a change in the underlying business logic from focusing on price and cost to innovation and long-term collaboration might be worth considering. Customer A expressed it as:

“It is a driving force, an incentive. If they improve something, to do it in a better way or more cost-effectively, they get to take part of that profit.” (Respondent C2: white-collar worker at Customer A)

A supplier blue-collar worker at customer B:

“But the customer has to let us in a little more and they have said that now they should really do it, now we are interested in because we need to earn, we need to save money.” (Respondent S13)

Therefore, the supplier’s ambition was to be able to provide value by successively extending and exploiting its knowledge about the customers. The argument could be expressed as the middle manager at supplier subsidiary headquarters expressed:

“... if the customer is doing well, they can reduce their customer organization if they trust us and then transfer the responsibility to us and in a way that they get reduced costs as well.”, (Respondent S3)

or as expressed by a white-collar worker of the supplier at customer B:

“... We play with open cards against them now ... we have said that winnings should be shared ... honesty lasts the longest in this case. They also say that we know that you do not operate here without making any profit from it.” (Respondent S11)

The contract between the customers and the supplier was in a process of change towards a stronger emphasis on being more proactive towards innovation and value creation. Irrespective of whether the label is innovation or improvement, such a common goal puts more demand on action both from the customer side and from the supplier side. The focus needed to be collaborative, and both the supplier and its two customers had reached initial understanding of that during the interaction within the respective valid contracts. Such a point of departure legitimized a next step in the process, with a focus on identifying barriers to overcome. In both workshops, substantial attention was directed to the lack of knowledge and experience of the respective businesses. It was most clearly described in the workshop with customer B:

There is a lack of understanding of the contract within both organizations

Mutual knowledge about the core business between customer and supplier is lacking

Additionally, the formulations within the workshop with Customer A signal similar concerns:

Unclear interfaces for buyer and supplier interaction

No mutual responsibility for the shared interaction process

This second theme is directly related to the discussion on renewal of the contract and its business content. When comparing the supplier and the customer, it seems the supplier's knowledge of the basic customer service needs and wants was greater than the other way around. The supplier had discussed such an interest within its organization and had included its employees in the strategy. A possible reason for this is that the supplier is a service company where so much of its core business is inherent in its employees:

"... with satisfied employees satisfied are also the customer benefits." (Respondent C6: operations manager at customer A, former manager at supplier).

To perform well the service provider needs to have knowledge about the customer needs. Some of the knowledge the supplier had gained was through recruitment of new employees who previously were employed with the customers.

For the customers, on the other hand, there had not been any real prior incentive to learn more about the supplier. It should be noted, however, that supplier knowledge of the customer's core business was scarce. Therefore, there was a need for the participants from both parties to become motivated by the bigger picture (the business model) to create mutual development. In the interviews with the customers, it was mentioned several times that there were no incentives for the individual to be innovative. We conclude that a focus on the business model has not previously been recognized in the literature as a barrier. Before turning to the third observed theme, we want to emphasize that common value creation between collaborative partners needs to take off not only in a mutual understanding of each other's ways of working but also in what could be an innovative path forward.

Theme 3: Innovation had different meanings for supplier and customers

The interviews revealed that the supplier and customers had different understandings of the meaning of innovation and how it can be developed. While the supplier had learned much about the customers' operations, the customers were less knowledgeable about the supplier's competencies. From the situation of contract renewal, it was also obvious that the supplier's strategic ambition to be innovative was relatively unknown and thereby new among the customers' representatives.

Customers A and B were both in the very beginning of a process to strive away from the well-established lean-based concepts to value creation-based concepts, as key components in their business model towards the supplier. Both customers realized, however, that there is a limit to what can be gained from continuous cost reductions. Both customers expected the supplier to bring in new solutions and in turn new value based on the supplier's international experience from different industries, or as a white-collar worker at customer A said:

"The supplier is quite good at coming up with ideas and suggestions for areas for improvement." (Respondent C2)

The representatives of the supplier expressed similar motives to shift from cost reduction to value creation by enabling the transfer of its extensive experiences from other industries and customers, domestic and international, to bring value to customers. A manager at the supplier subsidiary headquarters in Sweden concludes:

"... all suppliers have been required tough savings ... so it was a big step for us being classified as the cleaning company to be allowed to perform a final inspection ..." (Respondent S3)

On the one hand, innovation was believed to be associated with cost reductions and incremental improvements:

“... there are only incentives for cost savings and improved... and for such suggestions we compensate generously...” (Respondent C7: operations manager at customer A).

At the same time, there were expectations from the customers that the supplier should be able to innovate on a larger scale drawing from experiences in its global business. It was expressed in the interviews that the technology, safety and security regulations gave little or no room for radical innovation. The results show that the industry culture was conservative, and that safety and security aspects were often used to explain why more comprehensive innovation was not desirable and too complicated to carry through in practice. The context was of key importance. During the interviews, the customers' personnel turnover was described as low. A few employees had moved from being employed by the customer to being employed by the supplier. From the interviews, we gained an understanding of the character of barriers that had the character of being perceived, believed and experienced.

The interviews revealed that the customers and the supplier had similar and complementary motives to develop their respective business models to achieve innovation. For both customers, the service supplier had an ongoing discussion on how to interpret the business model inherent in the contract directed to the importance of innovation in the scope of the contracts. Therefore, the situation of renewing the contract with the supplier acted as a revelation for renewing its content for both.

It became apparent from the interviews that the meaning of innovation was unclear as well as how to change the contemporary business model based on contracts focusing on price.

Customer A white-collar worker: *“It is perhaps more about streamlining, doing the job better and faster... business development and innovations, new models, we do not really expect that from the supplier. However, we expect them to behave in accordance with the way we have agreed, but that they should do it a little better, a little cheaper, year after year. That's basically it.”* (Respondent C2)

The arguments during the workshops were imprinted by a lack of common motive for interacting in a creative and innovative way. They reflect the traditions in the industry and habits of how to collaborate with suppliers, keeping the supplier on an arm length distance, while expecting them to decrease cost every year. The dialogues provided as part of the contract often had the character of reporting and informing. Communication regarding the business model among employees on both sides was not encouraged or legitimized.

Theme 4: Managerial and organizational prerequisites for collaboration

In the workshops, the participants spent much time discussing questions on how the collaboration between the customer and supplier was to be managed and the different barriers they were facing in this. Accordingly, we treat this fourth theme as a prerequisite for collaboration between supplier and customers.

The representatives from customer A and the supplier formulated the barrier as follows:

The organization, control and economic prerequisites for the delivery is based on operations (...) and not on ambitions and expectations in the contract.

This signals a gap between the overall ambition to foster more collaborative innovation and the realities within the specific industry context. There were clearly several prerequisites in the production processes that were prioritized at the expense of the innovation work.

Representatives for customer B and the supplier in the other workshop summarized their discussion into a barrier with these terms:

The execution of mutual responsibility for the common business is hindered by insufficient communication and information.

This formulation suggests that the problem rests in how the collaboration is managed, with poorly developed processes for communicating between supplier and customer and a lack of sharing information.

For the customer A, the discussion on what hindered innovation work had been expressed as more formal, for instance, with barriers that were classified as structural barriers and with barriers classified as lack of management. The expressed lack of a clear process for communication and information and the slow processes for the supplier to gain access and to get into the premises of customer A were described in formal terms. Customer A emphasizes existing operations and their control, organisation and economic conditions. In terms of actual barriers, there is a similarity between both customers, while the specific articulation signals differ.

Furthermore, the summarizing formulation in the workshop with customer B, who was the first customer to be approached by the supplier with its ambition to co-create value, signals that the innovative process may have taken a step further in its openness towards the supplier. Its formulation addresses how to inform and communicate on common business and mutual responsibility for the same.

“... customer A is more isolated than customer B ... customer A is ahead in its thinking about the procurement of services than customer B who is more satisfied with us than customer A, but we are not doing a better job at customer B, it is just that customer A is more into assessment ...” (Respondent S2: manager at supplier subsidiary headquarters in Sweden). The supplier continues: *“...the relationship between our service personnel and the customer B is closer than at customer A”*.

These findings pinpoint that the development of common innovative work is an ongoing process where middle management has an important role to set the stage and act as a door opener. Operations manager at customer A (Respondent C6):

... a key to success is definitively to make the employees understand that my suggestions and ideas are good.

The fourth theme is directly related to the management of the commonly agreed ambition to develop the business within the relationship between the supplier and the customers. The interactive discussion between customers and seller does not come about spontaneously and demands managerial legitimacy and active involvement. A discussion of creating and introducing a new business model is a strategic item that needs support from top management, which means that in addition and parallel to what goes on interactively between customers and seller, an interaction between the managerial levels within each organization needs to be addressed.

The need to take a managerial approach for overcoming barriers in collaboration has become visible for both customers. The empirical descriptions reveal a lack of trust and resources within the respective organizations having made up the business contract.

Workshop with supplier and customer A:

Integration in management and control on a strategic level is lacking

Lack of long-term financial planning

Workshop with supplier and customer B:

Mutual knowledge of the respective organizations and their decision-making processes is lacking

There is a lack of shared view of economic resources

Interaction between the supplier and the customer is largely formalized in meetings between managers and does not involve employees. Therefore, when the study identified a need for both formal and informal arenas for interaction at different organizational levels among clients and supplier, this became an issue for managers to handle. There is a need to address the respective internal organizational levels within both supplier and customer organizations. Management attention needs to be directed to the work floor personnel who perform the maintenance.

As mentioned before, middle management also needs authorization from the strategic level to proceed into collaborative work. According to a manager at the subsidiary supplier headquarters:

“... it is up to the customer to inform in its organisation while we must inform our personnel...”, and the manager continues “...in this industry we have need to develop middle management... they could be an enormous driving force” and concludes “... it takes a strong leadership to challenge your own group”. (Respondent S3)

Discussion

The supplier had a strategy to develop innovation through collaborative services with customers and become more engaged in customers' operations. The customers expressed an interest and were positive, albeit careful and cautious. The customers gradually developed expectations and trust for the supplier to provide innovative service solutions. However, at the same time, the customers identified and articulated barriers to collaborating on innovation. This indicates that to develop collaborative innovation we need to explore and understand the barriers perceived from both suppliers and buyer's side. Those barriers must be addressed, removed and transformed into opportunities to enable development to take place.

The literature review revealed several generic barriers to collaboration between organisations. The themes being the result of our analysis of content in the data collection are described in comparison to the generic barriers from the literature in [Table 2](#) below to check for similarities with previous research but also to show that the themes comprise several barriers from the list. Our thematic analysis is suggested as an alternative to the many listings of barriers, an alternative which also opens for how to overcome barriers. As we did not find any indications of barriers related to time or technology, they were excluded from [Table 2](#).

Three of the literature-based barriers stand out as more visible, essentially cutting through three themes, and in two cases all four, of the themes. We start with discussing these three barriers and their significance for understanding the conditions for collaborative innovation.

The literature on barriers to collaboration highlights professional differences, attitudes and values as a common barrier to collaboration ([Haas et al., 2011](#)). We identified several examples of this in our data, with the supplier representatives coming from a service sector and with strong commercial motives for acting, whereas the customer representatives had a strong focus on their core business. The professional differences constituted theme one – the strong safety culture at the customers. The supplier representatives viewed this as a constant area for discussion and frustration and it was sometimes difficult for them to understand why safety was so highly valued except for in the core business. For the customer representatives, the safety culture was part of their identity; safety was a top priority, regardless of whether the situation called for it or not. This made it more difficult to create the shared identity that [Öberg \(2016\)](#) proposed as critical for successful collaboration. The different cultures in the supplier and customer organizations created a cultural fragmentation that upheld a certain

| Barriers found in literature/ themes developed from the empirical data | Theme 1: Safety culture | Theme 2: Business model | Theme 3: The meaning of innovation | Theme 4: Managing barriers |
|--|--|---|---|--|
| 1. Professional differences, attitudes, values | Strongly held values at the customers The culture of carefulness and precaution influences the collaborative climate | A growing realization of the need for a collaborative mindset, but not explicitly communicated | The customers are not used to think in terms of innovation | Lack of mutual knowledge and a shared view |
| 2. Structures | The structure mirrors the customers' regulated production processes | | | Restricted access for the supplier to the customers' organizations |
| 3. Lack of resources, staff, skills | | Lack of knowledge of the respective business models | | |
| 4. Organizational policies, rules | The safety culture manifested in regulations Regulative procedures imprint everyday work | Aspects of the "old" contract prevails | Ambitions for more radical innovation in conflict with safety regulations in existing production processes | The supplier took the initiative to interact with the customers |
| 5. Lack of management | | No incentives for the customers to learn more about the supplier | | Innovation not of strategic importance for the customers' managers |
| 6. Communication | | | Different meanings complicate communication | Lack of communication Lack of processes for sharing experiences |
| 7. Distance | | Operative personnel not involved in contract discussions | | Distance between management and operations in both supplier and customer organizations |
| 8. Relations, conflicts | Reluctance to interact with external partners Growing acceptance for innovation from the customers | The business model regulates current relations The customers re-negotiated supplier contracts every 3-5 years | | Processes for sharing of experiences between supplier and customers are lacking |

Table 2.
Cross-analysis of the
four themes found in
the interpretative
analysis of data in the
study and the generic
barriers from the
literature review

distance between the parties. The customer representatives were fully aware of this and even brought it up as a barrier in the workshops. This contextual based perception of security was one basic barrier that was identified between supplier and both customers and was reflected in the contemporary business logic and business model being used.

The second generic barrier from the literature that was clearly visible in interviews and workshops was organizational policies and rules. We found numerous examples of organizational policies and rules hindering collaborative efforts. The safety culture, as discussed in theme one, was manifested in a multitude of rules and regulations that made collaboration more difficult on a day-to-day basis. Safety culture is a manifestation of customers operating in an industry where there are several technological and regulative conditions they must comply with. This was also visible in what was identified as theme three and the way in which the safety regulations hindered ambitions for more radical innovation. The participants also connected this with the current business logic and existing contracts that specified several formal aspects that effectively hindered more radical innovations, especially when introduced by the supplier.

The third literature-based barrier that surfaced frequently in the themes was relationships and conflicts. The participants frequently mentioned the (lacking) relationships between the supplier and the customers as a source of problem in the collaboration. Under theme one, the participants brought up the reluctance of the client to interact with external parties but at the same time acknowledging that this basic attitude was in a process of change. This was visible when the participants discussed the shortcomings of the contract, with a business model that hindered more ambitious attempts from the supplier to initiate innovation efforts. In the current business model, relations were marked by formal renegotiations of the contract every 3–5 years, which introduced much uncertainty for the supplier and effectively hampered more long-term innovation work. It can also be argued that the lack of processes for sharing experiences also marks the relations between the supplier and the customers, therefore also appearing as an example of this generic barrier.

The three literature-based barriers discussed above highlight an interesting pattern in our data with a combined effect of formal decision-making and cultural aspects. There are formal rules, regulations and technical requirements that govern and restrict the operations of the two customers, and these are important for the understanding of collaborative innovation. The other two barriers in the literature, professional differences, attitudes, values and relations and conflicts, seem to go beyond the formal requirements and form a cultural pattern. This cultural pattern does not formally stop the parties from collaborating but functions as an established way of thinking hindering collaboration. Taken together, the formal and cultural aspects make collaboration difficult between the supplier and the customer. They form a mental model and cognitive framework, hindering close and intensive collaboration for innovation.

The remaining literature-based barriers surfaced in one or two of the themes. Another generic barrier to collaboration found in the literature review was organisational structures. This barrier was visible in the fourth identified theme – managing collaborative innovation work. For both customers, the participants in interviews and workshops discussed structural barriers. One aspect that was brought up was the lack of involvement of lower-level managers and employees, and interviewees called for both more formal and informal arenas for interaction between supplier and customer. They saw it as problematic that innovation between supplier and customer was primarily discussed among senior managers from both parties, which made it more difficult for operative personnel and middle managers to catch opportunities for innovation in the daily work – the authority to do so was not there (Sloper, 2004; Widmark *et al.*, 2011).

The generic barriers in the literature: lack of resources, staff and skills, were considered less problematic in our study involving a supplier and two customers. The literature

highlights this as one of the most important barriers (Crotty *et al.*, 2012; Fickel *et al.*, 2007; Haas *et al.*, 2011). This barrier surfaced when discussing the understanding each party had of the others business, indicating a lack of knowledge of the commercial aspects of the collaboration. Apart from this, resources were not a barrier in the efforts to collaborate between the parties. Resources were rather complementary and needed to create collaborative innovation. The supplier had extensive experiences from other industries that would be beneficial for collaborative innovation in our study if the settings were favourable.

The identified theme four illustrated other generic barriers from the literature review. A common issue that surfaced for both customers, in interviews and workshops, was the lack of communication. This was partly related to the structural issues above, with a lack of established processes for sharing experiences. Several of the participants also mentioned that there was a lack of information that made it difficult to work together on innovation.

The four themes can be further analysed to find the inherent patterns of collaborative efforts between the supplier and the two customers. The safety culture in the two customer organizations contributed to the lack of progress in collaborative innovation. There was a generally positive attitude towards collaboration, but many minor aspects of the safety culture made further progress more difficult. The safety culture was also in a dynamic relationship with the current business model that in different ways emphasized the distance and formal relations between the customer and the supplier. Furthermore, the current business model gave few incentives to the supplier to engage in collaborations with the customer to innovate. The combined effect of both formal aspects and culturally ingrained values and experiences created this special context for collaborative innovation. These two contextual themes: safety culture and the current business model, affected both the interpretation of innovation (giving it different meanings) and how innovation was managed. Figure 1 below describes the relation between the safety culture/current business model (themes one and two) and the meaning and management of innovation (themes three and four).

There are arguably links between the theme of the strong safety culture and the fourth theme that brought up managerial and organisational issues in the collaboration between

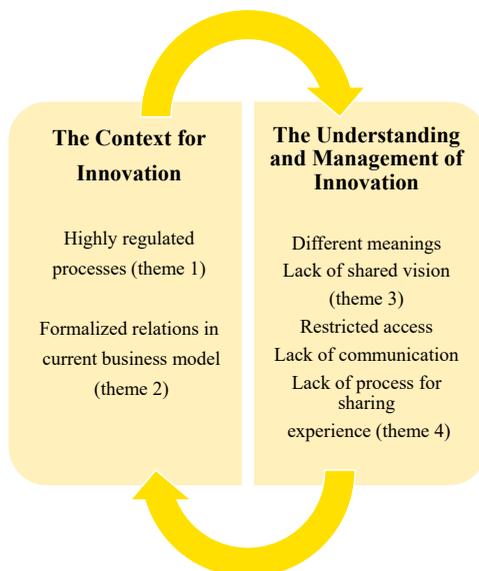


Figure 1. The context for and the understanding and management of collaborative innovation

customers and supplier. It seems that the safety culture created a distance between the customers and supplier, a sense of formal relations where both parties were careful in giving more authority to lower hierarchical levels. This can also account for the lack of communication and information that the participants saw as problematic.

The second and third themes can be framed as a broader discussion on how the meaning of innovation was clearly influenced by the deeply held values in the current business model. This is a question both in the content of the business model(s) guiding the innovation efforts of the supplier and its customers and in how the representatives interpret (and act upon) the business model.

Our analysis into themes where content and context are integrated had the ambition to recognize barriers embedded in the context and in the situation where the interaction between supplier and customer takes place to facilitate common innovation work.

Conclusions and implications

Our study of barriers to collaboration between supplier and customer leads to our first conclusion which claims that to overcome barriers, it is not enough to make a list of barriers. The study illustrates a need to acknowledge both the specific industrial context and the business logic for collaborative. This first conclusion was illustrated as the context of innovation in [Figure 1](#).

Secondly, the possibility to overcome barriers demands mutual knowledge of both industrial context and business situation. In our study embeddedness in the context was influential. The variety of rules, regulations and requirements that form the backbone of the industrial context and safety culture in the customers' processes is a fundamental part of the current business model. The study also shows that although the rigorous system of rules and regulations were deeply held values, experience and knowledge, the participants articulated an awareness and acknowledged the role they played (along with the formal aspects) in constituting the setting for the business. The role of the context and the business model between the supplier and the customers requires attention and need to be acknowledged by both parties.

Thirdly, the study sheds light on, a fundamental, need to communicate and manage the acknowledgement of the business model and the industrial context in both the supplier respective the customer organisations. An increased understanding of the respective organisations must be supported by both managerial legitimization and action. Managers in both supplier and customer organization must initiate and manage a communication across organisational borders. This third conclusion is illustrated by the right-hand side in [Figure 1](#): The understanding and management of innovation in [Figure 1](#).

Theoretical implication

This paper demonstrates that the development of a joint innovation process involving supplier and customers need to be based on cross-theoretical domain understanding. Theoretically, we need to see the traditional grouping of barriers in the context of business, operations and practices and not as isolated domains. Otherwise, we risk a shallow understanding of the barriers. The literature review shows that many barriers are evident, and they can be listed in many ways. What we demonstrate in this paper is that the supplier and its two customers must have a dialogue to identify and overcome those barriers prevailing in their specific context and companies. For this reason, it was possible to integrate one supplier and two customers, as they operate in the same business context under similar perceptions and business logic. Such collaborative dynamics needs, as claimed in the introduction of this paper, more attention by researchers.

Practical implication

Is it possible to overcome the barriers that have been described in this study? In the discussions at the respective workshops in the study, interest and commitment to addressing the barriers were revealed. Both the supplier's and the customers' representatives showed a willingness to increase the level and intensity of interaction on common improvement. The renewal of the contract gave the supplier an opening opportunity to initiate deeper and more intensive collaboration and to increase the level of intensity. We noticed that the dialogue during the workshops was highly appreciated and inspired continued interaction between supplier and both customers. We observed that this dialogue problematized and created more of a mutual understanding and trust. The values and attitudes, organisational structure and processes and communication were articulated and discussed in a lively but trustful manner. The specific format with researchers facilitating a meeting between supplier and customers facilitated the identification and discussion of the barriers to collaboration. Researchers, as neutral actors, not being any business actor, were the catalyst bridging parties together to achieve joint targets.

Any initial barrier relating to lack of willingness, incentives, or motivation to engage in collaborative innovation work was overcome during the workshops. This meant that both supplier and customers were ready for the next step to explore collaborative innovation. The focus on the business situation and the industrial and organizational context showed that the identified barriers were rooted in the contemporary business model. A change in the content of the business model was crucial for opening a discussion between parties regarding developing collaborative innovation. Moreover, the interaction led to an agreement between supplier and customers, based on a joint understanding of what the barriers were and how the current business model restricted further collaboration. Our intention of action research ended in the design of a collaborative business model for innovation. Without the explicit exploration of barriers and an understanding the logic of industrial and business context, this would be difficult to achieve.

The results of our study cannot be generalized in a traditional manner since the business model constituting the situation we studied, and the specific context of the customer industry are specific. Our analysis focused on a holistic interpretation. We argue however that the insight of the four themes illustrated in [Figure 1](#) can be a good platform for any supplier wanting to initiate interaction on innovation with their customers. We suggest setting focus on business culture, business model, understanding of innovation and the management of innovation to overcome barriers when suppliers and customers want to commonly engage in innovation. The generalization can be done by readers according to their own context and situation.

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