Investigating Information Sharing Behavior in Supply Chains: Evidences from an Embedded Single Case Study

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Abstract
Significant differences exist in the exchange of information between supply chain members. Various factors such as bargaining power, trust, contracts, and information management capabilities of firms influence firms' information sharing behaviors. Based on an exploratory case study, we analyze and compare supply chains to identify different information sharing patterns, and the factors contributing towards these differences. We found that while information sharing leads to higher benefits for all supply chain members, the fear of losing bargaining power is more important for the stronger firm than achieving mutual performance gains. Further, internal structures and socio-political aspects prevent firms from continuous exchange of information. We propose guidelines outlining different information sharing behaviors in supply chains, and thereby contribute to theory by explaining the association and influence of different factors on firms' information sharing behavior. Practitioners can use the guidelines to improve supply chain performance by formulating appropriate information sharing strategies.

1. Introduction
Information sharing is a key supply chain management initiative to realize higher performance gains within supply chains and networks [32]. Existing research suggests a positive contribution of information sharing towards supply chain performance [58]. While strategic information sharing is particularly beneficial for supply chain performance, 90% of firms share only transactional information, [56]. As a result, firms struggle with problems such as high inventories and product mark-downs [12]. Despite the identified benefits of sharing information within the supply chain, many firms avoid information sharing with their suppliers and buyers [39].

Possible explanations for the reluctance to share information include the aim for selfish enhancements of competencies resulting in competitive advantages and bargaining power within a relationship [48]. Furthermore, access to and control over strategic information enables firms to influence terms and conditions in their own favor [3]. This results in widely varying supply chain strategies in terms of information sharing among supply chain members with different power relationships [9, 52]. For example, the influence of bargaining power on information sharing is evident in the case of Dell who uses its strong bargaining power position to integrate upstream supply chain partners into its information flows and material flows as well as applying information sharing routines, resulting in a negative cash-conversion cycle of five days and other process improvements [41].

Information management capabilities of firms such as supply chain knowledge, and socio-political factors such as trust and contracts have been identified as influence factors on information sharing in previous studies [52]. However, the inter-relation of these factors, their effect on information sharing and supply chain initiatives in practice is not clear [19, 31].

Further, previous research mainly focuses on analyzing the influence factors on information sharing in primary supply chains, while in support supply chains differences in information sharing behavior have been scarcely examined. Primary supply chains focus on the supply of direct material for the production of goods, whereas support supply chains deliver products and services indirectly enabling production processes [50]. For example, the supply of food and beverages for planes allows firms to provide passengers with service, while the flight itself can be considered as the primary value for customers and therefore represents the core activity of the firm. Further examples can be found in all supply chains providing firms with maintenance, repair and operations (MRO) goods such as oil for machines or office supplies for employees [50].

Support supply chains play an important role to ensure the operability of organizations, and provide critical support to the primary or production supply chains, and contribute towards efficiency and effectiveness of firms [15, 57]. Firms incur significant
cost in procuring various resources which form a part of the core infrastructure of the firm or support their core operations in various ways (such as information technology hardware and software), and accordingly the supply chains for procuring such support resources need to be proactively managed to ensure efficiency of business operations. However, support supply chains are usually not considered as strategic by most firms. Therefore, concerns regarding opportunism and/or loss of bargaining power may influence firms’ behaviors in these supply chains differently.

We analyze the information sharing processes of support supply chains in order to improve their efficiency and effectiveness. This allows us to derive guidelines to effectively manage and govern information sharing processes for more efficient utilization of resources.

The rest of the paper is organized as follows. In section 2, we provide the theoretical background by describing the factors that can influence information sharing behaviors in the field of supply chain management. Our research methodology is described in section 3. Section 4 presents the result of the case study, followed by a discussion of the findings and implications of our research. Finally, we present the limitations, further research possibilities and draw a conclusion.

2. Theoretical Development

This section describes the influencing factors and variables which affect information sharing in supply chains. We draw from transaction cost economics (TCE), relational exchange theory (RET) and from the resource based view (RBV) to explain the role of contracts, bargaining power, trust and information management capabilities. While TCE allows us to postulate the relationship between contracts and bargaining power, we draw from RET to incorporate trust as a relational construct. The RBV contributes by emphasizing the significance of information management capabilities. This offers a unique perspective on information sharing in supply chains, allowing us to analyze the information sharing process, and factors that trigger information sharing.

In the course of the embedded case study, relationships within the various supply chains are differentiated based on the bargaining power distribution of strong/weak partners as well as based on whether the respective firms are dependent on the cooperation as opposed to easily interchangeable relationships. The influence of bargaining power, contracts and supply chain partnerships on information sharing has been analyzed [45, 65]. The distribution of bargaining power and inter-relational dependencies among supply chain members allows to study situations such as supply chain specific investments [48], the behavior in supply chains with exit options [53] and decentralized supply chains [6]. Further, in case of long-term relationships, commitment and flexibility in agreements play an important role [10], attracting partners to share information to participate in performance-enhancing investments [40].

Accordingly, we review trust, bargaining power, contracts and information management capabilities to analyze their effect on information sharing behaviors.

2.1 Information Sharing

Transactional information sharing is a necessary step in the process of exchanging goods within supply chains. Supply chain partners are able to improve efficiency regarding supply chain procedures and actions using operational information sharing [59]. Operational and strategic information sharing enable further improvements of overall supply chain performance and rent creation [32]. In order to create additional economic rents, firms need to ensure the accuracy and relevance of shared information. Furthermore, supply chain partners need to have the capabilities to formulate and execute necessary actions for improving supply chain performance by using the additional information [27, 62].

However, firms may have strategic reasons to avoid information sharing with supply chain partners. Strategic considerations may outweigh the potential for higher profits and prevent firms from mutually sharing information [39]. Furthermore, firms may decide against information sharing in order to avoid the risk of partners unilaterally using information asymmetries as a competitive advantage increasing their individual rent. This reluctant behavior is frequently observed in more opportunistic as well as purely transactional relationships [3, 48]. Information asymmetries or knowledge asymmetries result in lower supply chain performance [49]. Isolated behavior of firms in a supply chain or network often leads to a tit-for-tat strategy causing lower rent [4]. Firms often set up schedules for information sharing [20], and contractual safeguards to counter such behavior and avoid operational inefficiencies [43].

2.2 Bargaining power

Bargaining power describes the ability of one party to exert influence over another party. The bargaining power position of a firm in a supply chain is defined by the product and the holistic bargaining
power position of the firm in the industry [55]. Bargaining power has been analyzed in various supply chain settings using different perspectives such as information sharing, incentive alignment and power-relational aspects [8, 48]. From an information sharing perspective, the form of power – reward power, coercive power, expert power, referent power and legitimate power – over information needs to be considered, as it influences aspects such as punishment or reward in supply relationships [23, 42].

Previous research suggests that firms use their bargaining power position in order to improve supply chain performance by introducing new supply chain management systems [61]. Further research has analyzed the influence of investments on bargaining power and inter-firm relationships [48]. Additionally, power relations within supply chains and their influence on revenue sharing processes have been studied [10].

Firms prevent information sharing in case of changing power relations within the supply chain, especially in the absence of trustworthy supply chain relationships [21]. Therefore, information as a source of power within firms and among partners is often tightly controlled. Moreover, the use of coercive power harms information sharing among supply chain members [42].

From a bargaining power perspective, access and control over strategic information may allow firms to influence conditions in their own favor [3], while operational and strategic information sharing can lead to a less beneficial situation for the stronger firm in case of opportunistic behavior from his partner [4, 51]. Contracts can be used to safeguard against shifts in bargaining power, to minimize opportunistic behavior and to ensure mutual information sharing [59].

2.3 Contracts

The aim of a contract is to guide the behavior of partners towards desired objectives [26]. Contracts govern the ratio between profits and risks in supply chain relationships [36].

Existing research has investigated how contracts influence information sharing and improve information sharing processes such as forecasts or inventories [9]. Furthermore, the usefulness of contractual safeguards for inventory policies to minimize supply chain costs have been examined [11].

Formal and informal contracts are used to create a safe relational basis for two or more firms [54]. A contract can be used to enforce a reward or penalty system acting as an incentive for collaboration among supply chain members. Accordingly, a contract acts as a safeguard for supply chain specific investments [10, 64, 65]. Further, contracts ensure cooperative behavior, lower the risk of a loss of strategic information and suffering from opportunistic behavior from the partner (either supplier or buyer) [32]. Even when partnering firms agree on responsibilities and information flows, firms may insist on signing a contract to minimize opportunistic behavior [24]. Therefore, contracts can be seen as a complement and/or substitute for trust in case of missing predictability of a partner’s behavior.

2.4 Trust

Trust is defined as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trust or, irrespective of the ability to monitor or control that other party” [44]. Trust can be described as the adhesive, informal and flexible connection between socio-political aspects and political behaviors. Therefore, trust is an important factor that can influence the success of supply chain collaborations and represents the social facet in supply chain relationships [60, 63]. Furthermore, shared norms and common values impact relational aspects in supply chains more than strict and explicit formal contracts [17]. However, missing long-term orientation and the lack of trust contradict information sharing. Trust-based relationships trigger incentive alignment whereas cultural factors facilitate the formation of trust and therefore influence the extent of incentive alignment [28]. The trust building process is affected by five factors: calculation, prediction, intentionality, capability and transference [14].

In the context of supply chain relationships, trust is based on fair behavior among supply chain members and a sense of reciprocity, although this does not entail that (economic) outcomes will be equally divided between supply chain members [29]. The importance of trust for supply chain collaborations grows as the number of supply chain members increases. This is especially true in cases where decisions have to be made with incomplete information [33]. According to Giguere and Householder [25], the information sharing level is more dependent on trust than on information management capabilities of firms.

Trust strengthens supply chain relationships, motivates firms to idiosyncratically invest into long-term relationships [13], reduces uncertainty and risks [2], fosters satisfactions [67] and encourages operational and strategic information sharing [21]. Further, trust reduces the complexity of supply chain relationships by eliminating dispensable processes, such as the justification of decisions [34]. Moreover, shared values such as sharing common goals, behaviors and policies characterize trust based supply
chains and determine involvement in joint decision making towards mutual commercial goals [16]. In case of differences in bargaining power and/or asymmetric information among the supply chain members, trust is crucial to reduce the uncertainty and enable mutual information sharing in supply chain relationships [1].

2.5 Information management capabilities

Information sharing is influenced by information management capabilities. These can be considered a higher order capability that is made up of technical as well as supply chain knowledge capabilities [46, 58].

Technical skills are a precondition for information sharing, since it ensures aspects such as data quality, linkage of information systems, and therefore can be seen as base for (electronic) sharing of information [45, 58]. Further, technical capabilities include the usage of appropriate information technology [7] such as the implementation of EDI across the supply chain [5]. However, information technology and technical capabilities are necessary but not sufficient requirements for information sharing across supply chains [22]. Supply chain knowledge complements the technical capabilities of firms and positively influences supply chain processes such as collaborative planning by identifying relevant, timely and accurate information, and supply chain performance [27]. Further, the knowledge of supply chain processes and their impacts increases the level of shared information leading to positive effects on supply chain performance [30]. More specifically, supply chain knowledge enables firms to recognize relevant information and use the information to improve information sharing processes [62].

Hence, we explore the influence of information management capabilities on information sharing in our case study.

3. Research Methodology

As unit of analysis, we chose an IT hardware supply chain to explore differences in information sharing behavior among supply chain partners using an embedded single case study approach [37, 66]. These supply chains can be classified as support supply chains as they do not form a part of the core business for the customer, while the supply chains are important for the upstream partners. However, these support supply chains also need to be monitored carefully as they have significant effect on the overall cost efficiency of organizational operations. The supply chains were chosen due to their low demand uncertainties. Under such stable conditions supply chain strategies focus towards enhancing efficiency in order to provide the product to the customer at the lowest costs [38].

In accordance with the guidelines from Myers and Newman [47], we developed a semi-structured interview guideline from literature covering the reviewed influence factors and executed a pre-check with two supply chain experts and two independent researchers. This process ensured construct validity, ordered questions and an extensive coverage of the topic [66].

Based on our network, we identified one major manufacturer within the aircraft industry (also referred to as customer and/or buyer), experiencing inefficiencies in the support supply chain (IT hardware). This allowed us to interview service providers, retailer, wholesaler and IT hardware manufacturers in four different supply chains. All four supply chains were chosen by the responsible manager from the buyer due to expected improvement potentials.

For the analysis of these four supply chains, thirteen persons from eight different firms were interviewed. The interviewed employees are responsible for sales, purchasing, logistics and general management. The interviews were conducted in person and took place during March and April 2013 in Germany. Interviews lasted 45 minutes on average. Notes were taken during the interviews, since audio recording was not allowed. In addition, we reviewed internal documents about the material flows and information flows. There were no contradictions of statements, therefore giving us confidence in our results. The described process allowed us to reach saturation as no additional critical enrichment of our data could be achieved [18, 66].

To code the interviews and case material, we derived a coding scheme from reviewed literature. The interviews were independently coded and analyzed by three researchers. Rival explanations were resolved in group discussions among the authors [35, 37, 66]. By following this process we were able to comply with the quality criteria for case studies suggested by Yin [66]. Due to the high level of validity and reliability, we are able to generalize from an empirical description towards guidelines for information sharing in support supply chains [18, 37, 66].

4. Results of the Case Studies

In this section, we describe four supply chains in order to analyze the upstream supply chain for hardware IT equipment from a customer’s perspective. The customer is a major supplier in the aircraft
industry. The similar structure of the supply chains allows us to analyze and compare the results regarding the influence of information management capabilities, contracts, bargaining power and trust on information sharing.

The first and second supply chains cover the buying process of phones and computers, while the third and fourth supply chains cover the buying process of printers and projectors. Supply chain partners who are involved in all four supply chains are the IT buyer of the customer from the IT department and a general buyer from the purchasing department. However, the upstream supply chain partners vary. In the first and second supply chain, there is one upstream partner, who provides services to the customer, and acts as retailer and wholesaler. In contrast, in the third supply chain, we have one service provider offering additional services and one wholesaler supplying the products. The fourth supply chain integrates an independent retailer as an additional supply chain partner. The manufacturers are always different firms and focus on their products. Therefore, the responsibilities and roles of firms vary among the analyzed supply chains (see Figure 1). More specifically, the IT Buyer is responsible for ordering devices, while the general IT buyer negotiates yearly contracts and deals with general concerns. Service providers are responsible for additional services such as temporary storage tasks, testing and setup of products. Retailers and wholesalers further distribute the products along the supply chain while manufacturers produce the demanded IT equipment including phones, computers, printers and projectors. In case of the first and second supply chain, all tasks except the manufacturing process are affiliated in one firm. In the third supply chain, the retail function has been eliminated, whereas all functions are separated into four independent firms in the fourth supply chain.

While the customer and the manufacturers belong to the top ten firms in their respective fields and are operating globally, the wholesalers are mid-sized firms operating on a European level and the service providers are small regional firms.

4.1 Information Management Capabilities

The information sharing process varies between the supply chain members. Information systems are not linked to each other resulting in many media disruptions in the information flow. Moreover, the supply chain processes are very complex and are only partially known by each supply chain partner resulting in longer cycle times. Further, an accurate overview of material and information flows does not exist. This results in the usage of many different solutions such as network drives, E-Mail, fax and EDI to transfer order related information. Although all supply chain partners agreed on mutual solutions, they prefer to use E-Mail for orders. From an operational information sharing perspective, only forecast figures are shared on a half-yearly basis in personal meetings. However, this does not allow the upstream supply chain partners to make use of that information, as it can be seen only as an indication and cannot be used for daily planning processes. For example, the printer manufacturer would expect more regular forecasts and longer lead times since accurate and relevant forecasts are identified by the printer manufacturer as a key success factor towards realizing customer satisfaction and on-time deliveries (“Precise and timely information is important ... Monthly forecasts and three months lead time would be good” [Printer Manufacturer]). However, within the supply chains, there is no sharing of operational or strategic information such as inventory levels due to limited interest in improving processes. (“... I don't think outside the box. I am interested in my supply chain until WholeP, what the others do does not interest me...” [Customer]). The lack of system integration results in very long delivery times for some products. For example, projectors are supplied within a range of three to four weeks after the initial order from the customer. Despite that, some supply chain members such as WholeP made efforts to link systems and improve information sharing processes. However, due to a weak bargaining power position, no improvements have been realized. Further, the reluctance regarding system integration suggests a lack of supply chain knowledge capabilities among the majority of the supply chain partners, especially as
most employees were not able to identify relevant information (“I have no idea how we could use information to improve the supply chain” [ISP-P]).

4.2 Contracts & bargaining power

In the analyzed supply chains, the customer and the manufacturers have equally strong bargaining power positions while the retailers and service providers are in weak bargaining power positions (“RetB has to do what we want.” [Customer]). Formal contracts are generally identified as a prerequisite for collaboration (“Can you imagine a relationship without contracts? I would not do that.” [Customer]). Therefore, several supply chain partners have established formal contracts incorporating service level agreements to ensure required services such as delivery time.

From a manufacturer’s perspective bargaining power and the importance of the final customer influence the supply of goods, resulting in clustering the customers according to the ABC-analysis (“Orders are processed according to ABC customers” [Printer Manufacturer]). Furthermore, there is a discrepancy between the perceived bargaining power of supply chain partners and the actual power distribution in some cases. More specifically, lack of transparency in information flows seems to result in a wrong perception of the bargaining power position of upstream supply chain partners. For example, SerP perceives himself in a strong bargaining power position, while the customer considers SerP solely relevant in order to deliver services. (“We are in a good [bargaining power] position as many processes are deeply inter-connected. Further, we have a good long-lasting partnership.” [SerP]). However, the service providers are aware of the general bargaining power position of firms in the supply chain, mainly due to long-time knowledge of the partners (“...we are the service provider. We cannot define our expectations towards the buyer.” [SerP]).

4.3 Trust

The relationships within the analyzed supply chains are historically grown. The long-term relationships have led to trustful relationships in terms of daily business operations, while trust on a strategic level has not been established. Firms limit information sharing onto a transactional level as they fear opportunistic behavior – usage of coercive power – of their partners on a strategic level (“...if you share (strategic) information, they (the suppliers) will increase the price by ten percent and give a rebate of 15% in the end ...” [General Buyer]). This may negatively influence price negotiations or process improvements resulting in lower value for all supply chain members.

Despite that, the supply chain collaboration is based on common values such as loyalty, fairness and a frequent open communication. Trust is an important factor for the success of the supply chain according to RetB, WholeP and the computer manufacturer (“not being pulled over the barrel... openly discuss mistakes” [WholeP]). Furthermore, all supply chain members state that they would collaborate in case of mutual gains. However, common goals are only discussed orally, lacking a follow-up processes such as documentation and controlling. Further, we found that for the customer, performance is more important than trust, which is manifested in the customer’s willingness to change upstream supply chain partners in case of a decreasing performance.

5. Discussion & Implications

Previous research results indicate that supply chains with a low demand uncertainty and a low supply uncertainty allow to create highest cost efficiencies by sharing demand, inventory and capacity information [38]. We examine information sharing in such support supply chains and explain barriers and influence factors on information sharing. Therefore, we propose guidelines to derive strategies towards realizing expected cost efficiencies by managing and governing information sharing among supply chain members. Further, we discuss how these factors are inter-related among each other.

Our analysis shows that the technical information management capabilities of analyzed firms in the supply chains are on a low level due to missing linkages between systems and the usage of E-Mail, Fax and Phone for orders on a daily base. Furthermore, partners share only transactional information, while some operational and strategic information is shared orally. Both aspects indicate missing technical information management capabilities of firms and little awareness of possible information sharing contributions to supply chain performance [5, 7]. Moreover, we found that information sharing processes are not well documented throughout the supply chains which increases the barriers to switch partners and negatively impacts possibilities to improve information sharing processes. This behavior reflects the fear of firms to lose bargaining power by sharing information [21].

Forecast information is shared on a half yearly base limiting its accuracy and usefulness. This might
be due to negative experiences with upstream partners in the past and this seems to influence the internal behavior within the customers’ organization, resulting in limitations on information sharing to a transactional level. This behavior can be interpreted as tit-for-tat strategy [4] and, in this case, eliminates the possibility to mutually improve supply chain performance [19]. Furthermore, the customer defines a basket of goods with its manufacturers on a yearly base, while there is no willingness from the customers’ side to make that basket electronically available. Although some of the upstream partners are aware that information sharing affects supply chain performance by e.g. using accurate forecasts to supply requested products in time, the customer perceives that sharing forecast information lowers their bargaining power position and suppliers would make use of it in price negotiations [21]. The fear to lose bargaining power reflects reality to some extent, as the manufacturers and wholesalers cluster their customers as A, B or C customers affecting deliveries in case of bottlenecks. This finding describes how firms use coercive power to realize unilateral gains in the presence of formal contracts.

Although suppliers request more information, we found missing information management capabilities at the suppliers’ side to e.g. define minimum inventory levels, and resistance of employees to acquire new supply chain knowledge manifested in their disinterest to support process changes such as the implementation of warehouse systems. This behavior reflects a lack of supply chain knowledge, while the disinterest can be interpreted as egoistical behavior or missing supply chain knowledge at the management level of the firms in the supply chain.

We found a similar level of supply chain knowledge at the customer’s side, even though the firm is aware that limiting information sharing to a transactional level increases the lead times and increases the need for inventories to fulfill their demands. Easy and useful solutions such as electronic catalogue systems were not considered as solution to reduce transaction costs, speed up cycle times, minimize deliveries towards the real needs and at the same time keep supply costs at the same level. We assume missing leadership as problems, because employees from the customer tried to implement process improvements, while it has been ignored by the management level.

Furthermore, the firms do not agree on common goals and anticipate their bargaining power position differently. All firms state that they are open-minded for new ideas to improve information sharing processes. This statement, however, contradicts our findings which indicate a lack of trust from the customer towards its suppliers, and e.g. a negative impact on forecast information sharing processes.

The described discrepancies in the information sharing processes reflect the influence of the analyzed factors on information sharing as the customer cares only about its direct upstream partners, while wholesalers and manufacturers would appreciate direct information flow from the customer [10, 11].

Furthermore, historically grown organizational structures, personal relationships and internal promoters reject and avoid incremental changes [67]. For example, the internal supply chain of the customer involves four departments with conflicting objectives such as best price vs. best service. As a consequence, the process itself is affected by political interests and conflicts between managers within the customer’s organization.

In general, bargaining power was found to be the most important aspect from a customer’s perspective. Therefore, the customer has built up complex supply chain structures to be in a better bargaining power position. This resulted in suppliers and service providers with low bargaining power, while wholesalers and manufacturers are in a better or at least similar bargaining power positions. This results in better service for the customer, as the customer is important for the service providers and suppliers, while processes are longer and prices are higher.

Our findings also indicate the higher importance of bargaining power compared to trust and contracts within efficient support supply chains. We found that trust is supportive for the business relationships and creates an open and friendly communication environment, resulting in higher flexibility, e.g. in case an employee asks for an exception. However, it was mentioned that no information would be shared without a Non-Disclosure Agreement and that formal contracts are mandatory. Further, we found that from a commercial and economic perspective, trust is not relevant for support supply chains and closer trustful relationships yield no additional advantage. A more distanced relationship allows buyers to be objective and negotiate better prices. Additionally, this supports compliance rules of companies in order to prevent corruption. However, as long-term relationships and trust positively contribute to mutual information sharing, the existence of compliance rules contradict information sharing to a certain extent. This explains the importance of a supply chain organization covering and adjusting the conflicting goals between logistics, purchasing and production.

Our results provide evidence for the complex inter-relations and influence of socio-political factors on information sharing in supply chains: The usage of formal contracts to define and avoid opportunistic
behavior of partners, practiced forms of coercive power to punish the partner with higher prices based on shared information, and the existence of calculative trust are based on purely economic decisions.

Firms should consider a drop in their bargaining power to improve overall process efficiencies such as a positive effect on transaction costs or inventories. However, this leads to changes in the supplier structure. In case of changing the supply chain structure, the customer needs to consider costs and resistance of employees and firms.

Our findings imply that supply chain knowledge, bargaining power and information management capabilities affect the implementation of supply chain information systems, its usage and especially the level of shared information within efficient supply chains, while trust and contracts have a minor influence on information sharing processes.

Table 1 depicts practical guidelines derived from our findings. The guidelines can help to set different information sharing criteria towards effectively managing support supply chains.

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<td>Bargaining Power and Contracts</td>
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<td>Bargaining Power and Leadership</td>
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Table 1. Findings and Guidelines

6. Limitations and Further Research

The contribution of this paper should be interpreted in the face of its limitations. First, the findings from this study should be extended with caution to other industries, as explorative case studies do not allow researchers to control dynamic events and might capture only contemporary events [66]. Therefore, an exploration of supply chains in other industries could validate and fine-tune the guidelines. Second, we found that bargaining power has a high importance even in support supply chains. It could be an interesting direction for future studies to explore if bargaining power has the same impact on information sharing for all supply chain categories [38, 48]. Finally, our research implies that supply chain collaboration is affected by different influence factors and information sharing alone is not sufficient. While there is significant research examining these factors in primary supply chains, there is less understanding regarding how these factors interact and influence support supply chains. Therefore, supply chain research should focus on the definition of the influence factors and the interrelations of the factors affecting supply chain collaboration. Further, empirical studies should investigate other factors that have been outlined in TCE, RET and RBV and their influence on information sharing in supply chains. This will allow researchers to provide practitioners with strategies for managing and governing supply chains in a collaborative setting.

7. Conclusion

This research analyzed differences in information sharing among supply chain members and identified influence factors on information sharing. The analysis showed the importance of supply chain knowledge and bargaining power within support supply chain settings. Therefore, the results of this research allow firms to understand differences in information sharing behavior from supply chain members, and to develop actionable strategies and guidelines for managing, governing, and improving information sharing more efficiently. Our research contributes to theory by exploring the interrelations of influence factors on information sharing behavior among firms in supply exchanges. We contribute towards a better understanding why 90% of firms still limit their information sharing onto a transactional level in supply chains [56].

8. References


Collaborative Relationships: Beyond the Normative


