

# Examples managing supplier spillovers in buyer-supplier relationships

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## ABSTRACT

*This study examines and shows examples of supplier spillovers and management techniques for supplier spillovers in buyer-supplier relationships. Companies may face both opportunities and risks as a result of supplier spillovers. This study emphasizes the importance of clear contractual agreements, teamwork, transparency, and a varied supplier base through an extensive review of the literature and empirical data. The empirical findings highlight the significance of explicit contractual agreements, such non-disclosure agreements, as essential safeguards for protecting sensitive information. In order to manage supplier spillovers successfully and exploit their benefits, it highlights the necessity to assess risks, establish solid alliances, and modify strategies. These insights offer useful implications for companies operating in dynamic markets and contribute to improving their buyer-supplier relationships.*

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## Keywords:

Buyer-supplier relationship, supplier spillovers, knowledge exchange, safeguards, NDA, examples

# 1. INTRODUCTION

## 1.1 Background and Context

Effective management of knowledge spillovers between buyers and suppliers is crucial for enhancing innovation, performance, and competitiveness in today's dynamic business environment (Argote & Miron-Spektor, 2011, pp. 1123-1137). Knowledge spillovers refer to the transfer of knowledge or information from one entity to another, often occurring unintentionally and informally (Isaksson et al., 2015, p. 2). While knowledge spillovers can lead to positive outcomes such as improved economic performance and cooperation benefits, they can also pose challenges and risks, such as the potential for supplier misuse of knowledge or the creation of new competitors (Villena et al., 2016, pp. 752-785).

The nature of buyer-supplier relationships also influences the occurrence and impact of knowledge spillovers. Close collaboration, integration, and partnership between buyers and suppliers facilitate the transfer of critical resources and knowledge. Socialization mechanisms, such as formal and informal interactions, further enhance knowledge sharing and spillovers within buyer-supplier relationships (Lawson et al., 2009, pp. 157-158). However, the presence of knowledge hiding or information hoarding can hinder the flow of knowledge between buyers and suppliers (Butt et al., 2021, p. 146).

Firms create relational and contractual measures to solve this issue. Relational safeguards, such as goodwill trust, aim to reduce opportunism and relational risks by fostering a sense of mutual understanding, shared goals, and commitment between the parties (Lui & Ngo, 2004, p. 474). These safeguards emphasize the importance of building strong relationships, open communication, and a willingness to cooperate. Relational norms, values, and obligations play a significant role in guiding the behavior of the parties involved and ensuring the long-term success of the relationship (Hawkins et al., 2008, pp. 895-909).

Contractual safeguards, on the other hand, involve the use of formal contracts and legal provisions to safeguard against opportunistic behavior and enforce compliance (Kashyap & Murtha, 2017, pp. 130-153). Contracts provide a clear framework for the rights and responsibilities of each party, specify performance expectations, and outline consequences for non-compliance. They serve as a means to deter opportunism and provide a basis for resolving disputes (Judge & Dooley, 2006, p. 27).

The purpose of this study is to investigate and show the complicated trade-offs involved, the effectiveness of various safeguards, and examples how organizations could cope with supplier spillovers. According to (Kang et al., 2009), knowing how spillover works and how to manage it, is crucial establishing and maintaining a successful buyer-supplier relationship.

A qualitative case-study methodology will be used in the study, and interviews with managers, purchasers, sellers, and R&D staff will all be conducted. Qualitative research aims to address questions concerned with developing an understanding of the meaning and experience dimensions of humans' lives and social worlds (Fossey et al., 2002, p. 717). There are hardly any cases or examples why supplier spillovers are difficult to manage. In order to create a best-

practice model for managing supplier spillovers, this study will cover this gap by systematically analyzing distilling cases of knowledge spillovers, based on a series of interviews with companies and the existing literature. For businesses looking to successfully navigate the information distribution dilemma and collaborate with their suppliers, this paper will offer invaluable insights.

## 1.2 Research question

The specific research question of this study is: *What are the main examples that influence supplier spillovers in buyer-supplier relationships?* The goal of this study is to identify the main examples that influence supplier spillovers in buyer-supplier relationships. This paper may help managers in managing the relationship with their suppliers and prevent spillovers of sensitive information in the most effective way.

# 2. LITERATURE REVIEW

The goal of this literature review is to thoroughly evaluate the wide range of knowledge that exists on buyer-supplier spillovers. It seeks to comprehensively review a number of important elements of this field, including the classification of spillover types, the importance of spillover effects, the drivers and consequences of spillovers, the approaches to management used to effectively control spillovers, and the trade-offs and safeguards related to limiting supplier spillovers. This review aims to advance the understanding of how companies can optimize knowledge transfer and take advantage of spillover effects within buyer-supplier partnerships by critically assessing the existing research on these issues.

## 2.1 Spillover types

### 2.1.1 Positive spillover types

Buyer-supplier knowledge spillovers refer to the transfer of knowledge or information between buyers and suppliers within a business relationship. This transfer can occur through various mechanisms such as collaboration, knowledge sharing, and technology spillovers (Perols et al., 2012, p. 154). When knowledge or information flows from one side to the other in the context of buyer-supplier relationships, it can exist of different types of spillovers between both parties.

Knowledge spillovers between buyers and suppliers can take various forms and have different implications for the parties involved. There are multiple positive spillover types. One type of knowledge spillover is the transfer of explicit or codifiable knowledge. This type of knowledge is relatively easy to transfer with little cost (Dyer & Hatch, 2006, p. 703). Buyers who have valuable knowledge can transfer it to their supplier network, which can lead to improved performance for both the buyers and the suppliers (Palit et al., 2022, p. 758). Another type of knowledge spillover is the transfer of tacit knowledge. Tacit knowledge is more difficult and costly to transfer compared to explicit knowledge (Dyer & Hatch, 2006, p. 703). In the context of buyer-supplier relationships, the transfer of tacit knowledge can occur through collaborative activities such as information sharing, joint relationship effort, and dedicated investments (Nyaga et

al., 2010). These collaborative activities can lead to the development of trust and commitment between the buyers and suppliers, which in turn can result in improved satisfaction and performance (Nyaga et al., 2010).

### *2.1.2 Negative spillover types*

However, spillovers can also have negative implications. There is a risk that the value of the knowledge transfers can be dissipated through knowledge spillovers to competitors who also use the same suppliers (Dyer & Hatch, 2006, p. 703). Knowledge spillovers can occur in the context of shared suppliers. Buyers who invest in supplier development may benefit from knowledge spillovers, but they also risk the value of their knowledge transfers being dissipated through spillovers to competitors who use the same suppliers (Dyer & Hatch, 2006, p. 703). The type of supplier development investment, whether it is specific or generic, can also affect the extent of spillovers and the benefits obtained. The presence of specific investments may raise generic supplier development, benefiting all supply chain actors. However, incorporating specific supplier development into a supplier development portfolio or a commitment to investment in only specific supplier development can lead to a prisoner's dilemma in terms of buyer profits (Veldman et al., 2023, p. 725). (Goebel et al., 2018) suggests that firms are willing to pay more for TBL certified suppliers due to potential negative spillover effects of supplier actions (Nichols et al., 2019, p. 537). Employee know-how that is also of value to competing companies (i.e., general human capital as opposed to firm-specific human capital) is very difficult to protect. Such employee know-how can put firms in a potentially vulnerable position, as employees with valuable skills and knowledge are the most likely ones that will depart from their employer to join a rival firm or create a new venture (Flammer & Kacperczyk, 2019, p. 1246). This phenomenon is particularly prevalent in knowledge-intensive industries, where skilled employees often move rapidly between competing firms (Stern & James, 2016, p. 1413).

Overall, knowledge spillovers between buyers and suppliers can occur through collaborative activities, the transfer of explicit and tacit knowledge, and the duration of the buyer-supplier relationship. These spillovers can have positive effects on satisfaction, performance, and innovation for both parties. However, it is important to consider the potential risks and challenges associated with spillovers.

## **2.2 Buyer-supplier relationship and its importance**

Buyer-supplier relationships play a pivotal role in ensuring the success and competitiveness of companies (Nyaga et al., 2010, p. 102). These relationships encompass the management of interactions and collaborations between a buying company and its suppliers (Wu & Choi, 2005, p. 28). In today's rapidly changing business landscape, organizations that strive to be flexible and adapt to these dynamics understand the significance of effectively managing buyer-supplier relationships (Ampe-N'DA et al., 2020, pp. 47-58). Consequently, there has been a surge in academic research focusing on this topic, indicating its increasing importance

in the business realm. Effective buyer-supplier relationships have been found to yield various benefits. For instance, they can lead to cost savings, improved production quality, inventory level reductions, increased visibility, and enhanced supply chain responsiveness (Tarigan et al., 2020, p. 244). Strong buyer-supplier relationships contribute to improved supply chain performance, including reduced cycle times and higher profits (Beer et al., 2018, p. 3978). Furthermore, buyers need to proactively manage the relationships between their suppliers. As the contracting entity, the buyer holds influence over the behaviors of the suppliers and the relationships among them. This buyer-supplier-supplier relationship triad provides a more realistic perspective on buyer-supplier relationships, offering insights into enhancing supplier performance (Wu et al., 2009, p. 121). In addition to managing relationships, buyer-supplier interactions also involve supplier development activities. These activities encompass various initiatives undertaken by buying firms to enhance the outcomes and benefits of their relationships with suppliers. Key metrics such as incoming defects, on-time deliveries, and perceptions of the buyer-supplier relationship can be used to measure the effectiveness of these development activities (Krause, 1997, p. 16). Buyer innovation strategy plays a crucial role in enhancing supplier innovation focus and supporting product innovation. The buyer-supplier relationship acts as a positive moderator, influencing the impact of supplier innovation focus on product innovation. Effective cooperation and alignment with suppliers emerge as key drivers of innovation outcomes for buyers (Jajja et al., 2017, p. 1054). Additionally, spillovers, which refer to the diffusion of knowledge or innovation between firms, hold importance in determining the most conducive environment for innovation within buyer-supplier relationships. Different models exist that make varying assumptions about the functional structure of spillover pools, and their influence on company behavior remains subject to (Knott et al., 2009, p. 29). Strategic purchasing initiatives have the potential to enhance the quality performance of both supplier and buyer firms. Given the complex nature of buyer-supplier relationships, strategic supply management can positively influence various constructs such as supply base reduction, communication, and long-term relationships, ultimately improving the dyadic quality performance (Paulraj & Chen, 2005, p. 4). However, developing cooperative buyer-supplier relationships poses a challenge for many companies. Shifting from relationships characterized by strong buyer power and bargaining positions to partnerships based on trust and cooperation requires factors such as industry and technological similarities, prior change experiences among suppliers, effective communication, and experiential learning (Langfield-Smith & Greenwood, 1998, p. 331).

A recent study conducted in 2021 explored the factors influencing supplier satisfaction in buyer-supplier relationships and examined their causal relationships. The researchers aimed to understand the importance of supplier satisfaction for the buying firm to attain preferred customer status and the role of cooperation in managing the buyer-supplier relationship. The study involved a survey conducted with nearly 300 Indian suppliers. The study's results add to already conducted studies in the area. The main conclusions include: In order for a buying company to become a preferred customer, supplier satisfaction is essential. Prior to managing relationships

between buyers and suppliers, cooperation is crucial (Ganguly & Roy, 2021, pp. 257-264).

This study emphasizes together with the other journals, the importance of cooperation and supplier satisfaction in buyer-supplier partnerships. It emphasizes how important it is to consider aspects like coordination, payment policies and purchasing policies when trying to improve supplier satisfaction. The results offer useful information for companies looking to create and maintain successful collaborations with their suppliers.

### **2.3 Drivers and consequences of supplier spillovers**

Like mentioned before, buyer-supplier knowledge spillovers occur when knowledge or information flows from buyers to suppliers or vice versa within a business relationship (Isaksson et al., 2015, p. 2). These spillovers are triggered by things like cooperative relationships, knowledge exchange, and collaboration in problem-solving between suppliers and purchasers. This paragraph will cover several of these drivers and consequences of supplier spillovers.

Information sharing and resource commitment are key success factors in buyer-supplier alliances, facilitating knowledge spillovers (Liu et al., 2012, p. 358). Long-term relationships and time-bound relational assets contribute to effective communication efficiency and knowledge transfer (Kotabe et al., 2003, p. 294). Moreover, evaluation and certification efforts by buyers play a crucial role in facilitating knowledge transfer to suppliers (Lee & Klassen, 2008, p. 581). Interorganizational socialization mechanisms, such as collaborative work and knowledge sharing, are vital for promoting knowledge transfer between buyers and suppliers (Lawson et al., 2009, p. 156). The presence of social capital within buyer-supplier relationships also contributes to knowledge sharing and improves buyer performance (Lawson et al., 2007, p. 448). Furthermore, technological diversity within supplier networks provides access to novel knowledge elements and expertise, thereby driving buyer innovation (Gao et al., 2014, p. 166). Supply chain transparency, exemplified by disclosing supplier lists, is beneficial for enhancing suppliers' compliance with sustainability standards and facilitating knowledge transfer (Chen et al., 2018, pp. 3002-3022) If a supplier is currently highly dependent on a buyer, it is likely to share knowledge but if the supplier anticipates low dependence on this buyer in the future, it may reduce or even terminate knowledge sharing (Chen et al., 2022, p. 761). Like mentioned previously, supplier development programs can generate shared knowledge within buyer-supplier relationships, leading to spillovers (Veldman et al., 2023, p. 725). Supply chain relationship quality, including trust, commitment, and relationship-specific investment, can affect knowledge sharing and innovation performance. A study found that these relationship factors are positively related to knowledge transfer between buyer and supplier (Li, 2020, pp. 834-848).

Buyer-supplier knowledge spillovers also can have significant consequences. When productive knowledge is transferred from the buyer to the supplier, the supplier's performance can benefit significantly. Long-term relationships between buyers and suppliers, facilitated by time-bound relational assets, enhance communication

efficiency and facilitate knowledge transfer, leading to increased efficiency, cost reduction, and improved quality in the supplier's operations (Kotabe et al., 2003, pp. 293-316). Knowledge spillovers also have positive effects on innovation performance. Buyers can enhance their own performance by leveraging knowledge spillovers from their supplier networks. Similarly, suppliers can benefit from knowledge spillovers by gaining access to new ideas, technologies, and market insights, leading to the development of new products, processes, and business models (Palit et al., 2022, p. 758). In addition to operational performance and innovation, knowledge spillovers can also impact the economic performance of buyers. Suppliers' sustainability-related conditions (SRCs) can influence buyers' economic performance. Changes in suppliers' SRCs can mediate the economic performance of buyers, affecting factors such as cost, revenue, and profitability (Busse, 2015, p. 28). This suggests that buyers' economic outcomes are influenced by the sustainability practices and performance of their suppliers. Moreover, knowledge spillovers can contribute to the development of shared suppliers within the supply chain. Not all consequences of spillovers can be considered favorable. When knowledge is generated within a buyer-supplier relationship, it can spill over to rival buyers, raising concerns for some buyers (Veldman et al., 2023, p. 724). Additionally, trust violations can have spillover effects on trust and knowledge sharing in buyer-supplier relationships, influencing factors such as trust in other contexts and quality perceptions. (Eckerd et al., 2021, p. 63). This highlights the interconnectedness of trust and knowledge spillovers within the supply chain. Supplier spillovers are an increasing concern in today's supply chains because unauthorized sharing of information between two organizations might have negative consequences. Information leaks can happen accidentally or on purpose, and they can have a negative impact on the connection between the offender and a neutral observer (Ried et al., 2021, pp. 280-306).

For businesses looking to encourage efficient collaboration and capitalize on the advantages of knowledge sharing, it is important to understand the causes and effects of buyer-supplier knowledge spillovers. Businesses may use the potential of these spillovers to promote innovation, improve performance, and retain a durable competitive advantage by actively controlling information flows and fostering mutually beneficial relationships.

### **2.4 Strategies to manage supplier spillovers**

Knowledge spillovers between suppliers and customers have garnered significant attention in academic journals as a potential source of competitive advantage in today's interconnected economic world (Isaksson et al., 2016, p. 700). Managing supplier-buyer knowledge spillovers effectively is important for businesses seeking to make the most of this valuable resource (Handoko, 2017, p. 39). The strategies that businesses might use to control and benefit from knowledge spillovers in supplier-buyer relationships are examined in this article.

Spillovers can occur in various forms, such as knowledge transfer, resource sharing, and collaborative innovation projects. To effectively manage these spillovers, buyers

need to proactively manage the relationships between their suppliers (Wu et al., 2009, p. 115). One strategy is to adopt servitization strategies, which provide manufacturers with better information about customers' needs and can enhance future product development strategies (Lafuente et al., 2017, p. 8). Supplier integration is another important aspect of managing spillovers. Technology adoption and assimilation can be an important spillover effect in supplier integration (Perols et al., 2012, p. 154). Supplier integration also provides outsourcing and external acquisition possibilities, reducing costs and providing spillover effects for future research and development activities (Petersen et al., 2003, p. 286). Supply chain coordination and coordination with suppliers can also play a role in managing spillovers. Supplier coordination can lead to improved innovation performance and spillover effects (Lu & Shang, 2017, p. 41). Additionally, supply chain diversity can help reduce the negative spillover effects of environmental violations and mitigate operations disruptions (Xiong et al., 2021, p. 10). Collaboration and cooperation with suppliers are important strategies for managing spillovers (Belderbos et al., 2004, p. 1479). Supplier cooperation strategies, such as sharing upgraded technology information, can facilitate spillover effects and benefit multiple manufacturers (Liu et al., 2022, p. 1936). Cooperation and competition between suppliers can also create tensions in managing spillovers. Buyers may request competing suppliers to collaborate in co-design, development, and integration of materials, which can lead to inherent tensions between cooperation and competition (Patrucco et al., 2022, p. 109). It is important for buyers to understand the impact of their supplier development investment decisions on other buyers in a triadic setting, as these decisions can have spillover effects on other buyers (Srivastava et al., 2021, p. 3137). Using performance metrics is a valuable approach for managing spillovers between buyers and suppliers. Performance metrics provide a quantitative means to assess and monitor supplier performance against specific objectives and goals. By establishing clear and measurable metrics, buyers can effectively evaluate the extent to which suppliers are meeting expectations and contributing to the desired outcomes (Koufteros et al., 2014, p. 317). These metrics can be tailored to reflect the buyer's priorities and incentivize suppliers to actively engage in knowledge sharing and collaboration. For example, metrics related to innovation, quality, cost, and delivery can encourage suppliers to contribute their knowledge and expertise in these areas (Shin, 2022, pp. 293-295).

## **2.5 Trade-offs and safeguards in controlling supplier spillovers**

In the context of trade-offs and safeguards in controlling supplier spillovers, contractual and relational safeguards are mechanisms used by businesses to preserve and control the flow of knowledge between parties who are involved in a business relationship (Kashyap & Murtha, 2017; Lui & Ngo, 2004). These safeguards help to reduce risks, guarantee justice, and preserve the openness of the knowledge-sharing process.

Knowledge spillovers refer to the unintentional transfer of knowledge from one entity to another, often resulting in external leakage or spillover outside the organization (Argote & Miron-Spektor, 2011, pp. 1123-1137). One mechanism is the management of internal transfer of

knowledge within organizations. By implementing effective knowledge management systems and practices, organizations can control the flow of knowledge and prevent it from leaking outside the organization (Argote & Miron-Spektor, 2011, pp. 1123-1137). Secrecy and intellectual property protection mechanisms are also effective in preventing knowledge spillovers. Organizations can use measures such as patents, copyrights, and trade secrets to protect their knowledge and prevent others from accessing or using it without permission (Estrada et al., 2016, p. 59). These instruments are especially useful for safeguarding existing information that can be codified and included in finished goods or services (James et al., 2013; Saviotti, 1998). They grant the exclusive usage and licensing rights of the knowledge for several years (Gelabert et al., 2009, p. 737). There are also legal mechanisms that can be used to prevent knowledge spillovers. Non-disclosure agreements and other legal contracts can be used to restrict the dissemination of knowledge and protect it from spillovers. NDA is a legally enforceable contract that preserves confidentiality between the contractual parties. By signing NDA, the parties agree and acknowledge to protect confidential information disclosed by any party to the other and undertaking not to disclose, publish, distribute, divulge, release, copy, modify and/or use such information without (written) consent of the disclosing party (Gasimova, 2020). These mechanisms provide legal recourse in case of unauthorized use or disclosure of knowledge (Noonan et al., 2020, pp. 257-274). While there is some discussion in the literature nowadays available about the use of non-disclosure agreements and other legal safeguards to stop knowledge from flowing out and going to their rivals, according to (Robbins, 2006, pp. 45-60), while businesses make great efforts to ensure that information about innovations is kept secret and a variety of legal safeguards, including patents, royalties, licensing fees, and non-disclosure agreements are frequently used, these efforts are only partially successful. Despite efforts to the contrary by businesses, over time knowledge about innovation spills over to other firms.

Controlling supplier spillovers through trade-offs and safeguards is important for managing business relationships and safeguarding sensitive information. While it is difficult to keep the confidentiality of this information, there are mechanisms which make this process easier. Companies can reduce the risk of knowledge spillovers and keep more control over the information flow by combining relational and contractual safeguards (Lui & Ngo, 2004, p. 474).

## **3. METHODOLOGY**

In the methodology, it is explained how the research is conducted and which research methods have been used to find the data for the research.

### **3.1.1 Research Design**

Given the research question, a qualitative case-study approach is deemed appropriate to investigate the complex trade-offs and safeguards involved in leading and controlling supplier spillovers in buyer-supplier relationships. Qualitative research focuses on the relevance and experience dimensions of human existence

and social circumstances are the subject of qualitative research (Fossey et al., 2002, p. 717). The research method used for this work is qualitative and not quantitatively. In contrast to qualitative research, quantitative research is an approach that uses statistical or numerical data to analyze social phenomena (Sheard, 2018, p. 430). The research the subject may be classified as qualitative rather than quantitative because it questions "how" spillover influences the buyer-supplier relationship. Semi-structured interviews with key actors, such as managers, purchasers, R&D staff, and sellers, will be the main strategies of data collecting. For the analysis of the interview, the answers of the companies were put in Excel tables and compared with each other. Depending on the participants' availability and location, the interviews will either be conducted in-person or via video conference.

All the participants needed to sign a conduct for the interview and fill in their rights as a research participant, in which they needed to answer 'yes or 'no' on specific statements. For the transcribing of the interviews, the software Amberscript has been used. The research was ethically approved by the BMS Ethics Committee of the University, who as a result provided us the transcribing software. So, all the data in this paper can be seen as reliable and valid. The primary data of the audio recordings are being deleted after the completion of this paper.

Additionally, secondary data sources including research papers, industry reports, and case studies will be used in addition to the gathering and analysis of primary data. The references for the data presented in these papers can be found at the end of this paper. These resources will offer additional insights into different examples regarding supplier spillovers in the relationships among buyers and suppliers. The study took about three months to complete, and the final report includes a conclusion of examples of events for managing supplier spillovers in dealings with customers.

### 3.1.2 Interview Design

The interview is conducted via a videocall or an in-person interview. The duration of the interview is on average between 30 and 60 minutes. The participants being interviewed have a function dealing with suppliers or having experience in doing business with suppliers. Like said previously, these interviewees are in the departments of managers, purchasers, R&D or sellers. It is an interview between two persons, the researcher and the participant. 18 interviews have been conducted divided by four researchers in my research group.

The interviews were conducted by using an interview protocol. These questions were written down in 4 sections: examples, implications, contracts and behavioral safeguards. The examples part was mostly about which types of spillovers occur and specific examples given by the interviewees. The implications part consisted of the effects of the occurring spillovers, so what consequences did the spillovers have. The questions about the contracts were mainly about contract clauses and what is the most effective way to set up such a contract. And the safeguards lastly are about what actions can be taken in order to

prevent these spillovers. In this paper the examples part has been elaborated on, giving an insight of with what examples companies are dealing with regarding supplier spillovers. The questions were translated into Dutch so the participants were able to fully understand what is being asked. The interviews were later being translated back in English. It was an open interview so there were no limitations on the answers. The questions are designed to encourage the interviewees to explain their answer. The interviews can be found in the appendices at the end of the paper.

The answers given are based on real-life business relationship between buyer and supplier, this in combination with the applied literature, a precise answer can be given on the research question. For the analysis of the interview, the 4 sections mentioned previously (Examples, Implications, Contracts, Behavioral Safeguards) will be analyzed separately between the researchers per paper, in which on this paper the topic 'examples' will be discussed. The software Amberscript will help in dividing these interviews parts with the transcribing. The most relevant information of the interview will be listed on the appendices to have a better experience in accessing the information.

## 4. EMPIRICAL ANALYSIS

In this section of the paper, we dive deep into the empirical analysis and examine examples of buyer-supplier spillovers that do occur in the real world. We executed a series of in-depth interviews with various companies that operate in a variety of industries in order to deliver insightful information. In-depth information is gathered through these interviews with the aim to better understand the complex dynamics of buyer-supplier relationships.

### 4.1 Participating companies

The participating businesses in this study represent a wide range of industries, including industrial firms, educational organizations, and more. We encountered a variety of businesses during the study process, some of which were willing to share specifics like the size of their employees and revenue while others preferred to maintain confidentiality in these matters. But before the interviews began, each company was gracious enough to give a brief overview of their business so that we could learn more about their history and environment.

The inclusion of firms from diverse industries broadens and deepens our empirical study by allowing us to analyze buyer-supplier spillovers from multiple perspectives and industries. This variety allows for a more thorough knowledge of the complexities and dynamics of these connections, taking into account the particular possibilities and problems unique to each sector.

The participating companies span a wide range of organizational contexts, from educational institutions, where knowledge transmission and cooperation play critical roles, to industrial firms, where supply chain complexities and operational efficiency are key. This variety makes sure that our findings and conclusions are applicable and relevant across industries rather than being restricted to a single industry.

Nr.	Employees	Position of interviewee	Branch
C1	140	Management	Parts trader
C2	100	Management	Manufacturing
C3	150	Procurement	Public transport
C4	20	Management	Railways
C5	1340	Management	High tech
C6	7800	Procurement	Trains
C7	17500	Procurement	Technology
C8	800	R&D	Cables
C9	1000	Procurement	Hydraulic applications
C10	460	Procurement	Charger manufacturer
C11	350	Sales	Pharmaceutical
C12	1200	Sales	Service
C13	50	Procurement	Electronics
C14	1000	Management	High-tec
C15	200000	Procurement	Automotive
C16	5500	Procurement	Handicap care
C17	740	Procurement	Nature
C18	3000	Procurement	Education

**Table 1: An overview of the participating companies**

## 4.2 Findings

In this part of the report, the findings of the interviews will be shown and divided into multiple section.

### 4.2.1 Assurance of Knowledge

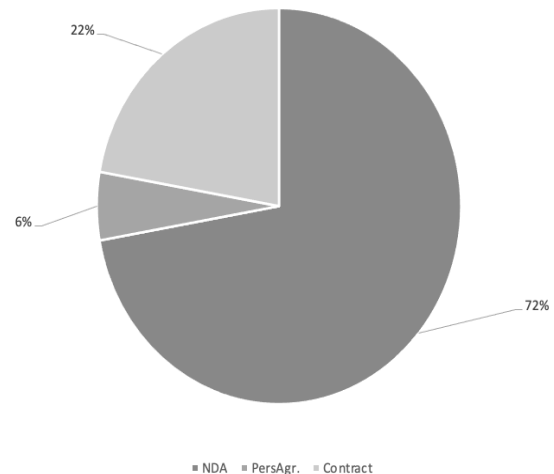
During the interview process, a thorough investigation was conducted to examine how participating businesses protect the privacy and confidentiality of sensitive information exchanged with their suppliers. This component is critical in understanding the complex nature of buyer-supplier relationships and the steps taken to safeguard intellectual property, trade secrets, and other confidential information.

Out of the total 18 interviews conducted, it was found that 13 businesses, namely C1, C2, C3, C5, C6, C7, C8, C9, C10, C11, C13, C14, and C15, chose to utilize a Non-Disclosure Agreement (NDA) as a legal framework to protect their sensitive data. The NDA serves as a legally binding contract that establishes the rules governing the exchange of private information between the buyer and supplier (Gasimova, 2020). By utilizing NDAs, these companies aimed to create a clear understanding of the obligations and responsibilities of both parties in safeguarding the confidentiality of shared knowledge.

Additionally, four corporations, namely C12, C16, C17, and C18, relied on contracts without implementing an NDA. Although these contracts may have included measures for protecting sensitive information, the absence of a specific NDA suggests that the level of legal protection may differ from contracts that do have an NDA in place.

Interestingly, only one organization, identified as C4, used personal agreements to guarantee the security of shared knowledge. These agreements represent a unique approach to protecting private information within the buyer-supplier relationship and are likely specific to the company's particular demands and objectives.

Despite the varying contractual arrangements, all organizations acknowledged sharing sensitive information with their suppliers. Overall, these findings highlight the significance of privacy protection in buyer-supplier relationships and underscore the need for robust measures to safeguard intellectual property and confidential data.



**Figure 1: Distribution of the companies' ways to protect the confidentiality of sensitive information**

### 4.2.2 Positive knowledge assurance examples

The interviews conducted with the 18 participating firms yielded noteworthy examples that exemplify the positive outcomes of effective knowledge assurance practices. These examples highlight the tangible benefits and overall performance enhancements resulting from collaborative efforts and knowledge exchange between suppliers and buyers.

Close cooperation between technical teams emerged as a recurring theme among the companies, including C1, C2, C4, C5, C6, C8, C10, C12, C15, C16, and C18. These companies emphasized the importance of fostering collaboration and knowledge exchange with their suppliers to drive various positive outcomes. For instance, C1 reported shorter supply chains, streamlined procedures, and reduced lead times as a result of their close collaboration with suppliers. Similarly, C2 experienced improvements in the final product through sharing information and collaborating closely with suppliers. C4, C5, and C6 highlighted the utilization of the supplier's knowledge and expertise to enhance their own products and gain a competitive edge. C8 emphasized the collaboration with suppliers in improving product quality, while C10 noted the acquisition of more customers through close cooperation. C12 highlighted the integration of the entire customer base into their system, leading to improved customer satisfaction. C15 emphasized the knowledge of suppliers as a valuable asset in maintaining competitiveness. Lastly, C16 and C18 mentioned the importance of specific specifications for product development. These shared responses among these

companies demonstrate a consensus on the significance of collaboration and knowledge exchange in achieving positive outcomes.

Furthermore, transparency and openness were common elements mentioned by several companies, including C3 and C7. These companies acknowledged the adoption of open cost calculations, which promoted confidence and facilitated successful pricing strategies. The transparency in cost calculations enabled these companies to maximize cost-effectiveness and maintain productive partnerships. This similarity in approaches shows the recognition of the importance of transparency and openness in achieving positive knowledge assurance outcomes.

Moreover, long-term relationships and collaboration were identified as crucial elements of effective knowledge assurance by multiple companies, including C13, C14 and C17. These companies emphasized the advantages of establishing and nurturing strong relationships with suppliers. They highlighted that long-term relationships fostered tighter cooperation, improved communication, and a shared understanding of objectives and expectations. The presence of similar responses across these companies suggests a consensus regarding the significance of long-term relationships in facilitating effective knowledge exchange and collaborative problem-solving.

These examples show how good knowledge assurance techniques, such as clear communication, teamwork, and utilizing supplier expertise, can have a wide range of positive effects, including better productivity, improved products, increased competitiveness, and improved customer acquisition. By highlighting these instances, this research shows examples of the importance of knowledge assurance techniques in buyer-supplier interactions and provides helpful advice for businesses looking to improve their cooperation.

Company	Positive knowledge spillovers
C1	Close cooperation by technical teams and shorten the supply chain
C2	Cooperation by technicals teams and improve efficiency in end product
C3	Open cost calculations
C4	Suppliers contribute to technical solutions
C5	Obtaining specialized knowledge
C6	Using the better knowledge of the supplier
C7	Open cost calculations
C8	Collaboration with supplier in improving product
C9	Close cooperation for new production method
C10	Obtained more customers
C11	Close cooperation for a better product
C12	The whole customer base is in the system
C13	Closer cooperation because of long-term relationship

C14	You get the better product when working together
C15	The knowledge of suppliers helps to be more competitive
C16	Getting specific specifications for a product
C17	Having a long bond together
C18	Being honest to get the best outcome

**Table 2: An overview of the positive knowledge spillovers examples**

#### 4.2.3 Negative knowledge assurance examples

In examining the responses provided by the 18 participating companies, several questions were posed regarding negative examples, shedding light on the potential challenges and risks associated with knowledge assurance in buyer-supplier partnerships. These examples highlight situations where knowledge sharing was perceived negatively or where concerns regarding information leakage and reliance on suppliers arose. To obtain a comprehensive understanding of knowledge assurance dynamics, it is crucial to consider both positive and negative outcomes. It is worth noting that some companies, including C1, C3, C4, C9, C10, C14, and C18, indicated no direct experience with negative knowledge assurance situations. This suggests that their relationships with customers and suppliers may have been generally conducive to effective knowledge sharing and protection, or the interviewees themselves might not have encountered such situations. Conversely, several companies expressed concerns and shared negative examples related to knowledge assurance. One recurring concern among these companies, namely C2, C5, C6, C7, C8, C11, C12, and C17, was the risk associated with knowledge sharing. They all emphasized the potential pitfalls and challenges involved in sharing knowledge with suppliers. This highlights the need for caution and proactive measures to prevent the leakage of sensitive information and protect intellectual property. Moreover, C13 shared an example of the concern regarding project theft by larger companies. This highlights the potential impact of intellectual property theft on innovation and collaboration between suppliers and buyers. Another negative factor mentioned by companies, including C15, was the risk of dependence on a single supplier. These companies recognized the inherent knowledge assurance issues associated with relying too heavily on one supplier. Such dependence could lead to significant challenges in maintaining knowledge continuity and finding alternative solutions if the relationship with the primary supplier deteriorates or fails to meet expectations. Furthermore, C16 provided an example highlighting the potential pitfalls of giving project directions too quickly to suppliers. This emphasizes the importance of effective communication and coordination, as premature requests without a comprehensive understanding or proper communication channels in place can result in misunderstandings, errors, or undesirable outcomes.

Comparing the companies' responses, it is evident that concerns over information leakage, dependence on suppliers, and the need for effective communication and coordination are shared among multiple companies. While some companies reported no direct negative experiences,



those who did highlight the potential risks associated with knowledge assurance, emphasizing the importance of protecting confidential information, mitigating project theft risks, and maintaining balanced supplier relationships.

Company	Positive knowledge spillovers
C1	No
C2	Risk knowledge sharing
C3	No
C4	No
C5	Risk knowledge sharing
C6	Risk knowledge sharing
C7	Risk knowledge sharing
C8	Risk knowledge sharing
C9	No example for that
C10	No example for that
C11	A supplier leaking too much information
C12	Risk knowledge sharing
C13	Getting your project stolen by bigger companies
C14	No experience with it
C15	When you are dependent on one supplier
C16	Giving a supplier a direction too quick
C17	Risk knowledge sharing
C18	No experience with it

**Table 3: An overview of the negative spillover examples**

#### 4.2.4 Departments involved in knowledge assurance

A variety of departments were identified when questioning the companies regarding the departments involved in knowledge exchange. While not all businesses provided a response to this inquiry, and some businesses indicated the involvement of multiple departments, this information sheds important light on the key departments engaged in knowledge sharing.

Among the interviewed companies, the engineering department emerged as the most frequently mentioned department involved in knowledge exchange. According to the interview results, C1, C2, C3, C4, C5, C7, C9, C11, and C14 all highlighted the active participation of their engineering departments. This finding indicates the vital role that engineering teams play in collaborating with suppliers to share technological know-how, co-create innovative solutions, and drive product innovations. The prevalence of engineering department involvement was observed in 38% of the cases, emphasizing the significance of technical expertise in knowledge exchange.

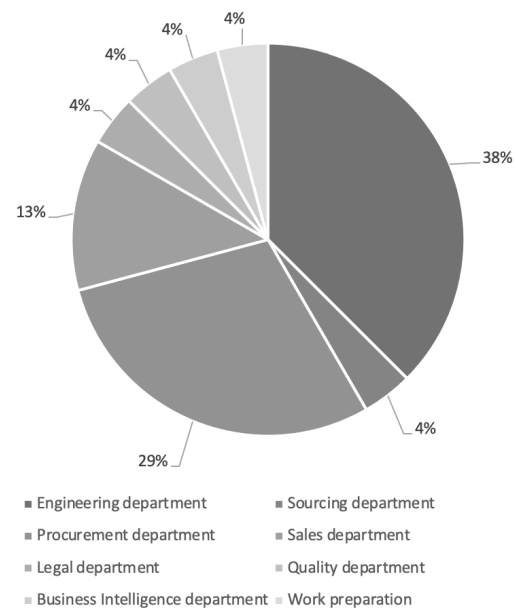
Additionally, a considerable number of companies, including C1, C3, C4, C5, C8, C10, and C13,

acknowledged the involvement of their procurement departments in knowledge exchange activities. These departments were found to be highly engaged in supplier selection, negotiation, and contract administration, thereby contributing to effective knowledge transfer throughout the buyer-supplier relationship. The prominence of procurement department involvement was observed in 29% of the cases, underscoring their role in fostering communication, building strategic alliances, and ensuring efficient knowledge exchange.

Furthermore, several companies, including C4, C11, and C12, mentioned the active participation of their sales departments in knowledge sharing. These departments focused on understanding client needs, market trends, and competitive insights, which were then shared with suppliers to guide product development and strategic decision-making. The involvement of sales departments in knowledge exchange activities was noted in 13% of the cases, highlighting the importance of market intelligence and customer-centric knowledge sharing.

In addition to the departments mentioned before, other departments such as the sourcing department (C1), legal department (C6), quality department (C9), business intelligence department (C12) and work preparation department (C13) were also mentioned in the responses. Although the extent of involvement varied among the companies, these diverse departments demonstrate the multifaceted nature of buyer-supplier collaboration.

Comparing the companies' responses, it is clear that the engineering department, procurement department, and sales department play main roles in knowledge exchange within buyer-supplier relationships. These departments contribute unique expertise and insights, facilitating technical collaboration, efficient communication, and market intelligence sharing. The diverse involvement of other departments, such as the legal, quality, business intelligence, work preparation, and sourcing departments, further highlights the multidimensional nature of knowledge exchange in buyer-supplier collaborations.



**Figure 2: Distribution of the different departments being used for knowledge sharing**

#### 4.2.5 Receiving knowledge from supplier

The comments provided by the companies offer valuable insights into the diverse types of expertise shared by their suppliers. The research reveals a range of knowledge exchange methods, primarily centered around gaining guidance and understanding from the suppliers' expertise. While not all companies provided a response, the data provides illuminating information about the various forms of knowledge that can be acquired through supplier engagement. Several companies, including C1, C2, C6, C8, C13, C15, and C18, emphasized the value of seeking guidance based on the suppliers' experience. These insights encompass suggestions and advice shared by suppliers, drawing upon their skills and prior knowledge to inform decision-making and enhance processes. This encompasses technical guidance, strategic recommendations, and various forms of advice that contribute to product development, operational efficiency, and overall business performance. Furthermore, certain companies highlighted knowledge acquisition through specific interactions or by asking targeted questions. C3, C11, C12, C14, C16, and C17 mentioned learning through particular interactions or through the process of proactive inquiry. This suggests that knowledge acquisition occurs through active engagement and dialogue with suppliers, either during collaborative projects or through focused inquiries. These examples emphasize the significance of information exchange and proactive communication in harnessing supplier expertise. Additionally, some companies mentioned acquiring information about new suppliers (C9) and gaining insight into future orders (C10). These examples demonstrate that knowledge exchange extends beyond advice and expertise, encompassing supply chain information, market insights, and opportunities for collaborative learning. These diverse forms of knowledge acquisition highlight that there are multiple examples of supplier engagement and the potential for broader knowledge transfer within buyer-supplier relationships. On the other hand, C4 and C5 mentioned that they did not receive a specific example of supplier knowledge. By connecting and combining the insights of these additional companies, it becomes evident that seeking guidance based on suppliers' experience is a common theme across multiple companies. This highlights the valuable expertise and insights that suppliers can provide to inform decision-making and improve business performance. The examples of specific interactions, targeted inquiries, and collaborative knowledge-sharing sessions further underscore the proactive role of communication and engagement in facilitating knowledge exchange with suppliers.

#### 4.2.6 Knowledge exchange of supplier to others

This part of the paper will include the responses of the companies that shed insight on the knowledge exchange that takes place when suppliers share information with others besides the buyer. Several companies mentioned unique corporate partnerships as a setting for knowledge sharing. For example, C1 and C2 highlighted special collaborations between companies, where suppliers work together with other businesses on specific projects, exchanging knowledge and skills beyond the direct buyer-supplier connection. These collaborations often involve the sharing of best practices, technical know-how, or

industry-relevant insights to foster innovation and address shared problems. On the other hand, several companies, including C3, C4, C5, C8, C9, C11, C14 and C18 indicated that they were unaware of any knowledge sharing taking place between their suppliers and outside parties. This may suggest that these suppliers do not actively distribute knowledge beyond the buyer-supplier relationship or that the companies themselves do not actively monitor or pay attention to such exchanges. However, other companies provided interesting examples of knowledge sharing. C6 and C13 mentioned the sharing of advice and insights based on the supplier's experience. This highlights the supplier's role in providing guidance, suggestions, and recommendations based on their expertise and prior knowledge. This knowledge sharing can contribute to improved decision-making, product development, operational effectiveness, and overall business performance. Moreover, C7 emphasized the utilization of similar products or solutions for various customers. Suppliers leverage their experience and knowledge gained from working with one buyer to provide comparable products or services to other consumers within their customer base. This showcases the transferability of supplier knowledge across different contexts and the potential for efficiency and consistency in delivering solutions. Furthermore, C10 acknowledged that information flows as a consequence of their major role as a buyer within the operations of the supplier. This suggests that the influence and requirements of the customer may indirectly impact how the supplier distributes knowledge to others. The buyer's size and importance can influence the extent and nature of knowledge sharing within the supplier's network. C12 emphasized the significance of collaborative research, joint sessions, and technology enhancement facilitated through supplier engagement. These activities promote information sharing, co-creation, and collaborative learning, leading to mutual benefits and advancements in products, processes, and technology. However, it is essential to note that not all instances of knowledge sharing were positive. C16 mentioned certain prices leaking to customers, suggesting a potential breach of confidentiality. This highlights the importance of maintaining proper confidentiality safeguards in buyer-supplier partnerships. Additionally, C17 provided an example of an inappropriate knowledge transfer, where a freelancer leaked information, emphasizing the need for robust security measures and trust within the knowledge-sharing process.

By comparing and combining the insights of these companies, it becomes evident that knowledge sharing can occur through various channels and in different contexts within buyer-supplier relationships. Special collaborations, knowledge transfer of processes, leveraging similar products or solutions, information flow based on buyer influence, collaborative research, joint sessions, technology enhancement, and supplier selection are examples of how knowledge can be shared within supplier networks. These practices promote innovation, efficiency, consistency, and mutual benefits. However, it is crucial to establish appropriate safeguards to protect sensitive information, maintain confidentiality, and ensure responsible knowledge sharing practices.

Company	Knowledge shared to others examples
C1	Special collaborations between companies
C2	Special collaborations between companies
C3	No
C4	No
C5	No
C6	Certain processes based on experience with us
C7	Suppliers using similar products to other customers
C8	No
C9	No
C10	Flowing of information because of us being a big part of a supplier
C11	No
C12	Research together, information flows to others
C13	All kinds, in favor of open communication
C14	No
C15	Enhancing our technology by the supplier
C16	Certain prices leaking to customers
C17	A freelancer leaking information
C18	No

**Table 4: An overview of the companies' responses on knowledge shared to other customers by suppliers**

## 5. DISCUSSION OF THE FINDINGS

The findings of this research show the importance of knowledge assurance in buyer-supplier relationships. The majority of the interviewed companies utilized Non-Disclosure Agreements (NDAs) or other contractual arrangements to protect sensitive information exchanged with their suppliers. Positive examples of knowledge assurance included close cooperation between technical teams, transparency and openness in communication, and the establishment of long-term relationships with suppliers. However, there were also concerns over information leakage, dependence on suppliers, and the need for effective communication and coordination. The department most frequently involved in knowledge exchange was the engineering department. Knowledge acquired from suppliers encompassed guidance based on their experience, specific interactions, targeted inquiries, and access to supply chain information and market insights. Knowledge sharing between suppliers and others besides the buyer was observed in special collaborations, knowledge transfer of processes, utilization of similar products or solutions, and information flow influenced by the buyer's role. However, it is essential to establish safeguards to protect sensitive information and maintain confidentiality. Overall, the findings emphasize the importance of knowledge assurance techniques in facilitating collaboration, improving performance, and mitigating risks in buyer-supplier relationships.

The literature review provides additional support for these findings. The emphasis on collaboration, information sharing, and joint relationship effort mentioned by several companies indicates the transfer of tacit knowledge. This aligns with the literature, which emphasizes the role of collaborative activities in facilitating the transfer of tacit knowledge and the development of trust and commitment between buyers and suppliers (Nyaga et al., 2010). Regarding negative spillover types, the findings also provide insights that support the literature. The importance of protecting confidential information and maintaining balanced supplier relationships, as highlighted by the companies, aligns with the literature's emphasis on managing the risks and challenges of spillovers (Dyer & Hatch, 2006; Veldman et al., 2023). The findings from the research also align with the existing literature on buyer-supplier relationships and knowledge assurance. The literature highlights the importance of effective management of buyer-supplier relationships and the benefits that can be achieved through collaboration and knowledge exchange (Beer et al., 2018; Tarigan et al., 2020; Wu & Choi, 2005). The findings support these concepts by providing specific examples like close cooperation between technical teams of positive outcomes resulting from knowledge assurance practices. The examples provided in the findings, such as seeking guidance based on suppliers' experience, collaborative research, joint sessions, and technology enhancement, resonate with the literature's emphasis on knowledge transfer, innovation, and collaborative learning within buyer-supplier relationships (Palit et al., 2022). The concerns raised in the interviews regarding information leakage and inappropriate knowledge transfer also align with the literature's emphasis on the need for confidentiality safeguards and responsible knowledge sharing practices (Srivastava et al., 2021). The study identified various mechanisms used by businesses to protect and control the flow of knowledge in buyer-supplier relationships, and these mechanisms correspond to the literature on the subject. One of the key findings was the use of contractual safeguards, such as non-disclosure agreements (NDAs), by many companies to protect their sensitive information. The non-disclosure agreement, among the several strategies used by corporations to safeguard sensitive information, has emerged as the most common and widely adopted strategy. 13 out of the 18 enterprises that were interviewed elected to use NDAs as a legal framework for protecting their confidential data. This aligns with the literature, which emphasizes the importance of legal mechanisms in preventing knowledge spillovers. NDAs, as legally binding contracts, help establish clear rules and obligations for both parties involved in the knowledge exchange, safeguarding confidential information (Gasimova, 2020).

### 5.1 Limitations

This research also has some limitations which are not considered. One limitation of the study is the sample size and selection. The research included 18 interviews with key actors from various departments involved in buyer-supplier relationships. While these interviews provided valuable insights, they represent a relatively small sample, and the findings may not be applicable to all industries or contexts. Future research could aim for a larger and more diverse sample and a longer time of investigation to enhance the generalizability of the results. Also, the study focused on buyer-supplier relationships and knowledge

exchange within that context. However, other external factors, such as industry dynamics, market conditions, or regulatory frameworks, can also influence the occurrence and management of supplier spillovers. Future research could explore the impact of these external factors on the dynamics of supplier spillovers and provide a more complete understanding of the topic.

## 6. CONCLUSION

The main research question of this thesis was to identify the main examples that influence supplier spillovers in buyer-supplier relationships. Through an in-depth examination of 18 interviews with key actors from various departments involved in buyer-supplier relationships, along with analysis of secondary data sources, this study has shed light on the complexities and dynamics of supplier spillovers in these relationships. The findings of this research provide insights into the diverse examples that influence the occurrence and extent of supplier spillovers. The examples include knowledge sharing, technology transfer, collaboration, co-creation, and the utilization of supplier expertise. The study highlights the positive outcomes of effective knowledge assurance practices, such as improved productivity, enhanced products, increased competitiveness, and improved customer acquisition. Additionally, negative examples and challenges related to information leakage, dependence on suppliers, and communication issues have been identified, emphasizing the importance of appropriate safeguards and proactive measures. The research process involved a qualitative case-study approach, utilizing semi-structured interviews and secondary data analysis. The interviews were conducted with participants from different departments involved in buyer-supplier relationships, providing rich and varied insights. The data analysis process involved categorizing and analyzing the interview responses to identify recurring themes and patterns. The findings were then interpreted and discussed in the context of existing literature on buyer-supplier relationships and knowledge exchange. Based on the findings of this study, several recommendations can be made for future work on this thesis or dissertation topic. Firstly, conducting further research with a larger and more diverse sample would enhance the generalizability of the findings. Longitudinal studies tracking the development of buyer-supplier relationships over time would provide a deeper understanding of the dynamics of supplier spillovers. Additionally, exploring the impact of external factors, such as industry dynamics and regulatory frameworks, would contribute to a more comprehensive understanding of this complex phenomenon. In terms of contributions to the field, this paper has provided valuable insights into the examples that influence supplier spillovers in buyer-supplier relationships. By highlighting both positive and negative examples, this research has contributed to the understanding of knowledge assurance practices, communication strategies, and safeguards that can facilitate effective knowledge exchange and collaboration. Furthermore, the identification of the main departments (engineering, procurement, sales) involved in knowledge exchange within buyer-supplier relationships adds to the existing knowledge on the multidimensional nature of these collaborations.

This thesis has addressed the research question by examining the main examples of supplier spillovers in

buyer-supplier relationships. Through qualitative research methods and analysis, it has deepened our understanding of the complexities and dynamics of knowledge exchange, collaboration, and safeguards in these relationships. The findings of this research contribute to the field by providing insights, recommendations, and avenues for future research on this topic, ultimately enhancing our knowledge of buyer-supplier interactions and facilitating effective knowledge management in the business environment.

## 7. ACKNOWLEDGMENTS

I would like to express my sincere gratitude to my supervisors, Holger Schiele and Matthias Holtrup, for their invaluable guidance, support, and expertise throughout the course of this research. I also want to sincerely thank the group members in my research group for always being available to answer questions. I want to thank the interviewees too for giving of their time, wisdom, and experiences. The findings of this study have been significantly shaped by their insightful views and helpful thoughts.



## 8. APPENDICES

### 8.1 Conducted semi-structured interview.

#### Interview protocol:

General questions (“break the ice”) get to know your interviewee:

Could you please tell me something about you?  
*(Name, age, where are you from, current function in the company)?*

Could you please tell me more about the company and the industry you are working in?

*(Company name and size (employees, turnover, global/local), Sector the company is operating, Status of the company in the market, Number of suppliers)*

#### Questions about examples:

Could you tell me how this works in your company?

How do you collaborate with suppliers and which type of knowledge exchange do you have with your suppliers? (+ *could you provide some examples; do you also share sensitive knowledge?*)

Could you please tell me positive examples of knowledge exchange with your suppliers? (*i.e. market advantages, etc*)

Could you please tell me negative examples (knowledge leakage) of knowledge exchange with your suppliers?  
Do you allow your suppliers to share your exchanged knowledge also with other customers? (*If no: how do you prevent this?; If yes: how do you do this?*)

Which departments in your company are involved in the knowledge exchange with your suppliers? (*what kind of knowledge to they transfer? E.g., R&D*)

Do you have examples of the other way around: in which you received valuable knowledge from a supplier about the market or perhaps other competitors? (*Which kind of knowledge was this specifically?*)

Could you please tell me some explicit examples of suppliers using knowledge for other customers?

#### Questions about implications:

Please tell me which kind of knowledge do the different departments of your company share with the supplier i.e. your department or for example R&D and what is the implication out of this? (*positive implications? Negative implications? Can you provide specific examples?*)

What is your vision on suppliers sharing knowledge from your firm (i.e. your purchasers or R&D) with other customers?

What mistakes did your company make when your company sees these negative implications as supplier opportunism

What negative impact does this behavior have on access to supplier knowledge?

Which conclusions did your company make from these negative examples (stop relationship/ try to resolve the problem, nothing)?

What are the implications of suppliers using knowledge for other customers?

#### Questions about contracts:

In what way do your contracts deal with knowledge exchange?

Which specific clauses in the contracts are about knowledge exchange between your company and your supplier?

Do your contracts allow or prohibit the supplier using your knowledge with other firms? What clauses or phrases in the contract address this specifically?

Which clauses did you consider to be particularly effective or ineffective? Which absolutely need to be included?

In general, how would you reflect on the use of contracts to govern knowledge exchange with suppliers?

Which parties of your company are involved in these contract negotiations and which ones from the supplier side?

#### Questions about relational safeguards:

How would you describe the relationships with your best suppliers which you exchange knowledge with?

How important is relational experience with that supplier?

What is the motivation from you to share your knowledge with that supplier and do you share it with other suppliers as well(*or why not?*)? (*and what is the motivation for the supplier?*)

How do you decide to select a specific supplier for your project? (*other than financial reasons*)

How would you describe the relationship with this selected supplier? How did it impact how your firms exchange information?

Which influence has the relationship to the supplier to accept knowledge exchange to the supplier? (*give an example, make specific*)

## 8.2 Interview answers

No	Employee turnover € mil	Activity/branch	Enforcees KI	KI w/suppliers	Positive KI examples	Negative KI examples	KI shared by supplier	Departments involved in KI-01	Departments involved in KI-02	Departments involved in KI-03	Supplier sharing KI with others	Examples sharing KI by suppliers with others
C1	140	47 Parts trader	NDA	Yes	Close cooperation by technical teams and shorten the supply chain	No	No, NDA to prevent	Engineering department	Purchasing department	Sourcing department	Gaining information when working together with supplier for specific purpose	Special collaborations between companies
C2	100	30 Manufacturing	NDA	Yes	Cooperation by technical teams and improve efficiency in end product	Risk knowledge sharing	No, NDA to prevent	Engineering department			Advices based on experience of supplier	Special collaborations between companies
C3	150	Public transport	NDA	Yes	Open cost calculations	No	No, NDA to prevent	Procurement department	Engineering department		Some bycatch by asking	No
C4	20	30 Railways	Personal agreements	Yes	Suppliers contribute to technical solutions	No	No, based on trust	Sales department	Procurement department	Engineering department	No	No
C5	1340	High tech	NDA	Yes	Obtaining specialized knowledge	Risk knowledge sharing	No, NDA to prevent	Procurement department	Engineering department		No	No
C6	7800	Trains	NDA	Yes	Using the better knowledge of the supplier	Risk knowledge sharing	No, NDA to prevent	Legal department			Advices based on experience of supplier	Certain processes based on experience with us
C7	17500	Technology	NDA	Yes	Open cost calculations	Risk knowledge sharing	Depends on the information	Engineering department			Cannot answer that	Suppliers using similar products to other customers
C8	800	Cables	NDA	Yes	Collaboration with supplier in improving product	Risk knowledge sharing	No, NDA to prevent	Procurement department			Advices based on experience of supplier	
C9	1000	Hydraulic applications	NDA	Yes	Close cooperation for new production method	No example for that	No, NDA to prevent that	Engineering department	Quality department		Information about new suppliers to work together	
C10	460	250 Charger manufacturer	NDA	Yes	Obtained more customers	No example for that	No, NDA to prevent that	Procurement department			Information about future orders	Flowing of information because of us being a big part of a supplier
C11	350	Pharmaceutical	NDA	Yes	Close cooperation for a better product	A supplier leaking too much information	No, NDA to prevent that	Sales department	Engineering department		Being in the same project as the supplier	No
C12	1200	Service	Contract	Yes	The whole customer base is in the system	Risk knowledge sharing	Depends on the information	Sales department	Business intelligence department		Sessions together to share information	Research together, information flows to others
C13	50	8 Electronics	NDA	Yes	Close cooperation because of long-term relationship	Getting your project stolen by bigger companies	No, NDA to prevent that	Procurement department	Work preparation		Advices based on experience of supplier	Yes, favour of open communication
C14	1000	High-tec	NDA	Yes	You get the better product when working together	No experience with it	No, NDA to prevent that	Engineering department			Knowledge of supplier for the final product	
C15	200000	Automotive	NDA	Yes	The knowledge of suppliers helps to be more competitive	When you're dependent on 1 supplier	No, NDA to prevent that				Advices based on experience of supplier	Enhancing our technology by the supplier
C16	5500	Handicap care	Contract	Yes	Getting specific specifications for a product	Giving supplier a direction too quick	Yes, in favor of openness				Getting the best information in talks with the supplier	Certain prices leading to customers
C17	740	Nature	Contract	Yes	Having a long bond together	Risk knowledge sharing	No, contract to prevent that				By asking questions to the supplier	A freelancer leaking information
C18	3000	Education	Contract	Yes	Being honest to get the best outcome	No experience with it	No, contract to prevent that				Using the expertise of the supplier	

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