

Spillovers and project success: The significance of relational safeguards

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ABSTRACT,

The concept of spillover and its impact on buyer-supplier relationships has received significant attention in research and practice. Spillover refers to intentional and unintentional knowledge transfer between buyers and suppliers with positive and negative effects on the organisations. Relational safeguards play an important role in mitigating knowledge spillover and preventing opportunistic behaviour. Trust and relational norms serve as mechanisms to prevent unintended knowledge leakage. This thesis aims to explore the positive and negative aspects of relational safeguards and their implications in a business context. The main research question addresses the impact of spillover on project success and the roles of relational safeguards. The research employs a combined approach, including a literature review and qualitative interviews, to gain insights and bridge gaps in the existing literature. Overall, this research contributes to understanding and dynamics of spillover, the significance of relational safeguards, and the interplay between contractual safeguards and relational safeguards in buyer-supplier relationships.

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Keywords

Spillover, safeguards, knowledge transfer, knowledge leakage, relational governance, buyer-supplier safeguards.

1. INTRODUCTION

The concept of spillover has received significant attention in the literature on buyer-supplier relationships. Researchers and practitioners are particularly interested in the spillover effect since it can majorly impact a supplier's and buyer's performance and competitiveness. Companies need continue innovation to succeed and survive. Businesses can innovate by investing in internal R&D or acquiring expertise from other sources. Because innovations can be complex, uncertain, and costly, companies try to obtain this information from external sources such as competitors, academic institutions, supply chain partners, and collaborating partners (Isaksson et al., 2016, p. 700).

In a buyer-supplier relationship, spillover refers to the spread of knowledge between parties (Owen-Smith & Powell, 2004, pp. 5-7). Every possible interaction has the potential for knowledge sharing. Spillover can have a positive and negative effect on organisations. Positive spillover occurs when knowledge is exchanged with intended people or organisations. Negative spillover occurs when knowledge is exchanged outside the intended boundaries (Fallah & Ibrahim, 2004, p. 8).

Spillovers are important in buyer and supplier relationships because they reflect the interconnectedness of individuals within the organisations and their partners and have significant economic, social, and environmental implications. Safeguarding spillovers ensures that the benefits are maximised, negative effects are minimized, cooperation is fostered, and long-term sustainability is prioritized (Martinez-Noya et al., 2013, pp. 69-73)

Knowing how spillover works and how to manage it, it is crucial establishing and maintaining a successful buyer-supplier relationship (Kang et al., 2009, p. 120).

Buying firms use a relational safeguards mechanism depending on trust and social norms among partners to prevent knowledge spillover and prevent opportunistic behaviour. Trust in a strategic alliance is described by (Jiang et al., 2013, p. 984), as a firm's expectation of positive behaviour from its partner, leading to vulnerability acceptance. Trust is also used to minimise opportunism and conflict as well as increase collaboration (Aben et al., 2021, p. 1151). Relational norms related to the shared behavioural expectations of partners in a relationship suggest a bilateral expectation that parties will disclose helpful information to their partner in support of the ongoing collaboration (Aben et al., 2021). Relational safeguard typically functions based on relational norms such as information exchange, flexibility, and solidarity (Liu et al., 2022, p. 3).

Opportunistic behaviour refers to intentionally knowledge leakage when a firm loses private knowledge to partners through opportunistic activities like unauthorized imitation (Jiang et al., 2013, p. 984). Opportunism can take many forms, including lying, stealing, cheating and planned attempts to mislead, distort, disguise, or confuse (Zou & Wang, 2022, p. 2956).

Buyer-supplier relationships are governed by both formal and informal arrangements, known as contractual and relational safeguards. Contractual safeguard refers to the extent to which an inter-organisational relationship is governed by a written contract that explicitly specifies each party's responsibilities and obligations (Cao & Lumineau, 2015, p. 17). Contractual safeguards allow businesses to organise resources and create safeguards against exchange risk, relational governance, on the other hand, entails socially regulated activities such as flexibility, information sharing, and solidarity (Eckerd et al., 2021, p. 48).

The goal of this thesis paper is to identify the negative and positive sides of relational safeguards, as well as their

implications in a business scenario. In existing scientific literature some scholars in strategic management believe that employing formal contracts when attempting to create trust with another organisation is a wrong decision, yet other scholars believe that formal contracts and creating trust work effectively together (Poppo & Zenger, 2002, p. 711).

In this thesis, the focus will be on relational safeguards. While conducting research, the main research question will be:

RQ: Do spillovers increase or threaten project success and what are the roles of relational safeguards?

The research question will be answered by answering the following sub-questions:

SQ1: How do spillovers impact project success in terms of knowledge transfer?

SQ2: What are the roles and effectiveness of relational safeguards in mitigating the negative effects of spillover on project success?

The goal of this research is to acquire insights into different aspects of relational safeguards and fill the gap in existing research; therefore, it can be defined as exploratory research. To identify the factors which support relational safeguards a combined research approach will be used. The combined research approach consists of conducting a literature review and conducting qualitative interviews.

2. LITERATURE REVIEW

2.1 Problem description: spillover and Opportunism

2.1.1 Spillover: supply chain as a source of valuable information

The concept of network highlights the advantages gained by individuals, organisations, and groups in strategic positions where information and resources flow together (Owen-Smith & Powell, 2004, p. 5). And in the supply chain knowledge spillover can happen at the individual and enterprise level, individual level is a case where knowledge is intentionally or unintentionally exchanged between people, and at the enterprise level knowledge spillover happens between companies (Fallah & Ibrahim, 2004, p. 8). The type of transaction between buyers and suppliers varies based on the objectives of research and development (R&D) and the cooperating partner involved. Collaborative R&D is motivated by various factors, including risk and cost-sharing in uncertain technological development, the need to accelerate innovation cycles, and the potential for efficiency gains achieved by pooling resources (Belderbos et al., 2004, p. 1748).

Markets that are highly competitive and rapidly evolving, increasingly demand innovative products and services and firms are looking to external sources of expertise to deal with the complexity and expense associated with innovation (Patrucco et al., 2022, p. 109). Innovation can be distinguished between process and product innovation. Process innovation is related to the implementation of new or improved technology, methods, and procedures. And product innovation refers to the ability to develop new products (Wagner & Bode, 2014, p. 66). Companies are currently leveraging their relationships with buyers and suppliers to share and gain information, instead of relying only on knowledge transfer through research and development inside the company. This is especially useful in a supply chain environment, where there is mutual dependency and high market rivalry (Isaksson et al., 2016, p. 701). One of the factors that help organisations gain knowledge from its partner, is the type of relationship between two firms. Firms that enter transactions may

need to invest in the relationship and build specific assets (Lui et al., 2009, pp. 1215-1216). Moreover, a supply chain relationship is associated with repeated interactions between individuals, which allows for the exchange of valuable knowledge, this repeated interaction can be repurchase, involving suppliers in product development and shared strategic goals (Parker & Brey, 2015, pp. 30-31). The Toyota case study from Dyer and Nobeoka in 2000 provides compelling evidence to support the notion that networks play a vital role in gaining competitive advantage. These networks outperform individual firms in terms of generating and transferring diverse knowledge, thus enhancing overall effectiveness (Dyer & Nobeoka, 2000, pp. 351-360). It emphasises on creating a functional network and managing the network is essential in gaining a competitive advantage (Dyer & Nobeoka, 2000, p. 364). The study emphasises on differentiating between different kinds of information and managing knowledge transfer between different groups inside an organisation. Managing these networks provide timely and accurate knowledge to the right people within the organisation.

The relationship between information leakage and willingness to provide information is mediated by trust, which will be discussed in the next sections (2.2.2.1). The relationship between intentionality and trust is often moderated by operational and technological similarities between the supplier and the buyer companies. Organisations learn more from similar organisations. When direct experiences lacking, observing comparable organisations might be beneficial. The experience of belonging to a group, or group identity, increases trust in inter-organisational connections and affects emotional and cognitive reactions (Ried et al., 2020, p. 285).

Knowledge spillovers are facilitated by absorptive ability, which means the ability to effectively acquire, assimilate, and utilise external knowledge which in turn is impacted by technical overlap. Suppliers and buyers with similar R&D scopes find it easier to absorb and assimilate knowledge. Close collaboration in research domains improves the recognition of complementarities between a supplier's knowledge base and incoming external knowledge (Isaksson et al., 2016, p. 701). Proximity in the technical domain boosts the relevance and benefits of knowledge inflows, allowing radical development to take place.

From a relational point of view, networks are important in sharing information and gaining competitive advantage, however, network management requires strong coordination to be successful and prevent negative knowledge spillover (Dyer & Nobeoka, 2000, p. 364).

Literature differentiates between the positive and negative effects of spillover. Buyer's innovation is positively affecting suppliers' innovation, and this effect is moderated by the duration of the relationship between the firms (Isaksson et al., 2016, p. 705). The longer-term relationships can increase the benefits of spillover over time (Parker & Brey, 2015, pp. 31-32). Companies that have long-term relationships with their suppliers share more information and have closer collaboration for their product development. The literature on the positive effects of spillover emphasises the significance of active knowledge management and the implementation of learning routines in supply chain connections.

Other scholars believe that companies sometimes undertake risky investments in their relationships. Buying firm can lose value if the transactional relationship fails, leaving the buying firm vulnerable to opportunistic behaviour by transaction partners who have not made a reciprocal investment (Kang et al., 2009, p. 130).

2.1.2 Opportunism

Opportunism refers to "self-interest seeking with guile", recognising that organisations and individuals may use conditions for personal gain (Wathne & Heide, 2000, pp. 37-38). Opportunism acknowledges the existence of risk (Galvin et al., 2021, pp. 394-396). Relational risk is described in the buyer-supplier relationship as the likelihood and consequences of not having adequate corporations and risk occurs as a result of both firms' capacity for opportunistic behaviour (Das & Teng, 2001, p. 252). Examples of opportunistic behaviour can be shirking, cheating, distorting information, and so on. This risk increases when there are just a few alternative suppliers, as the present provider may take advantage by changing the parameters of the relationship to their advantage, such as requesting a higher price (Hobbs, 1996, p. 17).

For the buying firms, the decision to collaborate with external organisations is based on cost and benefits (Huo et al., 2016, pp. 13-14). Collaboration can improve a company's innovation performance by allowing information to spread, but the company needs also to protect its R&D investments from opportunistic conduct by partners (Yan & Kull, 2015a, p. 406).

Buyer-supplier knowledge exchange motivations can be classified as economic, relational, or learning purposes. The fundamental economic reward for a supplier in buyer-supplier interactions is sales income, but there are additional incentives at play. Buyers may commit to investing in innovative product development to encourage suppliers to share their product expertise. This collaboration benefits both parties: buyers can improve their product quality and competitiveness, while suppliers feel valued and rewarded for their contributions (Chen et al., 2023, p. 762). But with this collaboration there is often the danger of opportunistic behaviour, supplier's opportunistic behaviour can have major negative consequences for the buying firm, including trust concerns, untrustworthy relationships, lower project quality, less efficiency, and financial losses (Yan & Kull, 2015a, p. 412). To prevent opportunistic behaviour, buying firms tend to invest more resources in safeguarding actions (Zou & Wang, 2022, p. 2957). The decision to collaborate in innovation with suppliers entails balancing the benefits of knowledge spillover against the costs of protecting against opportunism. Employing proactive and reactive safeguard systems in the proper environment is critical for achieving collaborative advantages (Yan & Kull, 2015a, p. 407).

Moreover, supplier opportunism degrades design quality in two ways: 1) The supplier's self-interest behaviour limits knowledge contribution, lowering the quality and quantity of collaborative innovation. 2) Supplier opportunism forces the purchasing firm to protect knowledge assets by withholding information, cutting resources, limiting investment, and strengthening monitoring (Yan & Kull, 2015a, p. 412). These controls reduce the quality and quantity of co-created information, which has a negative influence on innovation.

2.2 Solution description: Safeguards

2.2.1 Safeguards literature in general

Buyers and supplier safeguards refer to a set of policies, processes, and mechanisms that organisations use to manage their relationships with suppliers and ensure the delivery of goods and services meets their requirements and expectations (Pilbeam et al., 2012, p. 359). Effective buyer and supplier safeguards and management is crucial for building and maintaining strong partnership, mitigating risks, and optimising value in the supply chain (Aben et al., 2021, p. 1150). Communication, collaboration, and coordination are important elements of effective buyer and supplier safeguards (Nyaga et al.,

2010, p. 103). Effective coordination is essential to ensure a smooth and timely flow of both information and physical material. Coordination involves aligning different elements of a process or system to work harmoniously (Ghosh & Fedorowicz, 2008, p. 455).

The initial stage of buyer and supplier safeguarding involves the process of supplier selection. Organisations need to identify potential suppliers who can meet their needs and requirements (Nyaga et al., 2010, p. 101). Choosing the right supplier involves a wide range of qualitative and quantitative factors than just screening the supplier. Companies use different methods in decision-making, few examples of multi-criteria decision-making approaches are the Analytic hierarchy process (AHP), analytic network process (ANP), data envelopment analysis (DEA), and mathematical programming (Ho, Xu, & Dey, 2010, p. 22).

Buyer and supplier safeguards include various mechanisms that organisations employ to manage their relationships with suppliers, these mechanisms govern the inter-organisational exchange and minimise potential vulnerability induced by specific investments (Wagner & Bode, 2014, p. 68).

Mechanisms used by buyer firms to manage their relationships with suppliers can be categorised into two main types of safeguards: contractual and relational safeguards (Cao & Lumineau, 2015, p. 15). Contractual safeguard refers to agreements in writing between buyer and supplier, which are perceived as legally binding (Lui et al., 2009, p. 1215). Contracts enable firms to manage sources across firm boundaries and put in place sufficient safeguards against exchange risks (Benítez-Ávila et al., 2018, p. 432). The structure of contractual safeguards can be at an organisational level, network level, or individual level in terms of roles or certain functions that are pre-specified or even mandated (Pilbeam et al., 2012, p. 363).

Relational safeguard is described as the extent to which activities in the buyer and supplier relationship are socially controlled through standards shared across organisations (Cao & Lumineau, 2015, p. 17). Relational safeguards are informal and the norms are identified as flexibility, information sharing, and solidarity (Eckerd et al., 2021, p. 50).

Adapting to unanticipated occurrences is made easier through flexibility, solidarity and sharing information, these norms encourage a bilateral approach to problem-solving by establishing a commitment to collaborative action through mutual adjustment. Because parties are willing to exchange private information with one other, including short and long-term plans and goals, information sharing supports problem-solving and adaptability (Poppo & Zenger, 2002, p. 710). In the existing literature trust and relational norms are two of the most commonly studied relational safeguards types (Cao & Lumineau, 2015, p. 17), which will be extensively discussed in the next part.

Contractual and relational safeguards both can positively affect buyer and supplier relationships and the application of either form of the safeguard depends on different factors such as the length of the relationship and the type of the transaction (Cao & Lumineau, 2015, p. 20). There are two perspectives in the literature regarding the relationship between contractual and relational safeguards. According to one point of view, contract and relational safeguards are substitutes for each other and the other perspective suggests that contractual and relational safeguards complement each other (Liu et al., 2022, p. 3). This topic will be further discussed in 2.3.

2.2.2 Relational safeguard

2.2.2.1 Trust

Trust refers to the confidence in the partner's integrity, credibility, and benevolence in a risky exchange relationship (Cao & Lumineau, 2015, p. 17). Risk is frequently conceptualised as a variation in outcomes that are important to the risk-taking subject. However, perceived risk differs from the condition of uncertainty (Das & Teng, 2001, p. 254). And in buyer-supplier relationships, the relational risk is the probability and consequences of not having a satisfactory corporation (Das & Teng, 2001, p. 252). Trust in the buyer-supplier relationship reflects that a company expects its partner to conduct well and is hence willing to accept vulnerability. Firms that trust their partners believe they will not act opportunistically, leading to positive outcomes such as reduced costs, cooperation, and knowledge exchange (Jiang et al., 2013, p. 984).

Trust can be categorised into two groups: goodwill trust and competence trust. Goodwill trust is an emotional bond based on compassion, integrity, good faith, and concern for the well-being of another party (Das & Teng, 2001, p. 256). And competence trust is a reasoned assessment of a partner's ability to meet obligations (Jiang et al., 2013, p. 985). Suppliers can communicate competence by making transactional investments such as educating workers and investing in relationships (Newell et al., 2019, p. 390). This way the suppliers display an image that they can perform effectively in a relationship. Furthermore, trust arises between two parties when they repeatedly interact over time, with these interactions the parties involved gain personal experience and information that forms the basis of trust (Kadefors, 2004, p. 176).

Companies that believe in their partners' goodwill feel that they will not act opportunistically even with incentives gained by opportunistic behaviour. Goodwill trust has beneficial outcomes such as cost reduction, promotion of corporation, and facilitation of communication, and positive knowledge spillover. However, overinvestment or naive trust might have negative consequences such as negative effects of knowledge spillover (Jiang et al., 2013, p. 985). Competence trust on the other hand can lower knowledge spillover by reducing opportunistic behaviour among buyers and suppliers (Das & Teng, 2001, p. 258).

But on the other hand when competence is low between buyer and supplier, the focal firm may not protect its knowledge well, assuming the partner has not the capability to absorb it, however as competence trust grows, the focal firm becomes more attentive in monitoring and taking measures against opportunistic behaviour (Jiang et al., 2013, p. 985).

2.2.2.2 Trust Contribution and Violation in relational safeguard

As mentioned in the previous section 2.2.2.1 one of the essential components of effective relational safeguard is trust, and it is one of the primary methods used to manage inter-organisational interaction (Ried et al., 2020, p. 284). In purchase decisions, the trustworthiness of suppliers is an important decision factor. Buyers rely on the trusted supplier when making future purchase decisions, highlighting the essential role of trust, this is true especially in long-term commitments (Ahimbisibwe et al., 2012, p. 442).

Trust in buyer-supplier relationships is influenced by various factors, including past interactions. Research highlights past interactions between buyers and suppliers build a foundation of trust where parties have a history of mutually beneficial engagement, and trust fosters an environment where parties feel comfortable sharing knowledge and collaborating (Ried et al., 2020, p. 284). Trust goes beyond formalities and contractual safeguards, trust in relations promotes confidence and enables

the exchange of valuable knowledge spillover (Ried et al., 2020, p. 284).

Other factors that can have an impact on trust are cultural, structural, and political differences. In buyer-supplier relationships, interactions occur between individuals and their companies. Organisational culture, structure, and politics can have a major impact on the level of trust in the partner's organisation (Galvin et al., 2021, pp. 396-398). Organisations play a crucial role in directing and managing individual behaviour, which in the end affects trust in buyer-supplier relationships (Ahimbisibwe et al., 2012, p. 442).

Moreover, the trustworthiness of suppliers encourages flexibility, fast decision-making, information sharing, and reduces control costs between buyers and suppliers. Trust in relational safeguards leads both buyers and suppliers to better end-product outcomes (Dyer & Chu, 2003, p. 57).

Trust violations can take several forms, including integrity and competency violations. When a buyer believes in a supplier, they believe in their honesty and ability. Infractions of integrity provide a bad signal about the supplier's values and principles, whereas violations of competence send a negative signal about their knowledge, technical skills, and capabilities (Eckerd et al., 2021, p. 49).

To prevent trust violations, buyers can use control as a determinant of risk. Control is commonly regarded as a process of regulation and monitoring aimed at achieving organisational goals (Das & Teng, 2001, p. 258). Control checks ensure that actions are carried out in accordance with the plan in the framework for preventing trust violations. In buyer-supplier relationships, effective control becomes important and it can be achieved by implementing a control system in a relational safeguard mechanism (Das & Teng, 2001, p. 260).

2.2.2.3 Relational safeguard through relational exchanges

Relational safeguard plays an important role of the intermediary safeguard structure between buyers and suppliers and is one of the main approaches used in relationship management but there is no agreement on its specific dimensions (Zhou et al., 2015, p. 149). Researchers primarily focus on the normative aspects of relational safeguards which are discussed in 2.2.2.4. Some scholars believe that collaborative activities and joint actions are important elements of relational safeguards (Claro et al., 2003, p. 704). Two important joint actions are joint planning and joint problem-solving. Joint planning involves discussing future contingencies and responsibilities while joint problem-solving focuses on effectively resolving recent disagreements. Collaborative activities are cooperative actions performed by exchange parties, these activities impact firm performance, particularly in R&D and innovation (Zhou et al., 2015, p. 150).

Collaborative activities are other widely discussed relational safeguards, and it involves bilateral asset-specific investments and sharing similar goals between buyers and suppliers (Jap & Anderson, 2003, pp. 1687-1688). Asset specific investments occur when both buyers and suppliers make unique investments, serving as mutual commitments that motivate relationship success, and sharing similar goals motivates specific behaviours between buyers and suppliers, which in the end both function as safeguards against negative spillovers.

2.2.2.4 Relational norms

Relational norms in the relational safeguard context, refer to shared expectations about the behaviour of each party in inter-organisations relationships (Cao & Lumineau, 2015, p. 17). In

relational safeguards, obligations, promises, and expectations are enforced in these socially regulated transactions through social processes that foster norms of flexibility, solidarity, and information transmission (Poppo & Zenger, 2002, p. 710). In contractual safeguards, where contracts are explicit, complex, and bureaucratic, socially regulated exchanges offer flexibility, solidarity, and the possibility of sharing information (Lu et al., 2015, pp. 214-215). Flexibility helps to deal with unexpected situations which results in faster decision making. solidarity urges both sides to collaborate to address problems and take joint action and because both parties are willing to share information, including their intentions and aspirations, both parties are more likely to cooperate with each other. Thus, relational norms are considered important types of safeguards in existing inter-organisational relationships (Cao & Lumineau, 2015, p. 17).

Managing relational safeguards can be challenging and different based on the type of the organisation and the structure of the organisation. For example, inter-organisational relationships of cross-border firms are more complex because of the distance and cultural differences, often facing more uncertainties compared to domestic inter-organisational relationships (Cao & Lumineau, 2015, p. 20). Furthermore, relational safeguards require relationship-specific investments, these investments are non-recoverable costs that a firm makes to support a relationship with its partner firm (Wagner & Bode, 2014, p. 67).

Relationship length is the other element that plays an important role in relational safeguards, successful buyer-supplier relationships require a long-term approach with joint efforts by each partner (Nyaga et al., 2010, p. 101). Implementing relational safeguards will be more challenging in shorter relationships where trust is not well established yet. As the relationship lengthens, interactions increase, trust and relational norms develop, this will enhance cooperative learning and make relational governance easier (Cao & Lumineau, 2015, p. 21). Moreover, studies suggest that buyers and suppliers in a collaborative relationship are associated with improved performance and long-term relationships maximise profits (Nyaga et al., 2010, p. 105).

Scholars believe that companies prefer fewer suppliers instead of many. And in relational safeguard, collaborative activities including each party's commitment, dedicated investments, information sharing, and joint relationship efforts are important factors (Nyaga et al., 2010, p. 105). Collaborative activities involve both parties' involvement in problem-solving which may arise over time. dedicated investments made by buyers and suppliers refer to tangible investments in resources by both parties to strengthen the relationship and gain higher returns and sustain competitive advantage, dedicated investments represent sacrifices and lead to better trust between buyers and suppliers. Information sharing refers to the willingness of sharing information between two parties, this may involve the early stage of product design, sharing cost information, future product development, or providing supply and demand forecasts. Joint relationship effort refers that buyers and suppliers working together, planning and coordinating activities as well as resolving activities (Nyaga et al., 2010, p. 103).

2.3 Relational safeguards as substitute or complement to contractual safeguards

Some scholars suggest that in buyer-supplier relationships, relational safeguards and contractual safeguards can be interchangeable (Malhotra & Lumineau, 2011, pp. 982-983). The existence of one form of safeguard renders the existence of the other obsolete. Relational safeguards play a significant role in reducing transaction costs by replacing formal contracts with

trust and reputation-based mechanisms. However, contractual safeguards hold importance in providing clarity, enforceability, and structured risk management (Poppo & Zenger, 2002, p. 707).

While some believe that relational safeguard and contractual complexity are mutually exclusive, some scholars argue that they complement each other (Parker & Brey, 2015, p. 30).

When risks are high, combining relational and contractual safeguards may result in greater exchange performance than a relational or contractual safeguard option alone. Contractual terms, remedies, dispute resolution mechanisms, and relational norms offer flexibility, solidarity, bilateralism, and continuity that are clearly expressed and can create trust and foster collaboration in inter-organisational transactions (Lu et al., 2015, pp. 214-216).

Contracts provide benefits by explicitly committing to long-term exchange and outlining penalties for opportunistic behaviour, lowering short-term gains while enhancing the benefits of cooperative activity (Baker et al., 2002). In contrast, failing to specify elements of the exchange in contracts encourages cheating and lowers expectations of cooperation (Yao et al., 2023, pp. 678-679). Contractual safeguards supplement the informal constraints of relational safeguards by reinforcing cooperative behaviour expectations. On the other hand, contracts have difficulties in sustaining the continuation of relationships, particularly when unforeseen disruptions occur. Complex contracts may be incapable of anticipating and resolving all potential future contingencies, and they may facilitate termination rather than ensuring continued bilateral resolution (Poppo & Zenger, 2002, p. 710). Relational safeguard becomes critical in such instances to deal with change and conflict, foster continuance, and promote bilateralism. Solidarity is essential for continuing exchanges because it promotes mutual reliance and a commitment to persevere (Poppo & Zenger, 2002, p. 710).

3. METHODOLOGY

3.1 Research design: A combined approach

To answer the research question of this paper, a combined method is used to conduct the research. This method entails a combination of conducting a literature review, as well as a qualitative analysis, in the form of conducting semi-structured interviews. Qualitative research focuses on the relevance and experience dimensions of human existence and social circumstances are the subject of qualitative research. The effectiveness with which participants' personal meanings, activities, and social backgrounds are conveyed determines the quality of such a study. Assessing the quality of qualitative research entails ethical criteria and guidelines for data collection and interpretation (Fossey et al., 2002, p. 717).

Quantitative research, in contrast to qualitative research, is a methodical technique that investigates social phenomena using statistical or numerical data. It is based on the measurement and seeks to collect data to find patterns, relationships, and validate measurements (Sheard, 2018, p. 430).

For this research paper, the research method is qualitative. Since the research question asks about "How" spillover influence buyer-supplier relationship, it can be categorised as qualitative rather than quantitative research.

The research is done in a two-folded way. At first, there is desk research in the form of a literature review about spillover, knowledge leakage, and contractual and relational safeguards. This research is mainly based on collecting and analysing non-numerical data in scientific articles. The journal research was limited to official academic papers.

For this study, participating companies were selected both from the buyers' and suppliers' sides. The criteria were to have a buyer-supplier relationship and to conduct the interview with a representative from either a purchasing department, sales department, or R&D department. The questionnaire for the interview and the list of the company along with the size (turnover and number of employees) can be found in Appendix A.

The sample consists of 18 interviews, both male and female participants and each of them has several years of working experience in their field. All companies are in Europe with most of the participants located in the Netherlands. The list of the companies, along with the locations, fields of expertise, and roles of the companies for this research can be found below in Table 1. The names of the companies are anonymised for privacy reasons and the companies are named alphabetically.

Table 1: Companies conducted interviews.

Company	Location	Field	Role
A	The Netherlands	Education	Buyer
B	The Netherlands	Agriculture	Buyer
C	The Netherlands	Healthcare	Buyer
D	The Netherlands	Construction	Buyer
E	The Netherlands	Hardware	Supplier
F	The Netherlands	Security	Buyer
G	The Netherlands	Transport	Buyer
H	The Netherlands	High-tech	Buyer
I	The Netherlands	High-tech	Buyer
J	The Netherlands	High-tech	Supplier/Buyer
K	The Netherlands	Telecom	Supplier
L	The Netherlands	Plant design	Buyer
M	The Netherlands	Electric	Buyer
N	The Netherlands	Hardware	Buyer
O	Czech Republic	Automotive	Buyer
P	Finland	Construction	Buyer
Q	Finland	Automotive	Buyer
R	Finland	Transport	Buyer

3.2 Data collection methods

The selected research strategy explains how the research question is approached. As previously stated, deep academic

research relevant to buyer-supplier spillover, and relational safeguard is done. This section of the research is crucial because it establishes the foundation for the thesis. As a result, it provides a summary, description, and review of the existing scientific literature regarding the topic of buyer and supplier relational safeguards and knowledge spillover.

The qualitative method of data collection focuses on interviews. First, an interview questionnaire is developed with the collaboration of Thesis supervisors. The interview questions are constructed as semi-structured with open questions, the composition of the questions helps researchers to gain a deeper understanding and receive more detailed answers from the interviewees. All questions were written in English or Dutch, so all participants were able to fully understand. The answers were given in the open text, so there were no limitations on the answers. Nevertheless, if the participants were providing relevant data, the participants were asked to go more into the depth of the data. Unlike surveys or other research methods in which the space for answering the questions is limited to a certain extent, interviews offer a better opportunity to gain deeper insights.

In total 18 interviews were conducted at companies with managers responsible for the purchasing and supply chain management. There were no restrictions regarding location, language, or type of organisation, as long the companies had purchasing and supply chain departments. The size of the companies was varying from medium to big enterprises selling goods or services locally or globally. All the companies are selected randomly, and these companies are contacted by e-mail, phone call, or via personal network. The data collection was conducted either online or face to face, on the average duration of each interview was between 40 and 50 minutes and the total number of questions was 28 divided into 4 sections (Examples, Implications, Contracts, and Relational safeguards). The interview questions can be found in Appendix A.

3.3 Data analysis technique: coding transcripts using Atlas.ti

Atlas. ti is a qualitative data analysis program that researchers use to manage and analyse qualitative data. It aids in tasks such as coding, organising, and exploring data from sources such as interviews, surveys, and papers (Barry, 1998, p. 3). Atlas. ti allows systematic analysis and gives insights for qualitative research with capabilities for importing, coding, searching, visualisation, and reporting. The conducted interviews are first recorded and subsequently transcribed using a software called Amberscript and these transcripts are later manually edited for better accuracy. Interviews conducted in Dutch are later translated into English by using the computer program DeepL.

Atlas. ti is used to “code” the scripts of the conducted interviews to standardise the responses given by the participants. This process aims to enhance systematic access to the insights derived from the interviews. The interviews were coded with the following words: Capability, Flexibility, Dependency, Important, not important, Competitive advantage, Complement, Fast, Preferred customer, Length of the relationship, Relational management, Sharing information, Transparency, Type of transaction, NDA, and Trust. The Table 2. Below contains codes and clarification of the codes.

Table 2: Codes used in Atlas. ti

Codes	Clarification
Capability	Skills and capability of the supplier to deliver goods

Flexibility	Flexibility that relational safeguards offer.
Dependency	Buyer feels dependent on supplier
Important	Value of relational safeguards
Not important	No importance or value is attached to relational safeguards; relational safeguard does not complement.
Competitive advantage	Competitive advantage gained by implementing relational safeguards
Complement	Relational safeguards functioning as a complement to contractual safeguards
Fast	Speed of transaction caused by relational safeguards
Preferred Customer	Favourite suppliers chosen by buyers based on buyers' preferences.
Length of the relationship	Length relationship between buyer and supplier
Relational management	Managing and investing in relational safeguards
Sharing information	Buyer sharing information with suppliers
Transparency	Easily and openly sharing information between buyers and suppliers
Type of transaction	Buyers differentiating in commodities' importance
NDA	Non-disclosure Agreement, contractual safeguard to prevent spillover
Trust	The trust of the buyer in a supplier

The subdivided concepts of relational safeguard are specified and translated into measurable items by using a coding scheme as illustrated in Table 3. The table contains the theoretical construct, Explanation, and keywords scheme used to standardise the conducted interviews.

Table 3: Coding schemes and explanations

Theoretical construct	Explanation	Keywords
Spillover	Spillover refers to both positive and negative knowledge leakage	Important, Dependency, Competitive advantage, Transparency, Sharing information
Relational safeguard through mutual trust	Confidence In the partner's integrity and capability	Trust, Sharing information, Relational management, Preferred

		Customer, Flexibility
Operational similarity	Similar operations/technology between buyers and suppliers	Trust, Capability, Sharing information
Relational safeguard through social processes	Social norms such as flexibility, solidarity, and information sharing	Flexibility, sharing information, Fast
Relational safeguard as substitute or complement to contractual safeguard	The interplay between contractual and relational safeguards. Whether they substitute or complement each other.	Complement, Type of transaction, not important, NDA

4. RESULTS

In this chapter, the results of coded interviews will be discussed. Table 4 below shows the frequency of related keywords along with the relative percentages.

Table 4: Codes frequency and relative percentages.

Keywords	Frequency	Relative %
Capability	14	5.3
Competitive advantage	13	4.9
Complement	16	6.1
Dependency	18	6.8
Fast	9	3.4
Flexibility	17	6.4
Important	24	9.1
Length of the relationship	18	6.8
NDA	14	5.3
Not important	5	1.9
Partnership	14	5.3
Preferred Supplier	14	5.3
Relationship management	6	2.3
Sharing information	23	8.7
Transparency	6	2.3
Trust	31	11.7
Type of transaction	22	8.3
Totals	264	100

4.1.1 Information sharing and the effect of spillover

As stated earlier in the literature review, Organisations acquire knowledge from different sources and this knowledge serves as a valuable source to create substantial competitive advantage. This knowledge acquisition process involves tapping into various channels such as research, collaborations, market insights, and internal expertise (Ried et al., 2020, p. 281). This knowledge exchange in the supply chain can have both positive and negative effects on the organisations. If the knowledge is exchanged with the intended people, it is called positive knowledge spillover but when the knowledge is exchanged without the permission of the knowledge holder and outside the intended boundary, it is called negative knowledge spillover (Fallah & Ibrahim, 2004, p. 8).

The conducted interviews provide deeper insights into how buying firms experience knowledge transfer and knowledge spillover. The results support the theoretical findings that sharing information between buyers and suppliers is critical for creating successful collaboration. Companies agree that buyers and suppliers depend on each other's knowledge spillover. Sharing information between buyers and suppliers is crucial in new product development. Companies find trust one of the core elements in the exchange of knowledge between buyers and supplier, moreover technological similarity and operational similarity help acquiring and absorbing quality of knowledge (see Figure 1).

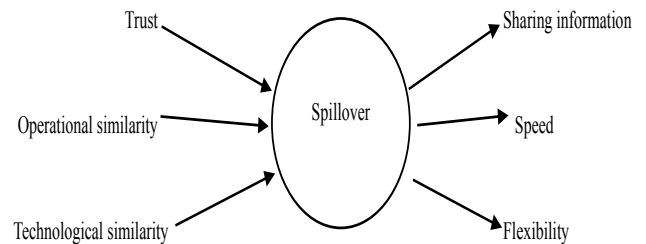


Figure 1: Spillover factors

The distribution of keyword are important 24(9.1%), dependency 18(6.8%), Competitive advantage 13(4.9%), Transparency 6(2.3%) and sharing information 23(8.7%).

Depending on the type of transactions, companies agree that sharing information allows buyers and suppliers to better understand each other's needs, capabilities, and expectations. Long-term relationships, partnerships, and preferred customers were seen as better options for buying firms instead of short time relationships. This would allow firms to align their aims and work toward mutually beneficial outcomes, and openly speak about product specifications, moreover, information exchange promotes effective decision-making, where buyers share their demands and their customers' needs with their suppliers, it allows them to make better decisions in finding and creating better products. Qualitative interviews show that buying companies see their suppliers as partners, suppliers can provide vital advice on product design, material, and technological improvements, moreover, information sharing between buyers and suppliers allows for proactive risk control. Buyers and suppliers can collaborate to identify and manage risks along the supply chain by exchanging data about potential disruption, market trends, and regulatory changes (Wang et al., 2023, pp. 2-4). This proactive strategy also reduces the possibility of delays, quality difficulties, and unexpected challenges, resulting in easier operations and more customer satisfaction (Parker & Brey, 2015, p. 1654). The covid-19 pandemic is an example given in the qualitative research, mutual understanding and information

sharing helped buying firms and suppliers bridge the raw material shortage during the worldwide pandemic.

The qualitative research did not show any negative experience of spillover between buyers and suppliers, but the purchasing, R&D, and supply chain management were aware of the negative effects of spillover. Companies were aware of negative consequences such as the risk of intellectual property leakage, trade secrets, and sharing property information, leading to unauthorised disclosure or misuse, potentially compromising the buying company's competitive advantage. Purchasing departments and managers believe that careful management and safeguards are necessary to mitigate these potential negative impacts of spillover. Non-Disclosure Agreement (NDA) with a monetary fine was the favourite and most effective safeguard for the companies (see Table 4). An NDA is a contractual safeguard that companies use to protect confidential information. It prevents disclosure without permission, protecting sensitive data (Witman, 2005).

4.1.2 Trust contribution and violation in relational safeguard

Companies involved in this research, show that companies put great importance on trust while collaborating with suppliers.

Trust in buyer and supplier relationship refers to the foundation for collaboration, they focus on purchasing's firm confidence in the supplier's integrity, credibility, and competence (Cao & Lumineau, 2015, p. 17). Trust can be divided into two types: integrity-based trust and competence-based trust (Eckerd et al., 2021, p. 49). And in this research trust refers to the belief and confidence of the buyer that the supplier will consistently act with honesty, ethics, and moral principles. It implies a shared understanding that both buyer and supplier will uphold their commitments, fulfil obligations, and conduct business in a fair and transparent manner. But also, that the buyer believes and is confident that the supplier possesses the necessary skills, expertise, and resources to deliver the expected outcomes and meet the specified requirements.

In most of the companies interviewed, buyer companies have a supplier selection phase, and depending on the type of the transactions, companies prefer long-term relationships with their suppliers rather than short-term relationships, this is true especially when it involves innovation. As in the literature, it is mentioned that a relationship's length is positively related to mutual trust between buyer and supplier (Cao & Lumineau, 2015, p. 21). A supply chain relationship length is associated with repeated interactions and repurchases between buyers and suppliers (Isaksson et al., 2016, p. 701). The results show that companies prefer to have partnerships with their suppliers and make their strategic purpose a common goal with their suppliers. The status of the preferred supplier and customer is given in such situations. Preferred customer refers to a buyer that suppliers prioritise, allocating superior resources and investment in the relationship due to its favourable status and competition among customers for supplier resources, and preferred supplier refers to a supplier that a buying company prioritises and considers highly valuable within their supplier organisation (Pulles et al., 2019, pp. 1-3).

There was one exception among the interviews, which did not employ long-term relationships and partnerships with its supplier. It involved standardised, low-value, small electronic parts procurement. This company buys these components from the supplier's webshop with no further interaction or collaboration.

Keywords used to extract information are the following:

Trust 31(11.7%), Sharing information 23(8.7%), Relational management 6(2.3%), Preferred supplier 14(5.3%) and Flexibility 17(6.4%).

4.1.3 Operational similarity

Scholars believe that operational and technological similarity makes knowledge spillover easier. Operational and technological similarity refers to shared processes, systems, and technology overlap between buyer and supplier firms (Isaksson et al., 2016, p. 701).

Companies interviewed for this research confirm the importance of norms and values similarities. They particularly highlight the importance of collaborating with suppliers in new product development. These companies emphasise the uniqueness of their products and the necessity of early involvement from suppliers. The engineers of these companies are involved with the procurement and supplier negotiations. The supplier's technological and operational similarities are important factors in the successful development of new projects. Key words to extract information are Dependency 18(6.4), Capability 14(5.3%) and sharing information 23(6.7%).

4.1.4 Relational safeguard as substitute or complement to contractual safeguards

In literature, some scholars believe relational safeguards can substitute contracts in managing buyer-supplier relationships, yet other scholars believe that relational safeguards can function as a complement to contractual safeguards (Poppo & Zenger, 2002, p. 708).

In this research, Companies find the type of transaction very important. The type of transaction means whether it involves low-value standard products such as bolt and nut or high-value unique products, and depending on the type of transaction, most of the conducted companies find relational safeguards and contractual safeguards complement each other. Only a small percentage (1.9%) found that relational safeguards are not important at all. Contractual and relational safeguards as a complement to each other, where contracts offer long-term commitment, penalty outlines and cooperative activities and relational safeguards lower the costs of the transaction, offer flexibility, fast decision-making, solidarity and mutual investments (see Figure 2).

Research shows that before sharing information and engaging in collaboration, companies first sign contracts. After contractual agreements and composing non-disclosure agreements (NDAs), companies engage in information engagement and collaboration. As the literature says Relational safeguards based on the principles of relational exchanges, refer to the extent to which actions in buyer-supplier relationships are socially managed and controlled. These norms typically include flexibility, information sharing, and solidarity (Eckerd et al., 2021). Companies agree that these socially regulated safeguards are essential for their companies, but they do not see relational safeguards as a full substitute for contractual safeguards.

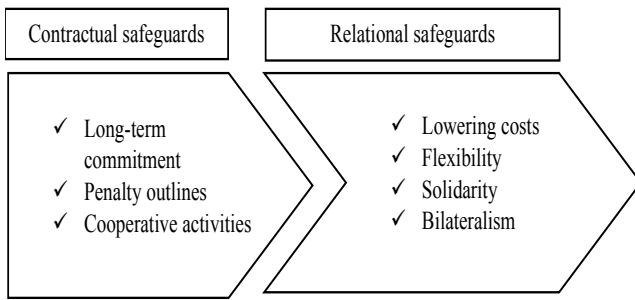


Figure 2. Relational and contractual safeguards with their attributes complement each other.

The following codes were used while coding the interviews to find out whether companies find relational safeguards as a substitute or complement to contractual safeguards: Type of transaction 22(8.3%), Complement 16(6.1), Not important 5(1.9%), NDA 14(5.3%).

5. DISCUSSION AND LIMITATION

5.1 Role of spillover in project success

The research question of this thesis explores the impact of spillovers on project success and examines the roles of relational safeguards in mitigating potential threats. Sub-question 1 is about the role of spillovers in project success in terms of knowledge transfer and sub-question 2 is about the roles and effectiveness of relational safeguards in mitigating the negative effects of spillovers on project success.

Spillovers, defined as the unintended and unauthorised transfer of knowledge (Fallah & Ibrahim, 2004, p. 8), have the potential to both enhance and jeopardise project success. The qualitative research conducted in this study delves into the experiences and perspectives of various stakeholders involved in projects to uncover the nuanced effects of spillovers. The findings reveal the crucial role of spillovers in project success, particularly in the areas of innovation and new project creation. Companies agree that the early involvement of suppliers in the product development process is not only desirable but also required. Collaboration with suppliers from the start enables for the successful integration of their valuable insights, knowledge, and resources into the project, resulting in enhanced outcomes. The dependency between buyers and suppliers becomes even more important in technology-driven sectors. Both sides realise their mutual reliance on information spillovers. Buyers recognize that, in addition to exploiting internal R&D and research resources, attaining a competitive advantage requires information exchange with their suppliers. This requires creating an environment of open information exchange, best practice sharing, and collaborative problem-solving. Moreover, purchasing companies recognize that successful innovation and new product creation necessitate a broader vision beyond their organisational limits. They understand that their supply chain partners possess valuable knowledge, market insights, and technology breakthroughs that can improve their innovation process. The companies interviewed agree that efficient knowledge exchange requires efficient communication channels, developing strong relationships and collaboration but not all companies had the desired infrastructure around the purchasing and supply chain departments. The findings answer sub-question 1 that knowledge spillovers have a great impact on project success.

Companies conducted for this research agree that spillovers can also have negative effects on project success, leaking the buyer's sensitive information can damage the buyer's reputation and damage its competitive advantage. To answer sub-question 2, the role and effectiveness of relational safeguards, effective management of relational safeguards becomes critical to mitigating such undesirable consequences. Buying companies can mitigate the negative effects of spillover by investing in strong relationships and developing social norms. The core element of relational safeguards is trust. Buying firms can protect themselves from supplier opportunism and forbidden disclosure of confidential information by establishing trust. Relational norms including flexibility, sharing information long-term commitments, and solidarity are important in fostering confidence and sustaining the buyer-supplier relationship. These norms promote quick decision-making, and inventive problem-solving, and offer competitive advantage, particularly in a highly competitive market context. In addition, nurturing relationships demands collaborative problem-solving and reciprocal commitments. Buying and supplier firms' mutual investments in the relationships and joint problem-solving strengthen the overall collaboration and provide safeguards.

To mitigate the risks associated with spillovers, the study investigates the roles of relational safeguards and contractual safeguards in project settings. According to some scholars, relational safeguards can function as a sole mechanism in a buyer-supplier relationship, and other scholars believe that relational and contractual safeguards are complement to each other (Poppo & Zenger, 2002, p. 708). In this study, the findings support only relational and contractual safeguards as a complement to each other. All companies interviewed use formal contracts as legal and enforceable mechanisms, and they use relational safeguards after legal documents are signed.

In summary, the findings of this study answer the research question that spillovers have a great impact on project success and can enhance project quality in collaboration with relational and contractual safeguards. The insights gained from this research contribute to a better understanding of the complex dynamics between spillovers, the role of relational safeguards in a project's success, and opportunism.

5.2 Limitations and future research

This research has also limitations, these findings are based on a limited number of interviews, 18 companies were interviewed for this research. Although the companies were selected randomly, and active in different fields of business, conducting a larger number of companies would provide a better understanding of this topic. Furthermore, most of the companies were in the Netherlands, 3 in Finland, and 1 in the Czech Republic (see Table 1). The effect of collaboration, opportunism, and consequences of spillover and opportunism may vary due to differences in cultural context among countries (Yan & Kull, 2015b, p. 405). Thus, the findings are limited to certain European countries.

For future research, it is recommended to use the findings of this research and conduct longitudinal studies to examine the long-term effects of relational safeguards and spillover on relationships. Moreover, research on the use of technology in relational safeguards can provide solutions against negative spillover and opportunism.

6. CONCLUSION

In conclusion, this research provides a comprehensive examination of key factors influencing buyer-supplier relationships, with a specific focus on spillover and relational safeguards. Through the analysis of qualitative interviews, valuable insights have been gained, shedding light on the

significance of factors such as, trust, relational norms, relationship-specific investments, and operational and technological similarities.

The findings highlight the critical role of information sharing in fostering successful buyer-supplier relationships. Sharing relevant and timely information enables a better understanding of each other's needs, capabilities, and expectations, leading to improved decision-making and the creation of superior products. Furthermore, information sharing facilitates proactive risk control, allowing both parties to identify and address potential disruptions, market trends, and regulatory changes.

Companies in this research were aware of the potential risks involved in spillover. Departments such as purchasing, R&D, and supply chain management are aware of the detrimental consequences, including intellectual property leakages and compromise of competitive advantage. Consequently, careful management and safeguards, such as Non-Disclosure Agreements (NDAs) with monetary fines, are recognised as an effective measure to mitigate such risks.

Trust emerges as a fundamental element in buyer-supplier relationships, serving as the foundation for collaboration. Integrity-based trust and competence-based trust are identified as two key dimensions. Long-term relationship fosters mutual trust, as repeated interactions and repurchases build confidence in each other's integrity and competence. Sharing information and transparency further strengthen trust, ensuring the fulfilment of commitments and ethical business practices. The preferred customer status also plays a role in trust-building, as suppliers allocate superior resources to buyers with favourable standing.

Relational safeguards based on social processes and social norms, including flexibility, information sharing, and solidarity, are vital in managing buyer-supplier relationships. These safeguards contribute to smoother operations, enhanced transactions, and increased flexibility. By promoting open communication and cooperation, relational safeguards create a collaborative environment, leading to mutually beneficial outcomes.

Regarding the relationship between relational safeguards and contractual safeguards, most of the interviewed companies perceive them as complementary rather than substitute. Depending on the type of transaction, relational safeguards are seen as a valuable addition to contractual agreements, providing an extra layer of support and flexibility.

Overall, this thesis research contributes valuable insights to organisations seeking to establish and maintain effective buyer-supplier relationships. The significance of information sharing, trust, operational similarity, and relational safeguards in driving successful collaborations, increased productivity, and proactive risk management cannot be understated. By understanding and leveraging these factors, organisations can navigate the complexities of the supply chain landscape and strive towards mutually beneficial outcomes. However, this research acknowledges limitations such as a limited number of interviews conducted with companies (18) most of them in the Netherlands, 3 in Finland, and 1 in the Czech Republic. To gain a better understanding, future research is recommended to include larger sample size and include cultural differences that impact knowledge spillover and relational safeguards within the business context. Conducting longitudinal studies would also allow for an examination of the long-term effects of relational safeguards and spillover on relationships between buyers and suppliers. Furthermore, exploring the potential use of technology

in implementing relational safeguards could provide effective solutions to mitigate negative spillover and opportunism.

7. ACKNOWLEDGMENTS

As a concluding statement, I would like to express my gratitude to those individuals who played a role in assisting me with the successful completion of this thesis. I want to thank Prof. Dr. Holger Schiele and Matthias Holtrup for their guidance and shared knowledge during this research process. I also want to express my thanks to all individuals who participated in the interviews, without them this qualitative research would not have been possible.

8. APPENDIX A

8.1 Conducted semi-structured interview.

Dear participant,

Thank you very much for being my interview partner as part of my qualitative data collection for my bachelor thesis at the University of Twente.

To have the chance to recap everything that was exchanged during this interview, I would like to audio record this interview.

Therefore, I would like you to read this document (Informed consent for interviews), mark the fields and sign it.

Afterwards we can do the interview.

If you feel uncomfortable at any point of time during the interview or like to withdraw, there is always the chance to do it. You should know that everything you do is 100% independent and voluntary.

All personal and company data will be anonymized before the publishing process.

Introduction and script for the interviews:

We are interested in buyer-supplier knowledge exchange and how this exchange affects the relationship. Therefore, we would like to know more about how your company exchanges information with your suppliers and how this affects the relationship between your company and your suppliers.

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:

I am highly interested in the topic of buyer-supplier knowledge exchange:

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:

Thank you for these examples, now I would like to know something more about the implications out of these examples.

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:

Now, I would like to talk about contracts between your company and your suppliers.

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:

I would like to focus now on relational connection between your company and your suppliers.

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*)

Trust, social safeguards (flexibility, environment, informal contact)

So, thank you very much for taking the time and doing this very interesting interview with me. In fact, we are doing around twenty of these interviews for my Bachelor thesis.

If you wish, I can later present to you the outcomes of my study as soon as my thesis is defended at the UT.

Would it be possible to recap some questions at a later point of time – there might be some misunderstandings on my side during the transcription of our interview and I might need your further explanation.

Once again thank you very much.

8.2 List of companies with its turnover and number of employees

Table 5: Companies conducted interviews

Company	Turnover M ¹ B ²	Employees
A	€31M	14000
B	€120M	750
C	€360M	5448
D	€47M	150
E	€30M	15
F	€7.5M-10M	15-20
G	€55M	150
H	€5B	1340
I	€30M	85
J	€5M-10M	50
K	€100M-150M	12000
K	€110M-150M	320
M	€18M-25M	850
N	€300M-500M	850
O	€7M	13000
P	€27M	460
Q	€2.8B	4000
R	€800M-900M	6000

¹ M=Million

² B=Billion

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