Industrial Marketing Management 55 (2016) 22–34

Contents lists available at ScienceDirect

Industrial Marketing Management

The emergence of dependence and lock-in effects in buyer–supplier relationships — A buyer perspective

Tobias Schmitz [a,*], Bastian Schweiger [a], Jost Daft [b]

[a] Dept. of Business Policy & Logistics, University of Cologne, Albertus Magnus Platz, 50923, Germany
[b] Deutsche Lufthansa AG, Airport-Ring, 60546 Frankfurt, Germany

ARTICLE INFO

Article history:
Received 14 December 2014
Received in revised form 31 October 2015
Accepted 21 January 2016
Available online 11 March 2016

Keywords:
Buyer dependence
Lock-in
Buyer–supplier relationships
Logistics outsourcing
Grounded theory

ABSTRACT

The industrial marketing literature frequently points to dependence in buyer–supplier relationships (BSRs) as an essential construct in understanding the development of strong, long-lasting partnerships. Although the antecedents of dependence have been discussed, extant research lacks an understanding of the explanatory mechanisms of how dependence – or even lock-in situations – actually evolve. In this article, we examine the emergence of these aspects in BSRs by analyzing the example of a logistics outsourcing relationship. Using a grounded theory approach in a real-life case involving a German mechanical engineering company and its service provider, we identify four interrelated mechanisms (convincing, tying, complementing and lock-in) that explain dependence and lock-in from a buyer's perspective. Based on our empirical findings, we develop a conceptual model that points to the theoretical importance of the interconnected influences and sub-processes between transactional, mental, and operative bonding effects. Our results inform managerial practice on how to plan and manage BSRs. The model enhances existing research on dependence in BSRs and can serve as a starting point for further investigations into buyer–supplier dependence (BSD) and lock-in in dyadic business relationships.

1. Introduction

The research on buyer–supplier relationships (BSRs) emphasizes distinct relational characteristics as crucial for successful cooperation. Commitment, trust, intense inter-firm exchanges, relational investments, or partner and resource compatibility are found to foster positive relational outcomes (Morgan & Hunt, 1994), such as mutual long-term planning or increased operational efficiency. Interestingly, these characteristics are simultaneously found to constitute negative relational outcomes, in particular the dependence of one party on the other (Bendapudi & Berry, 1997; Fang, Chang, & Peng, 2011). Although these relational characteristics seem to result in two different sides of the same coin, research has predominantly focused on one side; namely, the positive impact of relational characteristics on relational performance. To close this gap, Slone, Dittmann, and Mentzer (2010) and Stank, Dittmann, and Autry (2011) called for investigations of negative impacts of being too close to partner firms. This is especially necessary in the course of long-term partnerships, which are particularly prone to the dark sides of BSRs (Grayson & Ambler, 1999). Among the effects that cause negative relational outcomes, dependence or even lock-ins are considered to be particularly crucial elements in BSRs (Zhou, Zhuang, & Yip, 2007).

In the buyer–supplier literature, scholars have found and discussed sources that lead to dependence or even lock-in situations (Arthur, 1989), such as relational bonding (Hammervoll, 2005), resource integration (Håkansson & Snehota, 1995), and relational investments (Bendapudi & Berry, 1997) that lead to high switching costs (Geiger et al., 2012). Although research has elaborated on the sources of dependence, current knowledge on the topic seems to be rather isolated and scattered, as studies have predominantly centered around single influences and effects of dependence, while the interplay between these effects has remained largely unexplored so far. Moreover, empirical evidence and explanations of these influences is still limited (Caniëls & Gelderman, 2007; Geiger et al., 2012; Hammervoll, 2009). More specifically, the underlying mechanisms that lead to dependence in BSRs remain unclear.

Therefore, the purpose of this study is to identify and explain the mechanisms leading to dependence and lock-in in BSRs based on the empirical observation of a real-life case. The study aims to provide an understanding of the underlying mechanisms and their interrelations in order to shed light on the specific process of dependence-emergence from a buyer's perspective. Considering the buyer's perspective is particularly worthwhile, as dependence on the supplier resembles an undesirable outcome that needs to be understood in detail to recommend appropriate prevention measures. In order to address our research

* Corresponding author.
E-mail addresses: tobias.schmitz@wiso.uni-koeln.de (T. Schmitz), schweiger@wiso.uni-koeln.de (B. Schweiger), jost.daft@dlh.de (J. Daft).

http://dx.doi.org/10.1016/j.indmarman.2016.02.010
0019-8501/

objective, we apply a grounded theory approach by investigating the case of a long-term relationship between a German mechanical engineering company, which we call GMEC and its major logistics service provider, which we call Machine Logistics Inc. (M-Log) in the following. Within this research setting, we follow the recommendations of industrial marketing scholars, who promote the grounded theory methodology to explore underlying motivations, behaviors, and decision-making in situations with complex inter-personal interactions, as is the case in BSRs (Gummesson, 2003; Thomas, Esper, & Stank, 2011; Wagner, Lukassen, & Mahlendorf, 2010).

Our study contributes to the existing literature on BSRs by investigating the issue of dependence and lock-in in an empirical setting. By conducting an in-depth case analysis, our model reveals four distinct theoretical dimensions (convincing, tying, complementing, and lock-in) that constitute a buyer's dependence on its supplier. The study is novel in that we develop an explanatory model to expand understanding of the mechanisms that lead to dependence and lock-in in BSRs. We conclude by providing starting points for future research.

The paper is structured as follows: we begin by introducing BSRs and the dependence issue as discussed in the recent literature, before depicting our empirical setting and methodological approach. Subsequently, we present our findings of four theoretical dimensions and their sub-categories, which constitute our conceptual model on the emergence of dependence and lock-in in BSRs. We conclude with implications for theory and practice that can serve as starting points for further investigations into partner dependence and lock-in in dyadic business relationships.

2. Dependence and lock-in in buyer–supplier relationships

In response to demanding markets, as well as increasing product and service complexity, firms collaborate with external parties as value-adding entities to make use of their specialized capabilities and resources for non-core activities. Thus, the buying company is able to utilize its own competencies and resources for core activities. Researchers have observed that single assignments between a buyer and supplier can evolve into intense relationships over time (Dwyer, Schurr, & Oh, 1987; Schurr, 2007; Wilson, 1995). Extant literature has investigated outsourcing partnerships, service relationships, or procurement and customer partnerships as frequently observed forms of such intense relationships. A central construct in explaining why cooperation between a buyer and a supplier can develop into an intense and enduring exchange is the emergence of dependence. Emerson (1962) defined dependence as the need to rely on a partner's contribution in pursuing one's own goals. More specifically, dependence is present if the outcomes of a specific relationship to a partner are superior to the outcomes of potential alternative relationships (Anderson & Narus, 1990). This understanding of dependence is predominantly explained and supported by two theoretical lines of thought. First, the transaction cost approach argues that increased switching costs create bonding effects between partners (Rindfleisch & Heide, 1997). In line with this, Geiger et al. (2012) pointed to dedicated assets achieving their value only in a distinct BSR that requires relation-specific investments, such as dedicated knowledge or assets, which further increase the firm's switching costs towards leaving the partner, ultimately resulting in dependence situations (see also: Bendapudi & Berry, 1997). Second, resource-dependence theory (RDT) points to firms' need to rely on external resources in order to handle uncertain environments (Pfeffer & Salancik, 2003). In Hillman, Withers, and Collins's (2009) review on RDT, the authors explained that power relations emerging from resource exchanges create dependencies from the weaker party. Based on these lines of thought, scholars in the BSR domain have studied sources, forms, and effects of dependence.

The sources that lead to dependencies have attracted particular attention from scholars in the past. Their findings can be grouped into relational sources, partner-inherent sources, and market-related sources of dependence. Relational sources encompass reasons that underlie the partnership between buyers and suppliers. For instance, a closely integrated relationship is likely to become dependent because of the partners' mutual adaptation, close exchange relationship, or joint investments (Casciaro & Piskorski, 2005; Corsten & Felde, 2005; Laaksonen, Pajunen, & Kulmala, 2008). Partner-inherent dependence sources encompass specific capabilities, or knowledge, as well as access to tangible and intangible resources that are linked to the specific partner (Cannon & Perreault, 1999; Laaksonen et al., 2008; Lonsdale, 2001). This category of dependence sources is closely linked to the arguments of Pfeffer and Salancik (2003), as described in their understanding of RDT. A third category of sources lies within the introduced definitions of dependence. Market-related sources of dependence describe the lack of alternative options or sources on the market to replace the incumbent buyer or supplier (Ganesan, 1994; Handley & Benton, 2012; Harrison, Beatty, Reynolds, & Noble, 2012).

Besides these sources, scholars have conceptualized different forms and intensities of dependence. Buchanan (1992) distinguished between asymmetric dependence, where either the supplier or the buyer is dependent on its partner, and symmetric dependence, where both are equally dependent on each other. These forms of dependence vary in their intensity from slightly dependent relationships to heavily dependent lock-in situations (Narasimhan, Nair, Griffith, Arlbjørn, & Bendoly, 2009). Although, the term “lock-in situation” is used in parallel to the term “dependence” (e.g., Cox, Lonsdale, Watson, & Qiao, 2003; Lonsdale, 2001; Narasimhan et al., 2009; Harrison et al., 2012), but in fact it describes the heaviest degree of dependence, in which a partner has no alternative than to maintain the currently employed relationship (Harrison et al., 2012).

It is evident that the specific forms and the intensity of dependence and lock-in affect the relationship between the partners. Barnes, Naudé, and Michell (2005) referred to the increase in information exchange, while others emphasized mutual adaptations (Heide & John, 1990) or higher relational satisfaction (Andaleeb, 1996), as well as increased relational performance (Buchanan, 1992) as positive influences of dependence on BSRs. On the other hand, the loss of strategic flexibility, as well as the shifting of power and its connection with the risks of opportunism (Cox et al., 2003; Harrison et al., 2012) entail negative connotations.

In general, the power construct is inseparably connected to the dependence construct (Caniëls & Gelderman, 2007; Handley & Benton, 2012). In his seminal contribution Emerson (1962) describes dependence and power as the opposite of one another, i.e. if company A is dependent on company B, B has power over A. Power is also described as the ability to influence an actor's behavior to such an extent, that the actor behaves differently than initially intended (Cox, Ireland, Lonsdale, Sanderson, & Watson, 2002). Scholars distinguish between structural power on the one hand and behavioral power on the other hand: Structural power refers to the mere power of an actor based on resource control and possession, whereas behavioral power is understood as the opportunity to influence opponent's decision making outcomes (Caniëls & Roeleveld, 2009). Both kinds can be exerted in a mediated and competitive way or in a non-mediated, relational way by the powerful party in managing the BSR (Handley & Benton, 2012). Not surprisingly, the sources and forms of dependence and power are comparable. Cox et al.'s (2002) work on power sources comes to similar factors as the above described examinations on dependence sources. Relation specific investments, for instance, are discussed as a source for both (Cox et al., 2002; Ganesan, 1994), showing the close linkage of the two concepts in BSRs research. However, comparing the descriptions of power and dependence it becomes clear, that power emphasizes a firm's resource control (Pfeffer & Salancik, 2003) as well as its behavioral influence over a partner firm (Caniëls & Roeleveld, 2009; Kumar, 2005), whereas relational dependence focuses on a partner's importance to achieve desired goals in a specific relationship that is superior to any alternative option (Buchanan, 1992; Emerson, 1962). Hence, especially the notion of behavioral power used in a competitive and

mediated way equips the power concept with a slightly different notion. This is fostered by contributions relating power predominantly with negative relational outcomes, such as opportunistic behavior (Provan & Skinner 1989), vulnerability (Geyskens, Steenkamp, Scheer, & Kumar, 1996), or conflict (Zhou et al., 2007).

It is this linkage and notion of power-dependence relations which may cause scholars to link dependence to what are frequently called the "dark sides" of BSRs, which need to be handled and addressed appropriately (Mitrega & Zolkiewski, 2012). Dark sides of BSRs are considered to impede value creation by establishing negative relational characteristics, such as relational inertia (Villena, Revilla, & Choi, 2011). Therefore, it is essential to understand how dark sides, such as BSD, emerge. Research has shown that no single factor leads to dependence and lock-in in isolation; instead, studies have usually reported on a broader set of factors that influence the emergence of these phenomena (Barnes et al., 2005; Håkansson & Snehota, 1995). Nevertheless, investigations appear isolated and only loosely connected, as they predominantly focus on specific causes of dependence or enumerate reasons for dependence (Hammervoll, 2005), without elaborating on the interrelation mechanisms that combine and interact with these single dependence sources. Hence, it is important for scholars and practitioners to uncover the underlying interrelations, processes, and dynamics among these factors to avoid unconsciously drifting into a dependence situation. Thus, this study aims to shed further light on to this issue.

3. Empirical setting and methodology

3.1. Approach and case selection

We employed a single-case-study design to uncover the less-examined phenomenon of how dependence and lock-in situations appear in BSRs. Case studies are a suitable approach to answer "how questions" of an unexplored research problem, since they enable data collection from different sources to build a rich empirical description of the topic under investigation (Yin, 2009; Eisenhardt & Graebner, 2007). We examine the relationship between GMEC and its logistics service provider M-Log, which we chose for various reasons. First, the case of a close logistics relationship is highly suitable for investigating the issue of dependence and lock-in, due to its multi-faceted and integrated nature on both strategic, as well as operative, inter-organizational levels (Marasco, 2008; Mentzer et al., 2001; Skjoett-Larsen, 2000). Complex logistics outsourcing relationships take place on strategic, administrative, and operative levels in an integrative manner, thus affecting both partners in substantial parts of their business. Second, within this specific logistics outsourcing context, our case appears to be unique due to the long-lasting relationship between GMEC and M-Log (high above-average duration in the industry), as well as the mutual development of their relationship over time. Both long-lasting relationship and mutual development are considered to be drivers of interfirm dependence (e.g., Baraldi, Proença, Proença, & de Castro, 2014; Bonner & Calantone, 2005). The outsourcing relationship between GMEC and M-Log has been established for more than 20 years. During this time period, the collaboration has frequently intensified and expanded in different business areas. Finally, our case was chosen due to the formalized nature of the firms' contractual partnership. Extant research has described the presence of relational contracts as a means for handling the existence of interfirm dependence (Provan & Gassenheimer, 1994), indicating that our case is well suited for investigating our research question. In sum, the relationship between GMEC and M-Log represents a unique case of a buyer's dependence on its supplier. Unique cases are appropriate to examine underexamined research areas and elaborate well-grounded theoretical insights by studying dynamics that cannot be explored using other research designs (Eisenhardt & Graebner, 2007; Eisenhardt, 1989; Yin, 2009).

3.2. Case context

Since 1992, the logistics outsourcing relationship between GMEC and M-Log has advanced constantly in terms of the scope and complexity of the service package, as well as the infrastructural investments. GMEC operates globally, with roughly 3000 employees in its German factories. M-Log bundles diverse logistics services for GMEC, such as operating their warehouse for parts and finished goods, serving the main production plant on a just-in-time basis with raw materials, providing all on-site logistics flows, assembling buyer-specific products, organizing the entirety of outbound shipments to international customers, as well as operating a packaging production facility on GMEC's site. All of these services are individually adapted to the needs of the buyer. The relationship itself is based on long-term contracts (usually seven years in duration). The underlying contract specifies the details of this cooperation, such as the scope of services, its duration, agreed performance levels and contractual penalties. A core of five key employees from GMEC and two from M-Log are in constant and close communication, while additional employees are involved in regular collaborative activities, such as project teams and every-day tasks. In addition, weekly operational and strategic meetings with key employees cover current issues, problems, and future tasks and projects, and serve as the basis for discussion. Decision-making is located either within the project teams or at the respective middle-management level in the case of daily and project issues, while contract or commercial negotiations are located at the top-management level, with involvement from selected mid-level managers.

3.3. Data collection

During a collaborative project with GMEC, the authors encountered the presented case setting at the intersection of both companies. The interest and support of key employees of both companies made it possible to collect a rich set of data from three sources: observations, interviews and documents. The data-collection process lasted 10 months, from April 2012 to January 2013. Table 1 represents our preliminary observations of the case and the associated data sources and timeline.

3.3.1. Observations

Our data collection started with participant observation. Between April and August 2012, one of the authors was able to participate in and contribute to the collaboration at the GMEC site. He was working in a joint project team of six employees (three employees from GMEC and three from M-Log) that collaborated on the optimization of a production-related service. He supported the team as an assistant, conducting the analysis of daily operations, monitoring the workflow, and preparing meetings. Participation in project meetings provided deep insights into the relationship and contact between employees, the extant power relations, inter-personal interactions, the financing of investment, and the informal behavior of staff. This involvement made it possible to collect substantial data on the relationship documented in protocols and notes during and after each project meeting. Additionally, the author wrote memos about events, conversations, and informal meetings.

3.3.2. Semi-structured Interviews

The second data source stems from 12 semi-structured interviews conducted between November 2012 and January 2013 with key employees of the relationship (Appendix A). Three interviews were conducted with M-Log managers and nine with GMEC employees (the imbalanced number is proportional to the total number of responsible employees from each side). A total of four M-Log employees and seven GMEC employees are responsible for managing the relationship in different organizational functions. We interviewed three of the four key employees from M-Log and five out of the seven GMEC managers. In addition, four interviews were conducted with two first-level

Table 1
Preliminary observations and data sources.

Preliminary observation	Data source (as entered into the model)	Time
Organizational setting	Participant observation Informal conversations Interviews G1, G2, G7, G9, M2	04–06/2012; 11/2012–01/2013
– Recognition of the relationship's core elements and scope – Identification of relevant and decisive actors in relationship's strategic planning and everyday collaboration		
Formal setting		
– Understanding the contract and its scope		
Documented history	Desk research Informal conversations Participant observation Interviews G2, G5, G6, G8, M1	06–08/2012; 10/2012; 11/2012; 01/2013
– Relationship development since its establishment, with special consideration for service scope and expansion, and mutual project history		
Tacit/reported history		
– Development of interfirm collaboration and relationships between employees – Understanding everyday working basis on operational and strategic levels		
Company integration	Interviews G1, G2, G6, G7, G8, G9, M1 Participant observation	04/2012–01/2013
– Analysis of contractual interfirm integration – Comprehend financial interrelations – Understanding mutual operative processes/IT/team integration		
Partnership evaluation	Interviews (all) Participant observation Informal conversations	05/2012–01/2013
– Understanding of buyer's satisfaction and related supplier's perception – Comprehend cooperative functionality – Questioning tacit personal assessments		
Relational outlook	Interviews G2, G3, G5, M2, M3, G7, G9 Desk research	05 & 08/2012; 11/2012–01/2013
– Capabilities to reintegrate services as to required knowledge, resources, and financial power – Planned adaptations of the relationship regarding service extensions, reductions, or shifts – Pondering on development of the contract – Understanding market for alternatives		

managers, an assistant, and one IT specialist from GMEC, respectively. We ended the interview phase when we perceived that statements of our informants became repetitive and additional interviews would not provide new evidence. At this stage theoretical saturation was reached (Glaser & Strauss, 1967; Strauss & Corbin, 1998). On average, the interviews lasted 60 min. All the interviews were guided by a semi-structured questionnaire that served as a checklist throughout the conversations (Appendix B). Prior to the interviews, each participant was asked to give his or her approval for the interview to be audio recorded; ten agreed and two declined. All the interviews and author notes were transcribed verbatim. Our interview language was German; thus, all quotes that appear in the subsequent section were professionally translated into English. During the interviews, each participant was asked a similar set of questions, although requests were made for further information on interesting points that emerged during the conversation, or minor adaptations to reflect the person's position and responsibilities (Bernard & Ryan, 2010; Pratt et al., 2006). Moreover, the interview guidelines were adapted in order to fill gaps in the data that could not be clarified in detail beforehand.

3.3.3. Internal and external data sources

As a third data source, internal and external documents were collected. Internal protocols, meetings minutes, and presentations were added to the dataset. Furthermore, desk research was conducted using German media databases on the relationship between GMEC and M-Log. The search yielded a total of 23 articles and press announcements on the relationship and its progress between 1992 and 2013, delivering rich information on critical milestones, developments, and statements.

3.4. Data analysis

The issue of the lack of a theoretical grounding of unexplored phenomena is well known in industrial marketing research. To develop new theories in business-to-business and industrial marketing, scholars have recommended the grounded theory methodology (Gummesson, 2003; Wagner et al., 2010), since it allows for the discovery of understudied phenomena (Glaser & Strauss, 1967), as is the case for dependence and lock-ins in BSRs. The grounded theory methodology comprises "systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories from the data themselves" (Charmaz, 2014, p. 1). It is especially appropriate for gaining an in-depth understanding of processes in which interpersonal interaction and behaviors or interpretations of individuals play a key role (Strauss, 1987; Suddaby, 2006; Wagner et al., 2010), as is again the case in our study. The grounded theory approach enabled us to uncover the complex mechanisms leading to dependence and lock-in in BSRs, and thereby enrich the limited theoretical knowledge on this topic. To develop a conceptual model that explains these mechanisms we followed the techniques of constant comparison and theoretical sampling (Glaser & Strauss, 1967; Suddaby, 2006). We constantly collected, compared, and analyzed the data, where our data selection was guided by the emerging theory rather than by a predefined sample size or a determined sequence of data collection. Triangulation of the different data sources ensured the validity of our findings (Eisenhardt, 1989; Huberman & Miles, 1994). The collected data were assigned to the Atlas.ti software, which was used as an analysis tool throughout the entire research process.

The data-analysis process itself was oriented towards Pratt et al. (2006) and Pratt's (2008) three-step grounded theoretical approach, while memos on emerging ideas and data comprehension supported the coding process as an intermediate step (Charmaz, 2014; Pratt, 2008; Pratt et al., 2006). With our approach, we acknowledge the call of Wagner et al. (2010) to apply coding procedures in industrial marketing research: "Without the coding procedures, industrial marketing case studies might never move beyond the point of thick description and researchers might fail to develop any new theory" (Wagner et al., 2010, p. 7).

3.4.1. Step 1

In the initial phase, the different data sources were coded line by line (Bernard & Ryan, 2010; Charmaz, 2014; Pratt, 2008; Pratt et al., 2006). Recurring expressions were coded either by summarizing terms or assigning the intention of a statement as open codes. Concise expressions

and statements of the interview partners in everyday language, so-called "in vivo codes", were used to incorporate the specific language of this working environment (Charmaz, 2014). In summary, 619 first-order codes were assigned after the initial coding. However, there were several redundancies or synonyms that were able to be merged, while other codes that did not contribute to the research topic were abandoned, such as "participant's prior employer", or "product description" (Charmaz, 2014; Pratt et al., 2006); this led to a final total of 471 first-order codes after the first step of the data analysis. The remaining codes were then grouped into provisional codes (Pratt et al., 2006). Codes that did not fit well with the actual data were reconsidered and adapted accordingly (Souitaris, Stefania, & Liu, 2012). An iterative process of cross-checking the emerging first-order codes with the data sources ensured that they fitted the data in a constant comparative method (Glaser & Strauss, 1967; Pratt et al., 2006; Charmaz, 2014). At the end of the first step, 35 first-order codes formed the basis for further analysis.

3.4.2. Step 2

In the second step, we consolidated the first-order codes into second-order categories (Bernard & Ryan, 2010; Pratt, 2008; Pratt et al., 2006) by grouping them into more abstract theoretical categories according to their fit within a thematic frame. For example, first-order codes that referred to factors that prevent the exit of the buyer from the relationship, the entry of a new supplier to replace the incumbent, or similar statements, were consolidated in the second-order category entitled *Barriers*. Due to the clustering of first-order codes, the data analysis entered the axial coding phase, in which the analysis went beyond the case study and the actual data, with the aim of developing the theory at a higher level of abstraction (Glaser & Strauss, 1967). This second step in the analysis process revealed 12 second-order categories. Again, the data sources were reviewed after this second step in order to examine the fit between the theoretical categories and the dataset (Glaser & Strauss, 1967).

3.4.3. Step 3

In the third step, the second-order categories were further aggregated into theoretical dimensions (Pratt, 2009; Pratt et al., 2006). Underlying relationships and connections between the categories were discovered and the categories were sorted accordingly (Pratt, 2008). First impressions of the developing structure were discussed and revised among the authors; individual adaptations were undertaken iteratively until a coherent framework emerged. While this framework-building process was detached from the actual data on a higher theoretical and abstract level, the aggregated theoretical dimensions and the authors' understanding of these dimensions' interrelationships were then reviewed again after this final step in front of the data sources to examine the framework's suitability in relation to the collected sources (Glaser & Strauss, 1967). To ensure plausibility of the interpretation, and to ensure the study's accuracy, the data structure was presented and discussed with professors and doctoral students of the department, as well as with other research groups.

4. Findings

Our data analysis revealed four theoretical dimensions, each consisting of different categories that contributed to explaining the emergence of dependence and lock-in situations relating to our case. Fig. 1 depicts the resulting data structure along the three-step analysis.

4.1. Convincing

The first dimension, *Convincing*, depicts the basic step in becoming dependent on a supplier. In essence, *Convincing* describes the fit between the buyer's expectations (*Demanded price/performance ratio* (*PPR*)) and the *Supplier's performance*, while taking further *Affirmations* into account to persuade the buyer of the ongoing cooperation.

First, the *Demanded PPR* combines two important aspects when it comes to the long-term outsourcing of logistical services. It expresses the expectations of a buyer as a ratio between price and performance. According to our data, a supplier must be quality-, but also cost-oriented. As such, cost orientation seems to be a dominating decision criterion in determining whether a supplier should be employed, while simultaneously the accuracy and reliability of logistical services are equally crucial.

> "Someone enters with a dumping price somewhere and goes bankrupt. […] It is a fact that one cannot show everything via the price, but one has to look, of course, at whether something works out and how this can be verified."
>
> [G4 (2012)]

More specifically, our data expresses quality as being even more valued than cost orientation. In line with this, the expression "low-cost avoidance" in our first-order themes describes the opinion of GMEC's key employees that "low cost means low performance" in BSRs.

Second, *Supplier's performance* describes the observed and measured quality level of a supplier in meeting its buyers' demands. Besides the quality level, our data also describes the supplier's capability to flexibly adapt operations and processes towards changing buyer requirements as an important part of performance. Connected to this, the buyer's perception of the overall logistical competence of its supplier, as well as its ability to solve unexpected problems and disturbances, are subsumed under this category.

> "What counts for us is that M-Log can provide a high-quality service and adapt with the utmost flexibility to our requirements, which are constantly changing as a result of our broad product range […]."
>
> [GMEC Press (2011)]

The third category describes *Affirmations*, which provide additional value and a positive recognition of the service relationship from the buyer's perspective. *Affirmations* confirm the selected supplier as the right choice, giving a feeling of "doing the right thing" in maintaining the established partnership. Among others, this evaluation results from proactive behavior in handling and improving individual services, as well as from positive external feedback, such as from the buyer's customers, on the ongoing relationship.

> "Also, one can maybe say 'intrinsically motivated', so to look on one's own at what can be done better, by means of their [M-Log's] own systems and such. So it is not only the case that the buyer says you have to look at that, or do a *kaizen* workshop there, or do this better, but that one works pro-actively on certain topics."
>
> [G9 (2013)]

4.2. Tying

As a second theoretical dimension, we identified *Tying* in the data, which refers to the creation of mental bonds with the partnership on the buyer side. Our interview data shows that mental bonds are especially observable by the buyer's employees at the operational level, who reacted particularly reluctant to the hypothetical consideration of changing suppliers.

Thereby, *Joint history and enduring relation* describes the past and current collaboration that has been imprinted onto these employees' minds. Moreover, common progress that has been made during different projects in the past further strengthens the buyer's perception of the current cooperation. In addition, planned upcoming activities or projects contribute to forming a joint future orientation, which brings the ongoing partnership into line.

> "[…] we will have […] a regular strategic meeting at the management level with M-Log starting next year. We do not only want to

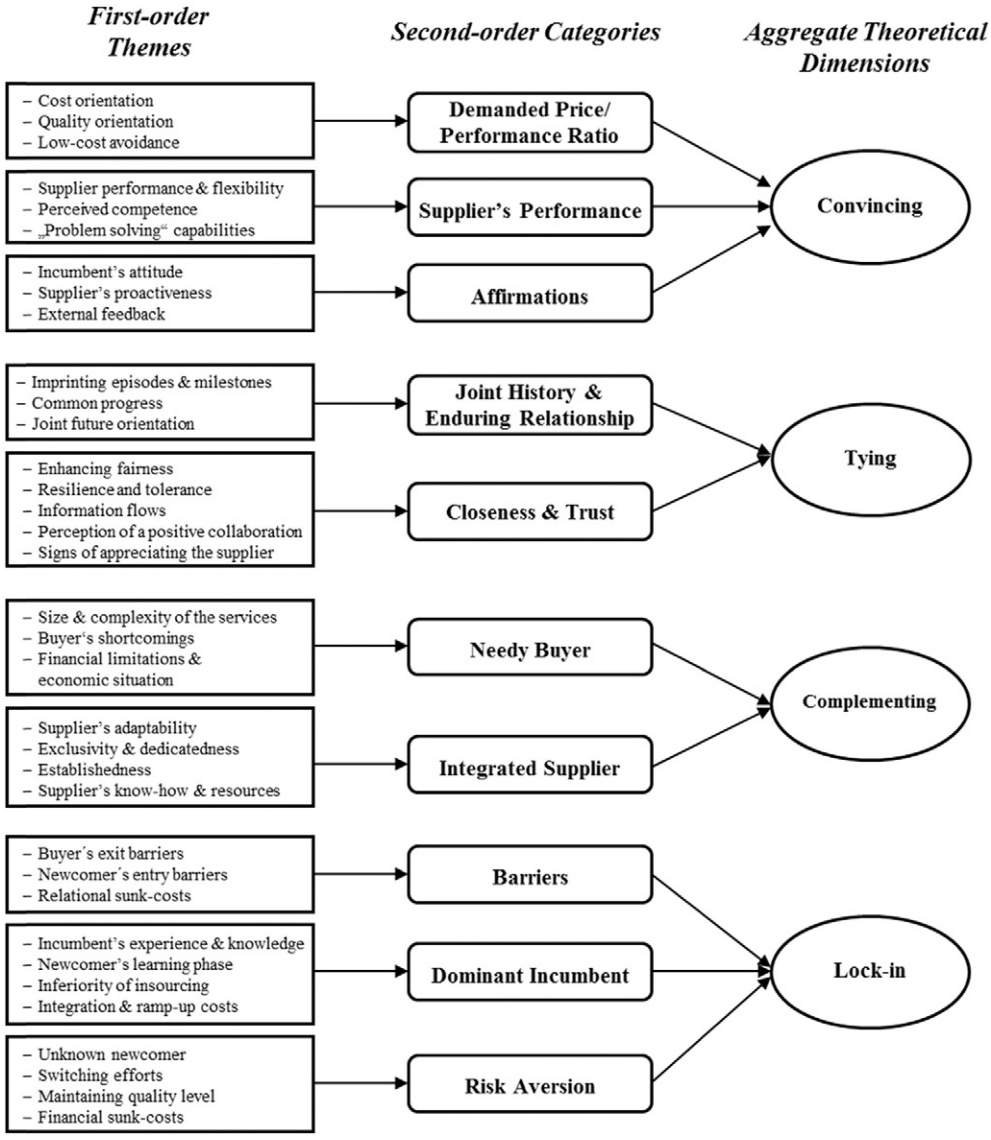

Fig. 1. Analysis steps and resulting data structure.

talk about the operative every-day business, but also we want to discuss some more future-, or let's say middle- to long-term-oriented topics, such as where will GMEC develop and where do – consequently – demands for M-Log arise, so that we can exchange our views from an early stage on."

[G7 (2012)]

"[…] I don't believe that there is a logistics contract in Germany that has existed for 20 years."

[G2 (2012)]

Next, the category *Closeness and trust* can be seen as the result of the firms' long and joint history. Our data describes *Closeness and trust* in terms of having a robust partnership, which is strengthened by interpersonal relationships, as well as strong signs of appreciation of the buyer towards its supplier.

"I cannot say we have a private relationship, but it's still on a personal level. Due to this, we can put certain situations – which can also be critical and which are not entirely normal – back on the normal track. So that is actually very good and very positive in the collaboration with M-Log."

[G3 (2012)]

Moreover, the enhancement of fairness measures and attempts to create win-win situations contribute to this category on a more operational level. Hence, *Closeness and trust* depicts the importance of constant information exchange, as well as resilience and tolerance between the partners with regard to occurring problems.

"I know the people there; I know that I can rely on them, so why should I get a new one on board?"

[G7 (2012)]

4.3. Complementing

Our third aggregated theoretical dimension is called *Complementing*, and refers to the degree to which a supplier adapts and integrates its services to the processes and increasing needs of the buyer. Thus, the *Integrated supplier* compensates the operational issues that

arise from the *Needy buyer*, which yields into a perfect fit between the partners.

Our case depicts a *Needy buyer* that operates extensive and complex services which need to be managed. However, our data describes the buyer as being limited in its financial opportunities due to the overall economic situation, as well as in its competencies, because of a lack of logistical expertise and further organizational shortcomings.

> "[…] often our contact persons are not qualified for our requests, because there are so many contact persons that have a focus on their tasks, which look totally different."
>
> [M3 (2013)]

> "But with these things you can always see […] how flexible M-Log is. I do not know whether we at GMEC would be able to do that in such a manner."
>
> [G1 (2012)]

In turn, the *Integrated supplier* counteracts the buyer's inability to handle the logistical processes by providing an exclusively adapted service package, logistical know-how, and a willingness to address its buyer's shortcomings in an individualized manner.

> "In our many years of cooperation and as a result of the constant review of the processes and the endeavor to achieve optimum supply quality, our integrated logistics solutions have become an integral part of the GMEC production processes. […] the service we provide is a perfectly tailored fit."
>
> [M-Log Press (2011)]

4.4. Lock-in

Our fourth theoretical dimension, *Lock-in*, identifies commonly stated aspects that ultimately prevent a separation from the incumbent supplier. We found that *Lock-in* describes different kinds of *Barriers* that prevent a supplier exchange. Moreover, the head start that a *Dominant incumbent* has compared to potential alternative providers as well as the buyer's *Risk aversion* towards a supplier exchange further contribute to *Lock-in*. The interplay between these three categories inevitably leads to a lock-in of the buyer with the existing relationship.

In more detail, *Barriers* prevent a separation from the incumbent supplier due to the presence of both specific exit barriers for the buyer and entry barriers for any potential new supplier.

> "[…] of course, this is the great advantage of M-Log compared to its competitors. Because the competitor […], even though he sees and understands all of this, can only do two things. First, he can forego margins. Or second, he has people who do not earn 10 euros per hour, but 5 euros per hour. However, we rule that out because in the tender we predetermine clearly what has to be considered as a basic requirement in the calculation."
>
> [G2 (2012)]

Moreover, *Barriers* describe mutual sunk-costs of the buyer and its supplier of setting-up and adapting the relational structures in the past, such as established communication channels or inter-organizational structures.

> "In my opinion, this [reliance on M-Log] can even go so far that I accept certain price differences for maintaining established structures, processes, communication channels, and so on. […] This [maintenance] would overcompensate price differences."
>
> [G7 (2012)]

The *Lock-in* dimension is further comprised of the *Dominant incumbent*, which refers to the head start of the incumbent supplier in relation to any alternative option of conducting the services in question. This head start is promoted by the advantages of the incumbent supplier with regards to its experienced knowledge of the buyer-specific situation, which is in turn a major disadvantage for any newcomer who needs to build up these insights and skills.

> "In our many years of cooperation and as a result of the constant review of the processes and the endeavor to achieve optimum supply quality, our integrated logistics solutions have become an integral part of the GMEC production processes. We have in-depth knowledge of the buyer's needs."
>
> [M-Log Press (2011)]

> "[…] and with all the experience that M-Log has, they just know how to do it. There are some processes you just cannot document. […] Some things they simply have in their heads and then I do not know whether it would be so easy to say, 'Okay, I will take a different provider', […]. Whether this would work out without any problems? I leave that undecided."
>
> [G1 (2012)]

In addition, the inferiority of insourcing the processes, as well as the necessary integration and ramp-up costs for alternative solutions, induce companies to stay with the incumbent.

> "We quickly checked whether it makes sense to quit the service contract and conduct the service on our own. We would build a warehouse in a greenfield approach and do the activities on our own. However, we came to the conclusion, […] due to diverse reasons, also with regard to costs, to not do that."
>
> [G3 (2012)]

> "You can hardly transfer the entire package back in-house. Why have we outsourced in the past? Because the labor agreement of the mechanical engineering industry is not affordable for us. As such, you will not succeed with in-housing due to cost reasons."
>
> [G4 (2012)]

Finally, *Risk aversion* emphasizes the frequently mentioned risks connected to leaving an established supplier. The interviews highlighted the buyer's concerns regarding the substantial switching effort that would be connected to the search for, and implementation of, a new supplier. When shifting the logistical process towards a new and unknown supplier, the interviewees feared a loss of quality and reliability, as well as increased costs and a loss of mutual investments.

> "A provider exchange […] is always connected to frictional losses. You need to shift and convert the entire thing, you need to move your inventories, build up a new infrastructure, IT and so on. […] You have to think and discuss very intensively, whether you want to take such a risk."
>
> [G7 (2012)]

5. Towards a conceptual model of the emergence of dependence and lock-in situations in buyer–supplier relationships

5.1. Dynamics leading to dependence and lock-in

Our data suggests distinct categories and dimensions, which provide the basis for our approach towards an explanatory conceptual model of the emergence of dependence and lock-in in BSRs (shown in Fig. 2). Following the logic of Pratt et al. (2006), our model is based on a higher level of abstraction from the data as the generalized result of our analysis process. Thus, it is a first attempt at developing a theory of the given topic (Eisenhardt, 1989).

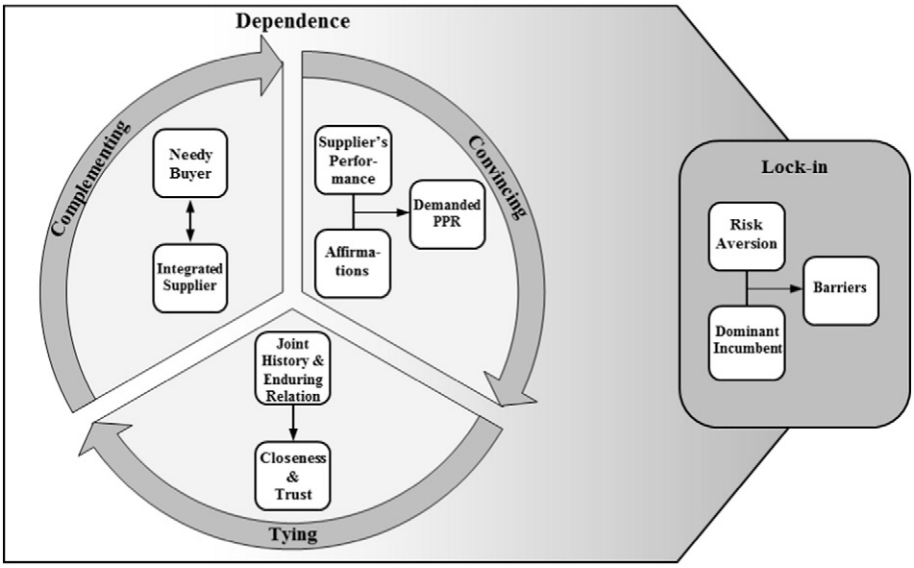

Fig. 2. Model on the emergence of dependence and lock-in in buyer–supplier relationship.

Building on our categories and dimensions, we describe the development of dependence in BSRs as the result of an interplay between three interrelated dimensions that engage in a mechanism leading to a lock-in over time. More specifically, we describe dependence as emerging from the mutually influencing dimensions *Convincing*, *Tying* and *Complementing*, which raise the degree of the buyer's dependence up to a final *Lock-in* state. This is supported by the interrelated categories constituting sub-processes within each dimension. Fig. 2 presents a progressively gray-shaded, tapered box that resembles an increasing degree of dependence as the circular influences proceed. This is fostered by the repetitive circular interplay between *Convincing*, *Tying* and *Complementing*, describing a BSR evolving into BSD and a lock-in situation.

As the basic requirement for starting a BSR, our model describes *Convincing* as satisfying the buyer's demands at a reasonable price. This general agreement about the basic conditions of their relationship serves as a starting point for further engagement, which constitutes the mechanisms observed. The buyer's expectations (*Demanded PPR*) are measured against the *Supplier's performance* and further *Affirmations* towards the ongoing relation, such as the incumbent's attitude or additional external feedback. Based on the satisfying evaluation of past and present cooperation (*Joint history and enduring relationship*), the partners conduct their everyday business, projects, and future planning. If these experiences are positive and convincing, the partners develop, in the *Tying* phase, a relation based on *Closeness and Trust*, which is particularly characterized by the development of mental ties towards the relationship on the buyer's side. As a consequence of *Tying*, the buyer tends to hand over further activities to the established supplier (*Integrated supplier*). In turn, the buyer withdraws from these activities, which leads to the loss of specialized knowledge, capabilities and even resources (*Needy buyer*). Hence, *Complementing* depicts the replacement of the buyer's activities through a deeper integration of the supplier's services. As the supplier's activities are closely integrated into the buyer's processes, the buyer is again convinced and affirmed by the supplier's offer. This strengthens *Convincing* and starts the influencing circle all over again. The process of *Convincing*, *Tying*, and *Complementing* takes place in a self-reinforcing manner, acting as a circular effect. This circular nature refers to the buyer's perception of the supplier that convinces the buyer of being the right partner, and also continuously occurs during later stages of the relationship, by means of *Complementing* and *Tying*. Over time, the continuous interplay of these aspects leads to a *Lock-in* state, which is entered as the highest degree of dependence. The transition point from dependence to lock-in cannot be fixed in general. According to our definition of lock-in, we suggest that the buyer enters *Lock-in* if the dependence mechanism has been reached based on the buyer's individual interpretation, leaving the buyer with a lack of alternative options in the given situation. Thus, in the *Lock-in* state, different forms of *Barriers* emerge and prompt the buyer to maintain the ongoing relationship. This effect is further manifested in the *Risk aversion* of the buyer towards losing the competencies or resources that the supplier has accumulated over time. Hence, alternative options, such as supplier exchange or insourcing, turn out to be inferior in comparison to the incumbent supplier (*Dominant incumbent*) with regards to cost and performance. We will take a closer look at the sub-processes constituting each of our dimensions in the following sections.

5.2. Convincing

Convincing describes the positive effect of the supplier's performance level together with further supplier evaluations of the buyer's expectations regarding price and performance. The *Supplier's performance* is a basic element in each BSR. The delivered service quality is described in our data as the supplier's performance level, its overall competencies and the ability to flexibly adapt towards changes. These elements are considered as positively influencing the buyer's satisfaction.

In addition, unexpected *Affirmations*, such as the supplier's reputation and positive external feedback on (or proactive improvement measures of) the supplier, further stimulate the *Demanded PPR*. In line with these two categories, Buchanan (1992) highlighted a buyer's dependence on the supplier's delivery of extraordinary services. Unexpected *Affirmations* delight the buyer (Oliver, Rust, & Varki, 1997) and evoke additional satisfaction with the services, leading to an increased willingness to repurchase the service (Zeithaml, Berry, & Parasuraman, 1996). Furthermore, scholars have found that the reputation of the examined supplier is favorable for the buyer's attentiveness to the relationship (Bonner & Calantone, 2005), which is in line with the expressions in our data. Lastly, participation in improvements processes has also been identified as a basic element of long-term relationships and a source of mutual dependence (Baraldi et al., 2014), which we find as an *Affirmation* towards having a good supplier in our data.

Taking the *Supplier's performance* and *Affirmations* together, the buyer evaluates the purchased service on the basis of its joint fit with its *Demanded PPR*. Here, *Convincing* suggests that well-performed supplier activities directly influence the buyer's satisfaction and repurchasing behavior (Geiger et al., 2012). While the costs of a service package are essential decision criteria for decision-makers in industrial companies (Langley et al., 2013; Stank, Goldsby, & Vickery, 1999), a good performance level is considered to be especially crucial as it avoids disruptions and adds value to a buyer's processes (Stank et al., 1999). The literature confirms that a good level of supplier performance is also a driver of long-term relationships (Scheer, Miao, & Garrett, 2009; Wilson, 1995), which positively influences the dimension *Convincing*. In summary, *Convincing* leads to a continuation of the BSR, thus fostering *Tying*.

5.3. Tying

Based on *Convincing* cooperation, the partners start to plan for future developments within the relationship. In doing so, the buyer and the supplier build up and maintain a *Joint history and enduring relationship*.

In the literature, *Joint history and enduring relationship* is found to be an inhibitor of supplier exchange (Harrison et al., 2012). Various episodes and projects occur over the course of the history between a buyer and supplier that shape the collaboration (Schurr, 2007). Connecting to our second factor in this dimension, Schurr (2007) explained that a series of such episodes in a relationship's *History* creates *Trust* between the partners. Extant literature has further promoted the importance of *Closeness and trust* as a basic element of relationships, which ties a buyer and a supplier together (Laaksonen et al., 2008; Wilson, 1995). In line with the literature, *Closeness and trust* is characterized by the history of collaboration or fairness measures, such as the creation of win–win situations, which highlight the importance of 'gain-sharing' between partners as a success factor for long-term logistics relationships (Mohr & Spekman, 1994; Narasimhan et al., 2009; Schurr, 2007).

Tying positively influences the buyer's perception of the relation, which is perceived as even more valuable due to the *Convincing* impressions of a past *History* and *Close* collaboration. This relation in our data is consistent with the research on organizational dependence (Schreyögg & Sydow, 2011; Sydow, Schreyögg, & Koch, 2009), which contains parallels with the cognitive lock-in research (Johnson, Bellman, & Lohse, 2003; Murray & Häubl, 2007). Thus, over time, a buyer becomes accustomed to a product, thereby increasing the product's cognitive value and switching costs compared to competing products (Johnson et al., 2003). Murray and Häubl (2007, p. 77) described cognitive costs as expenses that are "[…] associated with consuming or using different alternatives […]. More specifically, the costs associated with thinking about and using a particular product decrease as a function of the amount of experience a consumer has with it." As a result, the repeated commission of a supplier will lead to increased switching costs, thereby raising the likelihood that the buyer will purchase the incumbent product again (Johnson et al., 2003). Adapting this logic to BSRs, our model describes the benefit of continuing to assign services to the incumbent supplier, supported by the *Joint history and enduring relationship* as well as *Closeness and trust*, as opposed to an alternative cooperation agreement.

5.4. Complementing

Following the development of basic satisfaction with the supplier, which leads over time to a closely tied relationship, our model describes the rational step for the buyer to withdraw from the outsourced activities in order to integrate the supplier's activities most effectively by avoiding redundancies and increasing the efficiency of the outsourcing decision. As in our model, extant studies have also described trust and openness as predecessors of integrated activities (Corsten & Felde, 2005; Laaksonen et al., 2008). Hence, the supplier takes over these activities and designs them according to the buyer's individual needs, leading to further integration of the supplier's processes (*Integrated supplier*). This increased integration into the buyer's processes causes dependencies towards the provider (Håkansson & Snehota, 1995). The *Integrated supplier* gains beneficial insights into the buyer's needs, enabling the supplier to focus on its activities and address them most efficiently (Cannon & Perreault, 1999).

In contrast, the buyer's abandonment of the activities causes information asymmetries in relation to the supplier, as well as a reduction of process know-how over time (Lonsdale, 2001). Meanwhile, the supplier provides sustainable advantages for its buyer due to flexible, custom-tailored services (Stank et al., 1999). Our item *Integrated supplier* is characterized by an exclusive service provision, which is considered to be a major determinant of lock-ins (Narasimhan et al., 2009). This is fostered by information asymmetries for the benefit of the supplier towards the buyer (Lonsdale, 2001), as a result of the buyers withdrawal from the processes. Thus, the buyer increasingly relies on the supplier's contribution and is in need of its competencies (*Needy buyer*). Due to synergy effects in relation to the tasks that the supplier already performs, it is observable in our case – and reasonable to assume – that further activities connected to the already assigned activities are also handed over to the supplier over time (Lonsdale, 2001). Consequently, the buyer and its supplier will be *Complementing* each other in terms of the dedicated adaptation of the service product towards the needs of the buyer, resulting in the difficult-to-terminate interconnection of the supplier's activities with the buyer's core processes. This in turn leads to the increased complexity of the outsourced service package. Prior studies have acknowledged an increase in the complexity of outsourced activities in association with a deeper integration of services to influence the buyer to become dependent on the supplier (Browne & Allen, 2001; Zhang & Huo, 2013).

As illustrated in Fig. 2, we suggest a circular influence between the three dimensions. A BSR in which the supplier is increasingly *Complementing* the buyer has a direct influence on the buyer's expectations (*Demanded PPR*) regarding the relationship. Furthermore, the ability of the supplier to integrate into the buyer's processes influences the *Affirmations* in *Convincing*. In summary, the circle illustrated in Fig. 2 starts all over again, developing into a spiral effect of increasing dependence over time.

5.5. Lock-in

The transition point between an increasingly high level of dependence in the depicted circle on the one hand, and entrance into the *Lock-in* state on the other hand, is difficult to determine. Due to their specific relationship characteristics, their industry and market conditions, or because of the process or service specificities, some BSRs might enter into a *Lock-in* state earlier than others. Hence, we describe the transition as a slinking process over time, flowing into a *Lock-in* which is in our case characterized by three categories.

In our model, a *Lock-in* manifests itself through the interplay between *Barriers*, *Risk aversion*, and a *Dominant incumbent*. Thereby, *Barriers* reflect the buyer's exit barriers, a potential newcomer's entry barriers, or relation-specific efforts that would be lost when exchanging the incumbent supplier (Harrison et al., 2012). Our argument regarding *Barriers* supports those proposed by Williamson (1981) and Lonsdale (2001), who mentioned the impact of such barriers in effectuating lock-in situations. Thus, efforts in setting up the specialized relationship, its structures, and processes prevent a separation from the supplier, as the buyer is locked into the relationship due to the specificity of the current service relation (Heide & John, 1988; Lonsdale, 2001). Following a transaction-cost logic, the switching costs are raised by the associated costs of being provided by a new supplier that is not yet specialized to the needs of the buyer, as opposed to the *Dominant incumbent* (Lonsdale, 2001; Rindfleisch & Heide, 1997; Williamson, 1981), with

regards to accumulated customer-specific know-how, process knowledge, and adapted competencies.

Resulting from these "hard facts" expressed by *Barriers*, the buyer's behavior is characterized by *Risk aversion* towards concerns regarding the performance level of a newcomer, as well as uncertainty regarding the ultimate financial effort required to exchange the supplier (Lonsdale, 2001). Furthermore, our case illustrates the uncertainty of the buyer towards a new supplier's competence level. In particular, the time and learning efforts required until the incumbent supplier's performance level is reached impose risks for the buyer, which it is desirable to avoid. Lastly, our interviewees noted the required establishment of interpersonal communication channels and of a functioning working basis as a potentially risky transition phase.

Taking together the *Barriers* and the *Risk-averse* buyer, the supplier is described as a *Dominant incumbent*. Its deep integration into the buyer's processes causes the accumulation of process- and asset-specific knowledge of the service requirements that need to be provided (Lonsdale, 2001). This knowledge creates the basis for information asymmetries in favor of the incumbent supplier, which increase as the BSR endures (Lonsdale, 2001). Based on this, the *Dominant incumbent* benefits from a head start over competitors in a buyer's tendering or benchmarking process. This is in line with Dwyer et al.'s (1987, p. 14) statement that "the buyer's perception of the effectiveness of the exchange relation […] is a significant mobility barrier and a potential competitive advantage" insulating the supplier from competition. Thus, a potential newcomer will not have access to this knowledge, and must include a risk factor for unforeseen costs into its offering, thus providing a less competitive basis. Similarly, insourcing is not an option due to the above-described knowledge asymmetry or financial drawbacks with regard to advantages in labor costs in the service sector, which is in line with recent industry trends (Langley et al., 2013). Overall, the incumbent supplier leaves the buyer with a lack of alternative options for provision of the outsourced activities. To summarize, *Risk aversion* and a *Dominant incumbent* can even heighten the *Barriers* for a supplier change, which finally results into a *Lock-in* situation.

6. Discussion

6.1. Theoretical implications

We studied the emergence of dependence and lock-in effects in BSRs by examining a real-life case. In doing so, we draw attention to the negative effects and dark sides of close long-term relationships, as they have been comparatively underrepresented in the recent literature (Grayson & Ambler, 1999; Slone et al., 2010; Stank et al., 2011). Our findings and the suggested conceptual model contribute to the existing research on BSRs in different ways.

First, buyer–supplier research has so far provided isolated insights into the mechanisms of dependence-emergence in business relationships. At the same time, the specific situation of a lock-in has not been discussed in the buyer–supplier setting. We identify four theoretical dimensions that constitute a buyer's dependence on a supplier. Within these dimensions, we point to the importance of the interconnected influences between transactional, mental, and operative bonding effects and relate them to the development of lock-in effects in a buyer–supplier setting. Our conceptual model summarizes the mechanisms in an explanatory approach to enlarge our understanding of the emergence of dependence and lock-in in BSRs. We thereby respond to Villena et al.'s (2011) call to investigate how a BSR evolves into an established relationship that reaches the point of having a dark side. As we gathered data on the entire relational history, our model may serve as a first attempt to understand the development of dark sides using the example of BSD. We thereby hope to provide a basis for further discussion on these issues.

Second, we shed light on single sub-processes that constitute buyer dependence. As our data contains experiences of employees participating in a long-lasting BSR, our model illustrates the effects of buyer dependence that occur over time. Thus, we depict how a buyer in a long-term cooperation mentally binds itself to a supplier, due to positive experiences and external affirmations. This results in a fear of losing competencies and of losing employee knowledge of that particular supplier, which induces even further outsourcing and integration of activities to that supplier. Hence, we can explain how such a cognitive lock-in (Johnson et al., 2003; Murray & Häubl, 2007) can cause deeper process integration, which has only been assumed in prior studies (Petersen, Handfield, Lawson, & Cousins, 2008). We hope to motivate further studies on this interesting relation to understand the importance of mental bonds and their influence on dependence and lock-in in BSRs in more depth.

Furthermore, our model describes the risks of withdrawing from externally supplied activities with regards to the preservation of detailed process knowledge and resource endowments. As both solely remain with the supplier, the buyer maneuvers itself into a position in which he is in need of that particular supplier's help. Thus, the model explains the connection between the withdrawal from processes and the composition of exit barriers for the incumbent solution, as well as entry barriers for alternative solutions. Finally, we suggest a creeping transition from a buyer's dependence into a lock-in, which is caused by an increasing level of dependence due to a spiraling effect among *Convincing*, *Tying*, and *Complementing*. We thereby acknowledge that a fixed transition point between relying on a partner (i.e. being dependent) and being forced to stick with a partner (i.e. being locked in) is hard to distinguish. A closer examination of this "point of no return" remains a topic for further research. It is this situation at the point of no return where the relational power might shift from the buyer to the supplier. Scholars have long lauded that power asymmetries might lead to deficient relationships as the more powerful party might make use of it (Caniëls & Roeleveld, 2009). However, we do not find this connection in our data. Instead our data revealed a collaborative nature of the relationship and an eye-level atmosphere between GMEC and M-Log, although the buyer is locked-in by the supplier. Hence, our model also extends our current understanding by challenging this negative view and by suggesting to further investigate the relation between power situations and collaborative atmospheres in BSRs as well as a differentiated reflection on the importance of power as an influencing factor in long-term relationships.

Third, we employed a grounded theoretical approach to analyze our dataset and develop a conceptual model. In doing so, we answer calls for the more intense use of qualitative research methods in general and grounded theoretical studies in particular within business-to-business and industrial marketing (Gummesson, 2003; Wagner et al., 2010). Thus, the present study contributes by complementing the methodological approaches in the buyer–supplier research, and should motivate the application of qualitative methods in future studies.

Lastly, our case connects to logistics relationships. With our dimensions *Convincing* and *Tying*, we confirm and extend findings regarding logistics relationships and customer loyalty research (Deepen, Goldsby, Knemeyer, & Wallenburg, 2008; Stank et al., 1999; Wallenburg, Cahill, Michael Knemeyer, & Goldsby, 2011). In connection with this, the *Complementing* dimension confirms the insights of supply chain integration discussions (Zhang & Huo, 2013). Hence, we hope that the results of our study will serve as a starting point for a deeper understanding of dependence and lock-in effects in logistics relationships.

6.2. Managerial implications

Our model can serve as a first attempt to guide practitioners in understanding the buyer's development into dependence or lock-in situations in BSRs. The insights from our data imply different aspects from a buyer's perspective with regards to the four dimensions of our model,

which can serve as a basis of discussion from which to recommend appropriate prevention measures.

Convincing shows that for an appropriate evaluation of the supplied performance level, it is necessary to have a detailed definition of the expectations and needs as a sound evaluation base within the relationship. This raises the challenge for buyers to specify the actions required, as well as their expectations, in as much detail as possible before a contract is signed. Furthermore, in order to avoid relying solely on individual perceptions, measurement tools for monitoring the actual performance level of a supplier must be implemented. Within our data, we found hints that effective contract management and frequent tendering processes can act as countermeasures by realistically evaluating the incumbent's performance level through benchmarking processes.

Positive relational episodes from the past have resulted in *Tying*, which comprises important relational factors for BSRs (Rajesh et al., 2011). The emergence of *Tying* can lead to dependencies and cognitive lock-ins (Johnson et al., 2003; Murray & Häubl, 2007), which exacerbates this task. However, it is important to maintain a critical distance in order to avoid overly strong mental bonds, and to sustain a rational view of collaboration by, for example, shortening the duration of contracts and engaging in regular renegotiation loops.

When the buyer withdraws from its outsourced activities as the result of a deeper integration of the supplier into its processes, this leads to *Complementing*. Handing over these processes implies that the buyer adapts its organization in order to realize the savings that outsourcing offers. However, dependence and lock-ins can result. Therefore, resistance to outsourcing further activities that may belong to core competencies (or are very close to them) is dangerous and should be avoided. Again, we find hints in our data that by maintaining the ability to insource the respective activities (that is, the necessary capabilities and know-how, as well as some basic infrastructure), some dark sides of a long-term BSR can be avoided. On the one hand, this is the case since the buyer creates a potential substitute product, as opposed to the supplier's services (Narasimhan et al., 2009). On the other hand, the buyer maintains a discussion at eye-level with its supplier based on the retained know-how and capabilities.

The described *Risk aversion* of a firm combines with the *Barriers* to changing the supplier to jointly create *Lock-in*. Thus, the buyer must balance the reliance and associated cost savings that come with employing an incumbent supplier against the opportunity to maintain access to critical resources, or to lower entry barriers for a potential newcomer.

7. Conclusion

Although the antecedents and impacts of dependence have been introduced in industrial marketing research, the literature lacks understanding of the mechanisms of dependence-emergence. By analyzing a case setting in the German mechanical engineering industry, we aimed to enlarge the understanding of the underlying mechanisms and their interrelations that explain the emergence of dependence and lock-in from a buyer's perspective. In order to do so, we used a grounded theory approach to examine our case data, where we found four interrelated mechanisms (*Convincing*, *Tying*, *Complementing* and *Lock-in*) that explain the development of dependence and lock-in. By generalizing our empirical findings, we developed an initial conceptual model that highlights the mechanisms of the emergence of dependence and lock-in in BSRs. The model also acknowledges and integrates the isolated dependence factors explored by former studies.

However, our study is constrained by certain limitations. From a methodological perspective, the generalizability of our results is limited since we examined the unique nature of a single BSR case in the German mechanical engineering industry (Eisenhardt, 1989; Pratt et al., 2006). The qualitative research design of our investigation cannot statistically validate our findings (Pratt et al., 2006). Content-wise, we examined the topic from a buyer's perspective. Generally, dependence may also occur on the supplier side exclusively, or on both sides simultaneously (inter-dependence). Additionally, we did not address appropriate countermeasures for dependence. These topics remain a matter for future research in multiple and diverse settings. Nevertheless, we shed light on initial approaches and initiatives to avoid strong dependence and lock-in situations, which may open new avenues to explore this pertinent topic in more depth. Our analysis therefore offers an interesting starting point for further investigations and carries substantial potential for valuable implications in theory and practice.

Finally, we wish to motivate further research within the scope of our topic. With regard to our model, testing the detected dimensions within a broader and more diversified context could provide additional support and insights, and validate our results. Quantitative approaches to test the strength of different dimensions are conceivable. In particular, a closer examination of *Tying* and other bonding processes appears interesting. We also suggest that future investigations consider the transition point between dependence and lock-in in more depth. Furthermore, our analysis of lock-in effects in BSRs can serve as a starting point for further exploratory studies, for instance on appropriate countermeasures to prevent the emergence of dependence.

Acknowledgments

We would like to thank the anonymous reviewers and the editors of this special issue for their support in commenting on our paper. Previous versions of this article have been presented at the Academy of Management Annual Meeting in Philadelphia and at seminars at the Department of Business Policy and Logistics in Cologne. We gratefully acknowledge the discussants for their valuable feedback.

Appendix A. List of interviews

No.	Source code	Management level	Department	Company	Duration (min)	Date
1	G1	First-level	Logistics and supplier development	GMEC	45	Nov. 19, 2012
2	M1	Mid-level	Head of material flow management	M-LOG	46	Nov. 26, 2012
3	G2	Mid-level	Head of transport, packaging, & customs	GMEC	53	Nov. 30, 2012
4	G3	Mid-level	Head of order to delivery management	GMEC	43	Dec. 4, 2012
5	G4	First-level	Order to delivery management	GMEC	43	Dec. 4, 2012
6	G5	First-level	Production planning	GMEC	46	Dec. 6, 2012
7	G6	First-level	IT-systems	GMEC	60	Dec. 12, 2012
8	G7	Mid-level	Head of logistics development & corporate logistics	GMEC	58	Dec. 17, 2012
9	M2	Top-level	Head of branch office & customer GMEC	M-LOG	79	Jan. 9, 2013
10	M3	Mid-level	Head of operations	M-LOG	79	Jan. 9, 2013
11	G8	Assistant	Logistics and supplier development	GMEC	47	Jan. 10, 2013
12	G9	Top-level	Senior vice president logistics	GMEC	33	Jan. 15, 2013

Appendix B. Interview guideline

A:	Interview partner's role in cooperation and GMEC/M-Log's history – Interview partner's role description – Personal impression of the cooperation – Satisfaction with the cooperation – Milestones and important episodes in the cooperation
B:	Buyer–supplier cooperation design and characteristics – Most important factors for successful cooperation – "No-gos" for a successful cooperation – M-Log's characteristics, service provision, and special capabilities – Daily cooperation with the supplier – Supplier's integration into, and collaboration regarding, daily issues – Contract negotiation process
C:	Potential supplier exchange – Information on alternative forms of service provision – Tendering process: Prerequisites and challenges – Provider exchange process and necessary adaptations – Potential entry barriers
D:	GMEC's dependence on the supplier – Importance of M-Log and its services – Insourcing as alternative option – Potential exit barriers of GMEC – Future outlook on the cooperation

References

Andaleeb, S. C. (1996). An experimental investigation of satisfaction and commitment in marketing channels: The role of trust and dependence. *Journal of Retailing*, *72*(1), 77–93.

Anderson, J. C., & Narus, J. a. (1990). A model of distributor firm and manufacturer firm working partnerships. *Journal of Marketing*, *54*(1), 42.

Arthur, W. B. (1989). Competing technologies, increasing returns, and lock-in by historical events. *The Economic Journal*, *99*(March), 116–131.

Baraldi, E., Proença, J. F., Proença, T., & de Castro, L. M. (2014). The supplier's side of outsourcing: Taking over activities and blurring organizational boundaries. *Industrial Marketing Management*, *43*(4), 553–563.

Barnes, B. R., Naudé, P., & Michell, P. (2005). Exploring commitment and dependency in dyadic relationships. *Journal of Business-to-Business Marketing*, *12*(3), 1–26.

Bendapudi, N., & Berry, L. L. (1997). Customers' motivations for maintaining relationships with service providers. *Journal of Retailing*, *73*(1), 15–37.

Bernard, H. R., & Ryan, G. W. (2010). *Analyzing qualitative data* (1st ed.). Thousand Oaks: Sage Publication, Inc.

Bonner, J. M., & Calantone, R. J. (2005). Buyer attentiveness in buyer–supplier relationships. *Industrial Marketing Management*, *34*(September 2003), 53–61.

Browne, M., & Allen, J. (2001). Logistics out-sourcing. In A. M. Brewer, K. J. Button, & D. A. Hensher (Eds.), *Handbook of logistics and supply-chain management* (pp. 253–268). Oxford: Elsevier Science Ltd.

Buchanan, L. (1992). Vertical trade relationships: The role of dependence and symmetry in attaining organizational goals. *Journal of Marketing Research*, *29*(February), 65–75.

Caniëls, M. C. J., & Gelderman, C. J. (2007). Power and interdependence in buyer supplier relationships: A purchasing portfolio approach. *Industrial Marketing Management*, *36*(2), 219–229.

Caniëls, M. C. J., & Roeleveld, A. (2009). Power and dependence perspectives on outsourcing decisions. *European Management Journal*, *27*(6), 402–417.

Cannon, J. P., & Perreault, W. D. J. (1999). Buyer–seller relationships in business markets. *Journal of Marketing Research*, *36*, 439–460.

Casciaro, T., & Piskorski, M. (2005). Power imbalance, mutual dependence, and constraint absorption: A closer look at resource dependence theory. *Administrative Science Quarterly*, *50*, 167–199.

Charmaz, K. (2014). *Constructing grounded theory* (2nd ed.). Los Angeles: Sage Publication Ltd.

Corsten, D., & Felde, J. (2005). Exploring the performance effects of key-supplier collaboration: An empirical investigation into Swiss buyer–supplier relationships. *International Journal of Physical Distribution and Logistics Management*, *35*(6), 445–461.

Cox, A., Ireland, P., Lonsdale, C., Sanderson, J., & Watson, G. (2002). *Supply chains, markets and power — Mapping buyer and supplier power regimes* (1st ed.). London: Routledge.

Cox, A., Lonsdale, C., Watson, G., & Qiao, H. (2003). Supplier relationship management: A framework for understanding managerial capacity and constraints. *European Business Journal*, *15*(3), 135–145.

Deepen, J. M., Goldsby, T. J., Knemeyer, A. M., & Wallenburg, C. M. (2008). Beyond expectations: An examination of logistics outsourcing goal achievement and goal exceedance. *Journal of Business Logistics*, *29*(2), 75–105.

Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer–seller relationships. *Journal of Marketing*, *51*(2), 11–27.

Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review*, *14*(4), 532–550.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, *50*(1), 25–32.

Emerson, R. M. (1962). Power-dependence relations. *American Sociological Review*, *27*, 31–41.

Fang, S. -R., Chang, Y. -S., & Peng, Y. -C. (2011). Dark side of relationships: A tensions-based view. *Industrial Marketing Management*, *40*(5), 774–784.

Ganesan, S. (1994). Determinants of long-term orientation in buyer–seller relationships. *Journal of Marketing*, *58*(April), 1–19.

Geiger, I., Durand, A., Saab, S., Kleinaltenkamp, M., Baxter, R., & Lee, Y. (2012). The bonding effects of relationship value and switching costs in industrial buyer–seller relationships: An investigation into role differences. *Industrial Marketing Management*, *41*(1), 82–93.

Geyskens, I., Steenkamp, J. E. M., Scheer, L. K., & Kumar, N. (1996). The effects of trust and interdependence on relationship commitment: A trans-Atlantic study. *International Journal of Research in Marketing*, *16*(96), 6–7.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research* (1st ed.). Chicago: Aldine.

Grayson, K., & Ambler, T. (1999). The dark side of long-term relationships in marketing services. *Journal of Marketing Research*, *36*(1), 132–141.

Gummesson, E. (2003). All research is interpretive! *Journal of Business & Industrial Marketing*, *18*(6/7), 482–492.

Håkansson, H., & Snehota, I. (1995). *Developing relationships in business networks* (1st ed.). London: Routledge.

Hammervoll, T. (2005). Transactional and value creational sources of dependence. *Journal of Business-to-Business Marketing*, *12*(4), 41–67.

Hammervoll, T. (2009). Value-creation logic in supply chain relationships. *Journal of Business-to-Business Marketing*, *16*(3), 220–241.

Handley, S. M., & Benton, W. C. (2012). Mediated power and outsourcing relationships. *Journal of Operations Management*, *30*(3), 253–267.

Harrison, M. P., Beatty, S. E., Reynolds, K. E., & Noble, S. M. (2012). Why customers feel locked into relationships: Using qualitative research to uncover the lock-in factors. *The Journal of Marketing Theory and Practice*, *20*(4), 391–406.

Heide, J. B., & John, G. (1988). The role of dependence balancing in safeguarding transaction-specific assets in conventional channels. *Journal of Marketing*, *52*(January), 20–35.

Heide, J. B., & John, G. (1990). Alliances in industrial purchasing: The determinants of joint action in buyer–supplier relationships. *Journal of Marketing Research*, *27*(1), 24–36.

Hillman, a. J., Withers, M. C., & Collins, B. J. (2009). Resource dependence theory: A review. *Journal of Management*, *35*(6), 1404–1427.

Huberman, A. M., & Miles, M. B. (1994). *Qualitative data analysis: A sourcebook of new methods* (2nd ed.). Beverly Hills, CA: SAGE.

Johnson, E. J., Bellman, S., & Lohse, G. L. (2003). Cognitive lock-in and the power law of practice. *Journal of Marketing*, *67*(April), 62–75.

Kumar, N. (2005). The power of power in supplier–retailer relationships. *Industrial Marketing Management*, *34*(February), 863–866.

Laaksonen, T., Pajunen, K., & Kulmala, H. I. (2008). Co-evolution of trust and dependence in customer–supplier relationships. *Industrial Marketing Management*, *37*, 910–920.

Langley, C. J., Albright, D., Wilcox, S., Fletcher, B., Hoemmken, S., Kuehner, L., ... O'Reilly, K. (2013). *2013 third-party logistics study: The state of logistics outsourcing*.

Lonsdale, C. (2001). Locked-in to supplier dominance: On the dangers of asset specificity for the outsourcing decision. *Journal of Supply Chain Management*, *37*(2), 22–27.

Marasco, A. (2008). Third-party logistics: A literature review. *International Journal of Production Economics*, *113*(1), 127–147.

Mentzer, J. T., Dewitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., & Zacharia, Z. G. (2001). Defining supply chain management. *Journal of Business Logistics*, *22*(2), 1–25.

Mitrega, M., & Zolkiewski, J. (2012). Negative consequences of deep relationships with suppliers: An exploratory study in Poland. *Industrial Marketing Management*, *41*(5), 886–894.

Mohr, J., & Spekman, R. (1994). Characteristics of partnership success: Partnership attributes, communication behavior, and conflict resolution techniques. *Strategic Management Journal*, *15*(June 1993), 135–152.

Morgan, R. M., & Hunt, S. D. (1994). The commitment–trust theory of relationship marketing. *Journal of Marketing*, *58*(July), 20–38.

Murray, K. B., & Häubl, G. (2007). Explaining cognitive lock-in: The role of skill-based habits of use in consumer choice. *Journal of Consumer Research*, *34*(June), 77–88.

Narasimhan, R., Nair, A., Griffith, D. a., Arlbjørn, J. S., & Bendoly, E. (2009). Lock-in situations in supply chains: A social exchange theoretic study of sourcing arrangements in buyer–supplier relationships. *Journal of Operations Management*, *27*(5), 374–389.

Oliver, R. L., Rust, R. T., & Varki, S. (1997). Customer delight: Foundations, findings, and managerial insight. *Journal of Retailing*, *73*(3), 311–336.

Petersen, K. J., Handfield, R. B., Lawson, B., & Cousins, P. D. (2008). Buyer dependency and relational capital formation: The mediating effects of socialization processes and supplier integration. *Journal of Supply Chain Management*, *44*(4), 53–65.

Pfeffer, J., & Salancik, G. R. (2003). *The external control of organizations: A resource dependence perspective* (2nd ed.). Stanford: Stanford Business Books.

Pratt, M. G. (2008). Fitting oval pegs into round holes: Tensions in evaluating and publishing qualitative research in top-tier north American journals. *Organizational Research Methods*, *11*(3), 481–509.

Pratt, M. G. (2009). For the lack of a boilerplate: Tips on writing up (and reviewing) qualitative research. *Academy of Management Journal*, *52*(5), 856–862.

Pratt, M. G., Kaufmann, J. B., Ashforth, B., Bartel, C., Corley, K., Dut-, J., ... Oldham, G. (2006). Constructing professional identity: The role of work and identity learning cycles in the customization of identity among medical residents. *Academy of Management Journal*, *49*(2), 235–262.

Provan, K. G., & Gassenheimer, J. B. (1994). Supplier commitment in relational contract exchanges with buyers: A study of interorganizational dependence and exercised power. *Journal of Management Studies*, *31*(1), 55–68.

Provan, K. G., & Skinner, S. J. (1989). Interorganizational Dependence and Control As Predictors of Opportunism in Dealer-Supplier Relations. *Academy of Management Journal*, *32*(1), 202–212.
Rajesh, R., Pugazhendhi, S., Ganesh, K., Yves, D., Koh, L. S. C., & Muralidharan, C. (2011). Perceptions of service providers and customers of key success factors of third-party logistics relationships — An empirical study. *International Journal of Logistics Research and Applications: A Leading Journal of Supply Chain Management*, *14*(4), 221–250.
Rindfleisch, A., & Heide, J. B. (1997). Transaction cost analysis: Past, present, and future applications. *Journal of Marketing*, *61*(October), 30–54.
Scheer, L. K., Miao, C. F., & Garrett, J. (2009). The effects of supplier capabilities on industrial customers' loyalty: The role of dependence. *Journal of the Academy of Marketing Science*, *38*(1), 90–104.
Schreyögg, G., & Sydow, J. (2011). Organizational path dependence: A process view. *Organization Studies*, *32*(3), 321–335.
Schurr, P. H. (2007). Buyer–seller relationship development episodes: Theories and methods. *Journal of Business & Industrial Marketing*, *22*(3), 161–170.
Skjoett-Larsen, T. (2000). Third party logistics — From an interorganizational point of view. *International Journal of Physical Distribution and Logistics Management*, *30*(2), 112–127.
Slone, R. E., Dittmann, J. P., & Mentzer, J. T. (2010). *The new supply chain agenda* (1st ed.). Boston: Harvard Business Press.
Souitaris, V., Stefania, Z., & Liu, G. (2012). Which iron cage? Endo- and exoisomorphism in corporate venture capital programs. *Academy of Management Journal*, *55*(2), 477–505.
Stank, T. P., Dittmann, J. P., & Autry, C. W. (2011). The new supply chain agenda: A synopsis and directions for future research. *International Journal of Physical Distribution and Logistics Management*, *41*(10), 940–955.
Stank, T. P., Goldsby, T. J., & Vickery, S. K. (1999). Effect of service supplier performance on satisfaction and loyalty of store managers in the fast food industry. *Journal of Operations Management*, *17*(4), 429–447.
Strauss, A. L. (1987). *Qualitative analysis for social scientists* (1st ed.). New York: Cambridge University Press.
Strauss, A. L., & Corbin, J. M. (1998). *Basics of qualitative research* (2nd ed.). Thousand Oaks: Sage Publication, Inc.
Suddaby, R. (2006). From the Editors: What grounded theory is not. *Academy of Management Journal*, *49*(4), 633–642.
Sydow, J., Schreyögg, G., & Koch, J. (2009). Organizational path dependence: Opening the black box. *Academy of Management Review*, *34*(4), 689–709.
Thomas, R. W., Esper, T. L., & Stank, T. P. (2011). Coping with time pressure in interfirm supply chain relationships. *Industrial Marketing Management*, *40*(3), 414–423.
Villena, V. H., Revilla, E., & Choi, T. Y. (2011). The dark side of buyer–supplier relationships: A social capital perspective. *Journal of Operations Management*, *29*, 561–576.
Wagner, S. M., Lukassen, P., & Mahlendorf, M. (2010). Misused and missed use — Grounded Theory and Objective Hermeneutics as methods for research in industrial marketing. *Industrial Marketing Management*, *39*(1), 5–15.
Wallenburg, C. M., Cahill, D. L., Michael Knemeyer, A., & Goldsby, T. J. (2011). Commitment and trust as drivers of loyalty in logistics outsourcing relationships: Cultural differences between the United States and Germany. *Journal of Business Logistics*, *32*(1), 83–98.
Williamson, O. E. (1981). The economics of organization: The transaction cost approach. *The American Journal of Sociology*, *87*(3), 548–577.
Wilson, D. T. (1995). An integrated model of buyer–seller relationships. *Journal of the Academy of Marketing Science*, *23*(4), 335–345.
Yin, R. K. (2009). *Case study research — Design and methods* (4th ed.). Thousand Oaks: SAGE Inc.
Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, *60*(April), 31–46.
Zhang, M., & Huo, B. (2013). The impact of dependence and trust on supply chain integration. *International Journal of Physical Distribution and Logistics Management*, *43*(7), 544–563.
Zhou, N., Zhuang, G., & Yip, L. S. (2007). Perceptual difference of dependence and its impact on conflict in marketing channels in China: An empirical study with two-sided data. *Industrial Marketing Management*, *36*(3), 309–321.

Tobias Schmitz is research associate at the Department of Business Policy and Logistics, University of Cologne. His research lies at the interface between the domains of industrial marketing and supply chain management, focusing on business-to-business relationships. His particular emphasis is on vertical buyer–supplier relationships, covering outsourcing partnerships and the management of suppliers and service providers in a logistical context.

Bastian Schweiger is a researcher at the Department of Business Policy and Logistics, University of Cologne, Germany. He received his Ph.D. from the University of Cologne in 2015 for his work on inter-organizational networks. His research interests include strategic management (competitive dynamics), inter-organizational cooperation (especially multipartner alliances/networks), franchising, co-opetition and supply chain management problems, with a special emphasis on automotive and retail industries.

Jost Daft received his PhD from the University of Cologne in 2015 before joining Deutsche Lufthansa as a project manager. His research is situated at the intersection between strategic management and supply chain management. In particular his interest is on business model description and design in the aviation industry. Previous articles of his research on the convergence of airline business models have been published in the Journal of Air Transport Management.