



When do they care to share? How manufacturers make contracted service partners share knowledge



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ABSTRACT

Manufacturing firms that outsource customer-facing services, risk losing touch with their customers and thereby forfeit valuable market and customer-related knowledge. To maintain informed and competitive, the manufacturer's customer-facing service partners should engage in knowledge sharing and transfer their market knowledge and insight to the firm. Building on knowledge transfer and organizational learning theory, this study investigates how contractual and non-contractual (i.e., relationship) characteristics influence knowledge sharing behavior by service partners. The authors specifically distinguish between sharing exploitative knowledge (insights that help the manufacturing firm to refine current skills and procedures) and exploratory knowledge (insights that help the manufacturing firm to challenge prior approaches to interfacing with the market). Based on survey data from 70 relationship managers from a large multinational firm and partial least squares path modeling, results show that contractual incentives had a negative effect on exploratory knowledge sharing, but not on exploitative knowledge sharing. The level of contract specification and relationship quality positively related to both types of knowledge sharing. Relationship manager experience related positively to exploratory knowledge sharing, but not to exploitative knowledge sharing. These findings provide valuable insights on how (non-)contractual mechanisms can be used to manage knowledge sharing in outsourced services.

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1. Introduction

In today's networked economy, manufacturers increasingly outsource activities that do not constitute the core process of the firm. A prime example is customer-facing services, which represent pre- or post-sales activities that require direct contact with (business) customers, such as interactions through call centers, logistic operations, and maintenance staff (Davies, 2004). Such outsourcing arrangements imply a service triad (Li & Choi, 2009; Rossetti & Choi, 2005; Rossetti & Choi, 2008), in which the service partner interfaces between the manufacturing firm and its customers. In fact, it now "owns" the customer (Brown & Chin, 2004) in this triad, a situation reminiscent of the tertius gaudens ("rejoicing third") described by George Simmel (1902). Although this arrangement allows a manufacturer to focus on and

optimize its core activities, it is undesirable—maybe even dangerous—from a marketing and innovation perspective (Chen, Tsou, & Huang, 2009). Giving up direct contact with customers means that a manufacturer misses out on important market information, which typically develops over time on the basis of many customer contacts (Kohli & Jaworski, 1990). This blocks innovation and endangers continuity, because external knowledge residing at service partners cannot immediately be used to improve a firm's current expertise and/or create new knowledge, skills, products or services (Baker & Sinkula, 1999; Kyriakopoulos & Moorman, 2004; Marinova, 2004).

To prevent a manufacturer from losing ground with its customer base and endangering its competitiveness in the market, its service partners should engage in knowledge sharing; a partner's discretionary behavior to disseminate to and discuss with a manufacturing firm salient insights in up-to-date customer needs and market trends (Panayides, 2007). Literature on organizational knowledge transfer provides important cues on how what factors drive partner knowledge sharing. Broadly, knowledge transfer is dependent on knowledge characteristics (e.g., tacitness, ambiguity), organizational characteristics (e.g., size, absorptive capacity), and network characteristics (e.g., trust, shared vision, culture) (Meier, 2011; Van Wijk, Jansen, & Lyles, 2008).

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Less attention has been given to the applicability of the knowledge transferred; once acquired, how can the knowledge be used? This appropriation process has been described by organizational learning theory (Baker & Sinkula, 1999; Bell, Whitwell, & Lukas, 2002; Slater & Narver, 1995). It proposes that knowledge can be used in a marketing exploitation strategy, such that knowledge is acquired, interpreted, and applied to improve and refine current skills and procedures associated with existing marketing mix strategies, including segments, positioning, and distribution. Alternatively, knowledge may be appropriated to challenge prior approaches to interfacing with the market, such as new segmentation, new positioning, new products, or new channels (Atuahene-Gima, 2005; Kyriakopoulos & Moorman, 2004; Vorhies, Orr, & Bush, 2011).

While organizational learning literature thus distinguishes between exploitative and exploratory knowledge (Im & Rai, 2008), little is known on what factors lead service partners to share which type of knowledge. Knowledge transfer literature has not provided much insight in this issue. In addition, both knowledge transfer and organizational learning literature largely concentrate on horizontal relationships: knowledge transfer in vertical relationships has received far less attention. As vertical relationships are governed by contracts (or, alternatively: formal control, cf. Kohli & Jaworski, 1990) and relational factors (or: informal control), these factors are of paramount importance to explain that knowledge transfer becomes pertinent and should hence be investigated.

The aim of this study is thus to bridge organizational knowledge transfer and organizational learning literature by answering the research question: “How do contractual and relationship characteristics enhance exploitative and exploratory knowledge sharing by service partners to whom manufacturers have outsourced customer-facing services?” In finding an answer to this question, we make the following contributions to literature.

First, we extend knowledge transfer literature which has focused on horizontal forms of governance such as strategic alliances and joint ventures. Insights in knowledge transfer in buyer–supplier relationships are limited to new product development (NPD) projects (Zhao & Lavin, 2012). Compared to such projects, service partner and manufacturer goals in outsourcing arrangements tend to be more divergent, and hence, the role of contracts tends to be more pronounced (Gainey & Klaas, 2003).

Second, we add to outsourcing studies, which have focused on what contractual factors limit opportunistic behavior in the relationship (Aubert, Rivard, & Party, 1996; Heide, Wathne, & Rokkan, 2007; Wathne & Heide, 2004), but have left the factors that drive knowledge sharing in outsourcing relationships virtually unexplored. Knowledge sharing is hard to enforce contractually and managers should know which elements in an outsourcing contract and the informal relationship are more or less conducive to knowledge sharing. This enables them to design a mode of governance that balances service partners' efficient and effective service delivery with the manufacturers' implicit need for a continuous inflow of external knowledge over time (Chen et al., 2009). We therefore consider which contract and relationship characteristics are conducive to knowledge sharing.

Third, we make a distinction between exploitative and exploratory knowledge sharing. Although knowledge transfer processes are affected by the type of knowledge shared, research has been preoccupied with tacitness as a knowledge characteristic (Meier, 2011) and has left other categorizations of knowledge unexplored. We define exploitative knowledge sharing as the service partner disseminating and discussing with a manufacturing firm salient insights that help the firm to refine current skills and procedures. For instance, such knowledge may point out slack in existing service scripts or production processes (Benner & Tushman, 2003; Brown & Eisenhardt, 1998). With exploratory knowledge sharing we refer to shared insights that help the manufacturing firm to challenge prior approaches to interfacing with the market (cf. Kyriakopoulos & Moorman, 2004). Such knowledge may lead to long-

term rewards, such as ideas for a completely new product or service (Im & Rai, 2008). We relate contract and relationship characteristics to exploitative and exploratory knowledge sharing and investigate their differential effects to help firms achieve a healthy balance in their focus on exploitation or exploration (cf. Gupta, Smith, & Shalley, 2006).

2. Theoretical background

2.1. Managing service partner relationships

Service partners that conduct service activities on behalf of a manufacturer gather unique market knowledge during the interaction with customers (Gebauer, Edvardsson, Gustafsson, & Witell, 2010). For example, a call center employee or field service worker may have a service encounter with a customer who complained about a manufacturer's product. The complaint may hold detailed insights on the product that malfunctioned, such as what events preceded this failure and how the customer discovered the failure in the first place. This information may be used to improve the product and make it fit customer demands better. Therefore, both theorists and managers increasingly recognize the importance of getting external knowledge inside the firm (Chesbrough, 2003; Im & Rai, 2008). Trends of open innovation and crowd sourcing are implemented by firms who have experienced the advantages of operating in closely connected networks that jointly provide value propositions to customers (Chesbrough, 2003; Vargo & Lusch, 2004).

Outsourcing customer-facing services lead to triadic relationship structures, in which the service partner usually has better access to customer information than the manufacturer (Li & Choi, 2009). Manufacturers nevertheless need customer information for product and process enhancement, yet are dependent on their service partners for disclosing this information. Still, the contracts that formally govern relationships with service partners are often not geared to fostering information exchange. Rather, performance goals are set (e.g., reflected in service targets, price arrangements, payment details, and extension/termination clauses) to prevent a service partner from self-enrichment, shirking responsibilities, or cutting corners (Handley & Benton, 2009; Kotabe, Mol, & Murray, 2008; Lee & Kim, 2010). Whether contractual characteristics relate positively or negatively to a service partner's intentions to share knowledge, is to date unknown.

Previous studies do hold that a good relationship between two parties is essential to facilitate the flow of information. The quality of social relationships, as informal governance, can be a strong deterrent against opportunistic behavior in dyads or networks (Chesbrough, 2003; Granovetter, 1985). Literature on organizational knowledge transfer theory further notes that close relationships between partners in strategic alliances and joint ventures leads them to expend effort ensuring that knowledge seekers or receivers understand sufficiently the newly acquired knowledge (Hansen, 1999). Also trust, or: the belief that a partner's word or promise is reliable and that a partner will fulfill its obligations in the relationship, enables knowledge transfer because it increases the willingness to commit to helping partners understand new insights (Inkpen, 2000; Van Wijk et al., 2008). In sum, these studies hold that a good relationship is key to knowledge sharing in horizontal forms of governance.

In vertical forms of governance though, outsourcing and supply chain management considered relationship quality predominantly as an antecedent to customer satisfaction (Fynes, Voss, & De Búrca, 2005) or requirements obtainment (Lee & Kim, 1999). A knowledge perspective is lacking. Still other studies regard knowledge sharing as a dimension of the relationship quality between two partners (rather than its outcome) and do not break down the information shared into different types (Yang & Chen, 2007). We hold that knowledge sharing is a behavior and should therefore be modeled as a consequence of a state (relationship quality), rather than be an underlying part of that same state (Lee & Kim, 1999). This is in line

with distinctions made between these constructs in knowledge transfer theory. In addition, we feel that with the continued trend toward outsourcing customer-facing services, a more in-depth insight is needed into how contract- or relationship characteristics influence different types of knowledge sharing.

2.2. Exploitative and exploratory knowledge sharing

Organizational learning theory provides a sound theoretical lens through which we can examine how firms acquire, disseminate, integrate and/or update, and act on knowledge (Bell et al., 2002; Selnes & Sallis, 2003; Slater & Narver, 1995; Ye, Marinova, & Singh, 2012). First, information may be acquired from direct experiences, the experiences of others, or organizational memory. Then, through organizational dissemination of the information in the organization, multiple organizational actors are able to ask questions, provide feedback, or modify the interpretation of the information (Slater & Narver, 1995). Thereafter, the information may be codified based on a shared organizational vision and integrated in the firm's knowledge stores; reservoirs of collective insights, beliefs, behavioral routines, procedures, and policies (Johnson, Sohi, & Grewal, 2004; Ye et al., 2012). When the new knowledge contradicts previously held knowledge, a decision should be made which of the pieces of information to retain in the knowledge store. The updated knowledge store now provides better information on what a firm can and should do in its operations, which should result in a better performance (Atuahene-Gima, 2005; Johnson et al., 2004).

Successful engagement in these learning processes takes up organizational resources and firms have to balance the exploitation of current knowledge and skills and the exploration of new knowledge and skills. Learning theorists have shown that strategies to develop new knowledge about the firm's existing markets, products, and capabilities in an effort to refine them tend to limit the amount of effort that goes in to developing new knowledge that goes beyond what is currently known about markets, products, technologies and capabilities (Kyriakopoulos & Moorman, 2004; Vorhies et al., 2011). In this paper, we do not investigate how firms can balance exploration and exploitation learning strategies. Neither do we investigate how managers can make learning processes more effective. In contrast, we focus on the first stage of the learning process: how can a manufacturer shape the contract and relationship with customer-facing service partners to ensure the inflow of external knowledge that can *ultimately* lead to the refinement of existing practices (i.e., exploitative knowledge) or to the development of new market propositions (i.e., exploratory knowledge)? Where previous organizational learning studies have focused on market orientation (Baker & Sinkula, 1999; Kyriakopoulos & Moorman, 2004), market knowledge development (Vorhies et al., 2011), or customer and competitor orientation (Atuahene-Gima, 2005), we focus not so much on a firm's awareness of or capability to absorb knowledge, but rather on how a firm can govern its service partners to share knowledge.

3. Conceptual framework and hypotheses

3.1. The influence of contract characteristics on knowledge sharing

A contract provides a legal structure for a relationship and formally describes the cooperation between the two parties. The elements of the contract thus define the interactional environment during the contractually agreed term. In this study, we are specifically interested in the role of two contract characteristics: incentive schemes and level of contract specification. We pick these two elements because they are essential in agency theory (Eisenhardt, 1989), which has been used as the theoretical backdrop in previous outsourcing studies (Logan, 2000; Tate, Ellram, Bals, Hartmann, & van der Valk, 2010). Agency theory suggests that contractual incentives reward service partners for their behavior, whereas contractual specifications communicate distrust by setting the boundaries and preconditions of the relationship. Moreover,

contractual incentives can exist only with clear specifications of what is rewarded or punished (Bergen, Dutta, & Walker, 1992; Eisenhardt, 1989). We now hypothesize the relationships between these contract characteristics and service partner knowledge sharing.

3.1.1. Contractual incentives

Contractual incentives refer to elements in the contract that describe when a service partner may expect additional payments in return to its performance, for instance when it has (over)achieved pre-specified performance levels (Wynstra & Axelsson, 2002). For instance, call centers regularly receive a bonus for reaching performance levels for a set of productivity and customer satisfaction related metrics. This bonus scheme may extrinsically motivate the service partner to achieve the best possible performance to improve the firm's bottom-line results.

We posit that contractual incentives have a counterproductive effect on knowledge sharing. When confronted with extrinsic motivators, service partners are likely to focus on prescribed tasks realizing the contractual incentives provided (Atuahene-Gima, 2005; Ryan & Deci, 2000). This leaves less room for behavior outside specifications, such as knowledge sharing. Indeed, Osterloh & Frey (2000) study the effects of extrinsic motivators on knowledge transfer and conclude that contractual incentives focus on result achievement and do not motivate service partner participative behavior. Alternatively, goal setting theory predicts that clearly specified goals focus people's attention on achieving these goals, even when this does not have financial implications (Dekker, 2004). Because contractual incentives generally do not focus on knowledge sharing due to the inherent difficulties in objectifying this activity, they focus the service partner's attention away from exchanging their customer and market insights.

We expect that contractual incentives more negatively relate to exploratory knowledge sharing than to exploitative knowledge sharing, because exploratory knowledge sharing carries more risk and uncertainty than exploitative knowledge sharing (Lavie, Stettner, & Tushman, 2010). In the latter activity, a clear connection can be observed between the content of the information and the conducted activities. For example, a logistics service provider observes that customers (e.g., retailers) are downsizing their warehouse facilities and shares this trend with the manufacturer. This allows the manufacturer to adjust product packaging to reduce its own storage costs and increase efficiency. The service partner will understand how its business may benefit from sharing this knowledge with the manufacturer: with more frequent logistics on smaller packages, the return of sharing this knowledge is evident. Sharing exploratory knowledge has a less clear future return. For example, a call center service provider may sense that many customers demand a top-end version of a product currently on the market. While sharing this knowledge with the manufacturer would allow the latter to increase market share, the service provider may not directly see the return-on-investment for its own business.

Hence, from an economic perspective, the return on investment is more easily identifiable for exploitative than for exploratory knowledge sharing. Moreover, when a service partner would see the future value of explorative knowledge, it may prefer to keep the knowledge to itself because it can be a powerful asset to win future contracts or to integrate backward in the supply chain and take over some of the manufacturer's activities. Contractual incentives may then be interpreted as a manufacturer's intention to prevent a service partner extending its business (Pisano, 1991). This makes it less likely that the partner will share exploratory knowledge. As a result we hypothesize:

H1a. Contractual incentives negatively relate to exploitative knowledge sharing.

H1b. Contractual incentives negatively relate to exploratory knowledge sharing.

H1c. Contractual incentives more negatively relate to exploratory knowledge sharing than to exploitative knowledge sharing.

3.1.2. Level of contract specification

Contractual incentives can exist only with clear specifications of acceptable or expected behavior (Bergen et al., 1992; Eisenhardt, 1989). The level of contract specification is the extent to which behavioral guidelines, outcome specifications, and contract extension or termination clauses are indicated in the contract that underlies the relationship between manufacturer and service partner. Manufacturers specify the contract based on the desire to control risks and outcomes. While knowledge sharing itself is unlikely to be mandated because of its intangibility and non-routine nature (Lee, 2001), the extent to which service partners share their insights may depend on the specification of other guidelines. Knowledge transfer theorists have indicated the importance of clear communication of expectations on the efficiency and effectiveness of knowledge transfer between parties (Joshi, 2009; Mascitelli, 2000). The contract is the initial instrument a company can use to express its expectations and give insight in what it regards as valuable information.

We posit that under highly specified contracts the manufacturer-service partner relationship will suffer less from unforeseen disturbances. As the rules of engagement are well-known to both partners, the collaborative environment is conducive to creating and sharing knowledge. Fewer escalations make the contract partner feel more secure and likely to invest more in the relationship (Ling-ye, 2010). In contrast, with a lower level of contract specification, service partners experience more autonomy to make decisions and plan work activities. This may lead to negotiating the right *modus operandi* between the parties, rather than knowledge build up and exchange.

Based on earlier work (Joshi, 2009; Mascitelli, 2000), we expect the level of contract specification to relate more strongly to exploitative than to exploratory knowledge sharing. Exploitative knowledge is more closely related to existing activities and hence more likely to be shared as a “by-product” in performing the contracted service. In sum, we hypothesize:

H2a. The level of contract specification positively relates to exploitative knowledge sharing.

H2b. The level of contract specification positively relates to exploratory knowledge sharing.

H2c. The level of contract specification more positively relates to exploitative knowledge sharing behaviors than to exploratory knowledge sharing.

3.2. The influence of relationship characteristics on knowledge sharing

When the contract has been drawn up, negotiated and agreed, contract parties enter into a relationship. This stage is characterized by offline and online interactions, such as periodic meetings to discuss performance, telephone calls or emails with specific operational questions, etcetera. In these interactions, a service partner may choose to share its knowledge with the manufacturer. We posit that two major relationship characteristics facilitate the knowledge transfer process: relationship quality and relationship manager experience. Relationship quality has been considered as a key determinant of supply chain performance (Fynes et al., 2005), outsourcing success (Lee & Kim, 1999), relationship learning (Selnes & Sallis, 2003) and interfirm knowledge transfer (Inkpen, 2000; Johnson et al., 2004). We extend existing findings by investigating how relationship quality relates to the type of knowledge sharing by service partners. In addition, service partners usually do not share information with a random representative of a manufacturer; instead, a relationship manager acts as a single point-of-contact. He or she holds a key position as the boundary-spanner between external information and internal processes. An experienced relationship manager may more easily breed the trustful environment needed for knowledge sharing activities (Dahl & Pedersen, 2004). Next, we relate these two characteristics to knowledge sharing.

3.2.1. Relationship quality

We define relationship quality as the state, strength and climate of the inter-firm relationship (Johnson, 1999; Smith, 1998). Previous literature has shown that state-like constructs such as relationship quality are potent drivers of acts such as knowledge sharing (Ling-ye, 2010; Selnes & Sallis, 2003; Zhao & Lavin, 2012). Various scholars have argued that relationship quality includes elements such as cooperation, responsiveness, empathy, assurance and trust (Deepen, Goldsby, Knemeyer, & Wallenburg, 2008; Johnson et al., 2004; Langfield-Smith & Smith, 2003). When a business-to-business relationship is characterized by these elements, each partner in the relationship feels that the other is less likely to behave opportunistically (Eisingerich, Rubera, & Seifert, 2009). Also, partners are willing to take more risk and go the extra-mile when their counterpart is reliable, empathic, and provides support when necessary (Inkpen, 2000; Zhao & Lavin, 2012). Contractual boundaries between the firms blur as they value each other's needs and abilities; knowledge sharing will consequently emerge more naturally as the relationship has more depth and the partner is less concerned with information sharing vulnerabilities (Zhao & Lavin, 2012).

We also expect that relationship quality will have a stronger effect on exploratory than on exploitative knowledge sharing. As exploratory knowledge sharing requires a larger and more risky investment of the service partner, true cooperation and a trustworthy environment are required for a service partner to engage in such activities (Eisingerich et al., 2009). Exploitative knowledge sharing consumes less resources and its payoff is easier to understand. It may therefore exist even in less-than-optimal relationships; the marginal effect of a higher relationship quality therefore will be lower. In sum, we hypothesize:

H3a. Relationship quality positively relates to exploitative knowledge sharing.

H3b. Relationship quality positively relates to exploratory knowledge sharing.

H3c. Relationship quality more positively relates to exploratory knowledge sharing behaviors than to exploitative knowledge sharing.

3.2.2. Relationship manager experience

Recent inter-organizational knowledge transfer research (Meier, 2011) has indicated the importance for organizational knowledge transfer of ongoing face-to-face interactions between partners. The relationship manager monitors, evaluates, and documents service partner performance. He/she also acts as a communication interface and should be a true representative of the manufacturer to create a positive image for the service partner (Lin, Pervan, & McDermid, 2007). The relationship manager thus influences the communicative pattern between the parties and thereby influences knowledge transfer practices on the interface (Easterby-Smith, Lyles, & Tsang, 2008; Im & Rai, 2008; Meier, 2011).

Relationship managers become more competent and effective in managing relationships with experience (Lee, 2001). Experienced managers possess a wide set of decision making heuristics, because they have been involved in many different outsourcing relationships (Nonaka, 1994). This allows them to more easily assess whether a service partner could hold interesting knowledge and allows him to more effectively communicate needs (Cohen & Levinthal, 1990; Easterby-Smith et al., 2008). They are able to emphasize what is valued by the manufacturing firm and focus the attention of the service partner on these issues (Barthélemy, 2003; Meier, 2011). Periodic meetings will consequently be centered on this topic, increasing the chance of information exchange. In addition, more experienced relationship managers create an environment conducive to information sharing because their reputation is more likely to be known, and their expertise makes it more likely that they are able to fulfill their promises in a buyer-seller relationship. Any past interpersonal and relational investments made

by a relationship manager would be jeopardized by untrustworthy behavior (Doney & Cannon, 1997), which makes a service partner less hesitant to share knowledge. Also, experienced relationship managers hold their position over time, which prevents service partners from dealing with a different boundary spanner on every interaction. This is important as individuals share more information with people they know than those they do not know (Van Wijk et al., 2008; Zhao & Lavin, 2012). We thus expect that experienced relationship managers can leverage their position in the relationship between manufacturer and service partner to stimulate knowledge sharing.

We posit that an experienced relationship manager is more important for a service partner to engage in exploratory knowledge sharing than in exploitative knowledge sharing. Again, we argue that the former is more risky, takes more effort and its returns-on-investment are more difficult to identify. Moreover, the experience of a relationship manager allows him/her to more clearly express what knowledge is considered valuable and what is regarded as common knowledge (Easterby-Smith et al., 2008). Exploratory knowledge sharing goes beyond what is routinely expected from a service partner and only an experienced relationship manager may convince the service partner of the relevance of sharing. Hence, we hypothesize:

H4a. Relationship manager experience positively relates to exploitative knowledge sharing.

H4b. Relationship manager experience positively relates to exploratory knowledge sharing.

H4c. Relationship manager experience more positively relates to exploratory knowledge sharing than to exploitative knowledge sharing.

Fig. 1 outlines our conceptual model.

4. Method

4.1. Sample and data collection procedure

To empirically test our framework we collected data from a large multinational firm. The focal firm operates on a global scale in several industries (medical, automotive, electronics, industrial goods & services) and produces a large variety of products ranging from simple consumer products to technologically advanced professional products. The firm's product divisions operate in more than 100 countries and employ around 120,000 employees. Most of its markets can be characterized as highly competitive and uncertain with global players competing with high tech startups. Furthermore, there is an ongoing process of technological change in many of the firms' traditional markets. The firm has a centralized global purchasing unit which sources customer-facing services on behalf of decentralized business units. The contracts that result from centralized sourcing activities are operationally managed by *relationship managers* in the decentralized departments. Preliminary interviews were held within the firm to build our conceptual model and

to identify those measures that are regarded as adequate in our setting. Thereafter, we targeted 122 relationship managers who managed relationships with customer-facing service partners and asked them to reflect on one specific relationship.

4.2. Sample characteristics

We collected our data using an online survey tool and received 70 completed surveys (58.3% response rate). The main reason for pursuing a quantitative strategy has its roots in the fact that the constructs used in this study are well understood in existing works and the aim of this research to provide rigorous tests of relationships (Edmondson & McManus, 2007). A secondary reason for this strategy is that it allowed us to test our model across multiple industries and across different types of customer facing services.

The mean tenure of the respondents was eight and a half years, 29% had up to four years of experience in managing outsourced relationships, 20% reported four to eight years of experience, 24% had eight to twelve years of experience, and 27% had more than twelve years of experience. Of all respondents, 64% managed logistics services, 14% managed call center services, 12% managed repair services, 8% managed marketing services and the rest related to sales services (2%). The average contract duration in the sample is 3.48 years; 25.8% of the contract terms were up to two years, 51.8% of the contract terms were between two and four years, 17.6% of the contracts were between four and six years, the rest of the contracts had a longer term. The average relationship duration (including past extensions) in the sample is 4.87 years; 54% of the relationships were up to four years old, 26% between four and eight years, 11% between eight and twelve years and 9% of the relationships in the sample originated twelve years back (longest being twenty years).

Despite the relatively high response rate, we tested for non-response bias by comparing the answers of early respondents to those of late respondents (Armstrong & Overton, 1977). T-tests did not reveal any significant difference in the means and standard deviations of focal variables.

4.3. Measures

We used measurement scales from existing works to operationalize our constructs. We pre-tested the survey questions to secure measurement adequacy. Unless indicated otherwise, responses were recorded on 7-point Likert scales tapping the extent to which a respondent agreed to each statement. *Exploitative knowledge sharing* and *exploratory knowledge sharing* were measured with three items each, adapted from He and Wong (2004). Contractual incentives were measured with an instrument specifically designed for this research, assessing the extent to which exceeding contractual performance targets resulted in a bonus. Level of specification was measured with four items from Lusch and Brown (1996).

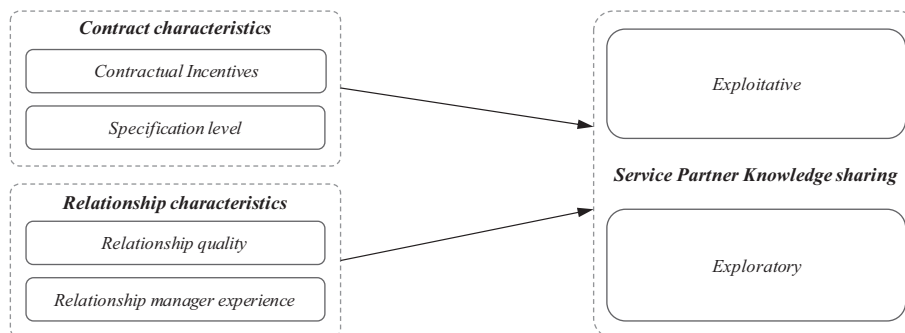


Fig. 1. Conceptual model.

Relationship quality was modeled as a reflective second-order construct (cf. Burke Jarvis, MacKenzie, & Podsakoff, 2003) and consisted of the first-order constructs cooperation, responsiveness, empathy, assurance, and trust (Deepen et al., 2008; Sako, 1992). Four items adapted from Powell, Koput, and Smith-Doerr (1996) measured *cooperation* and indicated whether the parties truly cared about each other's interests. *Responsiveness* was measured with five items from Deepen et al. (2008) that reflected the willingness and ability of the partners to quickly respond to each other's requests and suggestions. *Empathy* was measured with seven items from Lahiri and Kedia (2009) that tapped to what extent the relationship parties sympathized with each other's view. *Assurance* was measured with four items from Deepen et al. (2008) that assessed the extent to which it is safe to take risks within the relationship. *Trust* was conceptualized using five items from Sako (1992) and tapped whether the parties could rely on each other's capabilities and intentions.

Relationship manager experience reflected the tenure of the relationship manager in managing outsourcing relationships and was measured in months; logarithmic transformation was applied to create a normal distribution.

4.4. Control variables

We included additional measures in the survey to control for alternative explanations of our hypothesized effects. *Service complexity* measured the extent to which the outsourced service was knowledge intensive. This accounts for lock-in effects associated with services that require specific knowledge (Cannon & Perreault, 1999). *Face-to-face interaction* was measured as a binary variable to control for the fact that knowledge is more likely to emerge from face-to-face interactions between service provider and customer. Varying *contract duration* is a salient technique used by contractors to control service partner actions. Short contract durations are thought to increase the perception of pressure to perform and hence reduce the risk of opportunistic behavior (Cook, 1999). Contract duration reflected the duration of the current contract with the partner in months; a logarithmic transformation was applied to achieve a normal distribution. Finally, *relationship duration* indicates the duration of the overall relation between the parties, accounting for all former contracts. Longer relationships create a trusted environment and make the parties involved more aware of each other's needs (Liu, Li, Tao, & Wang, 2008). This simplifies mutual understanding of what information would be valuable to share with the other party.

5. Results

We examined our data in a two-step approach, using SPSS 19.0 and SmartPLS 2.0 (Ringle, Wende, & Will, 2005). Partial least squares path (PLS) modeling was used as this technique is suitable for relatively small sample sizes (Hair, Black, Anderson, & Tatham, 2006). In addition, PLS allows the simultaneous modeling of relationships among multiple independent and dependent constructs. It allows to construct unobservable variables measured by indicators. It thereby overcomes several limitations of regression-based approaches, such as the postulation of a simple model structure, the assumption that all variables can be considered as observable, and the conjecture that all variables are measured without error (Haenlein & Kaplan, 2004). In the first step we examined descriptive statistics and performed confirmatory factor analysis to check validity and reliability. Psychometric properties of the focal constructs are presented in Table 1. The Fornell and Larcker (1981) procedure was used to test for discriminant validity, i.e. whether the constructs could be meaningfully separated from an empirical point of view. This procedure states that the square root of the Average Variance Extracted (AVE) for each construct should exceed the correlation shared between any two constructs.

Table 2 shows that all constructs passed this test. Notably, we conclude knowledge sharing and relationship quality to be two separate constructs.

The procedure of Chin (1998) was used to test multidimensionality of the second-order construct relationship quality. All path estimates for the first-order dimensions were above .7 and highly significant ($p < .01$), indicative of convergent validity. Nevertheless, we removed the assurance dimension because its AVE was $< .50$ (Hair et al., 2006). To further validate the relationship quality construct, a goodness-of-fit index (GoF) was computed for a model that solely consisted of this construct. The GoF score of 0.55 exceeds the baseline cut-over values of 0.36 proposed by Wetzels, Odekerken-Schröder, and Van Oppen (2009); we conclude that our first-order latent variables are distinct and capture different information, but are tied to a common higher-order relationship quality construct (Table 3).

The second step in our approach comprised hypothesis and model testing. The model was tested with 300 iterations; t-values were obtained through a bootstrap procedure with 500 samples (Chin, 1998). Table 4 presents the results from PLS estimation and indicates that our antecedents explained 25.2% of the variance in exploitative knowledge sharing and 33.2% in exploratory knowledge sharing. We applied procedural recommendations by Conway and Lance (2010) to prevent common method variance. In addition, formal tests proposed by Lindell and Whitney (2001) and Podsakoff, MacKenzie, Lee, and Podsakoff (2003) showed that common method bias did not affect our results.

Fig. 2 outlines our results. Contractual incentives had a negative effect on exploratory knowledge sharing, but not on exploitative knowledge sharing ($\beta = -.293, p < .01$; $\beta = -.133, n.s.$ respectively). We thus found support for H1b, but not for H1a. To test H1c, a significance test on the differences between these two effects, we calculated the Bayes factor (BF) using state-of-the-art BIEMS software (Kass & Raftery, 1995; Mulder, Hoijtink, & de Leeuw, 2012; Mulder, Hoijtink, & Klugkist, 2010; Mulder et al., 2009). No significant effect was found (BF = 0.02); hence, H1c is rejected. PLS results confirm the positive effect of contract specification level on both exploitative ($\beta = .297, p < .01$) and exploratory knowledge sharing ($\beta = .227, p < .01$). The pattern of effect sizes also supports H2c (BF = 3.73); a stronger effect on exploitative knowledge sharing.

We found significant positive effects of *relationship quality* on exploitative knowledge sharing ($\beta = .206, p < .05$) and exploratory knowledge sharing ($\beta = .274, p < .01$), supporting H3a and H3b respectively. H3c was also confirmed by the results (BF = 3.80); a stronger effect of relationship quality on exploratory knowledge. Relationship manager experience related positively to exploratory knowledge sharing ($\beta = .218, p < .05$), but not to exploitative knowledge sharing ($\beta = .149, n.s.$). This supported H4b, but not H4a. The Bayes factor calculation confirms the larger effect of experience on exploratory knowledge sharing, supporting H4c.

We found no significant effects for our control variables (face-to-face interaction, service complexity, contract duration and relationship duration) on exploitative and exploratory knowledge sharing.

6. Conclusions and implications

The aim of this research was to identify how contractual and relationship characteristics enhance exploitative and exploratory knowledge sharing by service partners to whom manufacturers have outsourced customer-facing services. We outline the major takeaways below.

Our first key finding is that outsourcing relationships with clearly specified boundaries seem to be characterized by higher levels of knowledge sharing. We found positive relationships between the level of contract specification and knowledge sharing. This corroborates with expectations from knowledge transfer theorists who state that unclear specifications hinder knowledge transfer (Joshi, 2009; Mascitelli, 2000; Zhao & Lavin, 2012), and argues against scholars who show that discretionary behavior can be limited by highly, or over-specified

Table 1
Summary of measurement scales.

Variable	FL	CR	AVE
Contractual incentives		.83	.72
The payment to our service partner increases based on the achieved performance.	.70		
We pay our service partner performance bonuses when performance goals are over-achieved.	.98		
Level of specification		.86	.61
The contract precisely states the legal remedies for a service partner's failure to perform.	.77		
The contract precisely states what will happen in the case of service events occurring that were not planned.	.76		
The contract precisely states how service disagreements will be resolved.	.89		
The contract is highly customized and required considerable legal work.	.66		
Cooperation		.94	.79
Each party typically keeps its promises because it genuinely cares about the other party's interests.	.84		
Both parties have a clear intention to cooperate closely because of mutual positive feelings.	.90		
Both parties believe they should cooperate well because they share the same values and interests.	.93		
Each party takes into account the other party when making important decisions, because they share a strong feeling of loyalty to one another.	.89		
Responsiveness		.85	.54
Both parties in the relationship can adapt operations quickly to environmental changes.	.75		
We are able to make adjustments in the partnership to cope with changing circumstances.	.71		
Whenever some unexpected situation arises, the joint management of this relation is capable of modifying the existing structure and strategies of the partnership.	.72		
The personnel of both parties give prompt service to each other.	.78		
The personnel of both parties are never too busy to respond to each other's requests.	.70		
Empathy		.93	.65
In the relationship with the service partner...	.76		
We always see things from each other's view.			
We know how the other feels about our joint business.	.81		
We understand each other's values and goals.	.79		
We care about each other's welfare.	.86		
We understand each other's specific needs.	.86		
We work with each other's best interests at heart.	.80		
We give each other due attention.	.77		
Assurance ^a		.74	.43
In the relationship with the service partner...	.62		
We often hold mistakes against each other [r].			
We are able to discuss problems and tough issues.	.62		
It is safe to take a risk.	.76		
No party would deliberately act in a way that undermines the other party's efforts.	.60		
Trust		.86	.57
The relationship with the service partner is characterized by high levels of trust.	.83		
Both parties generally trust that each will stay within the terms of the contract.	.78		
Both parties are generally skeptical of the information provided to each other [r].	.57		
Both parties are trusted to have the right resources of capital and labor.	.62		
Both parties acknowledge each other's reputation and abilities.	.76		
Exploitative knowledge sharing		.91	.78
Our service partner has shared knowledge and suggestions that could have led to...			
...higher efficiency levels.	.95		
...cost savings.	.88		
...reduced consumption of materials or resources.	.82		
Exploratory knowledge sharing		.92	.80
Our service partner has shared knowledge and suggestions that could have led to...			
...a new generation of services.	.91		
...the opening up of new markets.	.87		
...the entrance and/or application of new technological fields.	.92		

FL = standardized factor loading, CR = composite reliability, AVE = average variance extracted, [r] = reversed scale.

^a Construct and items were removed due to not meeting Average Variance Extracted criterion >.5 (Hair et al., 2006).

Table 2
Discriminant and convergent validity of the constructs.

Construct	1	2	3	4	5	6	7	8
1 Contractual incentives	0.722							
2 Specification level	0.034	0.605						
3 Relationship quality	0.011	0.363**	0.633					
4 Exploitative knowledge sharing	0.141	0.375**	0.318**	0.781				
5 Exploratory knowledge sharing	0.291**	0.328**	0.344**	0.510**	0.806			
6 Relationship manager experience ^a	0.046	0.167	0.027	0.174	0.149	–		
7 Relationship duration ^a	0.102	0.190	0.219	0.116	0.039	0.518**	–	
8 Contract duration ^a	0.106	0.065	0.203*	0.079	0.116	0.111	0.102	–

Average Variance Extracted plotted on the diagonal.

^a Observed variable (AVE extraction not applicable).

* Correlation is significant at the 0.051 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Table 3
Validity test of second-order construct relationship quality.

Construct	Path estimate	T-value	Correlations		
			Cooperation	Responsiveness	Empathy
Cooperation	0.882	40.407**			
Responsiveness	0.788	25.774**	0.594**		
Empathy	0.919	58.762**	0.742**	0.652**	
Trust	0.766	15.887**	0.367**	0.444**	0.376**

** Significant at the 0.01 level (2-tailed).
* Significant at the 0.05 level (2-tailed).

Table 4
Results.

	Dependent constructs				(H.c)
	Exploitative knowledge sharing (H.a)		Exploratory knowledge sharing (H.b)		
	(β)	T-value	(β)	T-value	BF
<i>Independent constructs</i>					
H1: Contractual incentives	-0.133	1.329	-0.293***	3.194	0.02 ^a
H2: Specification level	0.297***	3.219	0.227***	2.911	3.73 ^b
H3: Relationship quality	0.206**	1.995	0.274***	3.443	3.80 ^c
H4: Relationship manager experience	0.149	1.559	0.218**	2.039	2.84 ^d
<i>Control variables</i>					
Face-to-face interaction	0.085	0.794	-0.113	1.087	-
Service complexity	0.080	0.440	-0.002	0.127	-
Contract duration	-0.130	1.159	-0.087	1.335	-
Relationship duration	-0.053	1.085	-0.172	1.419	-
R ²	25.2%		33.2%		

N = 70.
* p ≤ 0.05 (two-tailed).
** p ≤ 0.01 (one-tailed).
*** p ≤ 0.01 (two-tailed).
^a H1c: β_(H1a) > β_(H1b).
^b H2c: β_(H2a) > β_(H2b).
^c H3c: β_(H3a) < β_(H3b).
^d H4c: β_(H4a) > β_(H4b).

contracts (Tate, Ellram, & Brown, 2009) because of distrust signals (Wuyts, 2007) and lock-in effects (Aubert et al., 1996). We posit that unarticulated expectations leave service partners guessing for desired performance levels, resulting in disappointing service performance. We speculate that contract specifications aid a service partner to get an overview of which information is valued by a manufacturer through which the partner is enabled to update the firm's knowledge store. Not all information shared by a service partner may be interpreted by the manufacturer as knowledge. Only when a service partner shares insights that are built around an area of interest and that can be regarded as new to the knowledge stores (as reflected in specifications), a manufacturer

may value the communication and recognize the insights shared as knowledge. Hence, we hold that contractual specifications provide a frame of reference that makes a service partner share those insights that provide value to a manufacturer.

A second important finding is that there is, at least in our data, a strong negative relationship between contractual incentives and exploratory knowledge sharing. This finding is in line with earlier work indicating negative effects of output control on knowledge sharing (Atuahene-Gima, 2005; Hitt, Hoskisson, Johnson, & Moesel, 1996). Contractual incentives drive a service partner to maximize its short-term profit, rather than optimize the long-term relationship with the supply chain partner (Osterloh & Frey, 2000; Quinn, 2000). Although knowledge-supporting contractual incentives are very rare in outsourced customer-facing service contracts, it is clear from an organizational learning perspective that knowledge is a vital asset to firms (Baker & Sinkula, 1999). Our results suggest that exploitative knowledge sharing is not affected by the presence of contractual incentives, which may indicate that service partners are hard to incentivize on sharing knowledge on perfecting extant operational processes. Yet, such knowledge may either be shared by default, or in an effort to (re)gain a positive image to ensure contract renewal (Kim & Mauborgne, 1996). To increase knowledge sharing, we suggest that contractual incentives should emphasize knowledge sharing in supply chain relationships, rather than performance goals (Dyer & Nobeoka, 2000). A suggested solution is to contractually put emphasis on knowledge management practices and articulate related goals (Meier, 2011) which implicitly motivate knowledge transfer.

Third, knowledge sharing from service partners may also be enhanced through a well maintained relationship. We found that relationship quality is strongly and positively associated with sharing both types of knowledge. This is in line with extant works that conclude that relationship quality enables successful knowledge transfer in organizational relations (Eisingerich et al., 2009; Johnson et al., 2004; Ko, Kirsch, & King, 2005; Van Wijk et al., 2008; Zhao & Lavin, 2012). It builds a long term commitment between two parties, and as a result, both are willing to make idiosyncratic investments into the relationship. Experienced relationship managers may also trigger explorative knowledge sharing as they manage the contact with the service partner. Experience enables the relationship manager to absorb new insights and pose the right

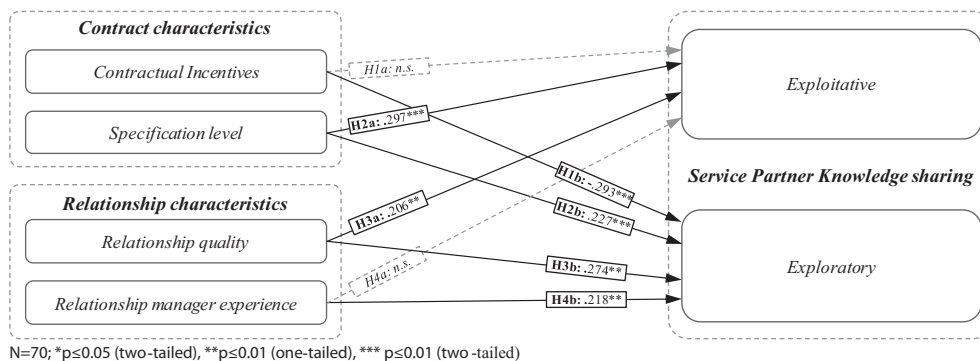


Fig. 2. Final model results. N = 70; *p ≤ 0.05 (two-tailed), **p ≤ 0.01 (one-tailed), ***p ≤ 0.01 (two-tailed).

questions for further exploration. Experience further allows the relationship manager to more clearly communicate what knowledge is to be transferred thereby influencing the efficiency and effectiveness of knowledge transfer (Atuahene-Gima, 2005; Joshi, 2009). However, no effect was found of his/her experience on exploitative knowledge sharing. It could be that more tenured relationship managers are not really excited to hear information that incrementally improves services or products. They are therefore not probing service partners to share such information. Only insights that radically deviate from existing scripts may trigger their interest.

Finally, we conclude that firms may more effectively control exploratory knowledge sharing than exploitative knowledge sharing by varying contractual and relationship characteristics. The study shows that firms can secure the sustained buildup and revitalization of their knowledge stores at vertical partners and secure adaptive or generative learning (Baker & Sinkula, 1999) with contract and relationship characteristics. Apparently, exploitative knowledge sharing may be explained by elements that we did not assess in our study, such as the presence of a technology that facilitates information sharing.

6.1. Managerial implications

Manufacturing firms increasingly outsource customer-facing services to external service partners. In the resulting triadic relationship structures, manufacturers risk losing touch with their customers, as their service partners are the ones with customer contact. Service partners may now possess valuable market and customer-related knowledge that, when shared, could help the manufacturing firms sustain and enhance the value of its market offers. Based on our findings, we give advice to managers responsible for such outsourcing arrangements.

First, we advise firms to see outsourcing activities in the light of the broader marketing focus on exploitation or exploration. A firm with an exploitation strategy focuses its activities on refining and strengthening its current propositions through e.g. optimizing their existing marketing mix strategies. Alternatively, a firm with an exploration strategy focuses on challenging prior approaches to interface with the market, such as new segmentation, new positioning, new products, or new channels. Both strategies are dependent on the influx of information from the environment. We show that careful management of service partners can ensure their sharing information that may benefit either an exploitation or exploration strategy. As such, outsourcing should not (only) be seen as a “money saver”, but rather as a part of the marketing strategy of a firm. Remarkably though, many contracts lack any references to the importance of knowledge sharing. We specifically advise to define goals that put emphasis on knowledge transfer. For instance, a manufacturer may set key performance indicators on knowledge management sessions and periodical revisions of knowledge documents (e.g. written procedures or posts on knowledge community blogs). Additionally, predefined fair share policies related to rents coming from improvements in costs or profits as a result of service partner knowledge transfer may further motivate these discretionary behaviors.

Second, if a firm is looking to boost their exploitation strategy, they should design contracts with customer-facing service partners in such a way that these entities likely share exploitative knowledge. We advise managers to design the contract such that it is clear for a service partner what the manufacturer's expectations are toward knowledge management practices. This may be done by bilaterally scheduling periodical meetings to review current practices, apart from meetings to officially review service performance. Alternatively, the manufacturer may require the service partner to log inefficiencies following a service encounter. Another advisable option is to conduct a relationship quality survey wherein both parties rate each other, next to a self-rating, making use of the relationship quality measures in our study. Such survey provides a clear structure for any resulting gap-analysis discussion but moreover provides clarity to the parties what the aims are for the manufacturer on a relationship management level.

In contrast, if a firm strives to receive knowledge to help their exploration strategy, we advise to hold back on installing contractual incentives, but to be clear in contractual specifications, and nurture a high-quality relationship, for instance through experienced relationship managers. Clearly specified contracts create a shared vision of the future which motivates the service partner to take a long-term perspective to a relationship with the manufacturer. Service partners become less concerned with their competitive position on the market, because their future is sustained in the contract with the manufacturer. This motivates service partners to go beyond the transactional nature of the relation and share any available knowledge.

Finally, regardless of a firm's marketing strategy, we advise that following partner selection and contracting process, sufficient emphasis should be placed on crafting a high quality relationship. To prevent service partners from post-contractually capitalizing on the knowledge gathered during the relationship with the manufacturer, service partners should be allowed to act as a vertically integrated department of the manufacturer. They may then use their autonomy to expand the manufacturer's business. However, providing services to multiple manufacturers may stop service partners from sharing knowledge, because their existence has become less dependent on a single manufacturer.

6.2. Limitations and further research

As with every study, our research carries a few limitations that at the same time provide a fruitful ground for future research. First, our sample size was limited. We employed PLS's bootstrapping procedures to circumvent this problem, but future studies should replicate our findings with a larger sample size. Furthermore, the generalizability of the results could be further tested by studying firms active in a single industry, to see whether results hold across domains.

Second, knowledge sharing in supplier–buyer relationships is a complex phenomena to understand; many factors may determine or affect service partner behaviors in these situations. The relationships among the core constructs used in this study may therefore be more complicated than hypothesized. For example, although we find contract specification to influence knowledge sharing, there are many factors that potentially play a role before knowledge is shared or not, ranging from partner and market characteristics (such as competitive overlap) to cultural differences (Meier, 2011). Future research may try to identify mediators and/or moderators that further strengthen and explain the effects found. This is especially true for non-significant paths. An example of such effect is the relative importance of the manufacturer to the service provider in terms of fit with business goals and models. Service partners may serve multiple customers giving rise to conflicts in making customer-specific investments. A single manufacturer competes with others to get relation-specific efforts from the service provider which could influence the effects found.

Third, in our study the relationship between contract specification and knowledge sharing was researched. Investigating which types of specifications drive knowledge sharing could further enrich the results presented. Practitioners would value insights in how to specify knowledge sharing in a contract; scholars may consequently study the most effective options, for instance through experiments.

Finally, more research can be devoted to understand the role of personality traits of relationship managers. Their experience could also have long-term detrimental effects due to the decreasing ability to absorb external knowledge (not-invented-here-syndrome). However, it is unknown whether rotation of relationship managers prevents lock-in effects.

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