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Making a profit with R&D services — The critical role of relational capital

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ABSTRACT

Services are expected to become the key source of profit and competitive advantage for industrial firms in the transition from product business to customized and integrated solutions. At the core of this transformation are complex and knowledge-intensive R&D services that enable the customization of solutions, and particularly the relational capabilities needed for R&D service interactions. However, little research has been conducted on the profitability of suppliers' R&D services and the factors that facilitate profit generation from such complex and knowledge-intensive services. Our primary aim is to identify the factors that influence the relationship between R&D services and suppliers' profit performance in customer relationships. Using data from 91 supplier–customer relationships, the study demonstrates how the relational form of social capital (relational capital) facilitates the profit impact of R&D services in the supplier–customer relationship. The results contribute to the study of industrial servitization, R&D service interactions, and the factors that facilitate financial value creation via complex and knowledge-intensive services by industrial suppliers. The results enhance the study of service networks, R&D collaboration, alliance capabilities, industrial marketing, and inter-organizational networks.

1. Introduction

Product manufacturing companies have been moving toward providing services and solutions. Industrial customers increasingly expect suppliers to provide customized and comprehensive solutions, a capability that requires R&D services and related capabilities from solution providers (Brady, Davies, & Gann, 2005; Davies & Brady, 2000; Davies, Brady, & Hobday, 2007; Helander & Möller, 2008; Windahl & Lakemond, 2010). To meet the needs of customers and to avoid product commoditization and direct price competition against low-cost overseas rivals (Nambisan, 2001), companies add complex services to their portfolios. Industrial service business yields several benefits, including resistance to the effects of recessions, counter-cyclical and more stable revenues (Gebauer & Fleisch, 2007; Oliva & Kallenberg, 2003), competitive advantage (Theoharakis, Sajtos, & Hooley, 2009), and higher profit margins (Mathe & Shapiro, 1993).

An industrial firm can offer a wide variety of services, including delivery services (Morris & Davis, 1992), technical support (Homburg, Fassnacht, & Guenther, 2003), repairs, and maintenance (Boyt & Harvey, 1997; Oliva & Kallenberg, 2003; Samli, Jacobs, & Wills, 1992). These types of services are relatively transactional; they do not require the significant investments in customer relationship management, or relational structures required for more complex and knowledge-intensive services. The latter may include procurement operations, project and process management, and R&D services (Homburg et al., 2003; Oliva & Kallenberg, 2003).

The present study concentrates on R&D services because of their strategic importance. R&D services, including feasibility studies, prototype design, product tailoring, and manufacturability analysis (Homburg et al., 2003), enable the customization of solutions and enhanced market offerings to improve the competitive position of the supplier (Matthyssens & Vandenbempt, 1998; Windahl & Lakemond, 2010). R&D services facilitate customer value creation and can thus have a positive impact on supplier profitability (Stump, Athaide, & Joshi, 2002). Effective value creation in customer service interactions requires improved relational capabilities and customer relationship management, which facilitates effective cooperation (Carbonell, Rodríguez-Escudero, & Pujari, 2009; Payne, Storbacka, & Frow, 2008; Ramirez, 1999; Vargo & Lusch, 2008).

Although there is ample documentation of supplier–customer R&D collaboration (Johnsen, 2009; Un, Cuervo-Cazurra, & Asakawa, 2010), little evidence exists on the impact of suppliers' R&D services on profits at the customer relationship level, particularly with regard to the relational factors that enable financial value creation by

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decreasing the costs associated with transactions (Madhok & Tallman, 1998; Rindfleisch & Heide, 1997). The present study examines the relationship between R&D services and supplier profit performance and the extent to which this relationship is influenced by suppliers' relational capital.

The majority of the extant studies on the impact of services on profits have focused on the firm level (Antioco, Moenaert, Lindgreen, & Wetzels, 2008; Fang, Palmatier, & Steenkamp, 2008; Gebauer & Friedli, 2005; Homburg et al., 2003) or have used a limited number of cases (Baines, Lightfoot, Benedettini, & Kay, 2009; Jacob & Ulaga, 2008). Although the use of company-level data and case-based methods has contributed to the topical body of knowledge in this area, such approaches have limitations. The company-level approach does not allow profit levels to be assessed within particular customer relationships. This disadvantage is significant because service value is created in supplier–customer interactions, such that it depends on the quality of the relationship (Grönroos, 2008; Möller & Törrönen, 2003). Although the study of individual cases allows researchers to examine interactions and service processes, it does not allow for generalizations about the factors that influence profits. Scholars have called for large-scale, cross-sectional studies on services because such research would broaden the knowledge base and yield useful generalizations (Jacob & Ulaga, 2008), as would studies on the financial impact of industrial service business (Gebauer, Ren, Valtakoski, & Reynoso, 2012; Ostrom et al., 2010). To respond to these calls for further research, we examined a sample of 91 industrial supplier–customer relationships to determine relationship-specific supplier profitability levels using causal modeling techniques.

Prior studies present some evidence of the role of relational capabilities in producing positive relational outcomes, whether functional (Jiang, Henneberg, & Naudé, 2011; Kim & Kim, 2009; Ritter & Gemünden, 2004) or financial (Kale, Dyer, & Singh, 2002; Smirnova, Naudé, Henneberg, Mouzas, & Kouchtch, 2011; Swaminathan & Moorman, 2009). Using the results presented in the social capital literature (e.g., Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998), we contend that in the context of supplier–customer relationships, relational capital can indicate interaction quality, which is itself a consequence of the relational capabilities of the relationship partners (Chang & Gotcher, 2007). In the present study, we define relational capital as a form of social capital embedded in a business relationship that includes dimensions such as the "mutual trust, respect and friendship that arise out of the close interactions between the alliance partners" (Kale, Singh, & Perlmutter, 2000: 218). In summary, the present study considers how suppliers' R&D services affect profits and examines the moderating role of relational capital at the level of the supplier–customer relationship.

2. Theory and hypotheses

This study builds on the intersection of different strands of literature, including those concerned with R&D services (Johnsen, 2009), supplier–customer interactions (Håkansson, Ford, Gadde, Snehota, & Waluszewski, 2009; Henneberg, Naudé, & Mouzas, 2010) and the social capital approach (Adler & Kwon, 2002; Nahapiet & Ghoshal, 1998). Addressing the calls from prior scholars for cross-disciplinary approaches to R&D service-related research (particularly research that examines R&D services and inter-organizational networks in tandem) (Ford & Mouzas, 2010; Grönroos, 2008; Johnsen, 2009), we integrate concepts from the R&D services and inter-organizational network literature into a single research model.

2.1. Research constructs

2.1.1. R&D services of industrial companies

There are numerous ways to define industrial services. Some researchers define services with reference to the IHIP characteristics: intangibility, heterogeneity, inseparability, and perishability. However, it is argued that these widely referenced textbook concepts are outdated because, for instance, they do not reflect recent technological changes, such as the introduction of the Internet and other self-service technologies (Edvardsson, Gustafsson, & Roos, 2005). We build on Lovelock and Gummesson (2004: 23), who argue that one unique characteristic of services is the "absence of ownership." We agree that services do not entail ownership; rather, services involve doing something for someone (Vargo & Lusch, 2004). Linking this concept to our focus on knowledge-based services and R&D services, in particular, we note Vargo and Lusch's (2004: 2) suggestion that services constitute "the application of specialized competences (knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself." Finally, we build on the definition presented by Grönroos (2006: 323), who defines services "as processes that consist of a set of activities which take place in interactions between a customer and people, goods and other physical resources, systems and/or infrastructures representing the service provider and possibly involving other customers, which aim at solving customers' problems."

Researchers highlight the complementary role of services in areas such as R&D to enhance product or solution sales and profitability. For example, Mathe and Shapiro (1993: 33) state that the core issue in presenting industrial services is "the motivation of showing how services can complement the sale or lease of a tangible good and their importance for the growth and competitive success." According to these definitions, services are complementary activities that support the sale of manufactured products and thus reflect a goods-dominant logic.

In prior studies, R&D services have been measured based on the extent to which services are offered to customers (Homburg et al., 2003) or by assessing the ratio of the turnover generated by the service business units to the total turnover (Fang et al., 2008). We build on these approaches and assess R&D services (e.g., feasibility studies, product tailoring, prototype design, problem analysis, and product manufacturability analysis) based on each service's share of the supplier's total revenue within one specific customer relationship.

2.1.2. Supplier profit performance in customer relationships

Studies suggest that industrial services provide counter-cyclical, recession-resistant, stable and high revenues (Antioco, Moenaert, Feinberg, & Wetzels, 2008, Antioco, Moenaert, Lindgreen, et al., 2008; Gebauer & Fleisch, 2007; Oliva & Kallenberg, 2003). Such services also provide competitive advantage (Theoharakis et al., 2009), high profit margins (Mathe & Shapiro, 1993; Oliva & Kallenberg, 2003) and high overall firm value (Fang et al., 2008). Very little empirical evidence exists, and the limited evidence is mostly from the firm level rather than the relational level (Gebauer & Fleisch, 2007). Expanding the scope of prior service studies, we adopt a narrower focus by investigating supplier profit performance in a single customer relationship. This unit of analysis is theoretically justified because the supplier's financial value results from the value experience of the customer, which is created in the service interactions between the supplier and the customer (Grönroos, 2008; Grönroos & Helle, 2010). This approach has been commended and used by prior scholars (Aulakh & Kotabe, 1997; Medlin, Aurifeille, & Quester, 2005).

2.1.3. Relational capital

Relational capital builds on the social capital literature (Krause, Handfield, & Tyler, 2007; Tsai & Ghoshal, 1998). Social capital is generally understood to exist in social and interpersonal networks, bridging and bonding (Portes, 1998) individual actors within societies (Kale et al., 2000). The existing research includes various dimensions related to the concept of social capital, such as trust, network structures and shared cognition (Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998). Recently, the concept of social capital has been extended and modified for use in business relationships and has been