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Relating in business networks: Innovation in practice

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ABSTRACT

Few studies have looked at the innovation process in the early stages of new business ventures in the context of business networks. Reporting on eight years of development of a new venture, we examine how the development of initial business relationships in an ever-changing business network affects technological innovation. We conclude that technological innovation is contingent on the development of business relationships that are a critical mechanism permitting a new venture not only to access but also to produce knowledge essential for innovating. For management this implies the need to strike a judicious balance between internal focus and closure to produce novel solutions and external focus and openness to experiment in business relationships.

1. Introduction

Policy makers credit innovation with benefiting economic development, and practitioners believe it fosters business development at firm level. The identification of factors that favor innovation and explain the innovativeness of firms has been high on the agenda of management scholars. While most early studies on innovation suggest that it occurs within firms and becomes embodied in artifacts (products), several studies have shown that innovation frequently originates in relationships between businesses, rather than within businesses (e.g. Ahuja, 2000; Håkansson & Waluszewski, 2007). Research that highlights the networked nature of the innovation process as well as research at the micro-level processes of business innovation emphasize that firms depend on and use external resources to innovate and develop (e.g. Chesbrough, 2003; Dubois & Araujo, 2006; Gupta, Tesluk, & Taylor, 2007; Hoholm & Olsen, 2012; Van de Ven, Polley, Garud, & Venkataraman, 1999; von Hippel, 1988; Von Raesfeld, Geurts, & Jansen, 2012). Moving the epicenter of innovation in business markets from the firm to inter-firm relationships, these studies yield a picture of innovation processes that is less linear than generally implied in the management literature (e.g. Bessant & Tidd, 2007).

While research recognizes inter-organizational relationships and networks as the locus of innovation, there is no consensus on what 'mechanisms' explain the success or failure of innovation in business networks (Noordhoff, Kyriakopoulos, Moorman, Pauwels, & Dellaert, 2011). Increased attention to innovation processes at a dyadic and network level has produced valuable insights and led to calls for further studies on how innovation relates to network formation (Hoholm & Olsen, 2012).

This paper seeks to contribute to the research on how innovation relates to business network formation. We add insights to the established idea that technology and innovation are the driving forces behind the formation of business relationships and networks (e.g. Johanson & Mattsson, 1992), by looking at the parallel process of how the formation of business relationships affects technological innovation. In the first part of the paper, we review the research on innovation with particular emphasis on studies of innovation as an inter-organizational and networked process. In the second part of the paper, drawing on a case study, we examine how the need to develop business relationships in an ever-changing business network affects technological innovation in an emergent new venture. We conclude discussing implications for management and research.

2. Innovation processes in business networks

The successful adoption of innovation has long been considered primarily as linked to the features of the innovative solution. Studies in this tradition tend to view innovation as taking place within companies, and generally underplay the need to interface the new solution to existing ones. In such literature, innovation is typically defined as "successful implementation of creative ideas within an organization" (Amabile, 1996, p. 1155). Accordingly, a central assumption in this research is that outcomes of an innovation project can be explained by the relative advantages of the new product, service, method, or idea over pre-existing solutions (Burgelman, Christensen, & Wheelwright, 2004; Hult, Hurley, & Knight, 2004; Rogers, 1995).

Research following this perspective suggests that innovation drives the development of new customer relationships, and in turn the

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development of a business. Indeed, it is held that the resources invested in R&D (Keizer, Dijkstra, & Halman, 2002), the efficiency of inter-functional collaboration (e.g. Kahn, 1996), and available market information (e.g. Day, 1994) will determine whether a company is able to produce a new solution that offers superior value compared to competitors (Baker & Sinkula, 2005). Adopting a market orientation is regarded as central to the development of a superior offering as it prioritizes value creation for the customer, and emphasizes the importance of responsiveness to market information (Narver & Slater, 1990). As a result of such a perspective, research has tended to focus on knowledge integration mechanisms that seek to ensure that market and other types of knowledge is captured, analyzed, and interpreted (De Luca & Atuahene-Gima, 2007). Yet, it has been observed that "the central issue of whether market orientation facilitates innovation remains unanswered" (Zhou, Yim, & Tse, 2005, p. 43).

Other studies suggest that the locus of innovation is not the firm but rather the network in which the firm is embedded (Afuah, 2000). This is recognized in the use of such concepts as networks of learning (Powell, Koput, & Smith-Doerr, 1996), collaboration networks (Ahuja, 2000), open innovation (Chesbrough, 2003), and innovation networks (Dhanaraj & Parkhe, 2006). This research recognizes that firm's development activities are related to activities underway elsewhere in the related business network and that firms are locked in a network of interdependencies (Perks & Jeffery, 2006).

Shifting the attention to inter-organizational relationships, the main focus in the literature has been on how information and knowledge needed for new product development are leveraged in formal alliances (e.g. Gulati, Nohria, & Zaheer, 2000; Hagedoorn, 2002; Rindfleisch & Moorman, 2001). However, there have been calls for more studies on the role of relationships that go beyond formal alliances (Yli-Renko & Janakiraman, 2008).

Innovation in non-formalized inter-organizational relationships came to the fore in studies of co-creation of value (Tuli, Kohli, & Bharadwaj, 2007; Vargo & Lusch, 2008) and especially in research in the IMP tradition on customer–supplier relationships. The latter research highlights the presence of continuous customer–supplier relationships, interdependences, and dynamics, best characterized as business network structures (Achrol & Kotler, 2011; Håkansson & Snehota, 1995; Johanson & Vahlne, 2011) that have implications for the innovation process. Every company is "part of a context with activities and resources which cannot be isolated from those of important counterparts" (Håkansson & Eriksson, 1993, p. 8) and thus the company is inevitably involved in a number of business relationships characterized by continuous adaptations (Hallen, Johanson, & Sayed-Mohamed, 1991). The IMP research has highlighted the role of interaction processes in business relationships for innovation as it builds on resources, activities, and actors that exist in the network (Håkansson & Ford, 2002; Håkansson, Ford, Gadde, Snehota, & Waluszewski, 2009). Several recent studies have embraced the idea that the development of new solutions occurs by recombining resource elements existing in the network of the innovating business (Ciabuschi, Perna, & Snehota, 2012; Håkansson & Olsen, 2012; Håkansson & Waluszewski, 2007; Hoholm & Olsen, 2012).

This stream of research emphasizes that the initiative and propulsive forces of innovation are not concentrated on the producer side nor on the user side; rather, they are outcomes of joint action (Dhanaraj & Parkhe, 2006; Perks & Moxey, 2011; Ritter & Gemünden, 2003), and novel solutions arise concurrently with problem identification in interactions between producers and users (Baraldi, 2008; Biemans, 1991; Harrison & Finch, 2009; Johnsen & Ford, 2007; von Hippel, 1988). Integrating customers in the innovation process is beneficial both for generating ideas for solutions and for putting them in use (Johnsen & Ford, 2007; von Hippel, 1988) because in customer–supplier relationships the 'produce perspective' is confronted with a 'use perspective' (Harrison & Waluszewski, 2008; Ingemansson & Waluszewski, 2009; Wilkinson & Young, 2002). The confrontation of supplier and customer knowledge and logic favors the production of new knowledge about possible solutions (Tuli et al., 2007; Young & Freeman, 2008).

Research has considered how being embedded in a relational (Dyer & Singh, 1998), complex, and evolutionary network (Wilkinson, 2008) affects the performance and development of the business in networks of established relationships (Bowman & Narayandas, 2004; Zaheer & Bell, 2005). Less attention has been paid to innovation when a new business venture emerges and must become embedded in a pre-existing network (Calia, Guerrini, & Moura, 2007; Elfring & Hulsink, 2003; Slotte-Koch & Coviello, 2010). This phenomenon necessitates further research and we aim to contribute by exploring in particular how the embedding and development process of a new venture affects its ability to produce innovative technical solutions.

3. Research method

We employed a case study methodology focusing on the eight years of operation of a technology innovation-based new venture, *Nemerix*, between 2000 and 2009. The case was selected because of its revelatory potential; despite its technologically advanced products, which were acclaimed by the industry, and the relative ease in obtaining financing, the venture failed in 2009.

A case-based approach is particularly relevant given the exploratory nature of this study (Miles & Huberman, 1994) and is in line with recommendations for research on industrial networks (Easton, 1995) and innovation processes (Hoholm & Araujo, 2011). It also allows us to capture the influences of a multiplicity of interrelated actors and how business relationships and the business network develop over time (Eisenhardt, 1989). Process research in marketing uses an open-ended and interpretative approach, seeking to obtain rich insight (e.g. Gebhardt, Carpenter, & Sherry, 2006). We adopted an abductive approach (Dubois & Gadde, 2002) that allowed us to produce new insights on the complex phenomenon continuously relating the empirical material to theories selected as the investigation proceeded.

Three questions guided the case analysis: What were the changes over time in the business network in which the venture tried to become embedded? What were the business relationships of the firm at various stages in the development of the venture? How did these relationships relate to the technological innovation process?

The case analysis required a retrospective collection of a considerable amount of data through interviews, official company documents, internal records, press releases and a documented company story (Bernardi, Boffi, & Snehota, 2011). Multiple sources of data enabled cross checking of information through triangulation (Lincoln & Guba, 1985). The primary source of our data comes from eleven face-to-face open-ended interviews with the company's management and founders between 2009 and 2011. Interviews lasted between 1 and 2 h and were transcribed and analyzed. In addition, we obtained the perspective of the CEOs and employees at *Nemerix* via one of the founders who had collected these after he became involved in a coaching program for start-ups. The repeated interviews, and additional research conducted to understand the market context allowed for the reconstruction of the process of the new venture development. The data collected were coded and structured, as shown in Table 1, into four developmental phases describing the funding, product development and R&D, organization, key business relationships and changes in the business network.

4. The case of *Nemerix*

The story of *Nemerix* began in 2000 when three fresh PhDs had the idea of designing the smallest GPS chipset with the lowest power consumption in the industry for potential use in Portable Navigation Devices (PNDs) and cell phone handsets. It ends with the dissolution of the company in January 2009. Table 1 describes four phases of the firm's development.

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