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Networked business model development for emerging technology-based services

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ABSTRACT

This study examines the development of a networked business model for emerging technology-based services. Few studies explore the development and use of business models, and research on networked business models is particularly scarce. With observation and interview data from a network pilot of technology-based services the study presents the concept of a networked business model as a dynamic device in planning an emerging business in a net of actors. The findings identify phases of business net evolution when business opportunities are identified, created, and potentially exploited and recognize the role of entrepreneurial actors in the development.

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1. Introduction

Emerging technologies present market opportunities (Srinivasan, 2008) and hence companies increasingly target R&D activity at identifying and exploiting such opportunities. However, translating research results into industrial innovation and commercially successful technology-based services is challenging (Lundgren, 1995). Despite the presence of market opportunities and novel business ideas, ventures may fail because of a flawed underlying model driving the business (Morris, Schindehutte, & Allen, 2005). A key challenge is to develop business models that create and shape markets for novel technology-based services as new business opportunities (Shane & Venkataraman, 2000). Business models allow entrepreneurs to explore the market and commercialize their innovations (Doganova & Eyquem-Renault, 2009) and hence, their design is critical (Morris et al., 2005; Zott & Amit, 2010).

Business model literature is largely limited to the firm level remaining somewhat simplified and static. Yet the development of technology and technology-based services require a diverse range of activities and resources from a network of actors, both commercial and non-commercial ones (e.g., Lundgren, 1995; Möller & Svahn, 2009). Hence, business nets emerge with changed or completely new value activities (Möller, Rajala, & Svahn, 2005). A business model can provide a broader conceptualization of such value creation in a net (Nenonen & Storbacka, 2010).

Doganova and Eyquem-Renault (2009) argue that the scholarly view on the use and operations of business models is flawed. Research focusing on the dynamics and processes of business model

development (Johnson, Christensen, & Kagermann, 2008) and on the influence of the network on the business model and vice versa is limited (Mason & Spring, 2011). Accordingly, it is necessary to examine business models as dynamic devices creating and planning business in a net of actors. We use the term actor to refer to corporate level actors, both companies and non-commercial organizations.

This study focuses on the development of a networked business model in the context of emerging technology-based services and aims to understand the dynamic nature of business models. The examination of the networked business model distinguishes this study from the majority that focus on a single actor, a focal firm. This study elaborates the role of business model in the business net evolution when business opportunities are identified, created, and potentially exploited by entrepreneurial actors – be they firms or individuals. The paper builds a framework for networked business model development of technology-based services in emerging markets.

Theoretically, the paper builds on research on business models from the strategic business net perspective. Since the overall objective of a business model is to exploit an opportunity (Zott & Amit, 2010), the study also makes use of literature on entrepreneurial opportunities. Empirically, this longitudinal study utilizes retrospective and real-time data, and expectations of future outcomes. The qualitative observation and interview data originate in a research-based service development net. At the time, the technology-based services were being developed and tested but their future commercialization potential had not been established. The firms involved sought new and flexible ways to act, rather than relying on old decision models (see Halinen & Törnroos, 1995, 518). Thus, the future perspective is an essential element of this study. The researchers were members of the net, following the naturalistic inquiry design (Patton, 2002, 42) but did not make any attempts to manipulate the everyday realities of the organizations. The research merely provided tools to

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support the aim of the actors; the development of the networked business model.

The paper continues with a discussion of business opportunities and business model literature, emphasizing the network perspective. Thereafter, a conceptual framework is developed, and the methodology of the study introduced. Finally, following the findings of the study, the theoretical and managerial implications and suggestions for future research conclude the paper.

2. Literature review

2.1. Business opportunity development

The creation of new business starts with an opportunity development process, where either the inventor or entrepreneur must recognize the opportunity (Ardichvili, Cardozo, & Ray, 2003) and exploit it in a business model. Singh (2001) defines business opportunity as a potential venture that provides an innovative new product or service, improves an existing product/service, or imitates a profitable product/service in a less-than-saturated market. In the opportunity identification and development process, entrepreneurs develop new ideas by combining and recombining existing ideas in new ways (Chandra, Styles, & Wilkinson, 2012). A business model then translates those ideas into viable opportunities. Entrepreneurial learning (Corbett, 2007) helps the entrepreneurs to expand their ideas and develop better opportunities (Chandra et al., 2012).

Individual traits, such as entrepreneurial alertness (Ardichvili et al., 2003; Eckhardt & Shane, 2003) and the entrepreneur's knowledge (Shane, 2000) are cited as pivotal to the discovery of opportunities. This approach implies that the qualities required to exploit business opportunities reside in particular individuals. In contrast, Garud and Karnøe (2003) discuss technology entrepreneurship as a larger process built upon the efforts of various actors from different domains like production, use, evaluation, and regulation. Indeed, a focus on the opportunity, instead of the firm or the entrepreneur, directs the view toward multiple actors (Styles & Gray, 2006) and entrepreneurial activities (Ehret & Wirtz, 2010). Guiding an idea from inception to commercial exploitation demands the mobilization of resources from different actors (Garud & Karnøe, 2003; Karnøe, 1996) involving both networks and their history in the process (Chandra et al., 2012).

There are two views of entrepreneurial opportunity creation. The first view stresses certain types of individuals and the other distributed agency and the net of actors (i.e. organizations). This study uses both as sensitizing concepts (see Blumer, 1954) guiding the empirical data collection and analysis, and to understand the identification and exploitation of an opportunity, but examines the latter more closely owing to its contextual overlap.

2.2. The nature of business models

Much of the literature focuses on defining and describing business models (e.g., Chesbrough & Rosenbloom, 2002), and identifying their elements (e.g., Osterwalder, Pigneur, & Tucci, 2005). Business models are described as narratives (Magretta, 2002), schemas (Clarke & Freytag, 2011), mental models (Storbacka & Nenonen, 2011), and recipes (Baden-Fuller & Morgan, 2010). Recent studies address the dynamic nature of business models as devices to explore the market (Doganova & Eyquem-Renault, 2009), to shape and coordinate action (Mason & Spring, 2011), and to address change and focus on innovation (Demil & Lecocq, 2010). Since the technological field is very knowledge-intensive and often difficult for stakeholders to understand, the business model can be used to explain complex processes by illustrating the value created and shared (Doganova & Eyquem-Renault, 2009).

This study suggests that a business model can assist future business planning in a net of actors. A business model used as an intelligent collective device (Doganova & Eyquem-Renault, 2009) establishes the feasibility of a business opportunity and facilitates the development of a business net to exploit it. The business model is a planning device that focuses attention on how the elements of the system could form a working whole (Magretta, 2002).

Established business models influence the information routed into or filtered out of the decision process, which can lead to firms missing potentially valuable uses of new technology that do not fit their current business models (Chesbrough, 2010). Hence, business models have power; they may act as barriers to new innovations and limit opportunities identified. We argue that business models can guide and shape actions within and between companies. Understanding business models as ideas or schemas (see Welch & Wilkinson, 2002) necessitates looking at how they are interconnected and have evolved. Business models form the interface of interactions between actors (Storbacka & Nenonen, 2011), meaning they can be conceptualized as “co-evolutionary forces in networks” (Welch & Wilkinson, 2002, 30) promoting collective ideas, schema configurations, or networked business models in a net of actors.

This study uses the business model concept to better understand business planning in a network. We acknowledge the wider discussions on how individuals act in teams and networks, such as sense-making (Weick, 1995), the development of ideas and schemas (Welch & Wilkinson, 2002), and team mental models (see Mohammed, Ferzandi, & Hamilton, 2010). Using the term networked business model we emphasize the role of business models in shaping and mobilizing future collective action, instead of focusing on individual cognitions or the current environment of a team.

2.3. Developing the business model

Few studies focus on specific phases to understand the development of business models. Those phases include specification, refinement, adaptation, revision, and reformulation (Morris et al., 2005); the technology/R&D phase, the implementation/roll-out phase, and the market phase (Kijl, Bouwman, Haaker, & Faber, 2005); or—in a technology lifecycle—the emerging or fluid phase, growth or transitional phase, and the mature or stable phase (Afuah & Tucci, 2001). The development of a business model can start from an ‘overflowing’ situation, with multiple possible but untried applications of the technology. Actors then choose a path and limit the options (Doganova & Eyquem-Renault, 2009). Initially, the business model is still largely informal and implicit, then a process of trial and error follows, and a number of decisions are made to delimit future directions (Morris et al., 2005).

Key decisions concern the core elements: selection of technologies to be embedded in the service; determining the benefit of the service to the customer; identification of market segments; confirmation of available revenue streams; and design of mechanisms to capture value (Teece, 2010). Determining the actors involved is also important, and is followed by the search for potential partners. In the early phases, actors such as research institutes, entrepreneurs, and venture capitalists may play an important role (Kijl et al., 2005). Once a fairly definite and formal model has been developed, adjustments and ongoing experiments follow (Morris et al., 2005). Doganova and Eyquem-Renault (2009) view the transformation of a business model from a model into a business as a series of experiments in market creation comprising encounters with potential partners that transform the network being built by the entrepreneur's innovation.

The above review confirms that studies on business model development see the model as an end result of the development process and do not sufficiently consider the role of the model itself in the development: How is it used to shape the emerging business? As

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