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Business models for open innovation: Matching heterogeneous open innovation strategies with business model dimensions

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ABSTRACT

Research on open innovation suggests that companies benefit differentially from adopting open innovation strategies; however, it is unclear why this is so. One possible explanation is that companies' business models are not attuned to open strategies. Accordingly, we propose a contingency model of open business models by systematically linking open innovation strategies to core business model dimensions, notably the content, structure, and governance of transactions. We further illustrate a continuum of open innovativeness, differentiating between four types of open business models. We contribute to the open innovation literature by specifying the conditions under which business models are conducive to the success of open innovation strategies.

Introduction

Open innovation has been widely debated in the management of innovation literature over the past decade (e.g., Chesbrough, 2003; Dahlander & Gann, 2010; Gassmann & Enkel, 2004; von Hippel, 2005; Prahalad & Ramaswary, 2004; West & Gallagher, 2006). On the one hand, research has identified a number of advantages of the open innovation model, such as leveraging external knowledge inputs to accelerate internal innovations and expand the markets for external use of innovation. On the other hand, empirical evidence indicates that the returns from open innovation decrease at the margin as the costs of openness exceed the benefits (Laursen & Salter, 2006). Studies highlight considerable heterogeneity in open innovation performance among companies, indicating that companies vary considerably in their ability to master the challenges associated with openness (cf., Salge, Bohne, Farchi, & Piening, 2012). Perhaps due to a lack of systematic evidence on inter-company heterogeneity in open innovation performance, little is known about the factors that help distinguish organizations capable of reaping the benefits of open innovation from those that are less capable (Huizingh, 2011). *A priori* many factors may account for such heterogeneity, such as product complexity (Almirall & Casadesus-Masanell, 2010), research capability (Laursen & Salter, 2006), and industry membership (Grimpe & Sofka, 2009).

However, recent studies reveal that companies that have successfully capitalized on integrating external sources of knowledge into their innovation processes primarily stand out in *organizational* terms: They are characterized by organizational flexibility and a willingness to restructure their existing business models to accommodate open innovation strategies (Chesbrough & Schwartz, 2007; Hienerth, Keinz, & Lettl, 2011; Keinz, Hienerth, & Lettl, 2012; van der Meer, 2007). We define business models as the content, structure, and governance of transactions inside the company and between the company and its external partners in support of the company's creation, delivery and capture of value (Santos, Spector, & van der Heyden, 2009; Zott & Amit, 2008, 2010). As business models reflect the strategic choices of the company (Magretta, 2002; Zott & Amit, 2008), the choice of open innovation requires that the company defines those ways to create, deliver and capture value in conjunction with external partners that are consistent with open innovation (Hienerth et al., 2011; Vanhaverbeke, 2006). In support of this overall proposition, empirical evidence strongly suggests that organizational design, practices and capabilities need to be aligned with open innovation strategies, so as to positively influence the sourcing of knowledge from external parties and its subsequent exploitation for innovation (Foss, Laursen, & Pedersen, 2011; Jansen, Van den Bosch, & Volberda, 2005; Keinz et al., 2012; Salge et al., 2012). These findings indicate that companies wishing to engage in open innovation must (at least partly) re-organize their business models as to accommodate their open innovation strategies and to subsequently enhance innovative performance.

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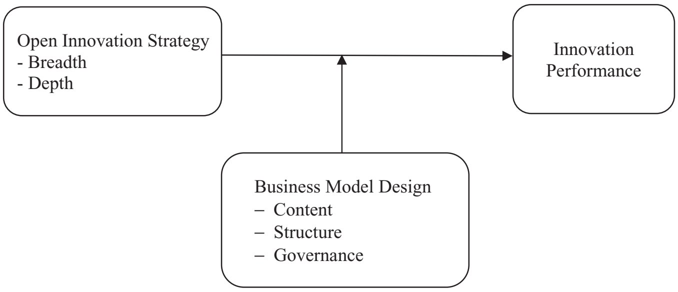

Fig. 1. Research model.

However, there is little research that explicitly links business models to open innovation strategies. That is, while such strategies differ significantly with regard to, for example the number and types of actors involved (Elmquist, Fredberg, & Ollila, 2009; Laursen & Salter, 2006) and the phases of the innovation process that are kept open in terms of interacting with outside knowledge sources (Foss, Lyngsie, & Zahra, 2013; Lazzarotti, Manzini, & Pellegrini, 2011), little is known about how companies need to design their business models to match different open innovation strategies. For this reason, companies may mistakenly think of open innovation as yet another "off the shelf" management practice that can be implemented almost as an add-on to existing practices and organizational arrangements in the company.

It is against this backdrop that this theoretical article examines the question of how companies need to align business models with different open innovation strategies. To answer this question, we review relevant literatures on open innovation and business models and subsequently propose a contingency model of open business models that systematically links inbound open innovation strategies to business model dimensions.[1] Figure 1 depicts our basic research model.

Drawing on this conceptual framework, we take the focal company's open innovation strategy (at the business-unit level) as the unit of analysis and examine how adopting different types of open innovation strategies affect a company's business model with respect to (1) the content (the set of elemental activities) (2) the structure (the organizational units performing those activities and the ways in which these units are linked), and (3) the governance of the transactions (the mechanisms for controlling the organizational units and the linkages between the units).[2] Overall, we extend the emerging literature on the organizational antecedents of successful open innovation (Foss et al., 2011; Hienerth et al., 2011; Salge et al., 2012) by explaining open innovation performance in terms of the alignment of companies' open innovation strategies with their business model. By adopting a business model perspective, we integrate recent findings from the organizational literature on the alignment of structure, practices and capabilities for open innovation, which so far have been dealt with separately, into a single framework. Using this framework allows us to differentiate business model designs for different open innovation strategies. Thus, while the contributions of this article are purely theoretical, we add to the open innovation literature by specifying the conditions under which business models are conducive to open innovation success.

Business models and open innovation: background

Companies realize different outcomes from open innovation. Three possible reasons emerge from extant open innovation literature. One research stream ascribes the inter-company performance heterogeneity to differences in open innovation *strategies*. Here, studies assume a main effect relationship between the degree of openness (commonly measured by the breadth and depth of knowledge search) and innovative performance (e.g., Fey & Birkinshaw, 2005; Laursen & Salter, 2006; Leiponen & Helfat, 2010; Oerlemans & Knoben, 2010). Such effects may correspond to actual practice; for example, the more a company's R&D personnel directly interact with external knowledge sources, the more innovation may happen as a result. However, as in actuality this is usually somehow mediated or moderated by, for example, organizational practices, a second research stream investigates the moderating or mediating variables between open innovation and performance. Here, studies (implicitly) assume that open innovation strategies are fairly similar, but that companies adopt different organizational designs, some of which are mismatched with the open innovation strategy, leading to performance differentials (e.g., Foss et al., 2011; Hienerth et al., 2011; Salge et al., 2012). Integrating these two perspectives, a third possible reason for performance differentials may stem from the fact that open innovation strategies are in fact different and thus are aligned with different business models. As companies are not equally good at matching open innovation strategies to business models, this can result in performance differentials.

Reviewing both the literatures on business models and open innovation clearly indicates that companies can choose from an array of different business models and different open innovation strategies. Thus, the match between open innovation strategy and business model is likely to be an important antecedent to open innovation performance. As little has been written on this issue, we first briefly examine the notions of business models and open innovation, and subsequently propose a contingency framework of business models for open innovation.

What is a business model?

The business model construct, though widely used in management research as well as by practitioners, suffers from lack of clarity. The construct was introduced in the late 1950s but hardly used in publications until the 1990s, and it was only with the hype of the Internet and the emergence of e-businesses that it caught on about a decade ago or so (Osterwalder, Pigneur, & Tucci, 2005; Zott, Amit, & Massa, 2011). Since then the business model construct has been used to denote different things, "such as parts of a business model (e.g. auction model), types of business models (e.g. direct-to-customer model), concrete real world instances of business models (e.g. the Dell model) or concepts (elements and relationships of a model)" (Osterwalder et al., 2005, p. 8). This conceptual ambiguity is reflected in the variety of business model definitions to be found in extant literature. Table 1 provides a non-exhaustive overview of studies that have explicitly offered a definition of business models (as to differentiate from studies that do not address the definition of business model directly).

Table 1 shows that extant definitions indeed vary. Some definitions specify the interplay between business actors, value creation and revenue sources (cf. Casadesus-Masanell & Ricart, 2010; Timmers, 1998), others relate to innovations and how to generate revenues from them (cf. Chesbrough & Rosenbloom, 2002), while

[1] While research on outbound open innovation is no less essential, in this article we focus on the implications of inbound open innovation for the design of business models. Inbound open innovation or external knowledge sourcing refers to the practice of establishing relationships with external organizations or individuals with the purpose of accessing their technical or scientific competencies for improving internal innovation performance (Chiaroni et al., 2010).

[2] We chose to focus on the business-unit level of the company (as opposed to corporate-level), as large companies can adopt different open innovation strategies for their different business units. We recommend Santos et al. (forthcoming) and Casadesus-Masanel et al. (forthcoming) for further readings on the role of corporate-level strategy on the choice and flexibility of business model design at the business-unit level.