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How to influence the birth of new business fields — Network perspective ☆

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ABSTRACT

This article explores the management challenges of emerging new business fields by using a network perspective. We are interested in the extent to which individual firms, by mobilizing cooperative networks of actors, can influence the emergence of radically new business fields. A framework describing the environment and the phases of emergence is proposed. Then the activities within each phase are discussed. Finally, we identify and examine the company-level capabilities involved in the management of these core activities. The study contributes to the management of new business fields.

1. Introduction

This conceptual article examines the managerial challenges faced by companies involved in the emergence of new business fields during periods of radical technological change. This landscape is one in which new technological paradigms such as the Internet, nanotechnology, mobile telephony and multimedia services are being created as a result of activity by networked actors. Eisenhardt and Martin (2000) describe this emerging business scene as "high-velocity markets," characterized by nonlinear and unpredictable change, with blurred market boundaries and ambiguous and shifting market players, with no evidently-successful business models. We prefer the business field concept as there is not yet any clear market structure and the field approach, by adopting a more sociological perspective, emphasizes the presence of a broader set of actors than the market concept (Granovetter, 1985; Martin, 2003). The field concept is anchored in institutional theory and refers, according to DiMaggio and Powell (1991, 64–65), to "those organizations that in the aggregate, constitute a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations…" Field approach also emphasis the interorganizational links between actors and their cognitions of the emerging business field (Lawrence & Phillips, 2004; Greenwood, Suddaby, & Hinings, 2002). This ties it more directly to the network perspective as compared to the market construct.

Above mentioned characteristics, nonlinear and unpredictable change, multiple players with blurred and shifting roles, pose serious problems for managers operating in the creation and commercialization of breakthrough innovations which often result in new business fields. The early emergence of new business fields is not transparent; there is no clear market structure with identifiable actors. On the contrary, the emergence of such science- and technology-based fields as biotechnology and mobile internet services, involves many types of firms and non-business actors such as government agencies, supra-national bodies, university research centers, industry associations and regulatory agencies (Geels, 2002; Lundvall, 1992; Nelson, 1993). The level of technological complexity and the diversity of resources and capabilities required to develop the necessary infrastructure mean that it is almost impossible for any single firm to create a new technology or business (Lundgren, 1995; Murtha, Lenway, & Hart, 2001; Teece, 1986). Driven by the technological breakthroughs and global competition, understanding how this kind of landscape emerges is becoming highly relevant for corporate renewal and new business development (Doz, Santos, & Williamson, 2001).

How should companies that are aspiring to create new businesses behave? What kind of capabilities should they have? Although there is a growing body of research on the general characteristics of the emerging business fields using either the industry evolution perspective (Murtha et al., 2001) or the network perspective (Håkansson & Waluszewski, 2002; Hinterhuber, 2002; Möller, Rajala, & Svahn, 2005), there is surprisingly little research-based knowledge on the management of radical new business creation. The majority of business network research has focused on existing networks, especially on supply and production networks (Choi & Hong, 2002; Gadde & Håkansson, 2001).

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In brief, we lack conceptual frameworks that link the characteristics of emerging business fields with their underlying management activities and capabilities. This kind of broad-spectrum framing has been argued to be highly relevant for managers in their search for an understanding of new business fields (Normann, 2001). Our study seeks to address this knowledge gap. We aim to: (1) develop a conceptual framework describing the phases of the emergence of a new business field; (2) identify the key activities that firms should master in these phases; and, (3) identify and examine the managerial capabilities required by these value-creating activities. By answering these questions we will contribute to the management theory pertaining to radical new business emergence.

In pursuing these goals, we integrate notions from industrial network theory (Håkansson & Snehota, 1995; Möller & Wilson, 1995), the strategic or value net approach (Jarillo, 1993; Möller et al., 2005; Möller & Rajala, 2007; Parolini, 1999), the resource and dynamic capabilities perspective (Eisenhardt & Martin, 2000; Möller & Svahn, 2003; Teece, Pisano, & Shuen, 1997; Zollo & Winter, 2002), and organizational learning studies (Cohen & Levinthal, 1990; March, 1991). The network approach forms the primary perspective, as the creation and commercialization of new business fields are carried out through linked actors in complex interorganizational networks (Lundgren, 1995; Lundval, 1992; Powell, Walter, Koput, & Smith-Doerr, 1996).

The article is organized as follows. We start with a discussion of the emergence of radically new business field(s). The dimensions of this landscape are identified and a framework proposed which suggests that emergence can be captured in three phases: exploring for future business; mobilizing applications; and coordinating the dissemination. The core activities constituting these phases are then put forward and the management capabilities involved are identified and analyzed. The article concludes with a discussion of the managerial implications of the study.

2. Emerging new business fields — development of a framework model

The emergence of radically new business fields is characterized by both technological and commercial uncertainty. In order to make sense of this landscape, management must be able to understand its characteristics and the forces shaping it. We examine different forms of innovation in order to recognize and differentiate relatively continuous incremental innovations from the early weak signals of more radical innovations and new technological systems which generally precede the birth of new business fields. The nature of innovations characterizes the emergence environment. Another key viewpoint is provided by the cyclical character of technological development and its underlying mechanisms. This understanding gives a dynamic perspective to our framework. Finally, the different types of actors involved in the new business emergence and their roles are discussed. The elaboration of these three aspects enables us to construct a model for emerging new business fields, which we then use to explore the tasks and capabilities involved.

2.1. Types of innovations and their environmental properties

Freeman and Perez (1988) distinguish four types of innovation: (1) incremental innovations, which occur more or less continuously in any industry (e.g., new generations in Random Access Memories (RAMs), various versions of iPod, Apple's path breaking media player); (2) radical innovations, which are discontinuous events unattainable through incremental adjustments to already existing regimes (analog vs. digital mobile phones); (3) new technological systems, which are far-reaching changes in the technology affecting several branches of the economy (digital imaging, mobile telephony); and, (4) new techno-economic paradigms or technological revolutions which are so far-reaching in their effects that they have a major influence on the behavior of the entire economy and society (electromechanical technology vs. electronics, the Internet). The taxonomy is based on the scale (i.e. single innovations vs. clusters of innovation) and the scope (minor vs. major changes) of technological change. Although these types of innovation are, as Lundgren (1995) points out, neither independent nor mutually-exclusive but embedded, they are useful for characterizing different innovation networks.

We suggest that the complexity of an innovation can be based on the number of capabilities required by an innovation, and also by the level of autonomy or embeddedness of the innovation in relation to the existing infrastructure. High autonomy and low embeddedness indicate that an innovation can be "plugged-in and played" within the existing technical and social infrastructure. Vice versa, high embeddedness refers to an architectural characteristic of an innovation requiring adjustments in the current infrastructure before its applications can be commercialized (Clark & Henderson, 1990; Tidd, 1995). By using the number of capabilities and the level of embeddedness as dimensions, a Systemic Innovation Space (Fig. 1) is proposed.

The diagonal vector in the Innovation Space describes the move from autonomous and relatively simple innovations to embedded and complex ones, and indicates both increasing uncertainty in estimating the potential success of an innovation and an increasing need to mobilize a group of specialized actors to construct and exploit the innovation. The value of a complex embedded innovation and its appropriation by the engaged actors will only become transparent in the future and will be influenced by actors and forces that probably cannot be recognized at the outset of the innovation process (Ford & McDowell, 1999; Möller & Törrönen, 2003).

We suggest further, that the two dimensions of the Systemic Innovation Space not only describe the complexity of innovations but also drive the importance of business networks in the innovation process. A few initial suggestions can be made. Firstly, the more capabilities an innovation requires, the more probable it is that its creation and business realization will be carried out by an intentionally formed net of organizations; it is improbable that any single firm can master the required technological or knowledge bases. This situation is illustrated by the iPod, which requires the efforts of not only Apple but of Internet operators, music producers, and over-the-net payment system providers. Secondly, the more new supporting systems (i.e. specific infrastructure or platform solutions) required for the innovation to be commercialized, the more probable it is that its creation and realization will be carried out by several intentionally developed and interlinked networks of organizations. An example is the development of multimedia home entertainment as systems involving several competing but overlapping and interacting systems, such as digital TV, DVDs, and the Internet. This suggestion is based on the point that if several new infrastructures are required, they demand the efforts of business networks having specialized knowledge and competences. Thirdly, the less the innovation requires capabilities and new supporting infrastructure, the more probable it is that a single organization can master the process.

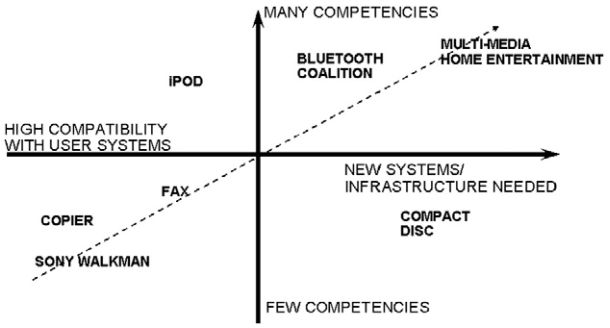

Fig. 1. Systemic Innovation Space (K. Möller).