

Chapter 21

Dynamic Capabilities and Innovation Radicalness: Review and Analysis

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ABSTRACT

The aim of the present chapter is to theoretically analyze the determinants of firm's innovation radicalness (the degree of novelty incorporated in an innovation) from a dynamic capabilities-based view of competitive advantage. Nevertheless, due to the fact that dynamic capabilities' concept suffers from certain terminological inconsistency and its components are not entirely clear in current literature, we first need to carry out an in depth review and analysis of this construct. Based on this review, we argue that dynamic capabilities arise from firm's orientation to knowledge exploration that enables the generation of new organizational capabilities, and suggest external knowledge acquisition and internal knowledge combination as its key components. Taking into account this reasoning, we propose a theoretical model on dynamic capabilities deriving some relevant propositions considering innovation radicalness as its core output and the key element to compete in dynamic environments.

INTRODUCTION

Since Schumpeter published *The Theory of Economic Development* in 1934, there has been a rising recognition of innovation as a key factor for firm's profitability and survival. Attending to the degree of novelty of the technology, innovation comes in many different types ranging from incremental to disruptive. Incremental innovations consist of minor changes or plain adjustments to existing products or technology and are built on firm's current technical capabilities; radical innovations imply the development of a highly novel or unique product/service or production process and are based on changes in firm's technological trajectory and associated organizational competencies; and disruptive innovations re-write the rules of the competitive game, creating new technological systems and sometimes even new industries (Tidd, 2001; Benner & Tushman, 2003; Dahlin & Behrens, 2005). Most innovations can be characterized as incremental, whereas radical innovations, and especially disruptive innovations, are much less frequent (Schoenmakers & Duysters, 2010).

As recognized in recent literature, mere improvement of products/services or production processes is not enough to ensure firm's viability in current environments, characterized by growing technological changes and uncertainty (Rosenkopf & Nerkar, 2001; Danneels, 2002; Schreyögg & Kliesch-Eberl, 2007). To avoid the threat of obsolescence associated with this type of contexts, organizations must develop new capabilities that depart from current ones and to translate these new capabilities into new processes, products and services (Tidd, 2006). In other words, in a growing number of competitive landscapes, firm success depends on its ability to develop innovations with a higher degree of novelty (Tidd, 2001; Benner & Tushman, 2003; Jansen, Van den Bosch & Volberda, 2006).

However, in spite of many theoretical discussions on the effect of radical innovations, the origins of this kind of innovation have so far received much less attention by researchers (Schoenmakers & Duysters, 2010). Accordingly, the aim of the present chapter is to theoretically analyze the determinants of firm's innovation radicalness (the degree of novelty incorporated in an innovation). In doing so, the theoretical framework in which we sustain our analysis is the dynamic capabilities-based view of competitive advantage, which has notably improved its relevance during the last decade (Teece & Pisano, 1994; Teece, Pisano & Shuen, 1997; Zahra, Sapienza & Davidson, 2006; Wang & Ahmed, 2007; O'Reilly & Tushman, 2008; Pettus, Kor & Mahoney, 2009). This new perspective in the strategic management field, with important implications for the management of innovation, considers the evolutionary nature of the resources and capabilities of the company in relation to the changes occurred in the environment in which it operates (Lavie, 2006; Pettus et al., 2009). Hence, the dynamic capabilities framework tries to link the arguments of those theories that explain the sustainable competitive advantage based on contextual factors (Porter, 1981), with those that attempt to explain the sustainability of competitive advantage from a purely internal perspective (Wernefelt, 1984; Barney, 1991). In this sense, "the competence-based approach is concerned with the identification, development and exploitation of core competencies based on prior experience. However, it fails to address how firms cope when existing competencies become obsolete, or how firms acquire new competencies" (Tidd, 2006: 14). For these reasons, we consider that dynamic capabilities framework constitutes an adequate background to analyze firm's innovation radicalness (Galende, 2006).

Nevertheless, despite its relevance and the wide and increasing number of scientific studies focused on this perspective, the concept of dynamic capabilities suffers from certain termi-

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