Chapter 12
Knowledge Asset Dynamics and Firm Performance: Empirical Evidence from the IT Industry

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ABSTRACT

In an economy characterized by rapid change, continuous innovation and high intensity and dynamism of competition, the analysis of strategy and competitive advantage has shifted from the more aggregate competitive forces to the idea that firms are essentially different and compete on the basis of their specific physical, human and organizational resources. The key to this new view of the firm as a collection of resources both human and material is understanding the relationships between resources, capabilities, competitive advantage, and profitability, in particular, an understanding of the mechanisms through which competitive advantage can be sustained over time. Even if knowledge assets have been widely recognized as the firm’s main value drivers, little guidance is provided of how these unique attributes affect the firm’s profitability and its overall performance. Through a case study research in the IT sector, this chapter provides empirical evidence as regards such interdependencies and analyze the effects of knowledge asset dynamics on firm’s performance and value creation mechanisms.

INTRODUCTION

Knowledge assets represent the intangible resources that a firm owns (Hall, 1992) mainly in the form of employees’ skills and know-how and intellectual property rights. Such assets support the firm’s capabilities, activities, and products. Knowledge assets are dynamic in nature (Roos & Roos, 1997), depend on and interact with each other over time (Barney, 2001; Kaplan and Norton, 2004). Organizational learning mechanisms enable this interconnectivity between knowledge assets, and renew and enhance constantly their value (Argyris & Schön, 1978; Lei et al., 1996; Pemberton & Stonehouse, 2000). Knowledge management processes such as knowledge identification, knowledge sharing, knowledge storing and application, support the organizational learn-
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ing in generating new knowledge and in managing it effectively and efficiently (Nonaka et al., 2000; Teece, 2000; Wiig, 1997).

These interactions and interdependencies between knowledge assets, learning mechanisms and knowledge management processes are referred to as knowledge asset dynamics, through which firm’s knowledge assets are bundled, linked, incorporated, converted, organized, and integrated into socio-technical processes or organizational routines (Nelson & Winter, 1982; Zollo & Winter, 2002; Zander & Kogut, 1995). These organizational routines are in turn enriched, nurtured, and leveraged to form the firm’s organizational capabilities (Grant, 1991, 1996, 1997; Zollo & Winter, 2002; Teece et al., 1997). Such integration process is facilitated by the firm’s absorptive capacity or its ability to assimilate the external knowledge derived from its competitive environment, to analyze the stocks and flows of knowledge (Dierickx & Cool, 1989), and influence the generation of new knowledge that is necessary to shape and build its capabilities (Cohen & Levinthal, 1990; Zahra & George, 2002).

Organizational capabilities are generally defined as higher-level routines or collection of socially complex routines (Winter, 2000, 2003) that involve the transformation of inputs into outputs (Grant, 1991, 1997). Organizational capabilities are either dynamic or operational (Helfat and Peteraf, 2003). Operational or zero-level capabilities involve the firm’s production activities and ordinary operations (Winter, 2003; Zollo & Winter, 2002). However, dynamic or higher-order capabilities are more concerned with change and they shape constantly the firm’s operational capabilities (Teece et al., 1997; Teece, 2004; Eisenhardt & Martin, 2000).

Organizational capabilities, either operational or dynamic, are socially constructed, they are consequently valuable, rare, inimitable, and non-substitutable (Barney, 1991). These characteristics make them heterogeneous and immobile between firms (Hoopes et al., 2003; Lippman & Rumelt, 1982; King & Zeithaml, 2001; Reed & DeFillippi, 1990), which make them in turn the effective source of firm’s long-term supra-normal profitability and superior performance (Chandler, 1990; Rouse & Daellenbach, 2002). These competitive advantage factors are explained both by competitive factors (Porter, 1985), as well as by path dependent, causally ambiguous and socially complex attributes (Rumelt, 1984; Lippman & Rumelt, 1982; Dierickx & Cool, 1989).

In this chapter we will begin by explaining the choice of a single-case study approach as a research strategy to validate the assumptions underpinning the interdependencies between knowledge asset dynamics, organizational capabilities, and competitive advantage, and we will then discuss the different components of the case-study design. Next, we will give a description of the research setting. Finally, we will discuss the different findings to provide and build the empirical evidence of how knowledge asset dynamics drive firm’s performance and value creation processes.

CASE STUDY RESEARCH

To provide empirical evidence to the theoretical assumptions underlying how knowledge assets drive firm’s sustainable competitive advantage, an in-depth single case study strategy has been adopted. The case study research is a strong methodological tool for theory building (Voss et al., 2002). As suggested by Yin (1994), the rationale for selecting a single-case rather than a multiple-case design is that the single case represents the critical test of a significant theory.

This choice is also motivated by the fact that, as claimed by Rouse and Daellenbach (1999), studies of competitive advantage using the resource-based view require a different approach rather than large sample, cross-sectional analyses using secondary sources. Since the only firms with unique resources and capabilities are assumed to have the potential for competitive ad-