



Technological opportunism effects on IT adoption, intra-firm diffusion and performance: Evidence from the U.S. and Spain



Laura Lucia-Palacios^{a,*}, Victoria Bordonaba-Juste^a, Yolanda Polo-Redondo^a, Marko Grünhagen^b

^a Department of Marketing, Faculty of Economics and Business Administration, University of Zaragoza, Gran Vía 2, 50.005 Zaragoza, Spain

^b Lumpkin Distinguished Professor of Entrepreneurship & Professor of Marketing, Eastern Illinois University, Charleston, IL, United States

ARTICLE INFO

Article history:

Received 1 April 2012

Received in revised form 1 May 2013

Accepted 1 May 2013

Available online 30 May 2013

Keywords:

Technological opportunism

IT adoption

Intra-firm diffusion

Performance

Resource-based view

ABSTRACT

The paper pursues a joint analysis of the direct influence of the level of a firm's technology opportunism capability on performance and on the adoption and intra-firm diffusion of Internet-based technologies. The study here examines the mediating effect that intra-firm diffusion exerts on the relationship between capabilities and performance. This study uses the results from a survey of 100 Spanish and 109 American franchise firms. Results indicate that the firm's level technological opportunism influences the adoption and intra-firm diffusion of technology and also has a positive impact on performance. While intra-firm diffusion is a driver of performance, adoption has no influence. Finally the indirect impact of technological opportunism on performance differs across countries. While for American firms, the integration of technologies into activities that related to communication with partners has a positive impact on performance; Spanish managers should focus on the integration of these technologies into back-end functionalities.

© 2013 Elsevier Inc. All rights reserved.

1. Introduction

Nowadays, technologies are essential for firm success. Hence, sensing and responding to technological changes are a capability, known as technological opportunism (Srinivasan, Lilien, & Rangaswamy, 2002) with an increasing competitive value. Although determining the value of investing in information technology (IT) (Agarwal & Lucas, 2005) and developing IT capabilities (Melville, Kraemer, & Gurbaxani, 2004) are very important contributions to Information System (IS) research and resource-based view (RBV) research, scarce research analyzes the benefits of technological opportunism (Srinivasan et al., 2002). Technological opportunism capability is a positive orientation that enables a firm to better compete in its markets.

Technological opportunism capability allows firms to acquire, absorb, and assimilate internal and external knowledge and market information about new technologies to deploy their resources in order to respond to the technological opportunities and/or threats that can appear. However, despite its potential implications for business, there is little research about technological opportunism and its impact on performance. Only recently, studies have (Chen & Lien, 2012; Sarkees, 2011; Voola, Casimir, Carlson, & Agnihotri, 2012) examined the effect of technological opportunism

on performance measures. Thus, this study fills a gap in the RBV literature concerning the capability–performance relationship by examining the direct and indirect influences of technological opportunism on performance.

Following previous research, innovation adoption acts as a key mediator on the capability–performance relationship. Prior research examines the relationship between technological opportunism and the adoption and use of technologies (Lopperi, Puumalainen, & Kappi, 2006; Mishra & Agarwal, 2010; Srinivasan et al., 2002; Vowles, Thirkell, & Sinha, 2011). Based on adoption and diffusion research (Rogers, 1995), the study divides the level of technology diffusion within a firm into two aspects, the adoption of the technology and the intensity or extent of the use of the technology by the adopters (intra-firm diffusion). Additionally, intra-firm diffusion is split into internal integration and external integration.

Recent studies analyze IT adoption and intra-firm diffusion simultaneously (Battisti, Canepa, & Stoneman, 2009; Battisti, Hollenstein, Stoneman, & Woerter, 2007; Hollenstein & Woerter, 2008), but none have studied the relationship between the two concepts and technological opportunism. This paper examines whether technological opportunism is a driver of the adoption and intra-firm diffusion of new technologies, while distinguishing between internal integration and external integration. Therefore, the first objective of this research is to analyze the impact of technological opportunism on performance, examining its direct effect and its indirect effect through the extent of the intra-firm diffusion of Internet-based technologies.

The management of firm resources, the capability–performance relationship and the implementation of information systems may vary

* Corresponding author. Tel.: +34 976 761000.

E-mail addresses: llucia@unizar.es (L. Lucia-Palacios), vbordonaba@unizar.es (V. Bordonaba-Juste), ypolo@unizar.es (Y. Polo-Redondo), mgrunhagen@eiu.edu (M. Grünhagen).

between countries (Kappos & Rivard, 2008; Voss, Roth, Rosenzweig, Blackmon, & Chase, 2004). Additional evidence is necessary on the relationship between technological opportunism and innovation in different environmental contexts (Srinivasan et al., 2002); research with cross-country analyses about innovation adoption is scarce (Lim & Palacios-Marques, 2011; Zhu & Kraemer, 2005). The same study report that the extent of IT adoption and use is country dependent.

Therefore, the second objective of this paper is to examine whether the relationship between technological opportunism and performance varies between the U.S. and Spain. The choice of those countries is based on the idea that they have different cultures (Waarts & van Everdingen, 2005), vastly different IT usage rates (Fundación Orange, 2011) and in those countries, firms use IT innovations for different purposes within the business activities (Lim & Palacios-Marques, 2011). Although the data is cross-sectional, the model offers clear indications as to what different effects upon both IT adoption and intra-firm diffusion might be expected across firms and countries in the same industry at a single point in time.

The paper is structured as follows. Section 2 presents the literature framework of our study. Section 3 develops the hypotheses. Section 4 explains the effect of culture on the model proposed. Section 5 explains the data and the methodology used. Section 6 presents the results. Section 7 discusses the results and the managerial implications, describes the limitations of this paper and proposes future lines of research.

2. Literature framework: the resource-based view and technological capabilities

The RBV is a suitable theoretical framework for studying technological capabilities. RBV links organizational resources and capabilities with competitive advantages (Melville et al., 2004; Zhuang & Lederer, 2006; Wu, 2010). The RBV suggests that firms can achieve positive outcomes as long as they possess valuable, rare, imperfectly imitable and non-substitutable resources and capabilities (Barney, 1991). Both business managers and academic researchers analyze how firms create IT capabilities to increase their competitive advantages. Therefore, analyzing specific types of capabilities and resources and their relationships are ways to contribute to a better understanding of the sources of IT capabilities-based competitive advantages (Ravichandran & Lertwongsatien, 2005).

The concept of technological opportunism (TO) capability is different from other concepts such as market orientation, organizational innovation and innovation orientation (see Srinivasan et al., 2002 for a detailed review of the differences and similarities). The concept of TO is measured on two dimensions: technological sensing capability and technological responding capability (Chen & Lien, 2012; Klinger, 2004; Mishra & Agarwal, 2010; Sarkees, 2011; Srinivasan et al., 2002; Voola et al., 2012).

“Technological-sensing capability” is defined as the extent to which an organization has the capability to acquire knowledge and understand new technological developments. The dimension “technological-responding capability” is related to the extent to which an organization is willing and able to respond to new technologies. These capabilities imply that firms have to constantly analyze the market, reconfigure and renew their processes and leverage their resources to exploit market opportunities related to the IT innovations. TO leads to a heterogeneity of firms in sensing and responding to new technologies which may have subsequent effects on firm performance and competitive advantage (Chen & Lien, 2012; Sarkees, 2011; Voola et al., 2012).

Researchers no longer view information technologies as a valuable resource that creates competitive advantages, but they are elements of firm strategy, and it is the firm's capability to integrate and assimilate them into business processes that creates value (Melville et al., 2004; Tippins & Sohi, 2003). Previous research found that different dimensions

of technological capability are strategic capabilities as they enable firms to achieve competitive advantage (Garrison, 2009; Tsai, 2004). Because IT investments per se do not provide any advantage, it is the different patterns of IT use and the IT capabilities that are heterogeneously distributed across firms, which may generate competitive advantages (Bharadwaj, 2000; Melville et al., 2004; Wu, 2010).

Therefore, TO and the level of integration of Internet-based technologies are capabilities characterized by intangibility and heterogeneity, both of which may directly or indirectly affect firm performance (Makadok, 2001).

3. Development of hypotheses

The research model for this study was developed by examining the RBV literature and adoption and diffusion research. In this paper, the model focuses on four constructs: TO, IT adoption, Intra-firm diffusion and Performance. First, this section proposes the direct effects of the different constructs, and then the mediating relationship.

3.1. IT adoption and intra-firm diffusion

According to the innovation and diffusion literature (Bass, 1969; Rogers, 1995), the diffusion of technological innovations refers to the extent of the use of new methods, processes or production systems. There has been an evolution in the issues addressed in this literature. Early on, the literature in this area addressed the adoption and diffusion processes of innovations in consumer markets, while subsequent research was extended into industrial innovations in business-to-business markets (Frambach, Barkema, Nooteboom, & Wedel, 1998; Frambach & Schillewaert, 2002). Nowadays, much research in the area focuses on the diffusion of Internet-based technologies (Battisti et al., 2007; Battisti et al., 2009).

This study focuses on the level of adoption and intra-firm diffusion of Internet-based technologies (ITs). The extent of adoption of Internet-based technologies is related to the number of ITs adopted by a firm (Neirotti & Paolucci, 2011) and intra-firm diffusion is related to the use of technologies throughout a firm's value chain activities. Prior research examined e-business diffusion from both internal and external perspectives (Lin & Lin, 2008; Rogers, 1995; Zhu & Kraemer, 2005).

Hence, this study defines internal integration as “the extent to which ITs are integrated with internal organizational activities” such as inventory control, order processing, sales force management and accountancy, and administrative and financial activities. External integration “refers to the extent to which the firm integrates its trading partners and transactions with them through ITs” (Lin & Lin, 2008). In this context, firms that have adopted a greater range of ITs would have a higher probability of integrating them into a greater number of business processes.

H1a. The extent of IT adoption has a positive impact on internal integration.

H1b. The extent of IT adoption has a positive impact on external integration.

3.2. Technological opportunism and firm performance

Firms that are technologically opportunistic are proactive in identifying, sensing and evaluating new technologies, seeking information and processes with regards to their capability to change their strategies to take advantage of new opportunities or to avoid threats (Srinivasan et al., 2002). The adaptability that technologically opportunistic firms should enable them to incorporate new technologies into product development, manufacturing, marketing and other functional areas of the firm. This enabling can create a reputation among customers as a

Download English Version:

<https://daneshyari.com/en/article/1017021>

Download Persian Version:

<https://daneshyari.com/article/1017021>

[Daneshyari.com](https://daneshyari.com)