

# IT Resources as Risk Mitigators: The Case of Spanish Bankrupt SMEs

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## INTRODUCTION

The study of the effects of IT investments on firm's performance has been a critical issue for research since the late 1980s. Different financial models have been used to clarify the contribution of IT investments, e.g. options theory (Fichman, 2004) and Edwards - Bell - Ohlson model (Dehning et al., 2005; Muhanna & Stoel, 2010). Some researchers rely on market prices (Dos Santos et al., 1993; Kim et al., 2001; Otim et al., 2012), while others measure the effect on financial ratios (Amit & Shoemaker, 1993; Melville et al., 2004; Wade & Hulland, 2004).

This work aims to provide additional insights regarding the influence of IT resources on performance. To do that, a new measure of performance is proposed that goes beyond the well-accepted profit. Several new links between IT literature, organization theory and financial theory are elicited.

## BACKGROUND

Early studies assumed that IT investments would improve productivity (Bresnahan & Tajtenberg, 1996); however, these results were inconclusive (Morrison & Berndt, 1990; Siegel & Griliches, 1991; Loveman, 1994) and new research frameworks were explored (Melville & Kraemer, 2004). Recent research generally report effects on firm value, shareholders' wealth (Dos Santos et al., 1993; Im et al., 2001), financial measures (Brynjolfsson & Hitt, 1996; Kudyba & Diwan, 2002; Piñeiro, 2006), innovation (Drucker, 1988; Osterman, 1991; Phan, 2003; Gharavi et al., 2004) and risk-mitigation (Otim et al., 2012).

However, these outcomes seem to be contingent (Dos Santos et al., 1992; Im et al., 2001; Dehning & Richardson, 2002). Several mediating factors have been identified: business processes (Dehning & Richardson, 2002; Melville et al., 2004), knowledge (Sambamurthy et al., 2003), experience and IT management skills (Damanpour & Evan, 1984; Neirotti & Paolucci, 2012), organizational capabilities (Nevo & Wade, 2010; Ravinchandran & Lertwongsatien, 2005), dynamic capabilities (Teece et al., 1997; Eisenhardt & Martin, 2000), financial capacity (Harris & Kaatz, 1989), firm's size and industry (Dos Santos et al., 1993; Im et al., 2001), R&D (Jacobson, 1990; Bharadwaj et al., 1999; Holsapple & Wu, 2011), and real options (Fichman, 2004; Sambamurthy & Bharadwaj, 2003). Time lags and accumulation effects (Kudyba & Diwan, 2002; Cron & Sobol, 1983) are also present.

These findings are consistent with the predictions of the Resource-Based View (RBV) (Barney, 1991; Amit & Shoemaker, 1993; Peteraf, 1993): some firms outperform others because they have both potentially valuable resources (infrastructure and software platforms, financial resources, etc.) and a

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suitable set of complementary capabilities (e.g. relational capital, reputation, flexibility, ability to manage complex structures, management quality, and dynamic capabilities).

The competitive potential of a resource depends on several attributes: *value* (i.e., the opportunities it offers to seize opportunities or mitigate risks), *rarity and scarceness* (cost and accessibility) and *protection* against imitation and mobility (embeddedness, network effects, complementarity, path-dependence, etc.).

For a long time, IT platforms were the focus of managers and researchers, because they are at the core of IT inside-out resources; however they are also imitable, accessible and generally cheap (Barney, 1991), and are not expected to deliver competitive advantage, unless they are leveraged by abilities (Nevo & Wade, 2010). Assets must be deployed in a suitable organizational context (Damanpour & Evan, 1984; Teece et al., 1997; Nevo & Wade, 2010) and leveraged by internal abilities, e.g. management skills (Damanpour & Evan, 1984, Mingfang & Ye, 1999; Neirotti & Paolucci, 2012), and online information capabilities (OIC) (Barua et al., 2004), to benefit from path dependence and embeddedness (Barney, 1991).

The Net-enabled business transformation (Straub & Watson, 2001) involves radical changes in the organization of the information flows (Gharavi et al., 2004). The Internet channels a large amount of multimedia (Daft & Lengel, 1986), supports internal processes (Poon & Swatman, 1995), helps the company to manage outsourced activities (Poon & Swatman, 1995; Teo & Pian, 2003; Day, 1994; Bharadwaj, 2000), allows for greater flexibility (Bhatt et al., 2010) and supports the development external intangibles, e.g. reputation and loyalty (Roberts & Grover, 2012; Barua et al., 2004).

It is useful to identify different patterns of use of the Internet resources. Passive patterns include the use of the Net to ease internal communications and/or support virtual teams; active patterns change tasks, information links, and the business model. Companies are expected to *evolve* from passive into active patterns (Nelson & Winter, 1982).

Finally, dynamic capabilities allow the company to face changes in the environment (Teece et al., 1997; Straub & Watson, 2001); flexibility is needed to embrace technical progress, to manage external partnerships and to assimilate changes in value chain (Bhatt et al., 2010; Roberts & Grover, 2012). Previous works report a positive relationship between IT decentralization, flexibility and performance (Leifer, 1988; Zeffane, 1992)

## FOCUS OF THE ARTICLE

The paper explores the effects of IT on firm's performance by considering several resources and capabilities, and their respective interactions. The underlying research model connects long-term performance (as measured by the risk of bankruptcy) to several IT resources and capabilities, with some moderating factors and financial controls (Figure 1). It goes beyond traditional performance measures, to depict a complete picture of the benefits a company can expect.

The following hypothesis are suggested:

H1. Standard IT resources have a negligible effect on the risk of bankruptcy, *ceteris paribus* capabilities

H2: The use of proprietary software has a direct negative effect on the risk of bankruptcy

H3: Synergies between complementary IT resources and capabilities have a direct negative effect on the risk of bankruptcy.

H4. IT management capabilities have a direct negative effect on the risk of bankruptcy

H5. Collaboration capabilities have a direct negative effect on the risk of bankruptcy

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