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Organizational Culture and IT Business Value: A Resource-Based View

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ABSTRACT

This research studies information technology (IT) business value by examining complementarity effects between organizational culture and dynamic IT capability on firm performance. Using the Competing Values Framework, we study the external/internal focus and flexibility/stability dimensions of organizational culture. Here dynamic IT capability refers to the ability to integrate, build, and reconfigure IT-based resources and competences to adjust to rapidly changing environments. Drawing on the Resource-Based View of the firm (RBV), Dynamic Capabilities theory, and Complementarity theory, we argue that there exists complementarity between organizational culture and dynamic IT capability in influencing firm performance. We plan to use survey method to collect data and test the model. This study is especially important for IT managers and leaders in their decision-making on IS projects and complementary investments in organizations.

Keywords

Organizational Culture, IT Business Value, IT Capability, Dynamic IT Capability, Resource-Based View, Dynamic Capabilities, Complementarity.

INTRODUCTION

IT business value, or the economic impact of investment in IT on firm performance, is an important research area. Recent meta-analytic studies on the topic such as Dedrick et al. (2003) and Wade and Hulland (2004) call for further research on complementary organizational factors or resources to explain “how” and “why” of IT business value.

Several authors argue that culture is important in IT business value (Cabrera, Cabrera, and Barajas, 2001; Chandler, Keller, and Lyon, 2000). Anecdotal evidence and case studies show that organizational culture is a key factor in determining a firm’s capability to mobilize IT resources to improve firm performance (Serafeimidis and Smithson, 1999). At the same time, conceptual studies also suggest organizational culture as critical in adopting and gaining benefits from new IT (El Sawy, 1985; Zammuto and O’Connor, 1992).

Despite the potential importance of organizational culture in IT business value, there is little empirical research on the topic. This study attempts to answer the following question:

- How do organizational culture and dynamic IT capability impact firm performance?

In line with the general question, we have following sub-questions to answer:

- What is the relationship between organizational culture and firm performance?
- What is the relationship between dynamic IT capability and firm performance?
- Is there any complementarity between organizational culture and dynamic IT capability in influencing firm performance?

This paper is organized as follows. Next, we will review literature and formulate the model in the theoretical framework. Then we will discuss the methodology and report on the current status of this study. Finally we conclude with the potential contributions of the study.

THEORETICAL FRAMEWORK

IT business value research examines the economic impact of IT investment on firm performance (Melville, Kraemer, and Gurbaxani, 2004). Several theories are posited to illuminate the complicated topic, among which the Resource-Based View (RBV) of the firm is drawing increasing attention of researchers. Meta-analytic studies such as Melville et al. (2004) and

Wade and Hulland (2004) confirm the usefulness of RBV in studying IT business value. In the next subsection we will review literature on RBV, which provides the theoretical foundation for this study.

Resource-Based View of the Firm (RBV)

Resource-Based View of the firm argues that firm-specific resources are determinants of competitive advantage and performance of a firm (Barney, 1996). According to RBV, firms must accumulate synergistic combinations of resources that are valuable, scarce, heterogeneous, imperfectly mobile, and inimitable in order to build a competitive advantage and superior firm performance (J. B. Barney, 1991).

Although RBV is well accepted for its rigor and relevance, it is regarded as suffering from two theoretical deficiencies: static equilibrium and isolation of resources (Chan, Shaffer, and Snape, 2004). This study intends to address the two deficiencies by including the Dynamic Capabilities theory and the Complementarity theory. The following subsections describe application of each theory respectively.

Dynamic Capabilities Theory

One theoretical weakness of the RBV is that it implicitly assumes static equilibrium without addressing the issue of sustainable competitive advantage in a volatile environment (Chan et al., 2004; Pavlos A. Pavlou, 2004). As an extension of RBV to address this issue, dynamic capabilities refer to “the ability to integrate, build, and reconfigure internal and external competencies to address rapidly-changing environments” (Teece, Pisano, and Shuen, 1997 p. 517). In this study, we include the dynamic capabilities to address the sustainability issue of IT capability.

Dynamic IT Capability

In this study, we adopt Bharadwaj’s (2000) conceptualization of IT capability and Pavlou and El Sawy’s (n.d. -a) conceptualization of dynamic capabilities to conceptualize dynamic IT capability. Dynamic IT capability is defined as the ability to integrate, build, and reconfigure IT-based resources and competences to adjust to rapidly changing environments (adapted from Teece, Pisano and Shuen (1997) and Bharadwaj (2000)). It is composed of four components: IT infrastructure, human IT resources, IT-enabled intangibles, and IT reconfigurability. IT infrastructure refers to the physical IT assets including computer hardware, software, communication technologies, and databases (Bharadwaj, 2000). Human IT resources include the technical IT skills and managerial IT skills (Bharadwaj, 2000). IT-enabled intangibles are the hidden benefits of IT that indirectly impact organizational effectiveness, such as customer orientation, knowledge assets, and synergy (Bharadwaj, 2000). IT reconfigurability is the firm’s ability to adjust its IT resources to the fast changing environment (Paul A. Pavlou and El Sawy, n.d. -b). As conceptualized by Pavlou and El Sawy (n.d.-b), reconfigurability refers to the timeliness and efficiency by which existing resources can be reconfigured. Adopting the Pavlou and El Sawy conceptualization, the extent that firms successfully reconfigure IT resources to come up with new productive assets, effectively integrate and combine existing IT resources into ‘novel’ combinations, and recombine IT resources to better match firms’ product-market areas, is used to measure IT reconfigurability.

In establishing a link between IT resources and firm performance, researchers recommend application of Complementarity theory to include other organizational resources (Wade and Hulland, 2004). The following section discusses Complementarity theory.

Complementarity Theory

The RBV fails to adequately consider the fact that resources hardly act alone in determining competitive advantage (Chan et al., 2004; Wade and Hulland, 2004). Wade and Hulland (2004) emphasize the importance of resource complementarity especially for IS research because it addresses a complex role for IS resources in firms. Borrowed from economics literature, Complementarity theory focuses on two or more mutually reinforcing factors or resources. Resource A is complementary to resource B if the impact of A on outcome C is amplified by increasing resource B (Levina and Ross, 2003). This study applies Complementarity theory and argues that organizational culture is complementary to dynamic IT capability in influencing firm performance. In the next subsection we will review literature on organizational culture.

Competing Values Framework – A Theory of Organizational Culture

Organizational culture is defined as “the taken-for-granted values, underlying assumptions, expectations, collective memories, and definitions present in an organization” (Cameron and Quinn, 1999 p. 14). Many studies have been conducted to establish the relationship between organizational culture and firm performance such as Denison and Mishra (1995) and

(Kotter & Heskett, 1992), which prove that culture does influence firm performance. In studying organizational effectiveness, Cameron and Quinn (1999) develop a framework of competing values. They classify organizations into four types of culture based on two dimensions: flexibility/stability, and internal/external focus. Table 1 lists the four types of organizational culture.

Dimensions	Internal Focus	External Focus
Flexibility	Clan	Adhocracy
Stability	Hierarchy	Market

Table 1. Competing Values Framework (Cameron and Quinn, 1999)

The Competing Values Framework is widely used in IS literature to examine the relationship between organizational culture, IS success, and performance (such as Doherty and Doig, 2003; Fedrick, 2001; Harrington and Guimaraes, 2005; Ngwenyama and Nielsen, 2003; Zammuto and O'Connor, 1992). We will adopt this theory because of its theoretical rigor and relevance.

Drawing on the above theories, we propose our model as illustrated in Figure 1.

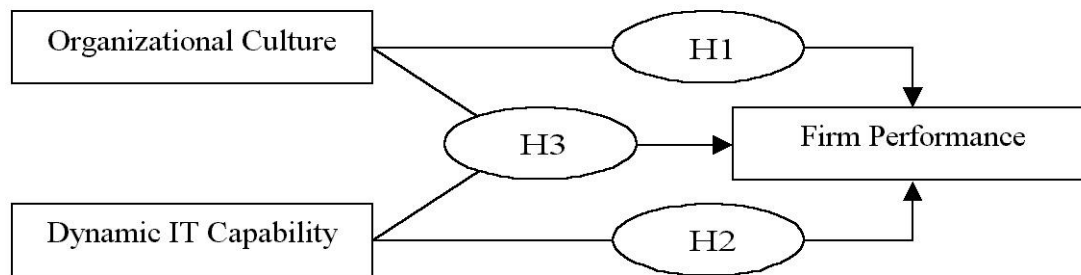


Figure 1. Research Model

Specifically, we hypothesize as follows:

- H1. Organizational culture is related to firm performance.
- H2. Dynamic IT capability is positively related to firm performance.
- H3. There is interaction between types of organizational culture and dynamic IT capability in influencing firm performance.

METHODOLOGY

This study examines the direct and complementary effects of organizational culture and dynamic IT capability on firm performance. A questionnaire survey will be used to collect data on organizational culture and dynamic IT capability, while secondary data from Compustat will be retrieved for measuring firm performance. The sample for this study will include 2000 firms randomly selected from the computer and electronics manufacturing industry in the United States. Both Internet-based survey and mail survey will be used to collect data. Control variables include industry and firm size. After the data are collected, the model proposed above will be tested using general linear model analysis.

Regarding variable operationalization, we will use the Organizational Culture Assessment Instrument developed by Cameron and Quinn (1999) to measure culture. As for dynamic IT capability, we will adopt the Lewis and Byrd (2003) instrument to measure IT infrastructure, a modified instrument by Pavlou and El Sawy (n.d.-b) to measure IT reconfigurability, and some developed items to measure human IT resources and IT-enabled intangibles. Firm performance is measured by financial measures, including Tobin’s q (Tanriverdi, 2005), Return on Assets (ROA) (Tanriverdi, 2005), Return on Sales, and cost ratios.

CURRENT STATUS

The pilot study will be conducted in the next few months. Then we plan to collect data in the second half of 2006 and complete the project by the end of the year. We hope to present some preliminary results at AMCIS.

CONTRIBUTION

Contributions of the study will be great for both research and practitioner communities. If organizational culture does complement IT in influencing firm performance, managers need to take serious consideration of their firm's culture when deciding on whether to invest in IS projects. If managers decide it is inevitable to take on a new IS project while the current organizational culture may not be conducive to implementation of the new system, they may decide to invest considerable resources in managing and changing the organizational culture in order to reap the potential benefits that the new system is intended to bring. Looking at the bigger picture of IT business value research, this study can be viewed as a part of the comprehensive model of IT business value model proposed by Melville et al. (2004). At the same time, it can also be regarded as addressing dynamic resources and complementarity issues brought up in Wade and Hulland's (2004) meta-analytic study.

In summary, this proposed study draws on several disciplines to explore the "how" and "why" of IT business value. The topic will remain important for a long time because of its relevance and complexity. This study is just a first step in a research stream that will further our understanding of the underlying path from IT investment to realized business value.

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