Information Technology Architecture as a Competitive Advantage-yielding Resource: A Theoretical Perspective

Randy Bradley  
*University of Tennessee*

Terry Byrd  
*Auburn University*

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Information Technology Architecture as a Competitive Advantage-yielding Resource: A Theoretical Perspective

Randy V Bradley
University of Tennessee
rbradl10@utk.edu

Terry Anthony Byrd
Auburn University
tbyrd@business.auburn.edu

ABSTRACT
The implementation and utilization of an organizational architecture, specifically information technology architecture (ITA), can enable better management of information technology (IT) resources. Whereas predecessors of the ITA tend to focus more on systems development, data sharing, and systems integration efforts within the organization, this particular organizational architecture tends to focus more on the governance of IT resources within the organization. We propose that the ITA is an IT resource that enables firms to achieve competitive advantage. Therefore, we endeavor to theoretically analyze the ITA’s ability to yield a competitive advantage through the mediation of IT resources. We establish the ITA as a competitive advantage-yielding IT resource. Additionally, this study applies the theories of complementarities and resource-based view. Ten propositions are advanced to help guide future research.

Keywords
Information technology architecture, uncertainty, resource-based view, strategic alignment.

INTRODUCTION
The topic of organizational architectures has received attention in the IS literature for more than two decades. The attention given to the topic area proved to be both rewarding and intriguing. A review of the literature indicates a paradigm shift concerning the type, quality, and maturity of organizational architectures discussed in the IS literature. A review of the IS literature spanning a period of 20 years revealed a paradigm shift from functional- and business unit-level architectures to enterprise-level architectures. Additionally, the review indicated an increase in complexity, intensity, and detail with regards to organizational architectures.

The implementation and utilization of an organizational architecture, specifically information technology architecture (ITA), can enable better management of information technology (IT) resources (Earl, 1989). Briefly speaking, an ITA is a plan or set of plans that guides the identification and utilization of the technical and human IT resources at the disposal of an organization (Curle, 1993; Hildebrand, 2000) that enables the organization to successfully accomplish its business objectives. Whereas predecessors of the ITA tend to focus more on systems development, data sharing, and systems integration efforts within the organization, this particular organizational architecture tends to focus more on the governance of IT resources within the organization. If implemented as specified, an ITA specifies (a) how and why the pieces fit together as they do; (b) where the pieces go and at what time they are needed; and (c) why and how changes will be implemented. Thus, in the context of this study, the detailed definition of ITA is as follows: the plan (or set of plans) that serves as the organizing logic and the organizational decisions that pertain to the IT infrastructure (technical and human), data, and management responsibilities and strategies (IT and business) as captured in a set of policies, procedures, and technical choices that guide and direct the arrangement, development, and accessibility of such elements, intended to enable the accomplishment of a firm’s business objectives (Allen and Boynton, 1991; Gibson, 1994; Ross, 2003). Additionally, the ITA, depending on its level of maturity, expands its scope to include resources and relationships external to the organization.

Ross (2003) found that for firms to develop and implement architectures representative of the various stages, they were required to have organizational competencies in ITA. Additionally, she suggests that organizational competencies are needed...
to develop synergy between business strategy and ITA. In addition to the framework, she outlines strategic implications of IT associated with IT architectural maturity. Furthermore, Ross (2003) suggests that the ITA enables a firm to derive IT resources that could potentially enable it to achieve competitive advantage.

The resource-based view suggests that a firm's resources enable it to achieve a competitive advantage (Wade and Hulland, 2004). We propose that the ITA is a resource since it enables firms to achieve competitive advantage (Ross, 2003; Ross and Westerman, 2004). Furthermore, we propose that the competitive advantage yielded by the ITA comes only through the mediation of other IT resources. Therefore, we endeavor to analyze the strategic value of the ITA to the firm by assessing its ability to yield a competitive advantage through the mediation of IT resources.

We seek to contribute to the literature on strategic IT management by pursuing two specific goals. First, we seek to provide further insight into the strategic value of the ITA to firms by providing a theoretical assessment of the influence of the ITA on key resources identified in Wade and Hulland's (2004) IS resources typology. We accomplished this by conceptualizing the ITA's influence on IT resources categorized as inside-out, spanning, and outside-in. Specifically, we evaluate the nature of these influences through the mediation IT infrastructure flexibility (ITIF), strategic alignment, and IS success, and each of their ensuing effect on firm performance. Second, we consider the effect contingency variables that could affect each of these relationships and, thus, the overall model (see Figure 1). We accomplish this by conceptualizing two commonly cited contingencies in the strategic management literature, corporate culture and uncertainty, and theorizing their impact.

The remainder of the paper is organized in the following manner. First, we present the theoretical foundations of the study. This includes our overall research model and explanation of each of the constructs. Next we theoretically analyze each of the paths in the research model, and present propositions. Then we review the contingency variables. The paper culminates with the conclusion section.

![Figure 1. Conceptual Research Model](image)

THEORETICAL FOUNDATIONS

Research Model

Figure 1 conceptualizes the research model underlying this study. This model depicts one overarching concept that has been implicitly and explicitly discussed in the strategic IT management and strategic information systems planning (SISP) literature -- ITA maturity. Additionally, the model includes a mediating variable, IT resources, which is believed to provide greater understanding about the effect of the maturity of the ITA on IS success and firm performance. Furthermore, the model
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 captures two contingency variables, corporate culture and uncertainty, which help specify under what conditions the aforementioned effects will hold. The ITA maturity and IT resources constructs are presented in subsequent sections.

**ITA Maturity**

Gibson’s (1994) research of ITA centered around the empirical testing and validation of four generic architectural types. He explicated that the four generic types would mature over a period and that they would eventually demonstrate some strategic impact on the firm. Each type of IT architecture identified had a greater or similar level of maturity. However, the generic architectural types discussed by Gibson (1994) were not treated as linear growth stages, rather he suggested that a single architectural type is most appropriate for a given situation.

Ross (2003) takes a learning-in-stages approach to discuss the ITA. She concluded that there were four stages of architectural maturity – Application Silo Stage, Standardized Technology Stage, Rationalized Data Stage, and Modular Stage. Firms in the application silo stage focus their resources on developing individual applications. Firms in the standardized technology stage focus their efforts and resources on the development of a shared infrastructure. Firms in the rationalized data stage focus their efforts and resources on data management and infrastructure development. Firms in the modular stage focus more on attaining strategic agility.

The maturity of an ITA is measured by its level of involvedness and intensity with regards to the degree that it addresses the organizing logic and the organizational decisions that pertain to the IT infrastructure (technical and human), arrangement, development, and accessibility of the IT infrastructure, utilization and allocation of IT and data resources, management responsibilities and strategies (IT and business), and risks. More specifically, ITA maturity is based on the degree that a common set of elements that make up the ITA addresses the aforementioned items. The common set of elements include IT capability intent, risk attitudes (Carr, 2003; Jiang, Klein and Discenza, 2001; Keen, 1991), business case for IT, locus of IT decision-making (Gibson, 1994; Keen, 1991), and key IT governance issues. With the exception of risk attitudes, these elements were chosen because they were consistently found in 40 case studies to be characteristics of ITAs in firms.

The primary argument in exploring the value of ITA maturity is through the concept of complementarity. Barua and Mukhopadhyay (2000) noted that “two activities or factors are complementary if the benefit of doing more of one increases by doing more of the other” (p. 78). Stated another way, “… the central thesis of complementarity involves the combination of factors, objects, processes, people, and technologies that have a value synergy among themselves” (Barua and Whinston, 1998, pg. 46). ITA Maturity increases the likelihood that IT assets and capabilities are going to be combined in complementary fashions among themselves and also with other organizational assets and capabilities to create value. The propositions for the ITA Maturity and their relationships with each IT resource in our model are given below along with the logical arguments to support each one.

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<tr>
<th>Outside-In</th>
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<th>Inside-Out</th>
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<td>• External relationship management</td>
<td>• IS-business partnerships</td>
<td>• IS infrastructure</td>
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<td>• Market responsiveness</td>
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<td>• Cost effective IS operations</td>
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Table 1. Typology of IS Resources (adapted from Wade and Hulland, 2004)

**IT Resources**

Prior research suggests that various capabilities, competencies, and resources can be derived from an ITA (Earl, 1989; Gibson, 1994; Hagel and Brown, 2001; Keen, 1991; Periasamy and Feeny, 1997; Ross, 2003; Ross and Westerman, 2004; Sauer and Willocks, 2002). However, there has been some confusion about the definition of these three terms. In an attempt to delineate between these terms and provide a clear basis for applying the resource-based view in IS research, Wade and Hulland (2004) provided a definition of resources that encompasses capabilities, competencies and assets. They defined resources as assets and capabilities that are available and useful in detecting and responding to market opportunities or threats. Furthermore, they argue that competencies are capabilities, and that assets and capabilities define the set of resources available to the firm. Based on this definition and the clarity provided by Wade and Hulland's (2004) review of the resource-based view, this study categorizes the capabilities, competencies, and resources derived from the ITA as IT resources.
The IT resources derived from the ITA are believed to enable the firm to achieve a competitive advantage. It is expected that appropriate leveraging of the IT resources will provide the firm with competencies that are congruent with the firm's competitive needs rather than existing patterns of usage within the firm (Richardson and Jackson, 1990; Segars and Grover, 1998). Given the need for firms to be able to achieve and sustain competitive advantage in the midst of a dynamic and uncertain environment, it is important to identify IT resources that can facilitate superior performance. Two IT resources, in particular, have been frequently cited in the strategic management and IS literature as facilitators of competitive advantage and superior performance -- IT infrastructure flexibility (ITIF) and strategic alignment.

Table 1 presents an IS resource typology that was initially based on the work of Day (1994), and later extended by Wade and Hulland (2004). Based on this typology, ITIF is representative of an "inside-out" capability (i.e., a capability deployed from inside the firm in response to market requirements and opportunities). Strategic alignment is representative of a "spanning" capability (i.e., a capability needed to integrate the firm's inside-out and outside-in capabilities). Information system (IS) success is representative of "outside-in" capabilities (i.e., capability that is externally-oriented, placing an emphasis on anticipating market requirements, creating durable customer relationships, and understanding competitors).

**IT Infrastructure Flexibility (ITIF)**

The IT foundation has been called the enabler and foundation of shared IT capabilities upon which the entire business depends (McKay and Brockway, 1989). An IT infrastructure is the basis of facilitating capabilities across business units and functional areas (Weill, 1993). It is the part of the information’s capacity intended to be shared among all departments (Davenport and Linder, 1994). Furthermore, it is the cornerstone upon which specific business activities and IS applications are built. As indicated by these statements, an IT infrastructure is arguably one of the most important aspects of managing IT resources.

To further elaborate, IT infrastructure typically refers to the physical components (e.g., networks, servers, etc.) that reside or will reside in the organization (Byrd and Turner, 2000; Duncan, 1995; Kumar, 2004; Turban, McLean and Wetherbe, 1996). This has been referred to as the technical component of IT infrastructure (Broadbent and Weill, 1997; Henderson and Venkatraman, 1995; Kumar, 2004). The technical component also includes the decisions and choices that pertain to the physical components mentioned above (Byrd and Turner, 2000; Kumar, 2004). IT infrastructure can also be expanded to include the human component (Broadbent and Weill, 1997; Byrd and Turner, 2000; Henderson and Venkatraman, 1999; Neumann, 1994). The human component involves the knowledge and skills required to effectively manage IT resources, whether technical or human, within the firm (Byrd and Turner, 2000; Henderson and Venkatraman, 1999; Kumar, 2004; Weill, Subramani and Broadbent, 2002). The decisions and choices that pertain to the technical component, as well as the repository from which the knowledge and skills required to manage IT resources are obtained, are driven and dictated by the firm's ITA (Allen and Boynton, 1991; Ross, 2003).

Many firms operate in turbulent environments, where the pace of change is steadily increasing and where business risk is compounded by unaligned strategies and rigid IT infrastructures (Lopez, 2002, 2003). Such conditions require the IT infrastructure to be flexible to point that the enterprise can easily adjust to shifts in the marketplace. When a firm's IT infrastructure is not flexible, its potential as an enabler can be greatly diminished. In order to avoid implementing an IT infrastructure that lacks flexibility, it is important to know the elements that constitute ITIF. In accordance with the work of Duncan (1995) and Byrd and Turner (2000), the definition of ITIF used in this study is as follows: the ability of a firm's IT infrastructure to enable it to easily, rapidly, and adequately respond to changes in its internal and external environments through the deployment and diffusion of the firm's technical and human components without suffering significant increases in cost.

**Strategic Alignment**

Many researchers have attempted to identify and investigate the relationship between strategic alignment and other variables such as firm performance (Cragg, King and Hussin, 2002; Croteau and Bergeron, 2001; Kearns and Lederer, 2000; Papp, 1999; Sabherwal, Hirschheim and Goles, 2001). Chan (2002) states that the goal of strategic alignment is for priorities, capabilities, decisions, and actions pertaining to IT to support those objectives of the entire enterprise. However, she defines strategic alignment at the business unit level and considers it to be the fit between priorities and activities of the IS function and the business unit. Although her articulation of the primary goal of strategic alignment appears to be consistent with other studies (Henderson and Venkatraman, 1993; Luftman, Lewis and Oldach, 1993), the definition appears to be limited and inconsistent with the stated goal of strategic alignment. Given that this study is interested in assessing strategic alignment at the enterprise level, and the scope of the previous definition is limited to the business unit, it is necessary to provide a definition of strategic alignment in accordance with this study. Therefore, in the context of this study, strategic alignment is
defined as the degree to which the IT priorities, activities, and objectives support and are supported by the business priorities, activities, and objectives throughout the enterprise.

**IS Success (ISS)**

There seems to be a consensus among researchers that the dependent variable of ISS is IS USE. However, one difficulty in the model of ISS is the multi-faceted meaning of IS USE (i.e., benefits from use, future IS use, impact of use) (Seddon, 1997). The implication of this difficulty is that, when investigating ISS or when using it as a foundation for study, researchers must explicitly express their definition of IS USE. That is, the researchers should state whether IS USE means the benefits from use, future IS use, impact of use, or some other connotation of IS USE. In this study, the success of information systems within the firm is considered to be the impact of their use. We choose this representation of ISS for two reasons. First, viewing ISS in this manner provides greater insight about the IT-enabled performance of the firm. Second, the "impact of use" connotation of IS USE appears to give a more direct consequence of using IS than most other measures of IS USE.

**PROPOSITIONS**

In the subsequent sections, we perform a theoretical analysis of the relationships in the research model and offer propositions to help guide future research. Most notable are various IT resources that mediate the influence of ITA maturity on firm performance.

**ITA Maturity and ISS**

An ITA serves as a major catalyst in the prioritization, selection, and management of IS development projects. Prior studies have implied that the maturity of the ITA influences systems success (Doll, 1985; Goodhue, Kirsch, Quillard and Wybo, 1992a; Goodhue, Quillard and Rockart, 1988; Henderson and Sifonis, 1988; Kim and Everest, 1994a; Lederer and Sethi, 1996; Raghunathan and Raghunathan, 1994; Sabherwal, 1999). For instance, Doll (1985) reported that organizations with successful information systems were three times more likely to have and use formal plans for systems development. Sabherwal (1999) reported on a study of 36 companies, where 16 of 18 successful users of IS had formal IT plans. Raghunathan and Raghunathan (1994) found that IT planning success predicted improvement in systems' capabilities. Furthermore, Goodhue et al. (1992a; 1988) concluded that an ITA can facilitate better management of systems development projects and improved productivity in systems development and maintenance. In addition, it was reported that the process of deploying an ITA leads to an increase in communication between users, developers, and top management (Goodhue et al., 1992a; Sauer and Willocks, 2002). The increase in communication in turn leads to increased top management support, facilitates better definition of scope and requirements of systems development projects, and more efficient management and allocation of human and technical resources (Goodhue et al., 1992a; Goodhue et al., 1988; Hagel and Brown, 2001; Kim and Everest, 1994b). Based on these findings and assertions, we predict the following:

**Proposition 1:** The degree of an ITA's influence on the firm as result of IS use will be proportionate to the level of maturity of the ITA.

**ITA Maturity and ITIF**

An ITA should provide IT capabilities within the firm. Additionally, an ITA should provide firms with the knowledge to utilize and leverage these capabilities in a manner that would enable the firm to gain a competitive advantage and quickly adapt to intra-organization changes, changes in technology, its respective industry, and its inter-organizational relationships and alliances (Allen and Boynton, 1991; Ross, 2003). Firms that do not employ a mature ITA may find it difficult to adapt quickly and appropriately to changes that can occur as a result of shifts in the marketplace or strategic restructurings. It is plausible that this likely inability to quickly adapt to changes can be minimized, if not avoided, by implementing an ITA with a high level of maturity, and using it. Exploiting the usefulness of a highly mature ITA can potentially curb the occurrence of a quagmire of inflexibility and "rigid business processes," as it relates to organizations' independent, mission critical systems and applications (Hagel and Brown, 2001; Ross, 2003). Therefore, we predict the following:

**Proposition 2:** Firms with a highly mature ITA will be more likely to have a high level of IT infrastructure flexibility than firms with a low level of ITA maturity.

**ITA Maturity and Strategic Alignment**

Competitive advantage, not to mention sustained competitive advantage, continues to be a source of concern for many firms. One means by which this can be accomplished is by aligning a firm's IT strategy with its business strategy (Barlow, 1990;
Burn et al., 1993; Henderson and Venkatraman, 1993; Ives and Learmonth, 1984; Kearns and Lederer, 2000; Reich and Benbasat, 2000; Segars and Grover, 1998). The IS literature contains various surveys and reports that list the issue of alignment between IT and organizational priorities and objectives as being a major concern of senior IS and business management (Brancheau et al., 1996; Galliers, Merali and Spearing, 1994; Niederman, Brancheau and Wetherbe, 1991; Reich and Benbasat, 2000). However, before such a task can begin, organizations need to have a thorough understanding of their IT objectives and the IT resources (human and computer) at their disposal. This understanding can be facilitated by the implementation and utilization of an ITA. Furthermore, the ITA is believed to position the firm to be able to strategically exploit IT to achieve and sustain competitive advantage. Thus, we predict the following:

**Proposition 3:** Firms with a high level of ITA maturity will experience greater alignment between their IT and business strategies, processes, and objectives than firms a low level of ITA maturity.

**ITIF and ISS**

Implementation of a flexible IT infrastructure is dependent upon collaboration between IT and business leaders within the firm. It was previously articulated that ITIF consists of two components, technical and human. Flexibility of the technical component implies that the IT platform will have a high level of system and data integration and will adhere to data standards (Duncan, 1995; Goodhue, Wybo and Kirsch, 1992b). It is also believed that the elements of the flexible platform will be interoperable, providing interconnectivity to other systems and compatibility regardless of the platform base (Byrd and Turner, 2000; Keen, 1991). Furthermore, Sabherwal (1999) found that an increase in a firm's IT capability leads to an increase in ISS. Similarly, Weill et al. (2002) found that firms with a high-capability infrastructure had a greater level of IS success. Therefore, we make the following prediction:

**Proposition 4:** Firms with a high level of IT infrastructure flexibility will experience a higher level of IT-enabled firm performance with regards to market responsiveness and external relationship management than firms with a lower level of IT infrastructure flexibility.

**ITIF and Firm Performance**

In dynamic product markets, there are no specific tangible resources that can provide sustainable competitive advantage (Worren, Moore and Cardona, 2002). However, a superior ability to leverage existing competencies to take advantage of emerging customer needs may lead to temporary advantage (Worren et al., 2002). Such ability is believed to be inherent to an IT infrastructure that facilitates knowledge sharing and reuse, hence a flexible IT infrastructure.

The concept of strategic flexibility broadly denotes such firm abilities to respond to rapidly changing markets (Sanchez, 1995; Worren et al., 2002). In addition to enabling organizations to better adapt to expected changes in their internal and external environments, the ITIF is believed to influence overall firm performance (Byrd and Davidson, 2003; Lang, 2003; Papp, 1999). Therefore, we predict the following:

**Proposition 5:** Firms with a greater level of IT infrastructure flexibility will experience better overall firm performance than firms with a lower level of IT infrastructure flexibility.

**Strategic Alignment and ISS**

The effective and efficient utilization of IT requires the alignment of the IT and business strategies (Luftman et al., 1993). This requires a partnership between the IT function and the business function. The nature of the relationship between IT stakeholders and the rest of the organization is considered a key determinant of IS success (Avital and Vandenbosch, 2002). The literature suggests that for strategic alignment to occur, managers must coordinate and interconnect IT and business processes from the start (Chan, 2002). Researchers assert that when there is mutual understanding of and commitment to IT and business goals, incentives, and approaches, the likelihood of IS success is much higher (Avital and Vandenbosch, 2002; Chan, Huff, Copeland and Barclay, 1997; Reich and Benbasat, 1996). In light of these arguments, we make the following prediction:

**Proposition 6:** Firms that are more strategically aligned will experience a higher level of IT-enabled firm performance with regards to market responsiveness and external relationship management than firms that are less aligned.

**Strategic Alignment and Firm Performance**

Proper alignment between IT and business strategies, processes, and objectives is consistently emphasized in the IS and strategy literature (Chan, 2002; Chan and Huff, 1992; Chan et al., 1997; Ives and Learmonth, 1984; McFarlan, 1984; Porter
and Millar, 1985). This is further evidenced by the number of methodologies developed for the purpose of conducting and improving strategic planning (Segars and Grover, 1998). Although there are various methods used to conduct strategic planning, the expected result is, in most cases, the same. Whether strategic planning is conducted for the purpose of identifying opportunities to leverage IT for competitive advantage (Ives and Learmonth, 1984; McFarlan, 1984; Porter and Millar, 1985) or analyzing business processes and patterns of data throughout the firm (Goodhue et al., 1992a; Zachman, 1987), it is expected that the attainment of strategic alignment will improve overall firm performance.

**Proposition 7:** Firms that are more strategically aligned will experience a higher level of overall firm performance than firms that are less aligned.

### ISS and Firm Performance

Several studies have linked IS success and firm performance. For instance, Segars and Grover (1998) found that the systems were more likely to be successful if and when the strategic planning is of high quality. The success of the system was believed to impact firm performance. DeLone and McLean (1992), in addition to Seddon (1997; 1994) cited the dependent variable for IS success as IS USE and NET BENEFITS OF USE, respectively. Each particular dependent variable is believed to be directly related to firm performance. Therefore, the next hypothesis is presented.

**Proposition 8:** Firms with a greater level of IT-enabled firm performance will experience a greater level of overall firm performance than firms with a lower level of IT-enabled firm performance.

### Corporate Cultural Types

Corporate cultural types are contingencies that have been shown to affect relationships between organizational variables in planning and also in other domains (Hoffman and Klepper, 2000; Kampas, 2003; Quinn and Spreitzer, 1991). For example, Veliyath and Shortell (1993) studied the difference in strategic planning in entrepreneurial firms and formal firms and found that entrepreneurial firms were better at implementing their planning strategy. Additionally, Quinn and Spreitzer (1991) found that differing corporate cultural types impact individuals’ quality of life, which includes their perceptions of managerial, work, and job satisfaction. Corporate cultural types have also been associated with firm performance (Denison, 1996; Kampas, 2003). Furthermore, corporate cultural types’ influence on the success of new technology has often been overlooked and underestimated (Hoffman and Klepper, 2000).

The purpose of an ITA is to help firms identify new strategic opportunities and directions, and position the firms to be able to seize the opportunities and move in the appropriate direction at the appropriate time. The overall purpose, in most cases, will be moderated by the corporate culture exhibited by the firm. For instance, when there is a conflict between a firm’s strategic intent and its corporate culture, culture will almost always prevail (Kolb and Henchey, 2000; Miles and Snow, 1994; Tidd et al., 2001). If the intent of the firm is to be flexible, the culture must support it if flexibility is to be achieved. This is not to say that the initiative will be successful if it is supported by the culture, rather it is to say that the initiative will more than likely fail or be derailed if it is not supported by the culture.

Past research contrasting the outcome of organizational planning in entrepreneurial and formal organizations has shown differences between the two types of firms. Veliyath and Shortell (1993) argued that formal firms would be better at implementing strategic plans than entrepreneurial organizations. Veliyath and Shortell (1993) reported that entrepreneurial firms are prone to be ad-hoc and experimental in their plan implementation procedures. Therefore, the planning process is likely to be novel and distinctive each time. They noted that the simple and stable product-market domain present in formal firms would facilitate planning goals that are structured, well defined, and of mutual consent. In light of their findings and the findings of the previously mentioned studies, we make the following predictions with regards to corporate culture:

**Proposition 9:** The strength of all the relationships in the research model will be significantly affected by the corporate culture exhibited by the firm.

**Proposition 10:** The ability of the ITA, regardless of its level of maturity, to yield a competitive advantage will be significantly affected by the corporate culture exhibited by the firm.

### Uncertainty

Uncertainty is related to a lack of information needed to accurately assess situations and relationships and confidently assign probabilities to decision outcomes. Researchers have noted that when uncertainty is present when high level managers are making decisions, they tend to rely less on objective or economic driven analyses and more on their personal frame of reference (Carpenter and Fredrickson, 2001). Moving away from an objective analysis or one driven by economics and
relying more on subjective judgments that are likely to be biased will likely lead to a dampening effects on the relationships in our model. Therefore the following proposition is given:

**Proposition 11:** The strength of all the relationships in the research model will be significantly weaker when environmental uncertainty is high.

**CONCLUSION**

Relevant research related to ITA and the elements of the research model was reviewed. Based on the review of the literature, relationships between the elements of the research model were established. Furthermore, ten propositions that can serve as a guide to help future researchers were presented.

Prior research has shown that a strong relationship exists between the corporate culture of an organization and the effectiveness of an organization and its attributes (Cameron and Freeman, 1991). In addition, one could easily posit that an entrepreneurial firm will not employ or utilize technology in the same manner as a firm that is driven by cost efficiency (Sabherwal and Chan, 2001). Therefore, we presented corporate culture and environmental uncertainty as contingencies and theoretically analyzed their potential influence on the elements of the underlying research model and the research model as a whole. This study makes several contributions to this particular stream of research. It establishes the ITA as competitive advantage-yielding resource. It also provides some clarity as to how the ITA yields competitive advantage. Additionally, this study applies theories associated with complementarity and the resource-based view (Barua, Lee and Whinston, 1996; Bharadwaj, 2000; Tanriverdi and Ruefli, 2004; Wade and Hulland, 2004) by examining the mediating effects of IT resources, ITIF and strategic alignment, on both IS success and firm performance, and the ensuing mediating effect of IS success on firm performance. Lastly, this study positions ITA as a concept that provides convergence of a variety of frameworks (related to IT and strategic flexibility and IT and business alignment) and theories from other research domains.

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