STRATEGIC IT-BUSINESS ALIGNMENT AS MANAGERS' EXPLORATIVE AND EXPLOITATIVE STRATEGIES

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Abstract

It has been argued by many that firms in a dynamic environment are challenged to both explore new possibilities to survive in a changing business environment, and to exploit old certainties to secure efficiency benefits. Indeed, as the basic problem confronting an organization is to engage in sufficient exploitation to ensure its current viability and, at the same time, to devote enough energy to exploration to ensure its future viability. Besides managers and academics have recently become more aware of the need to understand how firms could manage exploration and exploitation. This research aims to investigate the literature within the concept of organizational learning orientations. This is done by viewing the definitions and distinctions of exploration and exploitation, how to manage the tension between the two strategies, how management could be organized to deal with exploration and exploitation at the managerial level, and finally 'exploring' the relationships between exploration and exploitation with performance. An early study conducted by Venkatraman (1989) described the concept of fit from six measurement perspectives: moderation, mediation, matching, gestalt, covariation, and profile deviation. However, the extant literature in MIS and

management often uses the Strategic Alignment Model (SAM) of Henderson and Venkatraman (1993) to explain the ways that firms achieve alignment. Also, Papp (1995) proposed several perspectives for examining the business and IT strategies and infrastructures to determine if they work in harmony or in opposition.

Keywords: Strategic IT-Business Alignment, Exploration Strategy, Exploitation Strategy

Introduction

The connection between business and IT strategies has not been clearly articulated. Researchers usually assume a type of IT-business strategic alignment where business strategy determines IT strategy (Miller, 1993; Kearns and Lederer, 2000, 2003; Sabherwal et al., 2001; Chan and Reich, 2007). On the other hand, others theorize the ways in which IT strategy could determine business strategy (Henderson and Venkatraman, 1993; 1999). In other words, despite the fact that IT-business strategic alignment models have been widely discussed, there is little agreement among MIS researchers regarding the best approach for measuring IT-business strategic alignment and its impact on firm performance (Shannak et al., 2010; Coltman et al., 2013; Masa'deh, 2013; Masa'deh, Maqableh, and Karajeh, 2014). Furthermore, although fit or alignment has been measured from several perspectives, the unilateral linkages between business and IT strategy provide a more sensitive analysis of the required resources and conditions for realizing IT potential. Also, thus far, there is little research on the impact of unilateral fits on firm performance, specifically the conditions that favor one unilateral fit over another. Indeed, earlier IS models (Morton, 1991; MacDonald, 1991; Baets, 1992; Henderson and Venkatraman, 1993; Papp, 1995; Masa'deh, 2012; Coltman et al., 2013) were not only theoretical and without empirical support, but also they did not take into account the antecedent variables that guide to a specific type of strategic alignment. Therefore, further emphasis is needed to capture the critical conditions and aspects of strategic fit, as the literature review demonstrates that there is not yet a model elaborating such relationships per se. Consequently, the current research aims to explain the conceptualization of IT-business strategic alignment in terms of managers' exploration and exploitation activities/behaviorism.

This research is composed into seven sections. Firstly, section 1 provides the introduction. Section 2 begins by explaining the conceptualization of IT-business strategic alignment in terms of exploration and exploitation strategies. Section 3 elaborates exploration and exploitation definitions and distinctions. Section 4 discusses ways that cause tensions

between exploration and exploitation. Section 5 discusses ways to manage the tensions between exploration and exploitation strategies. Section 6 shows how management could organize and deal with exploitation and exploration at the firm or unit level. Section 7 concludes the research.

IT-Business Strategic Alignment Conceptualization

For more than two decades, IT-business strategic alignment has been consistently a concern for both researchers and practitioners. Indeed, aligning IT or IS strategy with business strategy has been ranked as one of the most important issues facing business and IT executives (Luftman, 1996; Chiang and Nunez, 2013; Coltman et al., 2013; Siurdyban, 2014; Tarhini et al., 2014a; Wagner et al., 2014). Several researchers argue that strategic alignment can influence organizational performance. For instance, Chan et al. (2006) stated that "simply put, those organizations that successfully align their business strategy with their IT strategy will outperform those that do not. Alignment leads to more focused and strategic use of IT which, in turn, leads to increased performance (cited in Chan and Reich, 2007, p. 298)".

Furthermore, researchers have defined strategic alignment in different ways and used expressions synonymous with the term. For instance, Henderson and Venkatraman (1993) argued that alignment involves compatibility and integration among business strategy, IT strategy, business infrastructure and processes, and IT infrastructure and processes. Alignment has been defined as the extent to which the IT mission, objectives, and plans support and are supported by their business counterparts (Reich and Benbasat, 1996; Walter et al., 2013). King (1998) described alignment as the fit of IT strategies and plans to business strategies and goals, whereas Kanellis et al. (1999) stated that alignment is the fit between an organization and its strategy, structure, processes, technology and environment.

Strategic alignment terminologies have been used interchangeably in the MIS field, yet the precise definition of strategic alignment still requires more clarification. Ball et al. (2003) argued that although firms can substantially invest in IT, this does not guarantee a profitable return if the application does not accentuate the existing organizational strategies, infrastructure, and processes. Despite overwhelming agreement among IT experts, business people, and academics that achieving IT-business alignment is fundamental, it is not easily achieved. Nonetheless, Weill and Broadbent (1998) argued that alignment assists firms in three ways: by maximizing returns on IT investment, helping to achieve competitive advantage through IS, and by providing both flexibility and direction to react to new opportunities. Furthermore, they argued that few senior managers take into account the importance of collaboration between the business and the IT departments in order to maximize returns from investments in technology.

Previous research on strategic fit is rudimentary, both theoretically and empirically, as will be discussed throughout the paper. In particular, it is evident that strategic fit is viewed differently by many theorists. For instance, Venkatraman (1989) elaborated that the concept of fit stems from several measurement perspectives, such as moderation, mediation, matching, gestalt, covariation, and profile deviation. Nevertheless, researchers found that there is no universally accepted way to measure strategic fit, and often the above six perspectives end in contradictory results (Bergeron and Raymond, 1995; Chan et al., 1997; Bergeron et al., 2001; Bergeron et al., 2004). Moreover, most studies consider strategic alignment as reciprocally interdependent. In other words, they view business strategy and IT strategy as mutually related, and then do not differentiate the order of the two types of fit (Bergeron and Raymond, 1995; Chan and Reich, 2007). As a result, studying new ways to conceptualize strategic fit is potentially an important area that should be explored further (Chan and Reich, 2007).

The direction of the causal link between business strategy and IT strategy has been neglected, and there is no unique way of measuring it (Powell, 1992; Chan and Reich, 2007). Indeed, researchers (e.g. Miller, 1993; Kearns and Lederer, 2000, 2003; Sabherwal et al., 2001; Chan and Reich, 2007; Masa'deh and Shannak, 2012; Tarhini et al., 2013) generally presume a type of fit or alignment where business strategy determines IT strategy, whereas others (e.g. Henderson and Venkatraman, 1993; 1999) speculate how IT strategy would verify business strategy. Initially, Bergeron and Raymond (1995) emphasized that organizations use two perspectives in managing the relation between business strategy and IT strategy. This is either the alignment approach or the impact approach. While the former is considered by the implementation of IT technologies planned to support the organization's business strategy, the latter is characterized when IT management drives the organization in formulating a new vision and implementing IT goals. Therefore, in the second case, IT management plays a critical role in influencing the firm's business strategy, and leads to key changes in the means it does business. Later, Chan and Reich (2007) stated that the two approaches on the relationship between strategy and IT appear as: the classical perspective and the processual approach. While the first approach considers the relationship between strategy and IT as to deal with recognizing the contingencies of the technology and its application to business objectives, the second school perceives the role of IT as a resource and an instrument for gaining power. However, researchers commonly pay close attention to how they use IT to support organization's business strategy, and focus on the premise of considering IT as just an order-taker as technology yields benefits when it has been cautiously chosen to fit the

organization's goals and objectives (Palmer and Markus, 2000; Chan and Reich, 2007).

Because of the strategic role of IT, and the increasingly need for integration of existing and new IT systems (Tarhini et al., 2014b), IT strategic management receive attention from researchers and managers (Chan and Reich, 2007). For instance, Moody (2003) explored the terms of IT alignment and IT enablement. The first notion is considered in introducing the alignment of an organization's IT strategy with the objectives of its business units. Project management methods and use of outsourcing arrangements are typical examples of IT alignment. The second term is used in reference to IT-enabled innovations. This refers to the ability of an organization to create new business processes, services, and products using IT strategy. Furthermore, while the first notion implies that IT and business strategies are interrelated so that budgets are in harmony, IT enablement requires independent budget in order to support new business capabilities such as enterprise resource planning (ERP). Also, Moody (2003) argued that some managers suppose that IT alignment would automatically lead to the benefits of enablement, but that presumes massive leap of faith accepting something intangible or improvable, or without empirical evidence. This is because IT alignment could be characterized as being achievable through traditional managerial processes, whereas IT enablement requires significant skills in innovation processes. Moody (2003) classified firms into two types: either traditional or innovation firms. The premise is that firms that promote innovation are more probably to be correlated with IT enablement initiatives than firms that do not foster innovation processes.

D'Souza and Mukherjee (2004) ascertained that IT revolution is about improving the performance of a firm in a coordinated manner over the long haul. Further, IT-business alignment that concentrate on instant results, and cast the task as a technology diffusion problem, would not be the best way to attain lasting financial enhancements. Instead, alignment models should focus on fitting the chosen IT package to the firm. This route is motivated by the premise that organizational change is inherently confused, time-consuming, and that top managers demands innovation activities. According to Peppard and Ward (2004, p. 169): "technology itself has no inherent value and that IT alone is unlikely to be a source of sustainable competitive advantage. The business value derived from IT investments only emerges through business changes and innovations, whether they are product/service innovation, new business models, or process change, organizations must be able to assimilate this change if value is to be ultimately realized". In line with the above discussion, Strassmann (2003, p.5) confirmed that cutting of innovative investments is not how to restore security, reliability and system integrity. For instance, instead of feeding the increasingly costly IT infrastructure and

throwing money at rising maintenance costs, firms should initiate IT investment cycles to replace old systems. The cure for most of the so called "legacy system" is not patching, but radical innovation, such as shifting the accountability for systems performance to vendors who would have the responsibility of delivering reliable and robust applications.

In addition, some researchers have argued that innovative (i.e. exploration) and superior quality of products and services (i.e. exploitation) offer firms a competitive advantage, whereby a company possesses certain intangible resources that a competitor cannot copy or buy easily (Cho and Pucik, 2005). This can be seen from the resource base view (RBV), which states that a sustainable competitive advantage is caused by the inimitability, rarity, and non-tradability of intangible resources (Barney, 1991). Broadly speaking, while innovation is defined as exploring something new which has not existed before, quality is seen as a dynamic threshold which firms have to meet to satisfy customers (Cho and Pucik, 2005). However, balancing innovation and quality (i.e. pursuing strategic ambidexterity) is a big challenge that firms may face, as March (1991) explained that exploration and exploitation are in competition for scarce resources which can maximize a firm's return. Therefore, the relationship between exploitation and exploration with firm performance is not yet clear. In general, IT-business strategic alignment has traditionally been considered as unidimensional variable indicating IT support for the business strategy. This view is reached by exploiting IT resources which play a pivotal role in attaining the business goals, and in turn play a critical role in helping develop and implement strategy. However, in order to improve the degree of explorative strategic alignment within a firm, the IT role should be strategically positioned to ensure that business strategy employs new IT technologies and applications. In this case, business strategy would have to follow technology. In other words, organizational business strategy should support the appropriate IT configurations and resources. Oh and Pinsonneault (2007) conceptualize business and IT strategies into minimizing cost, achieving quality improvement, and obtaining revenue growth. While the first two require exploiting IT strategy in term of deployment of IT applications, and in turn allow for product and service differentiation; the third approach requires the rapid development of new IT systems, and in turn, result in offering a wide variety of new products and services.

Based on the above discussion, this study has considered strategic alignment as the levels of fit related to the directional linkages between business and IT strategy. Unilateral information technology strategy (ITS) fit concerns formulating the ITS to meet the business requirements (i.e. IT is considered as an enabling factor in the firm); and unilateral business strategy (BS) fit concerns, fitting the BS to the IT constraints (i.e. IT is considered as

an innovative factor in the firm). Further, this study conceptualizes IT-business strategic alignment along the scale of productivity and innovation. The spectrum underlines the two fundamental concerns of a firm. Firms that utilize IT to comprehend their business strategy as a productivity lever are concerned with exploiting and using IT solutions to enhance growth; hence, this implies more managers' exploitation works. Also, firms that utilize IT as an innovation lever concern leveraging and exploring IT capabilities to boost innovation require more managers' exploration works. The next section explains the new conceptualization in great details.

Exploration and Exploitation Definitions and Distinctions

Studies on organizational learning and technological innovation consider definitions and distinctions between exploration and exploitation. March (1991) argued that both exploration and exploitation are essentially different learning activities by which a firm divides its resources. From the organizational learning perspective, March (1991, p.71) stated that exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, and innovation; while exploitation includes such things as refinement, choice, production, efficiency, selection, implementation, and execution. The core of exploration strategy in organizational learning studies refers to learning achieved through activities of concerted variation, planned experimentation, and play (Baum et al., 2000); searching for new organizational norms, routines, structures, and systems (Nooteboom, 2000); developing new knowledge (Levinthal and March, 1993); and experimenting with new approaches towards technologies, business processes, or markets (March, 1991). Exploitation strategy has been captured by activities via local research, experiential refinement, and selection and re-use of existing routines (Levinthal and March, 1993; Baum et al., 2000); and by applying, improving, and extending existing competences, technologies, processes, and products (March, 1991).

In addition, some scholars distinguish between exploitation and exploration in technological and product innovation studies (Jansen, 2005). Benner and Tushman (2002, p. 679) stated that exploitative innovations involve improvements in existing technological trajectories, whereas exploratory innovation involves a shift to a different technological trajectory. He and Wong (2004, p.483) defined exploitative innovation as technological innovation activities aimed at improving existing product-market domains; and exploratory innovation as technological innovation aimed at entering new product-market domains. Moreover, some researchers (e.g. Tushman and Smith, 2002) linked the terms of exploration and exploitation with the terms of radical and incremental innovations. Tushman and Smith (2002) relate radical innovations that are designed to meet the needs of emergent

customers to exploration activities, whereas incremental innovations are designed to meet existing customers' needs to exploitation activities. Furthermore, Duncan (1976) argued that two subsequent stages occur in the innovation process: the first stage is characterized by exploration activities such as risk taking and searching for alternatives and the second stage is captured by exploitation activities like refining and implementing the innovation.

Tensions between Exploration and Exploitation:

Tensions between exploration and exploitation occur for several reasons. For instance, some scholars have argued that organizational pressures steer an organization's choice toward exploitation or exploration strategies (Lavie and Rosenkopf, 2006). It has been argued that pressures for exploitation come from organizational inertia, specifically "when the speed of reorganization is much lower than the rate at which environmental conditions change" (Hannan and Freeman, 1984, p.151). This is to say that the pressure to focus on efficiency and cutting costs forces directors to adopt exploitation perspectives. It has also been suggested that pressures for exploration derive from an absorptive capacity, which is defined as the ability to value, assimilate, and apply external knowledge (Cohen and Levinthal, 1990). Absorptive capacity, changes in technologies, regulation, and customer demands assist firms in identifying emerging opportunities, which in turn enhances exploration results. Even though strategies of exploitation and exploration are crucial for firms, they compete for scarce resources, and firms should make explicit and implicit choices between the two (March, 1991). Furthermore, Levinthal and March (1993, p.105) confirmed that an organization that engages exclusively in exploration will ordinarily suffer from the fact that it never gains the returns on its knowledge. An organization that engages exclusively in exploitation will ordinarily suffer from obsolescence. Explicit choices could be found in calculated decisions about alternative investments and competitive strategies, but the implicit choices are hidden in many features of organizational forms and customs (March, 1991). Moreover, costs and benefits vary between exploitation and exploration across time and space. Managers prefer to see more certain returns than less certain ones, resulting in the firm developing towards exploitation rather than exploration. March stated (1991, p.73) that "compared to returns from exploitation, returns from exploration are systematically less certain, more remote in time, and organizationally more distant from the locus of action and adaptation". Therefore, tensions between exploitation and exploration do actually exist.

Furthermore, Raisch and Birkinshaw (2008) reported that while some researchers argued that there is a trade-off in firms between following either

efficient exploitation activities or effective exploration activities, others emphasized that firms should focus on and balance both activities with "ambidexterity". Indeed, although several researchers (March, 1991; Gibson and Birkinshaw, 2004; He and Wong, 2004) used the concept of ambidexterity, Duncan (1976) was the first scholar that used the term to mean organizational ambidexterity. In addition, Mom (2006) claims that researchers formulate the relation between exploration and exploitation as a trade-off, oscillating, and combinatorial. The first way on the relation between exploration and exploitation (i.e. trade-off) argues that exploration and exploitation cannot be "combined" together at the same place and time, therefore, a raise in one (e.g. exploration) implies a decline in the other (e.g. exploitation), and vice versa. Other scholars argued that exploration and exploitation could follow each other over time (i.e. oscillating). Finally, some researchers argued that both exploration and exploitation can be combined within space and time, therefore, a raise in one (e.g. exploration) implies an increase in the other (e.g. exploitation) and vice versa.

Managing the Tension between Exploration and Exploitation Strategies:

Distinguishing several tensions between exploration and exploitation, and the ways in which scholars formulate the relations between them (i.e. trade-off, oscillating, and combinatorial), would help to understand how firms could manage and combine such tensions between exploration and exploitation. According to Mom (2006), firms may deal (i.e. managing exploration and exploitation) with tensions between exploration and exploitation in three ways (paradoxes): spatial separation, temporal separation, and synthesis. These three ways are based on the above perspectives of the relation between exploration and exploitation as a trade-off, oscillating, and combinatorial.

The first response from firms' "spatial separation" is dependent on the trade-off perspective on the relationship between exploration and exploitation. In this way, Mom (2006) argued that one horn of the paradox is assumed to operate in one physical or social locus, while the other operates in a different locus (Poole and Van De Ven, 1989, p. 566). Spatial separation can take place by level, function, and/or location (Volberda, 1998). In Mom's words (2006, pp. 26-27): separation by level is related to hierarchy (e.g. top-, versus middle-, versus front-line-managers). Separation by function is related to distinctive functions performed, processes applied, or knowledge used (e.g. marketing, production, and engineering). Separation by location is influenced by geography and distinct business units. Traditionally, the exploration of capabilities and the development of strategy are assumed to take place at the top or corporate level, whereas the exploitation of these capabilities and the execution of strategy take place at lower levels (Chandler, 1962; Prahalad and

Hamel, 1990). Others suggest that the best place to explore new opportunities, build capabilities, and develop strategy is at the lowest hierarchical levels (Kimberly, 1979; Burgelman, 1983b; Quinn, 1985), whereas the role of top management is to evaluate and ratify initiatives that emerge from across the organization (Floyd and Lane, 2000). Examples of separation by function can be found in nearly all large multi-unit firms. Typically, production-units are strongly geared towards exploitation by focusing on operational efficiency. R&D units and marketing units are more oriented towards exploration by engaging in unpredictable research projects, developing new products, and searching for and experimenting with new approaches to markets and customers (Volberda, 1998). Separation of exploration and exploitation by location can be found in studies on 'structural ambidexterity' (e.g. Benner and Tushman, 2003; O'Reilly and Tushman, 2004). While the exploration units are small and decentralized, with loose cultures and processes, the exploitation units are larger and more centralized, with tight cultures and processes (Benner and Tushman, 2003, p. 247).

The second response from firms to deal with tensions between exploration and exploitation is based on the oscillating view on the relation between exploration and exploitation. This is by temporally separating exploration and exploitation. According to Mom (2006, pp. 27-8): by taking the role of time into consideration in this approach, "one horn of the paradox is assumed to hold during one time period, and the other during a different time period" (Poole and Van De Ven, 1989, p. 566). Based on computer simulations of innovation processes, Cheng and Van De Ven (1996), for instance, illustrate that in the innovation process exploration and exploitation follow each other sequentially. Similarly, Duncan (1976) presents a model for designing organizations for initiating and implementing innovations. The initiation stage of the innovation process is facilitated by an organizational structure characterized by a high degree of complexity, low formalization, and low centralization. The implementation stage of the innovation process, however, is facilitated by an organizational structure characterized by a low degree of complexity, high formalization, and higher centralization. As initiation and implementation follow each other sequentially, Duncan (1976) suggests that organizations correspondingly should change their organization structure over time to match the changes in tasks. Some studies on technological innovations illustrate that technological change is characterized by periods of incremental change, punctuated by discontinuities (Tushman and Anderson, 1986). During periods of incremental change, competition and environmental uncertainty is lower than during periods of discontinuity, i.e. rates of competition and levels of uncertainty within the technological environment change cyclically (Tushman and Anderson, 1986). Consequently, these studies argue, firms should alternate between pursuing

incremental innovations during times of incremental change and pursuing radical innovations during periods of discontinuities. The hypotheses, supported by computer simulations, as developed by Garcia et al. (2003), illustrate that a focus on technology exploration over exploitation within a firm is favorable in times when competition is high, whereas a focus on technology exploitation over exploration is favorable in times when competition is low.

The third response from firms to deal with tensions between exploration and exploitation is based on synthesizing the view on the relation between exploration and exploitation. This is by balancing both exploration and exploitation in both time and space (Levinthal and March, 1993). According to Mom (2006), pp. 28-29): "proponents of a combinatorial view typically argue that an organizational unit may combine contradictory demands at the same place and time by combining seemingly contradictory organizational design elements". Gibson and Birksinshaw (2004) argue that a context characterized by a combination of stretch, discipline, support, and trust facilitates contextual ambidexterity. Similarly, Adler et al. (1999) identify organizational mechanisms, i.e. meta-routines, job-enrichment, switching, and partitioning, which help an organization to combine routine and non-routine tasks. Rivkin and Siggelkow (2003) illustrate how an organization may balance search and stability by combining organizational design elements, which push the firm towards broad search with design elements that pulls it towards stability. Furthermore, Sheremata (2000) analyzes the difficulty for firms to be ambidextrous in terms of two opposing forces, centrifugal and centripetal forces. He defines centrifugal forces in this context as "structural elements and processes that increase the quantity and quality of ideas, knowledge, and information an organization can access', whereas centripetal forces are 'structural elements and processes that integrate dispersed ideas, knowledge, and information into collective action" (Sheremata, 2000, p. 390). Sheremata (2000) argues that centrifugal and centripetal forces must coexist to balance exploration and exploitation; there is a positive interaction effect between the two. Mom (2006) argued that in addition to the points that already mentioned regarding the presence of tensions between exploration and exploitation, one more reason against synthesizing them is that synthesizing exploration and exploitation could lead to ineffective compromise solutions. Related to this point, Weick (1979) argued that the critical point is that, in effecting the compromise solution, main adaptive responses have been selected against, and non-adaptive, moderate responses have been preserved.

Exploration and Exploitation at the Managerial Level

Researchers called for more research to understand how management could organize and deal with exploitation and exploration at the firm or unit level (Levinthal and March, 1993). However, even though different levels of analysis have been found in the management studies at the industry, firm, unit, and group level (Klein et al., 1994), research to evaluate exploitation and exploration is almost nonexistent at the individual level.

While some researchers indicate that managers' activities are essential to organizational change by focusing on exploitation or exploration activities, other studies suggest balancing exploitation and exploration perspectives. For instance, O'Reilly and Tushman (2004) said that general managers and corporate executives must constantly look backwards, attending to the products and processes of the past, while also gazing forward, preparing for the innovations that will define the future. Therefore, managerial focus at all levels should be flexible enough to allow them to alternate between exploitation and exploration activities, or at times to conduct both activities simultaneously (ambidexterity). Mom (2006, p. 36) conducted several interviews in three firms to conceptualize managers' exploration and exploitation activities and stated that interviews indicate that managers conduct exploration activities such as developing new technologies, products, or product combinations; renewing internal processes and systems; searching for, learning about, and experimenting with new technologies; experimenting with new distribution channels; searching for new opportunities in existing, new, or emerging markets; discovering changing customer preferences; discovering, and experimenting with new business models, products, and services in both existing and previously un-served markets. Examples of exploitation activities include specializing in and improving and refining in-depth knowledge pertaining to existing market segments, products, technologies, or processes; activities related to fine tuning and standardizing processes, procedures, and tasks; increasing efficiency and economies of scale; consolidating, extending, and/or divesting activities; and activities related to improving internal operations.

However, Mom et al. (2007) were the first to empirically validate the understanding on the subject of exploration and exploitation at the managerial level by investigating their (i.e. the managers') exploration and exploitation activities. In their study, the assumption beyond using managers' exploration and exploitation activities was that understanding the ways in which to influence managers' exploration and exploitation activities will assist in understanding how a firm or a business unit will build exploration and exploitation. Moreover, Mom et al. (2007) have developed and tested the effects of managers' knowledge inflows on managers' exploration and exploitation activities. They distinguished top-down, bottom-up, and

horizontal knowledge inflows of managers. While top-down knowledge inflows are concerned with knowledge coming from persons and units at higher hierarchical levels than the recipient manager; bottom-up knowledge inflows are associated with knowledge coming from persons and units at lower hierarchical levels than the recipient manager. Also, horizontal knowledge inflows are concerned with coming from persons and units at the same hierarchical level.

Mom et al. (2007) clearly contribute to the organizational literature by developing scales that assess managers' exploration and exploitation activities. In this matter, they depend on March's (1991) definitions of exploration and exploitation, and subsequently they developed seven exploration activity items, and another seven items to the exploitation activities. To improve the construct validity of the items, Mom et al. (2007) conducted twelve in-depth interviews with managers at several functions and different business units. Then, based on survey data from 104 managers, factor analysis ended up with five exploration items at 0.86 Cronbach's alpha, and six exploitation items at 0.81 Cronbach's alpha. In their pioneering study, Mom et al. (2007) confirmed that managers may well engage in high levels of exploration as well as exploitation activities. They found that top-down knowledge inflows from persons at higher hierarchical levels than the manager were positively related to exploitation activities, whereas they did not relate to managers' exploration activities. On the contrary, horizontal and bottom-up knowledge inflows from peers and persons at lower hierarchical levels were positively related to exploration activities, but they did not relate to managers' exploitation activities. Therefore, the findings showed that the higher a manager obtains top-down, horizontal, and/or bottom-up knowledge flows, the more the levels of exploration and exploitation which the manager employs. Also, their findings proved that exploration and exploration were two separate dimensions, and were not one continuum.

In this study, IT-business strategic alignment has been conceptualized as managers' exploitation and exploration activities. Consequently, the current study will fill the research's gaps by exploring the relationships between strategic alignment and its antecedent variables, before focusing on its outcomes through intermediary variables.

Conclusion

The extant literature in MIS and management often uses the Strategic Alignment Model (SAM) of Henderson and Venkatraman (1993) to explain the ways that firms achieve alignment. The SAM comprises building linkages among four strategic domains: business strategy, IT strategy, organizational infrastructure and processes, and IT infrastructure and processes. These linkages result in several perspectives (e.g. strategy execution, technology

transformation, competitive potential, and service level) and organizational roles carried out by business and IT managers and executives. Papp (1995) proposed a further eight perspectives for examining the business and IT strategies and infrastructures to determine if they work in harmony or in opposition. Some MIS researchers (e.g. Miller, 1993; Kearns and Lederer, 2000, 2003; Sabherwal et al., 2001) assume a type of alignment where business strategy determines IT strategy (unilateral fit). Others (e.g. Henderson and Venkatraman, 1993; 1999) theorize on how IT strategy could determine business strategy (unilateral fit). The SAM does not differentiate the conditions of how firms pursue different types of alignment and in which order. A firm can either sequentially starts with one followed by the other unilateral fit, or it can simultaneously pursue both. In addition, the SAM model does not take into account the antecedent variables that guide to greater strategic alignment.

Furthermore, several scholars (Baets, 1996; Sabherwal et al., 2001) argued that IS strategy alignment is a process, and its changes can be captured using a punctuated equilibrium model. There are two models of change, namely revolutionary changes and the evolutionary period. An example of revolutionary changes would be shifting a firm from prospector to defender business strategy, whereas an evolutionary period would consist of continuing to follow a prospector business strategy while conducting minor modifications, such as searching for best practices in IS and IT outsourcing; and implementing a new accounting system to track profit or loss by line of business. These scholars also found that the revolutionary changes in the strategic IS management profile did not always increase alignment, and that the evolutionary period could, in some cases, be characterized by a high level of alignment. Luftman and his associates (e.g. Luftman, 2000; Luftman et al., 2004) attempted to assess strategic alignment by evaluating a firms' level of alignment to identify areas for improvements. They developed a strategic alignment maturity assessment approach to determine a firm's level among five levels of maturity, from level 1 (mature) to level 5 (most maturity). They found that most of the firms were at level 2 of maturity. They argued that achieving high-sustained alignment requires a bilateral fit between business strategy and IT strategy in areas of communication, planning, architectural integration, and skill. They discussed six other steps of processes to assess strategic alignment, and argued that if a firm desires to realize its current IT-business alignment, then it should use the strategic alignment maturity model as a road map.

However, valid measures are essential to develop and assess the alignment mechanisms within firms. An early study conducted by Venkatraman (1989) described the concept of fit from six measurement perspectives: moderation, mediation, matching, gestalt, covariation, and

profile deviation. While perspectives of fit such as moderation, mediation and matching look at linear relationships between a few variables, gestalt and covariation require a larger number of variables to test multivariate relations. Furthermore, Bergeron et al. (2001) supported Venkatraman's (1989) theory that different perspectives to analyze fit may lead to different and contradictory results. Therefore, it is essential to identify the type of fit with strong theoretical support. Consequently, further research is needed to validate the ways researchers measure the concept of strategic IT-Business alignment taking into consideration both exploration and exploitation strategies.

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