

An Integrative Model Linking IT-Business Strategic Alignment and Firm Performance: The Mediating Role of Pursuing Innovation and Knowledge Management Strategies

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Abstract

While researchers have encouraged more research on the causal chains between IT investments and firm performance, results of empirical studies have been non-conclusive. This is partly due to the exclusion of IT-business strategic alignment. Further, scholars have continuously called for research that addresses the antecedent factors that lead to the alignment. Moreover, the elusive link between strategic alignment and firm performance calls for further research into intermediate variables which might in turn affect firm performance. Therefore, the purpose of this paper is to provide a detailed roadmap in which practitioners can use to understand the resources required to realize the potential values of their IT investments. This could be achieved by presenting further insight to the factors that could lead to strategic alignment; and investigating the relationships among strategic alignment antecedents, strategic alignment and firm performance through vital intermediary variables namely innovation and knowledge management (KM) strategies.

1. Introduction

Results of several empirical studies which have been conducted over the past decade on the correlation between IT investments and firm performance have been vague (e.g. Hitt and Brynjolfsson 1996). These conflicting results have been attributed mainly to the lack of productivity measurement and the time lags owing to an IT learning effect, or a time-consuming period of balancing organization changes (Brynjolfsson and Hitt 1998). In addition, because many factors influence firm performance, it is difficult to establish causality between IT investments and firm level performance (Im et al. 2001). However, most MIS research identifies strategic alignment as a missing link between IT and firm performance (Henderson and Venkatraman 1993; Sabherwal and Chan 2001).

Contingency and antecedent factors which guide alignment have been explored by a number of researchers (Brown and Magill 1994; Sabherwal and Chan 2001). However, regardless of a growing body of research, recent reviewers (Chan et al. 2006, Chan and Reich 2007) have continuously

called for more research into the factors that affect IT-business alignment and the coupling process between alignment and enhanced business performance. Furthermore, the elusive link and mixed results concerning the direct relationship between strategic alignment and firm performance calls for further research into intermediate variables, determining how strategic alignment may affect firm performance. Indeed, researchers have suggested that KM capability could enhance financial firm performance. For instance, Tanriverdi (2005) called for further examination of the contribution of KM to firm performance. On the other hand, firms engage their competitors in the dynamic environment to exploit their existing assets and to explore new opportunities for better performance. Levinthal and March (1993) stated that "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". Further, Gupta et al. (2006) argued that firms could follow either exploitation or exploration practices in their business and functional strategies or alternatively pursue exploitation and exploration strategies simultaneously. Therefore, the presence of exploitation and exploration strategies in a firm is essential for better performance.

Noting that little research has been carried out on this topic, and in an effort to respond to several calls from well-known scholars on this issue, we present a causal model to test the impacts of some antecedents that could lead to strategic alignment, and the two intermediate variables comprising knowledge management and manager's innovation strategies between strategic alignment and firm performance.

2. IT-Business Strategic Alignment

Alignment of information technology (IT) strategy with the business strategy has been ranked as one of the most important issues facing business and information system (IS) executives in Europe and America (Luftman 1996). Alignment has been defined also as the extent to which the IT mission, objectives and plans support and are supported by their business counterparts (Reich and Benbasat 2000). Further, alignment has been an important concern to the business community (Watson et al. 1997) as it not only helps firms realize the potential

benefits from investments in IT (Tallon et al. 2000) but also enhances business performance by aligning the organizational and technological infrastructures (Croteau et al. 2001). The majority of research in both IS and management literature deploys the strategic alignment model (SAM) of Henderson and Venkatraman (1989).

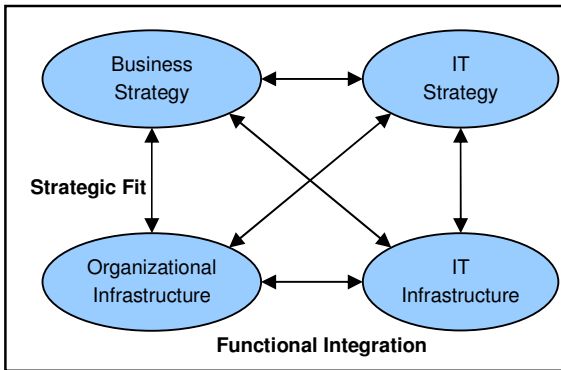


Fig 1. Strategic Alignment Model

As shown in figure (1), the model aligns business strategy with IT strategy to help firms continuously adapt to their business environments. Further, the model suggests that IT-business alignment can be achieved in organizations by building linkages among four strategic domains: business strategy, IT strategy, organizational infrastructure and processes, and IT infrastructure and processes. Ho (1996) argued that strategic alignment types can be classified as either bivariate fit or cross-domain alignment. While the former links two domains horizontally or vertically, the latter type could be seen as a multi-domain relationship that engages two or three strategic domains.

3. Research Conceptual Framework and Propositions Formulations

In this section the hypotheses of our model, as can be shown in figure 2, are developed. First, propositions are developed on the direct impact of antecedent factors on strategic alignment, and then on the impact of strategic alignment on two intermediary variables, namely innovation and KM strategies. Finally, propositions are developed on the impact of the intermediary variables on firm performance.

3.1. Antecedent Factors Hypotheses

This section provides several propositions related to the link between numerous antecedent variables and strategic alignment.

3.1.1. Communication between Business and IT Managers

Research on strategic alignment underlines the importance of reciprocal relationship management between business and IT executives if business and IT views are to be transformed into sound business practices.

Some researchers argued that the relationship between business and IT strategy can be viewed as social and intellectual linkages. The intellectual link involves the content of plans and planning tactics whereas the social link relates to the actors of the alignment process. Reich and Benbasat (1996) defined the social link as “the state in which IT and business executives within an organizational unit understand and are committed to the business and IT mission, objectives, and plans”.

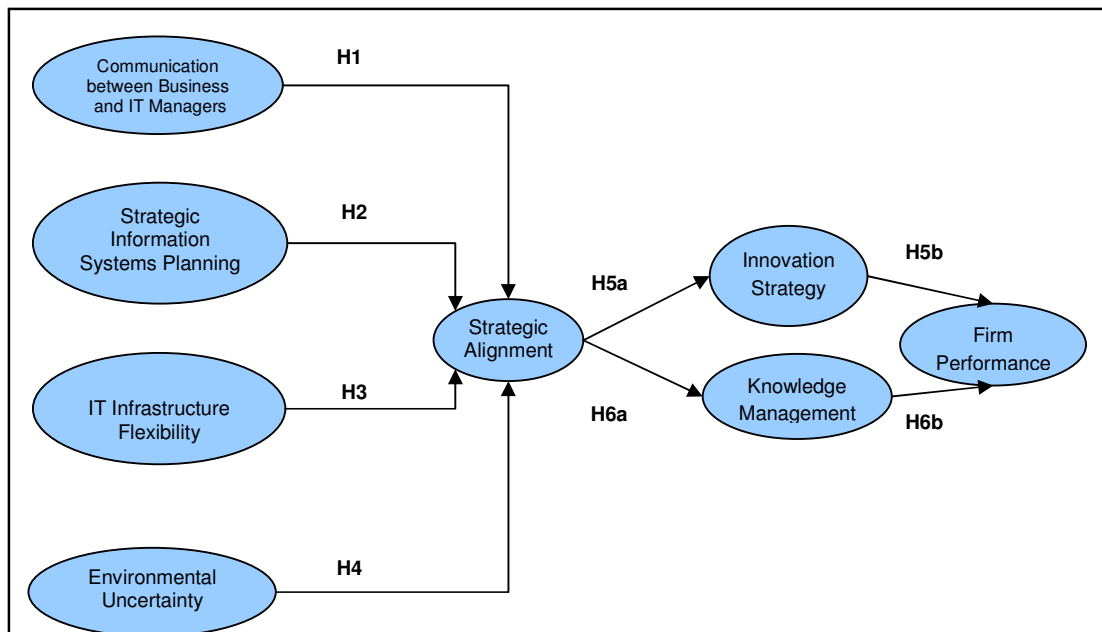


Fig 2. A Causal Model

This is to say that the more IS executives understand and are committed to the business mission, its objectives and plans, and the more business executives understand and are committed to the IT mission, objectives and plans, the greater the chance for strategic alignment. Further, Reich and Benbasat (2000) described shared domain knowledge as the ability of IT and business executives to understand each other's perspectives; contribute to each other's input processes; and respect the contributions and challenges made by one another.

A recent study conducted by Johnson and Lederer (2005) argued that frequent communication between the Chief Executive Officer (CEO) and Chief Information Officer (CIO) could not only promote mutual trust and enhance convergence, but also guarantee that IT resources would be used to support daily organization operations. Further, they found that when the CEO and CIO communicate more frequently with each other, then the degree of convergence about the IT role is higher. Moreover, they used Rice et al's (1998) typology to measure such communication through five channels, namely face-to-face; telephone; e-mail; business memo; and voice mail. Furthermore, Chan et al (2006) argued that reciprocal exchanges of business and IT knowledge between business and IT executives not only improve shared understanding but also promote a common vision. Therefore, we formulate the following hypothesis:

Hypothesis 1. Communication between business and IT managers is positively related to IT-business strategic alignment.

3.1.2. Strategic Information Systems Planning

Research literature has shown how IT can be linked to business strategy through a planning process. It argues that a close relationship between IS and business strategies is one of the key factors for successful IS planning (Henderson et al. 1987).

Lederer and Mendelow (1989) suggested that coordination between the IS plan and the business plan could be achieved through three types of linkage, namely content, timing, and personnel. Content linkage refers to the level of consistency between the IS and business plans. Time linkage relates to whether the IS and business plans are prepared at the same time or one before the other. Personnel linkage is concerned with the degree of involvement from the business executive in the IS plan and the IS executive in the business plan. However, Lederer and Salmela (1996) proposed a theory of strategic information systems planning (SISP) and considered alignment the central consequence as an endeavour. The SISP is essentially a formalized way of enriching three key aspects of flow planning: comprehensiveness, formalization and control focus. For flow planning,

it can be either a "top down" or a "bottom up" process. Fredrickson and Mitchell (1984) defined comprehensiveness as "the extent to which an organization attempts to be exhaustive or inclusive in making and integrating strategic decisions". Formalization refers to the existence of structures, techniques, written procedures, and policies which guide the planning process (Dutton and Duncan 1987). Control focus refers to the balance between creativity and control orientations inherent in the strategic planning system (Chakravarthy 1987). In deploying SISP as one of the success measures, Segars and Grover (1999) found that planning systems which reveal features of rationality and adaptation are positively related to planning effectiveness. With high planning comprehensiveness and formalization and control focus, formalized planning systems including SISP helps to foster a more effective top-down communication of the underlying rationality which in turn facilitates participation in strategic planning and adoption at the consumption ends. This has led to our second hypothesis:

Hypothesis 2. Strategic information systems planning will positively predict IT-business strategic alignment.

3.1.3. IT Infrastructure Flexibility

Apart from an organization's core competency, IT flexibility is vital if organizations are to survive in the increasingly competitive global environment. Many have called for more research on the relationship between strategic alignment and organizational flexibility in order to respond to external events (Tallon and Kraemer 2003).

Earlier research by Weill (1993) argued that IT infrastructure should be flexible in order to manage increasing customer demands without further costs. Duncan (1995) argued that infrastructure flexibility could improve the ability of system developers to design and build systems to meet business objectives. Therefore, a flexible IT infrastructure is able to react to changing business environments. Duncan (1995) illustrated IT infrastructure flexibility in terms of connectivity, compatibility, and modularity. Connectivity and compatibility are linked to the idea of reach and range (Keen 1991), which are concerned with the sharing of a common set of IT resources among internal and external users. Duncan (1995) defined connectivity as "the ability of any technology component to attach to any of the other components inside and outside the organizational environment". Byrd and Turner (2000) defined compatibility as "the ability to share any type of information across any technology component", and modularity as "the ability to add, modify and remove any software, hardware or data components of the infrastructure with ease and with no major overall effect".

However, few empirical studies tested whether IT infrastructure flexibility enabled strategic alignment (Chung et al. 2003; Ness 2005). A recent study by Chung et al. (2003) tested the relationship between IT flexibility and strategic alignment by using data from 200 US and Canadian medium and large companies. They asked IT personnel to complete a questionnaire relating to compatibility, connectivity, and modularity. They found that all three components of IT infrastructure flexibility correlated positively with strategic alignment. Thus, a flexible IT infrastructure is essential if firms are to maintain sustainable competitive advantage. The researchers suggested that their model should also be tested on responses from business and IT managers. Therefore, this has led to the following hypothesis:

Hypothesis 3. IT infrastructure flexibility is crucial to warrant IT-business strategic alignment.

3.1.4. Environmental Uncertainty

Uncertainty embodies the differences between the information needed to perform a task and the information available (Galbraith 1977). Researchers in the area of strategy and information systems have used the construct of environmental uncertainty to study its effect on organizations (Fredrickson and Mitchell 1984).

Miller (1993) defined uncertainty as the unpredictability of environmental or organizational variables that have an impact on corporate performance. Bhatt (2001) argued that firms face unexpected problems and unforeseen situations that are difficult to control. In order for a firm to handle such harsh situations, it is necessary to organize a pattern of communication between its members, technologies, and knowledge assets. While Sabherwal and Kirs (1994) argued that alignment could be achieved in more certain environments, necessary information within uncertain environments may not be available to make comprehensive decisions which in turn could reduce harmony among organizational components (Fredrickson and Mitchell 1984). Daft and Lengel (1986) argued that uncertain environments meant an increased need for information processing, whereas Lee and Grover (2000) suggested that IT usage could enhance an organization's information processing capabilities in an uncertain environment, and create inter-organizational links with customers and suppliers. Thus, in the uncertain environment, IT can help firms deal with the uncertainty by increasing their ability to process information, which in turn assists IT strategic utilization (Reich and Benbasat 1990).

Newkirk and Lederer (2006) measured environmental uncertainty in terms of three dimensions: dynamism, heterogeneity, and hostility. While dynamism is the rate and unpredictability of environmental change,

heterogeneity is the complexity and diversity of external factors like customers' buying habits, hostility is the availability of resources and the degree of competition in the external environment. Chan et al. (2006) found that environmental uncertainty as a formative construct was positively correlated with alignment within the academic institutions but not within business firms. They asked managers to assess the influence of some external conditions, such as customer preferences and demand patterns; competitor moves like pricing, product offerings and so on; and regulatory or legislative influence. Against this body of literature, we formulate the following hypotheses:

Hypothesis 4. The levels of dynamism, heterogeneity, and hostility of the firm's environment are positively related to IT-business strategic alignment.

3.2. Intermediary Factors Hypotheses

The elusive link and mixed results on the direct relationship between strategic alignment and firm performance calls for further research into intermediate variables in which strategic alignment may affect firm performance. Therefore, this section provides several proposition related to the linkage between two intermediary variables and strategic alignment.

3.2.1. Innovation Orientation

Studies on organizational learning and technological innovation consider distinctions between exploitation and exploration. From the organizational learning perspective, March (1991) stated that exploration "includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation", while exploitation "includes such things as refinement, choice, production, efficiency, selection, implementation, execution". The core of exploration strategy in organizational learning refers to learning achieved through searching for new organizational norms, routines, structures, and systems; developing new knowledge; 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 reuse of existing routines (Levinthal and March 1993); and by applying, improving, and extending existing competences, technologies, processes and products (March 1991).

Some scholars distinguish between exploitation and exploration in technological innovation studies. Benner and Tushman (2002) stated that "exploitative innovations involve improvements in existing technological trajectory, whereas exploratory innovation involves a shift to a different technological trajectory". He and Wong (2004) termed 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”. All in all, Gupta et al. (2006) argued that learning, improvement, and acquisition of new knowledge are fundamental to exploitation and exploration. Even though both strategies of exploitation and exploration are crucial for firms, they compete for scarce resources and should make explicit and implicit choices between the two (March 1991). Levinthal and March (1993) confirmed that “an organization that engages exclusively in exploration will ordinarily suffer from the fact that it never gains the returns of its knowledge. An organization that engages exclusively in exploitation will ordinarily suffer from obsolescence”. Whereas, the explicit choices could be found in calculated decisions about alternative investments and competitive strategies, 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. He stated (March 1991) 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 exist.

Indeed, researchers called for more research to understand how organizational factors affect managers’ exploitation and exploration activities; and how management could organize to deal with exploitation and exploration at the firm or unit level (Levinthal and March 1993). However, the relationship between exploitation and exploration with firm performance is not yet clear. Some researchers have argued that innovative and superior quality of products and services offer firms a competitive advantage, whereby a company possesses certain intangible resources that a competitor can not copy or buy easily (Cho and Pucik 2005). However, balancing innovation and quality is a challenge that firms face. Against this, we formulate the following hypotheses:

Hypothesis 5a. *Firms that pursue IT-business strategic alignment will leverage innovation activities.*

Hypothesis 5b. *Innovation activities in turn mediate the relationship between IT-business strategic alignment and firm performance.*

3.2.2. Knowledge Management Strategy

Resource-based view generally regards a firm’s resources as tangible assets, such as land and buildings, financial data and reports and so on. Intangible assets include brands, reputation,

customer and employee loyalty, distribution networks, the ability of managers to work together and so forth (Penrose 1959). While explicit knowledge represents tangible assets, tacit information is intangible.

Further, some scholars noted that explicit knowledge is available in databases, library collections, or files while tacit knowledge, such as the accumulated experience and skills of individuals, is difficult to access (Nonaka and Takeuchi 1995). Because the above resources are as important as knowledge, how that knowledge is managed could influence the quality of services that firms provide. For instance, Bassellier et al. (2001) examined the competence of business managers, which they related to managers’ explicit and tacit knowledge. While the former enables business managers to communicate and share knowledge with IT personnel, the latter allows them to create a clear vision for the role of IT within the firm. Further, the research measured explicit IT knowledge among business managers by proposing several components, including technology, applications, system development, management of IT, and access to IT knowledge. Experience and cognition were the two components used to measure tacit IT knowledge. Experience included personal use of computers, IT projects, and management of IT; whereas cognition included the managers’ view of processes, and how they viewed IT’s role in the organization. It was concluded that IT competence among business managers could only be improved if managers formed partnership with IT personnel and participated in IT projects.

Furthermore, the role of IT in organizational knowledge management becomes a focal point because technologies such as groupware systems enhance communication, activate employee potential, and speed up the integration of employee knowledge across the firm (Liu et al. 2001). Most firms emphasized that the bulk of knowledge required is available from within the firm, but finding and leveraging such knowledge is problematic. Von Krogh (1998) defined knowledge management as a concept which identifies and leverages the collective knowledge in organizations to help them compete. Tanriverdi (2005) defined KM capability as the firm’s ability to create, transfer, integrate, and leverage related knowledge through its business units. Tanriverdi and Venkatraman (2005) argued that organizations which seek to utilize knowledge for greater performance need to focus on knowledge resources and the processes that create, exploit, and renew them. Hence, the role of IT is one of informing and sharing knowledge, and notably promoting effective re-use of knowledge resources. Given the causal link between KM capability and financial firm performance (Teece 1998), researchers have argued for examining the intermediary role performed by KM capability between IT-strategic management and firm performance (e.g. Eisenhardt

and Santos 2002). Yet there is a research void concerning the relationship between IT, KM, and firm performance.

Tanriverdi (2005) empirically tested its significance for firm performance, and found that IT relatedness which promotes knowledge re-use contributed significantly to the financial performance of multi-business firms. He found that IT relatedness improved firm-level KM capability, which itself enhanced corporate financial performance. It was also shown that IT relatedness had significant indirect effects on firm performance through the mediation of KM capability. Financial performance was gauged by using objective measures of accounting-based (ROA) and market-based performances (Tobin's Q). The study avoided the common method bias of collecting IT relatedness data from senior IT executives, the KM capability data from senior business executives, and the financial performance data from the COMPUSTAT database. A suggestion was made for additional research in small and medium sized firms to validate the results. Thus, we formulate the following hypotheses:

Hypothesis 6a. *Firms that pursue IT-business strategic alignment will leverage knowledge management assets.*

Hypothesis 6b. *Knowledge management strategy in turn mediates the relationship between strategic alignment and firm performance.*

4. Conclusion

Although fit or strategic alignment between IT and business managers has been measured from several perspectives, including matching, moderation, and mediation; the motivation of our study was to propose a theoretical model that determines the impact of several contextual variables (communication between business and IT managers, Strategic information systems planning, IT infrastructure flexibility, and environmental uncertainty) on IT-business strategic alignment, and how the mediating roles of managers exploration and exploitation orientations, and knowledge management strategy affect firm performance.

Future research must not only subject the present framework to empirical tests but must extend it to examine the ordering of strategic alignment to the emergence of innovation and knowledge management orientations. For practitioners, the present model provides a detailed roadmap to guide the decision-making process and to focus their attention on the significant antecedents and intermediate variables that ultimately affect financial performance.

5. References

- Bassellier, G., Reich, B.H. and Benbasat, I. "Information Technology Competence of Business Managers: A Definition and Research Model," *Journal of Management Information Systems* (17:4), 2001, pp.59-182.
- Benner, M., and Tushman, M. "Process Management and Technological Innovation: A Longitudinal Study of the Photography and Paint Industries," *Administrative Science Quarterly* (47), 2002, pp. 676-706.
- Bhatt, G. "KM in Organizations: Examining the Interaction between Technologies, Techniques, People," *Journal of KM* (5:1), 2001, pp. 68-75.
- Brown, C.V., and Magill, S.L. "Aligning the IS Functions with the Enterprise: Toward a Model of Antecedents," *MIS Quarterly* (18:4), 1994, pp. 371-403.
- Brynjolfsson, E., and Hitt, L. "Paradox Lost? Firm – level evidence on the returns to information systems spending," *Management Science* (42), 1996, pp. 541-558.
- Brynjolfsson, E., and Hitt, L. "Beyond the Productivity Paradox: Computers are the Catalyst for Bigger Changes," *Communications of the ACM* (41:8), 1998, pp. 49-56.
- Byrd, T., and Turner, E. "An exploratory analysis of the information technology infrastructure flexibility construct," *Journal of Management Information Systems* (17:1), 2000, pp. 167-208.
- Chakravarthy, B. "On tailoring a strategic planning system to its context: some empirical evidence," *Strategic Management Journal* (8:6), 1987, pp. 517-534.
- Chan, Y., Sabherwal, R., and Thatcher, J. "Antecedents and Outcomes of Strategic IS Alignment: An Empirical Investigation," *IEEE Transactions on Engineering Management* (53:1), 2006, pp. 27- 47.
- Chan, Y., and Reich, B. "IT alignment: what have we learned?," *Journal of Information Technology* (22), 2007, pp. 297-315.
- Cho, H., and Pucik, V. "Relationship between Innovativeness, Quality, Growth, Profitability, and Market Value," *Strategic Management Journal* (26), 2005, pp. 555-575.
- Chung, S.H., Rainer, R.K., and Lewis, B.R. "The Impact of Information Technology Infrastructure Flexibility on Strategic Alignment and Applications Implementation," *Communications of the Association for Information Systems* (11), 2003, pp. 191-206.

- Croteau, A.M., Bergeron, F., and Raymond, L. "Business Strategy and Technological Deployment: Fit and Performance," *Information System and Management* (6:4), 2001.
- Daft, R., and Lengel, R. "Organizational Information Requirements, Media Richness and Structural Design," *Management Science* (32:3), 1986, pp. 554-571.
- Duncan, N. "Capturing flexibility of information technology infrastructure: A study of resource characteristics and their measure," *Journal of Management of Information Systems* (12:2), 1995, pp. 37-57.
- Dutton, J., and Duncan, R. "The influence of strategic planning process on strategic change," *Strategic Management Journal* (8:2), 1987, pp. 103-116.
- Eisenhardt, K. M., and Santos, F. M. "Knowledge-Based View: A New Theory of Strategy? ", in *Handbook of Strategy and Management*, A. Pettigrew, H. Thomas and R. Whittington (eds.), Sage Publications, London, 2002.
- Fredrickson, J., and Mitchell, T. "Strategic Decision Processes: Comprehensiveness and Performance within an Industry with an Unstable Environment," *Academy of Management Journal* (27:2), 1984, pp. 399-423.
- Galbraith, J.R. *Organizations Designing*, Reading, MA: Addison-Wesley Publishing, 1977.
- Gupta, A., Smith, K., and Shalley, C. "The Interplay between Exploration and Exploitation," *Academy of Management Journal* (49:4), 2006, pp. 693-706.
- He, Z., and Wong, P. "Exploration vs. Exploitation: An Empirical Test of the Ambidexterity Hypothesis," *Organization Science* (15), 2004, pp. 481-494.
- Henderson, J.C., Rockart, J.F., and Sifonis, J.G. "Integrating Management Support Systems into Strategic Information Systems Planning," *Journal of Management Information Systems* (4:1), 1987, pp. 5-24.
- Henderson, J.C., and Venkatraman, N. *Strategic Alignment: A Framework for Strategic Information Technology Management*, Working paper, 1989.
- Henderson, J.C., and Venkatraman, N. "Strategic Alignment: Leveraging Information Technology for Transforming Organizations," *IBM Systems Journal* (32:1), 1993, pp. 4-16.
- Hitt, L., and Brynjolfsson, E. "Productivity, profit, and consumer welfare: three different measures of information technology value," *MIS Quarterly* (20:2), 1996, pp. 121-142.
- Ho, C. "Information Technology Implementation Strategies for Manufacturing Organizations: A Strategic Alignment Approach," *International Journal of Operations & Production Management* (16:7), 1996, pp. 7-100.
- Im, K.S., Dow, K.E., and Grover V. "Research report: a reexamination of IT investment and the market value of the firm-an event study methodology," *Information Systems Research* (12:1), 2001, pp. 103-117.
- Johnson, A.M., and Lederer, A.L. "The Effect of Communication Frequency and Channel Richness on the Convergence between Chief Executive and Chief Information Officers," *Journal of Management Information Systems* (22:2), 2005, pp. 227-252.
- Keen, P.G. "Redesigning the Organization through Information Technology," *Planning Review* (19:3), 1991, pp. 4-9.
- Lederer, A., and Mendelow, A. "Co-ordination of Information Systems Plans with Business Plans," *Journal of Management Information Systems* (6:2), 1989, pp. 5-19.
- Lederer, A., and Salmela, H. "Towards a theory of strategic information systems planning," *Journal of Strategic Information Systems* (4:14), 1996, pp. 1-50.
- Lee, C., and Grover, V. "Exploring Mediation between Environmental and Structural Attributes: The Penetration of Communication Technologies in Manufacturing Organizations," *Journal of Management Information Systems* (16:3), 2000, pp. 189-224.
- Levinthal, D., and March, J. "The Myopia of Learning," *Strategic Management Journal* (14), 1993, pp. 95-112.
- Liu, P., Yang, S., and Chen, W. "The Study of the Implementation of KM and its Effects on Increasing the Competition," *Journal of Management* (2:1), 2001, pp. 59-74.
- Luftman, J. *Competing in the Information Age: Practical Applications of the Strategic Alignment Model*, Oxford University Press, New York, 1996.
- March, J. "Exploration and Exploitation in Organizational Learning," *Organization Science* (2), 1991, pp. 71-87.

- Miller, J. "Measuring and Aligning Information Systems with the Organization," *Information & Management* (25:4), 1993, pp. 217-228.
- Ness, L.R. "Assessing the Relationships among IT Flexibility, Strategic Alignment, and IT Effectiveness: Study Overview and Findings," *Journal of Information Technology Management* (2), 2005, pp. 1-17.
- Newkirk, H., and Lederer, A. "The Effectiveness of Strategic Information Systems Planning under Environmental Uncertainty," *Information & Management* (43), 2006, pp. 481-501.
- Nonaka, I., and Takeuchi, H. *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*, Oxford University Press: New York, 1995.
- Penrose, E. *The Theory of the Growth of the Firm*, Oxford University Press, 1959.
- Reich, B., and Benbasat, I. "An Empirical Investigation of Factors Influencing the Success of Customer-Oriented Strategic Systems," *Information Systems Research* (1:3), 1990, pp. 325-347.
- Reich, B., and Benbasat, I. "Measuring the Linkage between Business and Information Technology Objectives," *MIS Quarterly* (20:1), 1996, pp. 55-81.
- Reich, B.H., and Benbasat, I. "Factors that Influence the Social Dimensions of Alignment between Business and Information Technology Objectives," *Management Information Systems Quarterly* (24:1), 2000, pp. 81-113.
- Rice, R.E., D'Ambra, J., and More, E. "Cross-Cultural Comparison of Organizational Media Evaluation and Choice," *Journal of Communication* (48:3), 1998, pp. 3-26.
- Sabherwal, R., and Chan, Y. "Alignment between Business and IS Strategies: A Study of Prospectors, Analyzers, and Defenders," *Information Systems Research* (12:1), 2001, pp. 11-33.
- Sabherwal, R., and Kirs, P. "The Alignment between Organizational Critical Success Factors and Information Technology Capability in Academic Institutions," *Decision Sciences* (25:2), 1994, pp. 301-330.
- Segars, A., and Grover, V. "Profiles of strategic information systems planning," *Information Systems Research* (10:3), 1999, pp. 199-232.
- Tallon, P., and Kramer, K. *Investigating the Relationship between Strategic Alignment and Business Value: The Discovery of a Paradox. Creating Business Value with Information Technology: Challenges and Solutions*, Idea Publishing Group, 2003.
- Tallon, P.P, Kraemer, K.L., and Gurbaxani, V. "Executives' Perceptions of the Business Value of Information Technology: A process-Oriented Approach," *Journal of Management Information Systems* (16:4), 2000, pp. 145-173.
- Tanriverdi, H. "Information Technology Relatedness, Knowledge Management Capability and Performance of Multibusiness Firms," *MIS Quarterly* (29:2), 2005, pp. 311-334.
- Tanriverdi, H., and Venkatraman, N. "Knowledge Relatedness and Performance of Multibusiness Firms," *Strategic Management Journal* (26), 2005, pp. 97-119.
- Teece, D. J. "Capturing Value from Knowledge Assets: The New Economy, Markets for Know-How and Intangible Assets," *California Management Review* (40:3), 1998, pp. 55-79.
- Von Krogh, G. "Care in Knowledge Creation," *California Management Review* (40:3), 1998, pp. 133-153.
- Watson, R.T., Kelly, G.G., Gilliers, R.D., and Brancheau, J.C. "Key Issues in Information Systems Management: An International Perspective," *Journal of Management Information Systems* (13:4), 1997, pp. 91-115.
- Weill, P. "The role and value of information technology infrastructure: some empirical observations", in *Strategic information technology management: perspectives on organizational growth and competitive advantage*, R. Banker, Kaufman, R. and M.A. Mahmood (eds.), Idea Group Publishing, Middleton, PA, 1993.

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