Towards a Strategic Information Systems Planning and Adoption Framework: A Context of Change Readiness and Dynamic Capabilities in Developing Countries

Bochiuan Su
National Dong Hwa University, Taiwan

Erik Paolo S. Capistrano
University of the Philippines, Philippines

Jengchung V. Chen*
National Cheng Kung University, Taiwan

*Corresponding Author: victor@mail.ncku.edu.tw

ABSTRACT

This conceptual paper proposes an alternative framework to evaluate the IS planning and adoption activities of an organization. Drawing mainly from theories on technology diffusion, technology readiness, and technology adoption, this research introduces the concepts of change readiness and dynamic capabilities as strategic considerations to enable a more proactive, comprehensive, and dynamic approach for IS projects. These concepts serve to unify the seemingly disparate issues surrounding IS planning and adoption. This research further argues that this is a crucial issue, especially given the growing scale, complexity, and uncertainty of the scope managers need to consider when planning for IS adoption. Furthermore, this approach will be helpful for organizations operating in environments with limited resources and limited room for failures.

Keywords: IS planning and adoption, strategic IS planning, dynamic capabilities, change readiness

INTRODUCTION

Rationale

This conceptual paper proposes an alternative framework to evaluate an organization's planning and adoption activities for some information systems (IS). Margherita and Petti (2009) have criticized previous research and practices for producing "as is" models instead of defining new models. Lederer and Salmela (1996), McLeod and Doolin (2011), Moore and Benbasat (1991), Newkirk, et al. (2008), Segars and Grover (1998), and Venkatesh and Morris (2000) noted that understanding the conditions under which IS is planned for, accepted, and used continues to be an important issue. Applegate, et al. (2009), Bechor, et al. (2010), Gunasekaran and Ngai (2004), Gunasekaran, et al. (2006), Khazanchi (2005), McLeod and Doolin (2011), Newkirk, et al. (2008), and Raghunathan and Raghunatan (1994) added that strategic IS planning is a critical task because of the increasing complexity and uncertainty in the business environment. Bensaou and Earl (1998), Feld and Stoddard (2004), Pavri and Ang (1995), Ross and Weill (2002), and Upton and Staats (2008) noted that business managers need to understand what IS can do to address this increasing complexity, and uncertainty.

Unfortunately, Bensaou and Earl (1998), Grover and Segars (2005), Gunasekaran, et al. (2006), Margherita and Petti (2009), and McLeod and Doolin (2011) observed that most studies look into the economic, strategic, and operational issues of adoption and implementation while neglecting to evaluate the planning process that facilitates the link between these two activities, especially its social aspects. In fact, Applegate, et al. (2009) observed that despite years of accumulated knowledge and experiences, major disasters still occur in IS projects. Gunasekaran, et al. (2006) therefore suggested that there is a need for an improved understanding of the IS planning and adoption process, which will be discussed further in this conceptual paper. This paper is specifically looking at a means to achieve a more comprehensive, sustainable and dynamic IS planning and adoption process.

Applegate, et al. (2009), Lyytinen and Damsgaard (2011), McAfee and Brynjolfsson (2008), Newkirk, et al. (2008), Pavri and Ang (1995), and Raghunathan and Raghunatan (1994) noted that IS deployment is one major management challenge. Dasgupta, et al. (1999), Del Aguila-Obra and Padilla-Melendez (2006), Lyytinen and Damsgaard (2011), Mehrtens, et al. (2001), Ranganathan, et al. (2004), Reimers, et al. (2008), and Tornatzky and Fleischer (1990) emphasized that IS planning and adoption greatly depend on the interactions of the internal vs. external environment with the contextual vs. organizational vs. technological factors, thus slowing the entire process.

Anandarajan, et al. (2002), Dasgupta, et al. (1999), and Molla and Licker (2005) emphasized that studying the factors that affect IS adoption in developing countries, where social and normative values play a bigger role than access to resources and levels of competition, is an important consideration. Furthermore, Downing (2010) and Fichman (2004) infer that firms suffering from high supply chain costs, process inefficiencies, and low inter- and intra-organizational coordination are prime candidates for IS integration. Little is actually known about the firm-level determinants of IS planning and adoption, most especially in developing countries. This lack of knowledge, as Harrison, et al. (1997), Lefebvre, et al. (1991), Mehrtens, et al. (2001), and Molla and

Licker (2005) emphasized, presents opportunities to extend the research on this particular issue. This context may be more sensitive to such issues because of more limited resources, which leads to less room for errors and failures.

Study Objectives

Lederer and Sethi (1992), Pavri and Ang (1995), Raghunathan and Raghunatan (1994), and Segars and Grover (1998) noted that the detection of problems and issues in the planning process could expedite its improvement. Bensaou and Earl (1998) observed that many organizations were developing IS that did not support their business strategies because the IS were evaluated according to technical criteria rather than business imperatives. Objective issues such as costs and infrastructure availability are relatively easier to document and analyze than the social behavior components, in which Lin, et al. (2007) and Walczuch, et al. (2007) noted as human perceptions, attitudes, capabilities, and behaviors. These social components are an important facet to create a successful IS. This conceptual paper thus aims to determine the social components that influence successful planning and adoption of IS.

Research Questions

Given all of the discussion on the benefits of IS to business organizations, it is very easy to encourage a firm to adopt some IS infrastructure. But some of these firms tend to overlook their readiness to manage and sustain all the requirements of IS planning and implementation. Bakos and Treacy (1986), Belchor, et al. (2010), Chang (2009), Gunasekaran, et al. (2006), Ives and Learmonth (1984), Mahmood and Soon (1991), Newkirk, et al. (2008), Taylor, et al. (2002), and Walczuch, et al. (2007) noted that businesses do not have complete knowledge of what to adopt and are therefore too preoccupied with technical issues, neglecting other implications. Applegate, et al. (2009), Jain and Gupta (2008), Lai and Ong (2010), and Sheu and Kim (2009) added that there is a lack of preparation to confront the cascade of changes required to plan and adopt IS. The following research questions are therefore posed:

1) Do firms realize the extent of changes and involvement required in the IS planning and adoption process?
2) If they do realize it, do they have the capabilities required to change throughout the IS planning and adoption process?

LITERATURE REVIEW

Theoretical Foundation

Most studies that had a theoretical foundation for IS planning and adoption considered diffusion theory. Rogers (1983) implied that diffusion is a process of communication and influence to persuade individuals to adopt and use a particular technology. This process explains the likelihood and extent of assimilation, and diffusion by identifying the factors facilitating adoption and implementation. Del Aguila-Obra and Padilla-Melendez (2006) and Ranganathan, et al. (2004) examined the application of this theory in the context of understanding the interactions of internal vs. external issues with

organizational vs. environmental factors. Grandon and Pearson (2004) and Mehrtens, et al. (2001) further applied this theory by examining how perceived benefits, organizational readiness, and external pressures affect IS planning and adoption success. But Barr (2002), Lyytinen and Damsgaard (2011), and Ranganathan, et al. (2004) also noted that these interactions should consider the existing interdependencies that entities have within and outside the organization. Pffeffer and Salanick's (1978) resource-dependency theory puts some constraints on organizational activities, emphasizing the importance of relationship dependence between and amongst different business entities.

From another angle, Lin, et al. (2007) and Walczuch, et al. (2007) proposed an integrated framework on Davis' (1989) technology adoption model (TAM) and Parasuraman's (2000) technology readiness index (TRI). The technology readiness and adoption model (TRAM) argues that an individual's technology readiness, composed of some social and personal factors in the face of technology innovations, influences individual's the perceptions on usefulness and ease of use. Furthermore, Lin, et al. (2007) noted the effects self-efficacy had on influencing overall technology readiness. Gist and Mitchell (1992), Wang, et al. (2003), and Venkatesh and Davis (1996) argued that people with more IS knowledge and experience have better self-efficacy, which in turn also influences perceptions on usefulness and ease of use.

From a strategic management perspective, Gunasekaran, et al. (2006) recommended developing a comprehensive methodology that draws from appropriate knowledge areas to produce a complete, efficient and effective means to justify IS projects. Oh and Pinsonneault (2007) recommended drawing from two theoretical approaches. The resource-centered or resource-based perspective, as developed by Barney (1991), Bharadwaj (2000), Dierickx and Cool (1989), Penrose (1959), and Wernerfelt (1984), combines IS with other strategic resources. Wade and Hulland (2004) added that it is important to consider how the organization's resources complement each other since the IS infrastructure cannot provide long-term competitive advantage. The contingency-based approach, as developed by Drazin and Van de Ven (1985), Fry and Smith (1987), Schoonhoven (1981), and Tosi and Slocum (1984) determines whether IS is to be planned and used to support an organization's main strategic objectives. Furthermore, Khazanchi (2005) emphasized that structural contingency theory of fit can determine if there is a match between the organization, the context, and the structure required to make the IS planning and adoption successful.

Putting all of these theoretical discussions together, organizational readiness should be the unifying factor to achieve the desired fit between the internal vs. external issues and organizational vs. environmental issues. In other words, to effectively manage the flow of communication and influence, an organization should ensure that it is ready to accept and manage the changes that will happen as a result of this flow. This desired fit should draw together the organization's resources and use them to address the challenges that arise during the IS planning and adoption process. In managing these challenges, the organization should also consider the constraints that exist due to organizational interdependence and interrelationships. This approach should help the organization to match its capabilities with the desired IS infrastructure, and vice-versa, to achieve desired goals. In this context, organizational readiness is framed in the context of the organization's IS readiness, starting with the IS planning and adoption process.

Reviewing the IS Planning and Adoption Process

Boynton and Zmud (1987), Lederer and Sethi (1988), and Raghunathan and Raghunatan (1994) defined the IS planning process as identifying organizational opportunities, and then determining the resource requirements and corresponding strategies to exploit these opportunities. Segars and Grover (1998) added that it is also appropriate to consider broader and multiple dimensions of IS planning success.

McGowen and Durkin (2002), Pralahad and Krishnan (2002), and Ross and Weill (2002) observed that the list of necessary IS capabilities continues to grow. Applegate, et al. (2009) added that today's environment challenges the traditional tools and methods needed for IS projects. But one thing that must be emphasized here is that, as Feld and Stoddard (2004) noted, IS benefits most from a long-term, disciplined, strategic view, focusing on achieving fundamental goals.

Abdinnour-Helm, et al. (2003), Chan and Ngai (2007), Clark, et al. (1997), Harrison, et al. (1997), Jain and Gupta (2008), Khazanchi (2005), and Mehrtens, et al. (2001) identified several conditions to successfully plan for and adopt IS. One is considering the strategic adaptability between internal business processes and the necessity for IS. Another is the availability of resources and support. A third is the potential to achieve enhanced, if not optimal, productivity and performance. Another is the organization's ability to produce the appropriate motivations and perceptions, knowledge pools, and skills sets to manage the IS infrastructure.

Basu and Muylle (2007), Bechor, et al. (2010), Lai and Ong (2010), Lederer and Sethi (1992), Pavri and Ang (1995), Raghunathan and Raghunatan (1994), Ross and Weill (2002), and Segars and Grover (1998) observed that many organizations are increasingly establishing formal IS governance structures specifying the IS decision-making process. This structure reflects the evolution of IS from its operational, ad hoc days to its grander, more comprehensive, and more strategic roles. This evolution promotes a more well-balanced approach to understanding the justifications and implications of IS on organizational performance.

This implication further reinforces the point that IS has become more of a strategic asset. That is, IS planning and adoption should be executed at the strategic level. Therefore, the approach towards IS planning and adoption should also evolve to consider implications that are beyond the scope of the entity that initiated the IS project.

Introducing Change Readiness and Dynamic Capabilities

Applegate, et al. (2009) and Clark, et al. (1997) defined change readiness as the ability of an organization to deliver strategic IS applications. This ability can be developed by enhancing competitive agility and building a highly skilled, empowered, and energized workforce with an entrepreneurial orientation. McGowan and Durkin (2002) noted that this is basically developing an organization's resources and capabilities to meet the challenges of change. Applegate, et al. (2009), Jones, et al. (2005), Kendall and Kendall (2008), Lai and Ong (2010), and Margherita and Petti (2009) further commented that change readiness is a crucial and comprehensive indicator when implementing some IS infrastructure, being as important as analyzing its technological feasibility, because change readiness can help explain the relationship between reshaping capabilities and change implementation.

In another perspective, Daniel and Wilson (2003) observed that the resource-based view may not be enough to explain these capabilities. The concept of dynamic capabilities is essentially an upgrade of the resource-based view. In the context of this research, Teece and Pisano (1994) defined dynamic capabilities as part of an organization's capabilities that enables it to respond to changing market circumstances. This capability involves a mix of assets that must be built over time. According to Amit and Schoemaker (1993), Pisano (1997), and Prahalad and Hamel (1990), functional capabilities allow a firm to develop its technical knowledge. Cohen and Levinthal (1990), Grant (1996), Henderson and Clark (1990), Kogut and Zander (1992), and Pisano (1997) defined integrative capabilities as the firm's capability to absorb knowledge from external sources and blend different technical competencies. Innovation capability, according to Fuchs, et al. (2000), is the ability to mould and manage multiple capabilities.

Daniel and Wilson (2003), Lawson and Samson (2001), Pralahad and Krishnan (2002), and Wang and Ahmed (2007) argued that identifying the type of dynamic capability used can help to determine the complementary resources required for IS integration. In this sense, dynamic capabilities can influence whatever perceptions an organization has regarding its own readiness to deal with IS planning depending on how responsive it can be. Bechor, et al. (2010), Grover and Segars (2005), Prahalad and Krishnan (2002), and Raghunathan and Raghunatan (1994) added that the IS planning process should be responsive to the changes in the internal and external business environments.

Introducing these two concepts, it is therefore crucial to take into consideration how an organization may be able to sustain its capabilities to successfully plan for and adopt IS into their business processes and operations. This enables the IS to also remain strategically flexible as business demands change. Diffusion theory posits that the organization should be able to handle the challenges from the internal and external areas of its operations and from the organizational vs. environmental factors that all influence the communication and management flows. TRAM presents a starting point as to how organizations could manage these challenges. Applegate, et al. (2009), Pralahad and Krishnan (2002), and Upton and Staats (2008) emphasized that organizations should remain flexible and avoid having their IS infrastructure stuck at the time when they started the IS project. This paper argues that introducing change readiness and dynamic capabilities, which are both strategic management considerations, into the mix will help organizations achieve a better management of these challenges, especially at the strategic perspective since these challenges constitute a fundamental change in business processes and operations.

BUILDING THE CONCEPTUAL FRAMEWORK

Proposition Development

As previously argued, in order to ensure a good IS planning and adoption process, the firm should efficiently and effectively respond to the changes in the organizational and environmental situation. This paper introduces two kinds of readiness needed for successful IS planning and adoption. Actual IS readiness, based on Parasuraman (2000) and Lai and Ong (2010), is the propensity of people to embrace and use new technologies for accomplishing goals in home life and at work. It is an overall state of mind rather than

a measure of competency. Change readiness, according to Applegate, et al. (2009) and Clark, et al. (1997), is one's competitive agility to carry out a strategic initiative amid changing environmental conditions.

This paper proposes that introducing change readiness capabilities and dynamic capabilities will improve the success of the IS planning and adoption process, especially at the strategic level. The change readiness and the dynamic capabilities will ensure that the IS planning and adoption activities will be successfully done.

Therefore, this paper posits that these two concepts are significant additions to the existing relationships influencing the success of the IS planning and adoption efforts. Even though the organization has the resources to carry out the IS planning and adoption, if it does not have the capabilities to change and be flexible to better use these resources, then the organization will still fail to properly execute the IS project and/or maximize the benefits of an implemented IS project. Being able to change and being flexible allows the organization to further unify the interactions between the internal vs. external issues and the organizational vs. environmental factors. Thus, the following propositions are formulated:

Proposition 1: The organization's level of change readiness moderates the influence its actual IS readiness has on the success of its IS planning and adoption process.

Proposition 2: The organization's dynamic capabilities moderates the influence its IS actual readiness has on the success of its IS planning and adoption process.

Proposition 3: The presence of IS strategy alignment moderates the influence its IS actual readiness has on the success of its IS planning and adoption process.

In summary, these propositions argue that it is more important to view the entire IS planning and adoption process in an ongoing perspective, rather than as a static series of events leading up to the desired outcome. By integrating the aforementioned theories together, applying them into the existing practices, and introducing the concepts of change readiness and dynamic capabilities, this research conceptualizes a more proactive paradigm to ensure that the organization is indeed adequately prepared to handle the challenges of IS planning and adoption. Furthermore, this research draws together the internal issues, represented here as the perceived benefits according to McAfee and Brynjolfsson (2008), with the external issues, denoted by perceptions on external considerations based on Bechor, et al. (2010). In addition, this research looks at how actual IS readiness plays a role in this environment. These three elements are typical of the existing IS planning and adoption process. This research therefore leads to the following propositions to complete the picture:

Proposition 4: Actual IS readiness positively influences the success of the IS planning and adoption process.

Proposition 5: Actual IS readiness positively influences the perceptions on external considerations.

Proposition 6: Actual IS readiness positively influences the attitudes about perceived benefits.

Proposition 7: Favorable perceptions on external considerations positively influence the success of the IS planning and adoption process.

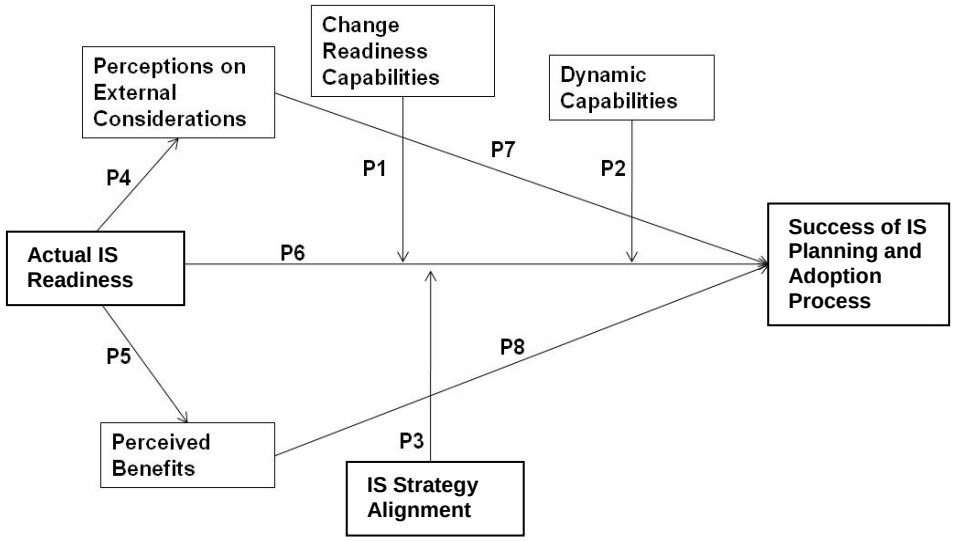
Proposition 8: Favorable attitudes on perceived benefits positively influence the success of the IS planning and adoption process.

These propositions serve to address this discussion's research questions, thereby identifying the considerations that should be realized and the capabilities that should be developed if an organization decides to invest resources, time, and effort in an IS planning and adoption process.

Proposed Conceptual Framework

The proposed framework treats the entire IS planning and adoption issue as an ongoing analytic process. McLeod and Doolin (2011) proposed that contemporary IS development should be viewed in a situated and social-technical perspective. This perspective, based on Doherty and King (2005), Gasson (1999), Leavitt (1964), and Robey, et al. (2001), views the form and nature of IS as interrelated with its contextual setting, thus overcoming the limitations of viewing IS as a technical, rational, and controllable process. This approach is consistent with this discussion's argument of being flexible enough to cope with and effectively manage the changes in IS planning and adoption. This paper integrates the theoretical discussion with the arguments on change readiness and dynamic capabilities in a socio-technical situation.

Figure 1: Proposed Conceptual Model



This conceptual framework redraws Lin, et al.'s (2007) and Walczuch, et al.'s (2007) application of TRAM. Consistent with the arguments of this paper, this framework

introduces the importance of considering the influence of the external and internal environments to the success of the IS planning and adoption process. Additionally, it introduces the arguments developed in this discussion regarding the importance of change readiness, dynamic capabilities, and strategy alignment as moderating effects to the existing framework.

CONCLUSIONS

Initial Conclusions

Because of IS's growing prominence and complexity within a business organization, it is obvious that the principles governing the IS planning and adoption process should also grow, develop, and evolve. This discussion hopes to contribute to the understanding of the complex process of IS planning by extending Lederer and Salmela's (1996) and Lederer and Sethi's (1992) basic theoretical framework for IS planning and adoption. As Boynton and Zmud (1987), Lederer and Sethi (1988), and Segars and Grover (1998) have observed, there is no one best way to plan for IS. By drawing from several different discussions on this topic, this research hopes to further cultivate in the mindset of managers and executives what Bensaou and Earl (1998) and Upton and Staats (2008) emphasized regarding strategic instinct instead of strategic alignment. Applegate, et al. (2009), Bensaou and Earl (1998), Lai and Ong (2010), Pralahad and Krishnan (2002) and Ross and Weill (2002) added that managers should carefully assess organizational readiness to embrace IS since the changes involved will often trigger significant resistance to change. This discussion further draws from the arguments unifying IS capabilities and requirements with strategic management consideration. Realizing the importance of an organization's change readiness and dynamic capabilities to respond to the opportunities and challenges of IS is a crucial emphasis in this study.

Furthermore, this discussion sets in motion another approach to analyze and test the effectiveness of IS planning and adoption in today's socio-technological context. By taking a more proactive and flexible perspective towards IS projects, this paper provides an alternative stance to address the growing complexities and uncertainties in today's business environment, especially in contexts where resources are very limited, leaving organizations little room for costly mistakes and failures. The research questions whether or not organizations realize the requirements and implications and possess the proper set of capabilities to undertake an IS project. This research should make organizations realize how crucial and how risky it is to plan for and adopt some IS infrastructure in their operations. This realization therefore leads to a very rich opportunity to test this conceptual framework in such an environment where tighter controls over organizational resources exist and IS is still very fragmented within the tactical and operational managerial levels of the organization.

REFERENCES

Abdinnour-Helm, S., Lengnick-Hall, M.L., & Lengnick-Hall, C.A. (2003). Pre-implementation attitudes and organizational readiness for implementing an

Enterprise Resource Planning system. *European Journal of Operational Research*, *146*, 258-273.

Amit, R., & Schoemaker, P. J. H. (1993). Strategic assets and organizational rent, *Strategic Management Journal*, *14* (1), 33-46.

Anandarajan, M., Igbaria, M., & Anakwe, U. P. (2002). IT acceptance in a less-developed country: A motivational factor perspective. *International Journal of Information Management*, *22*, 47-65.

Applegate, L. M., Austin, R., & Soule, D. (2009). *Corporate information strategy and management*. McGraw-Hill Irwin: New York, NY.

Bakos, J. Y., & Treacy, M. E. (1986). Information technology and corporate strategy: A research perspective. *MIS Quarterly*, *10* (2), 107-119.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17* (1), 99-120.

Barr, B. J. (2002). Managing change during an information systems transition, *AORN Journal*, *75* (6), 1085-1092.

Basu, A., & Muylle, S. (2007). How to plan e-business initiatives in established companies. *MIT Sloan Management Review*, *49*(1), 28-36.

Bechor, T., Neumann, S., Zviran, M., & Glezer, C. (2010). A contingency model for estimating success of strategic information systems planning. *Information & Management*, *47*, 17-29.

Bensaou, M., & Earl, M. (1998). The right mind-set for managing information technology. *Harvard Business Review*, *76* (5), 118-128.

Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: An empirical investigation. *MIS Quarterly*, *24*(1), 169-196.

Boynton, A. C., & Zmud, R. W. (1987). Information technology planning in the 1990's: Directions for practice and research, *MIS Quarterly*, *11*(1), 59-71.

Chan, S. C. H., & Ngai E. W. T., (2007). A qualitative study of information technology adoption: how ten organizations adopted web-based training. *Information Systems Journal*, *17*, 289-315.

Chang, H. L. (2009). A roadmap to adopting emerging technology in e-business: An empirical study. *Information Systems E-Business Management*, *8*, 103-130.

Clark, C. E., Cavanaugh, N. C., Brown, C.V., & Sambamurthy, V. (1997). Building change-readiness capabilities in the IS organization: Insights from the Bell Atlantic experience. *MIS Quarterly*, *21* (4), 425-455.

Cohen, J., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, *35*(1), 554-571.

Daniel, E. M., & Wilson, H. N. (2003). The role of dynamic capabilities in e-business transformation. *European Journal of Information Systems*, *12*, 282-296.

Dasgupta, S., Agarwal, D., & Ioannidis, A. (1999). Determinants of information technology adoption: An extension of existing models to firms in a developing country. *Journal of Global Information Management*, *7*(3), 30-40.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319-340.

Del Aguila-Obra, A. R., & Padilla-Melendez, A. (2006). Organizational factors affecting Internet technology adoption. *Internet Research*, *16*(1), 94-110

Dierickx, I., & Cool, K. (1989). Asset stock accumulation and sustainability of competitive advantage. *Management Science*, *35*(12), 1504-1511.

Doherty, N. F., & King, M. (2005). From technical to socio-technical change: tackling the human and organizational aspects of system development projects. *European Journal of Information Systems*, *14*(1), 1-5.

Downing, C. E. (2010). Is web-based supply chain integration right for your company? *Communications of the ACM*, *53*(5), 134-137.

Drazin, R., & Van de Ven, A. (1985). Alternative forms of fit in contingency theory. *Administrative Science Quarterly*, *30*(4), 514-539.

Feld, C. S., & Stoddard, D. B. (2004). Getting IT right. *Harvard Business Review*, *82*(2), 72-79.

Fichman, R. G. (2004). Real options and IT platform adoption: Implications for theory and practice. *Information Systems Research*, *15*(2), 132-154.

Fuchs, P. H., Mifflin, K. E., Miller, D., & Whitney, J. O. (2000). Strategic integration: Competing in the age of capabilities. *California Management Review*, *42*(3), 118-147.

Fry, L. & Smith, D. (1987). Congruence, contingency and theory building. *Academy of Management Review*, *12*(1), 117-132.

Gasson, S. (1999). A social action model of situated information systems design. *The Data Base for Advances in Information Systems*, *30*(2), 82-97.

Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review*, *17*, 183-211.

Grandon, E. E., & Pearson, J. M. (2004). Electronic commerce adoption: an empirical study of small and medium US businesses. *Information & Management*, *42*, 197-216.

Grant, R. (1996). Prospering in dynamically-competitive environments: Organisational capability as knowledge creation. *Organisation Science*, *7*, 375-387.

Grover, V., & Segars, A. H. (2005). An empirical evaluation of stages of strategic information systems planning: Patterns of process design and effectiveness, *Information & Management*, *42*, 761-779.

Gunasekaran, A., & Ngai, E. W. T. (2004). Information systems in supply chain integration and management. *European Journal of Operational Research*, *159*, 269-295.

Gunasekaran, A., Ngai, E. W. T., & McGaughey, R. E. (2006). Information technology and systems justification: A review for research and applications. *European Journal of Operational Research*, *173*, 957–983.

Harrison, D. A., Mykytyn, P. P., Jr., & Riemenschneider, C. K., (1997). Executive decisions about adoption of information technology in small business: Theory and empirical tests. *Information Systems Research*, *8*(2), 171-195.

Henderson, R. M., & Clark, K. B. (1990). Architectural innovation: The re-configuration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, *35*(1), 9-31.

Ives, B., & Learmonth, G. P. (1984). The information system as a competitive weapon. *Communications of the ACM*, *27*, 1193-1201.

Jain, V. K., & Gupta, S. K. (2008). Readiness to technological adoption by the prevailing MIS: A survey in Indian perspective. *Pranjana*, *11*(2), 72-78.

Jones, R.A., Jimmieson, N. L., & Griffiths, A. (2005). The impact of organizational culture and reshaping capabilities on change implementation success: The mediating role of readiness for change. *Journal of Management Studies*, *42*(2), 361-386.

Kendall, K. E., & Kendall, J. E. (2008). *Systems analysis and design*. Pearson Education, Inc., Upper Saddle River, NJ.

Khazanchi, D. (2005). Information technology (IT) appropriateness: The contingency theory of "fit" and IT implementation in small and medium enterprises. *Journal of Computer Information Systems*, *45*(3), 88-95.

Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organisation Science*, *3*, 383-397.

Lai, J. Y., & Ong, C. S. (2010). Assessing and managing employees for embracing change: A multiple-item scale to measure employee readiness for e-business. *Technovation*, *30*, 76-85.

Lawson, B., & Samson, D. (2001). Developing innovation capability in organisations: A dynamic capabilities approach. *International Journal of Innovation Management*, *5* (3), 377-400.

Leavitt, H. J. (1964). Applied organization change in industry: Structural, technical, and human approaches. *In New Perspectives in Organizational Research* (Cooper S., Leavitt, H. J., & Shelly, K., Eds), 55-71, Wiley: Chichester.

Lederer, A. L., & Salmela, H. (1996). Toward a theory of strategic information systems planning. *Journal of Strategic Information Systems*, *5*, 237-253.

Lederer, A. L., & Sethi, V., (1988). The implementation of strategic information systems planning methodologies. *MIS Quarterly*, 12 (3), 444-461.

Lederer, A.L., & Sethi, V. (1992). Root causes of strategic information systems planning implementation problems. *Journal of Management Information Systems*, 9 (1), 25-45.

Lefebvre, L. A., Harvey, J., & Lefebvre, E. (1991). Technological experience and the technology adoption decisions in small manufacturing firms. *R&D Management*, *21* (3), 241-249.

Lin, C-H., Shih, H-Y., & Sher, P. J. (2007). Integrating technology readiness into technology acceptance: The TRAM model. *Psychology & Marketing*, *24*(7), 641-657.

Lyytinen, K., & Damsgaard, J. (2011). Inter-organizational information systems adoption – A configuration analysis approach. *European Journal of Information Systems*, *20*, 496-509.

Margherita, A. & Petti, C. (2009). E-business adoption: A readiness and process study of the Italian tourism distribution. *International Journal of e-Business Management*, *3*(1), 3-19.

Mahmood, M. A., & Soon, S. K. (1991). A comprehensive model for measuring the potential impact of information technology on organizational strategic variables. *Decision Sciences*, *22*, 869-897.

McAfee, A., & Brynjolfsson, E. (2008). Investing in the IT that makes a competitive difference. *Harvard Business Review*, *86*(7/8), 98-107.

McGowan, P., & Durkin, M. G. (2002). Toward an understanding of internet adoption at the marketing/entrepreneurship interface. *Journal of Marketing Management*, *18*, 361-377.

Mehrtens, J., Cragg, P. B., & Mills, A. M. (2001). A model of internet adoption by SMEs. *Information & Management*, *39*, 165-176.

McLeod, L., & Doolin, B. (2011). Information systems development as situated socio-technical change: A process approach, *European Journal of Information Systems*, Advanced online publication.

Molla, A., & Licker, P. S. (2005). Perceived e-readiness factors in e-commerce adoption: An empirical investigation in a developing country. *International Journal of Electronic Commerce*, *10*(1), 83–110.

Moore G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, *2*(3), 192-222.

Newkirk, H. E., Lederer, A. L., & Johnson, A. M. (2008). Rapid business and IT change: Drivers for strategic information systems planning? *European Journal of Information Systems*, *17*, 198-218.

Oh, W., & Pinsonneault, A. (2007). On the assessment of the strategic value of information technologies: Conceptual and analytical approaches. *MIS Quarterly*, *31* (2), 239-265.

Parasuraman, A. (2000). Technology readiness index (TRI): A multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research*, *2*, 307-320.

Pavri, F., & Ang, J. (1995). A study of the strategic planning practices in Singapore. *Information & Management*, *28*, 33–47.

Penrose, E. (1959). *The theory of the growth of the firm*. New York: John Wiley.

Pfeffer, J., & Salanick, G. (1978). *The external control of organization: A resource dependence perspective*. Harper & Row: New York, NY.

Pisano, G. P. (1997). *The development factory: Unlocking the potential of process innovation*. Boston: Harvard Business School Press.

Prahalad, C. K., & Hamel, G. (1990). The core competencies of the corporation. *Harvard Business Review*, *68*(3), 79-91.

Prahalad, C. K., & Krishnan, M. S. (2002). The dynamic synchronization of strategy and information technology. *MIT Sloan Management Review*, *43*(4), 24-33.

Raghunathan, B., & Raghunatan, T. S. (1994). Adaptation of a planning system success model to information systems planning. *Information Systems Research*, *5*(3), 326-340.

Ranganathan, C., Dhaliwal, J. S., & Teo, T. S. H. (2004). Assimilation and diffusion of web technologies in supply-chain management: An examination of key drivers and performance impacts. *International Journal of Electronic Commerce*, *9*(1), 127-161.

Reimers, K, Johnston, R. B., & Klein, S. (2008). A theorizing evolution of inter-organizational information systems on long timescales. *Sprouts: Working Papers on Information Systems*, *8*(31), 8-31.

Robey, D., Welke, R. J., & Turk, D. (2001). Traditional, iterative, and component-based development: A social analysis of software development paradigms. *Information Technology and Management*, *2*(1), 53-70.

Rogers, E. (1983). *Diffusion of innovations*, The Free Press: New York, NY.

Ross, J. W., & Weill, P. (2002). Six IT decisions your IT people shouldn't make. *Harvard Business Review*, *80*(11), 84-91.

Schoonhoven, C. (1981). Problems with contingency theory: Testing assumptions hidden within the language of contingency theory. *Administrative Science Quarterly*, *26*(3), 349-377.

Segars, A. H., & Grover, V. (1998). Strategic information systems planning success: An investigation of the construct and its measurement. *MIS Quarterly*, *22*(2), 139-163.

Sheu, M. & Kim, H. (2009). User readiness for IS development: An examination of 50 cases. *Systems Research and Behavioral Science*, *26*, 49-61.

Taylor, S. A., Celuch, K., & Goodwin, S. (2002). Technology readiness in the e-insurance industry: An exploratory investigation and development of an agent technology e-consumption model. *Journal of Insurance Issues*, *25*(2), 142-165.

Teece, D., & Pisano, G. (1994). The dynamic capabilities of firms: An introduction. *Industrial and Corporate Change*, *3*(3), 537-556.

Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation*, Lexington Books: Lexington, MA.

Tosi, H., & Slocum, J. (1984). Contingency theory: Some suggested directions. *Journal of Management*, *10*(1), 9-26.

Upton, D. M., & Staats, B. R. (2008). Radically simple IT. *Harvard Business Review*, *86* (3), 118-124.

Venkatesh, V., & Morris, M. G., (2000) Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior. *MIS Quarterly*, *24*(1), 115-139.

Wade, M., & Hulland, J. (2004). The resource-based view and information systems research: Review, extension, and suggestions for future research. *MIS Quarterly*, *28* (1), 107-142.

Walczuch, R., Lemmink, J., & Streukens, S., (2007). The effect of service employees' technology readiness on technology acceptance. *Information & Management*, *44*, 206-215.

Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, *9*(1), 31-51.

Wang, Y. S., Wang, Y. M., Lin, H. H., & Tang, T. I. (2003). Determinants of user acceptance of Internet banking: An empirical study. *International Journal of Service Industry Management*, *14*, 501-519.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, *5*(2), 171-180.

Bo-Chiuan Su (bsu@mail.ndhu.edu.tw) is an associate professor in the Department of Information Management, School of Management, National Dong Hwa University, Taiwan. He has a Ph.D. in business administration with a specialization in information management from the University of Connecticut, U.S.A. His research has appeared in *International Journal of Electronic Commerce*, *Decision Support Systems*, *International Journal of Mobile Communications*, *Journal of Information Management*, *Journal of e-Business*, *Information Management for Buddhist Libraries*, *Journal of International Management Studies*, *Journal of Global Business Management*, and others.

Erik Paolo S. Capistrano (erik_paolo.capistrano@up.edu.ph) is an assistant professor in the College of Business Administration, University of the Philippines, an ongoing PhD student in the Institute of International Management, National Cheng Kung University, Taiwan and a former Project Consultant in Ernst & Young, Philippines. Professionally, he is an independent business consultant, with past projects with various private, government and non-government firms. His academic research interests include fields in supply chain management, electronic commerce, internet ethics, and project management, with publications on *Industrial Management and Data Systems*, *International Journal of Business Systems Research*, and *Philippine Management Review*.

Jeng-Chung Victor Chen (victor@mail.ncku.edu.tw) is a professor and director in the Institute of International Management, College of Management, National Cheng Kung University, Taiwan. He has a Ph.D. in CIS from the University of Hawaii, U.S.A. He has published over 45 research papers in refereed journals such as *Information & Management*, *Decision Support Systems*, *European Journal of Information Systems*, *International Journal of Mobile Communications*, *Computers in Human Behavior*, *Journal of Computer Information Systems*, and others.