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IS LEADERSHIP, STRATEGY, AND THE IS UNIT PERFORMANCE

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Introduction

Information Systems (IS) leadership is one of the key determinants of how information technology (IT) resources are mobilized to enhance IS unit and organizational performance (Sutcliffe, 1999). Its importance has been argued in various studies (e.g., Chatterjee, Vernon, & Zmud, 2000). Figure 1 presents a model of past IS leadership research which has typically examined the relationship of various organizational factors, such as an organizational strategy, structure, and active senior executive involvement to various aspects of IS leadership (Applegate & Elam, 1992; Armstrong & Sambamurthy, 1999; Grover, et al., 1993; Karimi, Gupta, & Somers, 1992; King & Sabherwal, 1992; Markus & Benjamin, 1996; Raghunathan & Raghunathan, 1989).

Prior studies of IS leadership have made important contribution in describing behaviors or structural features of IS leadership (e.g., role, rank, behavior, and competencies) or how IS leadership influences or is influenced by organizational and environmental factors (e.g., outsourcing, e-commerce, investor behaviors). However, to the best of my knowledge, a model linking IS leadership to its effectiveness under various organizational conditions has not been proposed yet. Such a model would suggest how IS leaders could mobilize IT resources effectively in different situations. To address the lack of such a model, this study examines the relationship between different leadership styles of IS executives and the effectiveness of these leadership styles under different strategic orientations of an organization and its IS unit. At a broad level, this study focuses on the following research questions: Do IS leaders' behaviors really matter? Which IS leadership behaviors affect IS unit performance, and how?

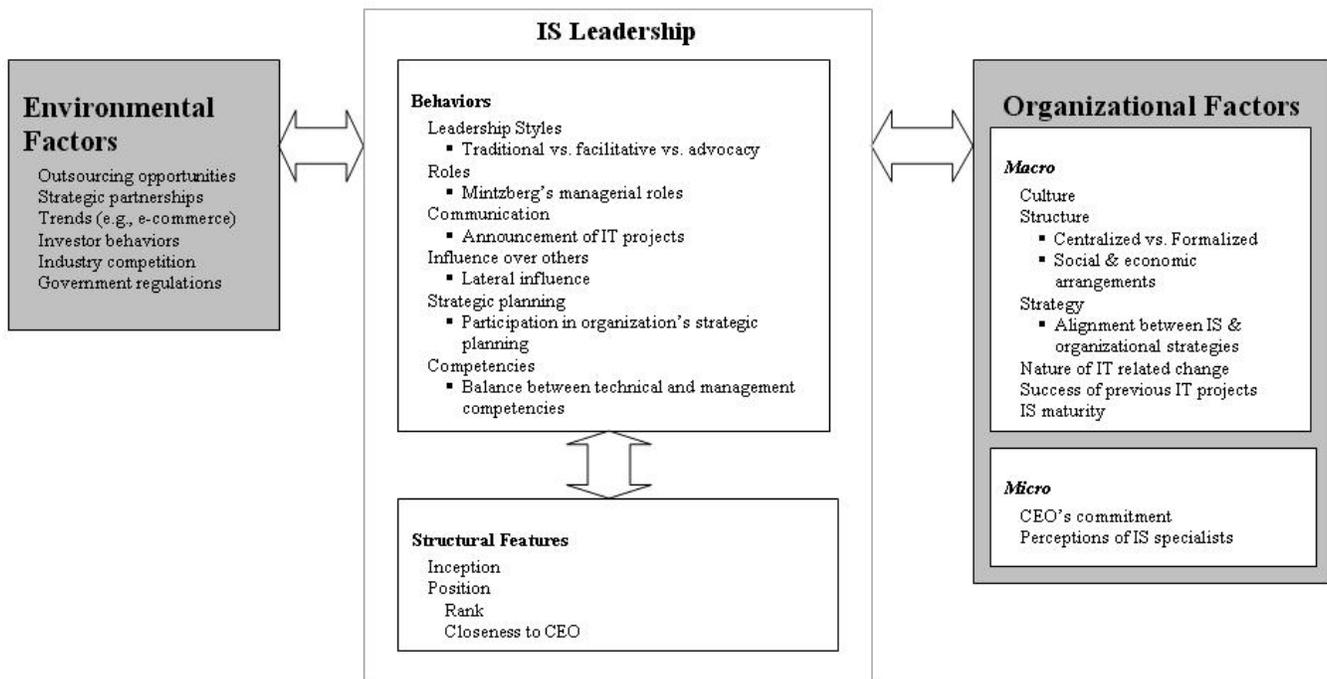


Figure 1. Prior Studies on IS Leadership

Conceptual Model

Drawn from the existing leadership studies, *IS leadership* is defined as the process followed by an organization’s top IS executive to influence other people within and outside the IS unit to attain IS unit’s and organizational goals (Hollander, 1985). Specifically, I focus on the effectiveness of transformational and transactional IS leadership behaviors via strategic alignment framework. Figure 2 presents the conceptual model that underlies our thinking about the effects of IS leadership on IS unit performance. IS leadership is conceptualized in terms of two styles, transactional and transformational leadership styles, both of which are considered to be important for effective leadership (Bass, 1985). Transactional and transformational leadership are not mutually exclusive; both leadership styles can be practiced by the same leader, and a right mixture of these styles is expected from an effective leader, in which transformational leadership augments follower’s effort and performance over and beyond produced by transactional leadership alone (MacKenzie, Podsakoff, & Rich, 2001).

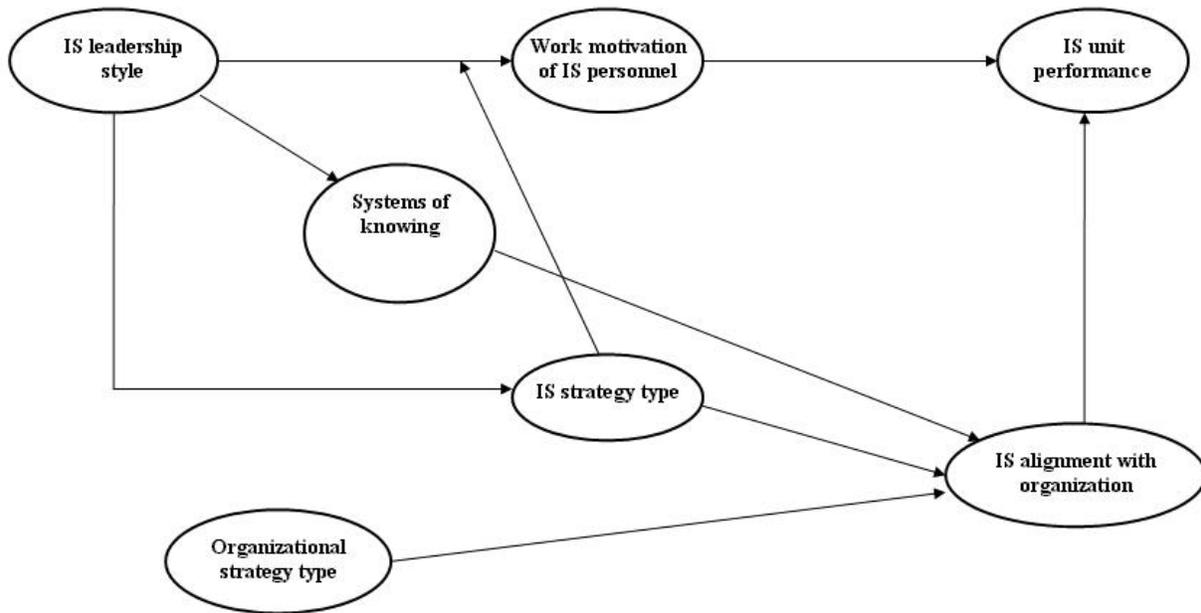


Figure 2. Conceptual Model

IS leaders are likely to influence IS unit performance in at least 3 ways. First, IS leaders affect IS unit performance by influencing the motivation of IS personnel. While transactional IS leadership may be appropriate for ensuring adequate motivation and enabling high level of IS unit performance irrespective of the specific type of IS strategy being followed, the appropriateness of transformational leadership is likely to be contingent on the specific IS strategy. Second, IS leadership is likely to have an effect on IS unit performance by influencing IS strategy. IS strategy, in turn, influences IS unit performance via its alignment with overall organizational strategy (Saberwal & Chan, 2001). Third, IS leaders are likely to affect IS unit performance by influencing IS unit’s informal structure and its alignment with an organization’s strategy and structure (Chan, 2002). The appropriate leadership style for fostering alignment depends on organizational strategy, as discussed later.

Theoretical Background

Transactional Leadership Style

Transactional leaders motivate followers by engaging in transactional or exchange relationships in which they exchange rewards for performance. Specifically, transactional leaders motivate by building and increasing effort-accomplishment expectancies or expectations that an appropriate level of effort will lead to task performance, desired outcomes, and valuable rewards. They do so by showing behaviors associated with contingent rewards (CR) and management by exception (ME) (Bass & Avolio, 1990).

CR involves motivating followers by assigning what needs to be done and promising rewards. ME focuses on actively monitoring deviances from standards, mistakes, and errors in the follower's assignments, and taking corrective actions as necessary.

A significant part of an IS leader's job and the IS unit deals with operating and maintaining existing systems to enable delivery of vital services in a timely and cost-effective manner (Hayley, 1989). In addition, a significant component of the processes employed by the IS unit is also likely to be stable (e.g., systems development, end-user support). Such a situation is required to have specific performance goals (e.g., expected system up and response time) to be accomplished with desired outcomes (e.g., number of end-user complaints). Transactional IS leadership will be more effective to motivate IS personnel to perform these tasks by showing behaviors pertaining to rewards (e.g., bonuses) or corrective actions (e.g., demotion). Therefore, we propose the following:

H1. Transactional IS leadership will be positively related to work motivation of IS personnel

Transformational Leadership Style

Transformational leaders motivate followers by framing work-related issues in a way that stimulates the followers and engages their intrinsic motivation to perform work. For example, leaders broaden and elevate followers' goals and thinking and provide them with confidence and ability to perform beyond the expectations that may be specified on a transactional basis (Dvir, et al., 2002). They do so by exhibiting behaviors along the dimensions of Intellectual Stimulation (IST), Individualized Consideration (IC), Inspirational Motivation (IM), and Idealized Influence (II) (Bass & Avolio, 1990). IST involves stimulating followers to be innovative and creative by encouraging them to approach familiar situations in new ways. IC focuses on paying attention to individual followers' needs for achievement and growth by acting as coach or mentor and providing a supportive climate in which followers can develop. IM deals with motivating followers by articulating a compelling vision, providing meaning and challenge to their work, making them identify with the collective or the group, and inspiring them by expressing high expectations and confidence. II involves being a role model by displaying exceptional capabilities and strong conviction to the vision and displaying behaviors that the leader wants the followers to display.

While transactional IS leadership affects IS personnel's extrinsic work motivation, transformational IS leadership style affects IS personnel's intrinsic motivation. A transformational IS leader's behaviors positively influence the relational aspects of a psychological contract, which is an unwritten agreement and implicit expectations operating at all times between IS personnel and the organization (Brancheau & Hoffman, 1987). By focusing on personal development, growth, loyalty to the organization (Roepke, Agarwal, & Ferratt, 2000), transformational leadership leads to a long-term, mutually satisfying relationship and enhances IS personnel's intrinsic motivation.

IS Strategy Type: We expect that the importance of transformational IS leadership for influencing IS personnel's motivation will depend on IS strategy (Slater, 1989; Szilagyi, Jr. & Schweiger, 1984). Consistent with Miles and Snow (1978), Sabherwal and Chan (2001) provide four categories of IS strategy: IS for flexibility, IS for efficiency, IS for comprehensiveness, and no specific IS strategy. 'IS for flexibility' strategy focuses on market flexibility and quick strategic decisions. 'IS for efficiency' strategy is oriented to internal and inter-organizational efficiencies and long-term decision making. 'IS for comprehensiveness' strategy is a combination of two extreme strategies.

Which strategy IS unit operates under is likely to determine the relevance of transformational IS leadership. For example, under IS for flexibility, IS personnel are required to be capable of adapting to a changing IT infrastructure, shifting processes and business models, and changing IT and business skill requirements. Accordingly, IS personnel often deal with emergent changes and a constant learning of new IT, which demands a considerable amount of time and effort. A transformational IS leader is likely to be more effective in enhancing IS personnel's motivation by inspiring them through the relevance of continuous learning contributing to a collective goal as well as personal growth in being innovative, seeking broad implications of various possibilities of their tasks (e.g., systems analysis and design, selection of appropriate IT). The effectiveness of transformational IS leadership will vary depending on IS strategy. Based on the above discussion, we propose the following hypotheses:

H2. Transformational IS leadership will interact with IS strategy and influence work motivation of IS personnel. Specifically:

H2a. The effect of transformational IS leadership will be greater under 'IS for flexibility' than 'IS for comprehensiveness'.

- H2b. *The effect of transformational IS leadership will be greater for 'IS for comprehensiveness' than 'IS for efficiency'.*
- H2c. *There will be no difference in the effect of transformational IS leadership under 'IS for efficiency' and no IS strategy.*

There is a positive relationship between a leadership style and a leader's preference to a certain type of strategy (Harris & Ogbonna, 2001). Transformational IS leadership is likely to prefer 'IS for flexibility'. Transformational IS leadership values innovation, creativity, risk-taking, individual and organizational learning, and sharing knowledge and experiences with others (Farrell, 2000). Such a state can be created by adopting an 'IS for flexibility' strategy, which has to deal with emergent changes, continuous innovation, upgrades, and a constant learning of new IT. Accordingly, to create conditions that are valued, a transformational IS leader is likely to articulate the 'IS for flexibility' strategy.

In contrast, transactional IS leadership is likely to prefer 'IS for efficiency'. Transactional leadership emphasizes on controlling and monitoring, which establishes a comfort zone with a manageable boundary to induce a compliancy from IS personnel (Harris & Ogbonna, 2001). These conditions can be developed by promoting 'IS for efficiency' strategy, which requires IS unit to invest conservatively in IT, and focuses on IT areas directly related to the organization's core competency. Therefore, we propose the following:

- H3a. *A transformational IS leader will be likely to articulate 'IS for flexibility' strategy.*
- H3b. *A transactional IS leader will be likely to articulate 'IS for efficiency' strategy.*

Systems of Knowing: IS leadership is likely to influence the informal structures that enable IS alignment with the organization (Armstrong & Sambamurthy, 1999; Chan, 2002). We refer to the informal structures as the 'systems of knowing', which are defined as structures guiding informal interactions among group members to facilitate sharing of their perspectives, pooling and exchange of knowledge, and development of a shared understanding of a collective goal (Armstrong & Sambarmurthy, 1999). Systems of knowing will be interpreted and affected differently in the top management team (TMT) and the IS unit because each group follows different norms, informal systems guiding dynamic interactions (Feldman, 1984).

Transformational IS leadership will be more relevant for creating the systems of knowing because it cultivates learning environment and promotes extra effort and time for helping and sharing behaviors (e.g., altruism, conscientiousness) in IS unit (Mackenzie, Podsakoff, & Rich, 2001). Under the guidance of transformational IS leadership, IS personnel will be more receptive in creating personal connections outside of their job descriptions in a way that facilitates voluntary collaboration with others (e.g., cross-functional linkages) and sharing accumulated knowledge, unofficial agreed-on processes, and practices to expedite task completion. Based on the discussion, we propose the following:

- H4a. *Transformational IS leadership will be more effective in promoting the systems of knowing than transactional IS leadership.*
- H4b. *The systems of knowing will enhance IS alignment with the organization.*

Organizational Strategy Type and IS Alignment with Organization

IS alignment with organization will influence IS unit performance, because IS unit should implement IS strategy which champions organizational strategy. A greater alignment indicates that IT is targeted on areas that are critical to the organization's success, since IT can contribute to organizational performance to a greater extent. A poor alignment manifests itself in the forms of costly investment or low returns (Chan, 2002). Organizations with a greater IS alignment will be in a better position to leverage IT for competitive advantages (Sabherwal & Chan, 2001). Indeed, studies show that IS alignment with organizational strategy is a critical factor, which reflects how successfully IS unit manage relevant IT (Chan, et al., 1997; Luftman & Brier, 1999; Sabherwal & Chan, 2001; Sohal, Moss, & Ng, 2000). Consistent with Sabherwal and Chan (2001), organizational strategy is conceptualized in terms of the Miles and Snow (1976)'s typology (defenders, analyzers, prospectors, and reactors). Based on the above discussion, we propose the following:

- H5. *IS alignment with organization will be positively associated with IS unit performance.*

Research Methodology

The conceptual model will be assessed via a survey. Surveys have been widely used in social behavioral research, and are seen to be accurate, reliable, valid, and economical in gathering quality, wide scope information (Kerlinger & Lee, 2000).

Instruments with proven reliability and validity will be employed as a combined survey questionnaire. IS leadership will be measured using MLQ (Multi-factor Leadership Questionnaire) developed by Bass and his colleagues (Bass, 1985). The instrument measures contingent reward and management-by-exception as two factors associated with transactional leadership as well as II, IM, IST, and IC as the factors pertaining to transformational leadership. Organizational strategy and IS strategy attributes will be measured using a survey with five-point scale developed by Sabherwal and Chan (2001). The instrument measures defensiveness, analysis, risk aversion, proactiveness, futurity, and aggressiveness as six factors for organizational strategy and operational support systems, interorganizational systems, market information systems, strategic decision support systems as four factors associated with IS strategy. Systems of knowing within TMT will be measured following Armstrong and Sambamurthy's suggestion (1999). First, the instruments measure IS leaders' participation in TMT, frequency of informal contacts. Second, *Standard & Poor's Register of Corporations, Directors, and Executives* will be consulted to assess CIOs' hierarchical reporting level to CEOs. Systems of knowing within IS unit will be measured by 6 four-point scale items associated with informal networks and relationships, informal communities of work processes suggested by Chan (2002). IS unit performance will be assessed by three objective measures suggested by Chan (2002): budget compliance, on-time delivery, and system response time.

Preliminary interviews will be performed to validate the survey items with IS leaders, IS personnel, CEOs, other top executives in local companies. If necessary, the refinement and validation of the measurement is carried out following the three-stage procedure proposed by Moore and Benbasat (1991). A pre-test and pilot test of a combined survey will be conducted to validate the refined instruments for their reliability and validity. Feedback will be solicited from experts in the field. The survey will also include questions to collect demographic information such as age, gender, education, organizational tenure, and job tenure.

Different parts of the survey instrument will be administered to different individuals (IS leaders, CEOs, CFOs, other VPs, IS personnel, and representatives from other functional units). Specifically, IS personnel and representatives from other units will be asked to complete MLQ and systems of knowing within IS unit. IS leaders, CEOs, CFOs, and other VPs will be asked to complete survey on organizational strategy and IS strategy profiles, and systems of knowing within TMT. The validated survey would be sent by mail to Fortune 500 companies in multiple industries in an attempt to further increase the generalizability of the findings.

Assessment of the research model will be conducted using a structural equation modeling (SEM) technique such as LISREL or PLS. SEM is a proper approach in need to analyze and identify the causal relationships among constructs in the model and examine if the proposed model indeed fits collected data (Byrne, 1998).

Discussion

In this study, I provide a model drawn from leadership, strategy, and MIS to link IS leadership to its effectiveness under different strategic orientations of IS unit and a strategic alignment. Proposed model indicates that IS leadership does matter, and influences IS unit performance. For example, IS leaders need to be highly transactional to be effective, regardless of any strategic orientation at any levels. In addition, effective IS leaders need to be transformational if IS strategy is 'IS for flexibility' or 'IS for comprehensive'.

This study is expected to contribute to MIS literature in two ways. First, a model is designed to systematically investigate mechanisms through which IS leader behaviors influence performance in ways to better understand factors influencing the relationship between transformational leadership and performance, and explanation of why the unique nature of the IS unit lends itself to the influence of transformational IS leadership under different strategies. The model will also test the augmentation effect of transformational IS leadership on transactional IS leadership, which has been an emerging concept in transformational leadership studies. Second, this study incorporates the strategic alignment model in ways that investigate IS leadership as a critical antecedent (Chan, 2002).

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