IT management capability and its impact on the performance of a CIO

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ABSTRACT

Viewed from the perspective of the activity competency model (ACM) and prior theoretical works, we developed a conceptual framework for investigating the capability of IT management personnel and its impact on the performance of a CIO. A scale for measuring a CIO's effectiveness and management capability was developed and validated. A partial least squares method was used to test the conceptual model empirically and hypotheses were tested through data collected in a large-scale survey. The results supported the proposed framework, and confirmed our hypotheses that both IT and managerial competencies have positive significant impact on the effectiveness of a CIO. We also found that his or her IT management capability significantly impacted the CIO's performance. Our findings are likely to be of particular value to those concerned with IT management training and competency development for CIOs.

1. Introduction

Today's ITs are ubiquitous and prevalent across a variety of business enterprise functions and processes. The integration of IT and IS with business operations has been widely recognized as a requirement in creating business values, seed new market opportunities, facilitating process innovation, and helping to shape business vision and strategy in order to gain competitive advantages for an organization [21]. The need for cooperation between IT and business managers involves agreement in the way that they share the risks, responsibilities, and decision right of strategic IT applications. Without this, the distribution of responsibility and accountability among the IT and business units of the firm is unlikely to be effective in acquiring, deploying, and leveraging its IT resources effectively. Although many small and medium firms have aligned technology applications with business operations, few have successfully integrated their IT and business units these applications with their business, and still less have made sure that their technology and business leadership operate in concert for both the strategic and tactical modes. Understanding how to align, synchronize, and converge the spaces of business and IT is thus becoming a critical issue confronting senior IT executives in modern firms.

As high level IT leaders in large organizations, CIOs act as business innovators and catalysts for change. They must alert their business counterparts to potential opportunities resulting from new emerging IT methods and help to persuade them to become business innovation champions, while agreeing for a need for extra resources for new IT initiatives [18]. A capable CIO must therefore not only be an effective IT leader, but also be a first class intermediary between the IT and business/sectors of the organization. CIOs should be good at prioritizing IT initiatives, building IT-related business strategies, and helping their business peers in understanding the need for IT investments, helping prioritize business requirements, and ensuring effective use of critical IT assets, probably in coordination with the CTO. As such, the technical-business orientation must ensure interfacing of the IT units with all other departments of the organization. This poses unique challenges and opportunities for CIOs. Hence, modern CIOs need to have a broad understanding of both IT governance and business practices, as well as possess the related competencies.

A CIO is one of the toughest professional level positions in the firm today: at the same level in governmental and commercial organizations as vice presidents and other top management team (TMT) members, such as the CEO, COO, CFO, but having a rather rapid turnover rate [10]. This may result in some IT executives having a good understanding of business in general, but not of the distinguishing details of the specific business that they serve. In fact, the majority of today's CIOs still lack broad business understanding, strategic vision, and the interpersonal skills that it takes to run a company, or play a bigger role in running it. CIOs are key agents in championing the use of the entire spectrum of IT methods in order to ensure that business applications deliver high ROI.

Today's CIOs are expected to help integrate IT functions with business operations to construct appropriate organizational

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structures, processes, and human skills to exploit IT as a strategic differentiator. Many researchers and committees have proposed the set of basic skills and management practices needed by CIOs in aligning, synchronizing, and converging technology and business management, and in helping them work with other VPs in shaping business goals. However, the impact of these capabilities on CIO role performance has not been investigated [12]. Indeed, even though IT is often considered a driver of change within human resources (HR), few studies have addressed the relationship between IT and CIOs' HR-based capabilities, role performance, and IT management effectiveness.

Prior research on overall CIO effectiveness has generally recorded the factors that are associated with high-performance CIOs, without measuring their effectiveness. Other studies have used some readily measurable constructs, such as the extent of IT use and of IT deployment as barometers of the CIOs' IT management activity effectiveness. However, deploying IT is often not enough to make the CEO and other TMT members view the CIO as effective in their firm. To be perceived as with high-performance in their roles, CIOs need to perform the related IT management activities. We therefore first define *IT management activity effectiveness* as the degree to which a CIO can apply well-defined processes, appropriate organizational structures, information, and supporting technologies to drive organizations closer to the goal of business and technology unification. Researchers have exerted very little attention to investigating the causal relationships among CIOs' skills/knowledge (competencies), activity effectiveness, and role performance. Prior research has not addressed the key issues of competency development with respect to the nature of IT management capability and its influence on CIO role performance. The purpose of our research was, therefore, to address two research questions:

(1) What are the areas of knowledge/skills that characterize CIOs' IT management capability for information technology management?
(2) What is the contribution of CIOs' IT management capability for information technology management towards improving their role performance?

2. Theoretical development and research framework

2.1. Activity competency model and empowerment theory

According to job characteristics theory (JCT), people who have sufficient knowledge and skills to do a good job feel positive about their performance, while people who do not have negative feelings. The need for personal competency becomes important because it helps employees develop better internal motivation, especially for those that work on a challenging job. One of the critical characteristics that contribute to a person's feelings is that his or her work is useful or meaningful to others. *Skill variety* is the degree to which a particular job requires a variety of different activities in order to be successful in performing the task; Knowledge and skills are key job characteristics that contribute to a person's psychological state, and enhance internal motivation and effective performance.

Wu et al. [25] proposed an activity competency model (ACM) that may be used to help the IS manager understand his or her critical activities and what skills and knowledge they need to accomplish them; see Fig. 1. At the top of the ACM are the IS managers' roles and functions, which, at the next level determine the managerial activities performed by IS managers. Proficiency in each of these critical activities depends on a command of the elemental competencies at the bottom level. These skill sets and knowledge are the fundamental competencies contributing to the organization's success. Viewed from the ACM's perspective, a skill or knowledge is *an ability that can be developed*; *is not necessarily inborn*; *and is manifested in performance, not merely in potential.* However, ability at a lower level is likely to support more than one activity or role at a higher level.

CIOs, who are the top level IS executives in organizations, assume the critical responsibility for successfully integrating IT resources with business processes, possibly in collaboration with the CTO. Today's CIOs must be able to recognize the important scope of their own responsibilities and the contributions of their jobs, and thus be able to enhance their personal performance. In our study, the ACM provided a strong basis and an instrumental guideline for our exploration of the relationships among CIOs' skills/knowledge, IT management activity effectiveness, and role performance.

Many theorists have identified empowerment as a construct of self-efficacy or self-determination/autonomy analogous to agency beliefs, personal mastery, or effort performance expectancy in one's ability to perform work activities due to personal skills or knowledge [17]. In the new economy, global competition and business re-engineering have driven organizations to increase their intra-personal empowerment. Organizations have allowed their employees to take initiatives, embrace risks, and innovate. These conditions are particularly relevant in executive positions, where managerial responsibilities are more complex, ambiguous, and ill-defined rather than routine. Specifically, empowerment will contribute to role performance in positions where work processes are no longer driven by formal rules and procedures.

Based on empowerment theory, an individual with a stronger sense of empowerment/might be viewed by others as more effective. Thus, CIOs with higher levels of business acumen will perceive themselves as capable of influencing their working
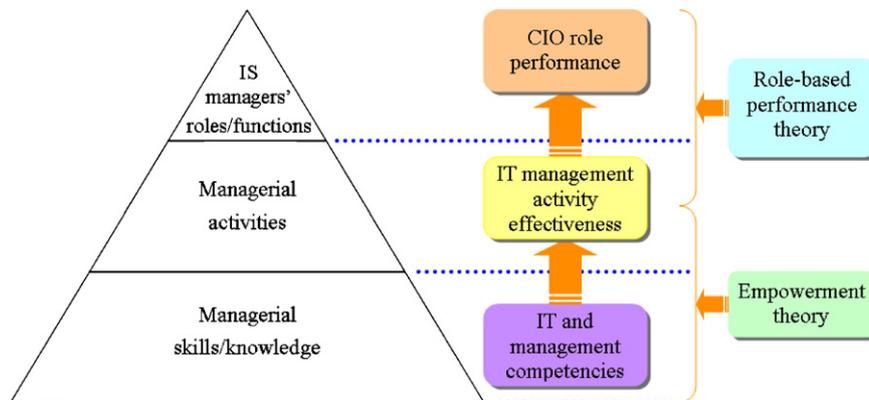

Fig. 1. Activity competency model and theoretical backgrounds.