The Moderating Effect of A Chief Information Officer’s Competence on IT Investment and Firm Performance

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THE MODERATING EFFECT OF A CHIEF INFORMATION OFFICER’S COMPETENCE ON IT INVESTMENT AND FIRM PERFORMANCE

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Abstract

With the uncertainty of market environment and variety of customer requirements, an increasing number of organizations are implementing Information Systems(IS) to improve their competitive advantage, and large amounts of firms’ annual revenues are invested in Information Technology (IT) resources each year. However, research findings determining the impacts of IT on firm performance reveal conflicting results, which leads to an “IT productivity paradox”. Drawing upon Resource Based View(RBV) and Knowledge Based View(KBV), this paper analyzes the important role that a Chief Information Officer (CIO) has in IS implementation and deployment, and proposes a conceptual model to examine the moderating effect of CIO’s competence on IT investment and organization performance. By analyzing the existing managerial competence framework, CIO’s competence has been reconceptualised and divided into six sub-dimensions. The moderating effect of each competence has been illustrated and six hypotheses have correspondingly been established. It is proposed that a research methodology encompassing open and closed ended question surveys will be pursued to examine the model, and their theoretical and practical implications are discussed. The main contribution of this research paper is the reconceptualization of a CIO’s competence and a theoretical conceptual model based on RBV and KBV to explain the phenomenon of “IT productivity paradox”.

Keywords: CIO’s Competence, IT investment, Firm performance, Resource Based View, Knowledge Based View
1 INTRODUCTION

Organizations are facing turbulent times due to changes in economic conditions, globalisation and rapidly advancing technological advances (Stewart 1997). Information Technology (IT) is considered to be a source of competitive advantage for an organization’s performance. This accounts for the large amounts of financial resources invested into IS/IT each year (Dehning&Stratopoulos 2003). However, research findings determining the impacts of IT on an organization’s performance reveal conflicting results. Some results reveal positive influences of IT investment on an organization’s performance. Others find no significant impacts, or negative relationships between IT investment and firm performance. This is referred to as “IT productivity paradox” (Lim et al. 2004).

When examining the relationship between organization performance and Information Systems (IS) resources, it has been posited that there may exist some key moderating variables that are pertinent; thereby leading to more research into this issue (Wade&Hulland 2004). A moderator variable is defined as a qualitative or quantitative variable that “affects the direction and/or strength of the relationship between an independent or predictor variable and a dependent or criterion variable” (Baron&Kenny 1986). The moderating variable of immense interest is organizational IT competence and its influences on the relationship between IT investment and firm performance (Liu et al. 2008). Immense research defines and measures IT competence at the organizational level (Sambamurthy&Zmud 1994), however, there is still lack of an in-depth discussion of the specific competence construct and its measures at the individual level in the existing IT literature (Bassellier&Benbasat 2000, 2003). It has also been found that minimal research has been undertaken to examine the influence of individual IT competence on the relationship between IT investment and firm performance.

IT investment impacts and allocation are difficult issues to consider and understand. For this purpose, Resource Based View (RBV) theory is important as it identifies and differentiates technological and human resources within an organization. According to the theory, technological resources such as, IT software and hardware are the easiest resources for competitors to replicate; thereby representing the most fragile source of sustainable competitive advantage for an organization (Wade&Hulland 2004). Comparatively, human resources such as, IS experts with specialized knowledge, loyal and committed to an organization are attributes not easy to imitate; hence, are resources often considered to be critical drivers of firm performance (Wade&Hulland 2004). Since technological resources are tangible, and are easier to measure and determine, researchers appear to have a preference towards researching IT technology resources without a balanced or minimal consideration towards the human resources; hence, leading to the conflicting results when examining IT investment and firm performance (Bharadwaj 2000).

In terms of human resources, the importance of a managerial role in IT implementation has been emphasized. A managerial role has the competence to strategically leverage the full potential of IT as well as to overcome resistance to change. This is viewed to be critical for the improvement of an organization’s benefit (Santos&Sussman 2000). In recent years, such a role has been fulfilled by a Chief Information Officer (CIO). The title of Chief Information Officer was first labelled in the mid-1980s to describe individuals responsible for an IT project within an organization (Bock&King 1986). With the growing of business dependence on IT—both operationally and strategically—a CIO is expected to illustrate stronger leadership skills when implementing and developing IT in organizations (Ross&Feeny 1999; Gottschalk 2002; Chun&Mooney 2009).

Building upon the knowledge-based theory, it is argued that the ability to blend business and IT knowledge through a mosaic of strong intraorganizational relationships lies at the heart of firms' superior ability to assimilate IT (Mata et al. 1995). As the member of senior executive teams, CIO plays an important role in fostering the assimilation of IT within the organization (Armstrong&Sambamurthy 1999;Wu et al. 2008). And the influence of CIO’s competence has been investigated for organization performance. It has been found that CIO’s competences are partially correlated to firm performance. Further, there are some competences that have a larger role in fostering firm performance, whilst others have a comparatively weaker one (Ravarini et al. 2001; Ravarini et al. 2003). However, the flaw of these findings is that although CIO’s competence does
have direct influences upon firm performance, the foundation of organizational IT investment is ignored. Therefore, it is argued that IT investment is indispensable when considering improvements to firm performance. It is also suggested that CIO’s competence may strengthen the influence of IT investment on firm performance, with this role being considered to be a moderator.

Using the aforementioned reasoning, the aim of this paper is to consider the “IT productivity paradox” by adding the moderator variable of CIO’s competence. By doing so, it is envisaged that a theoretical conceptual model between IT investment, CIO’s competence and firm performance will be developed based on RBV and KBV. To consider the aim, the following research questions are proposed: Does a CIO’s competence moderate the relationship between IT investment and firm performance? Additionally, what and which competence has a greater influence?

To familiarize the reader, the structure of this paper is as follows: The following section offers a theoretical background to the main concepts of this research. This is then followed by a discussion of the proposed research method and finally, the conclusions to this research.

2 THEORETICAL BACKGROUND

2.1 Resource Based View (RBV)

Resource based view (RBV) theory is presently a pertinent theoretical perspective within strategic management literature, and focuses on costly-to-copy attributes of a firm that are considered to be fundamental drivers of performance (Conner 1991; Schuizer 1992). RBV posits that resources that are valuable, rare, inimitable, and non-substitutable by other resources can lead to the sustainable competitive advantage of an organization; thereby improving organization performance (Barney 1991).

Drawing from RBV, technological resources and human resources are two major parts of organizational resources. Technological resources primarily comprise physical IT infrastructure components such as, hardware, software and networked technical platforms. While human resources primarily comprise IT managerial skills, such as the effective management of information system functions, coordination & interaction with user community and project management as well as leadership skills (Wade & Hulland 2004; Grant 1991). It is argued that technological resources are indispensable to provide foundations for the company to obtain feasible innovation and continuous improvement (Duncan 1995). However, the danger lies in that technological resources can be easily duplicated by competitors, thus may not attain direct significant benefits to the organization (Bharadwaj 2000). Instead, attention is paid to how organizations leverage their investments to create unique IT resources and skills that determine a firm's overall effectiveness as well as to improve firm performance (Bharadwaj 2000). It has also been found that only human resources combined with technological resources contribute to improved performance (Powell & Dent Micallef 1997; Yang 2008).

2.2 Knowledge Based View (KBV)

Knowledge based view (KBV) theory initially emerged within strategic management literature (Grant 1996). Building upon the resource-based view, the knowledge-based view of the firm considers knowledge as the most strategically significant resource of the firm (Conner 1991; Spender 1996; Grant 1996). Further, knowledge-based view concerns itself extend beyond the traditional concerns of strategic management and has been applied in many fields, to address some other fundamental concerns of the firm, notably the nature of coordination within the firm, the role of management and the allocation of decision-making rights (Grant 1996).

Recently, IS researchers have also begun to apply it in their research realm. It is argued that senior leadership team can be viewed as an organizational structure for integrating members’ knowledge, and their ability to recognize valuable business and IT information, develop and apply the learning in guiding the IT innovation activities in their firm is important for IT assimilation (Armstrong & Sambamurthy 1999).
Drawing from KVB, there are two forms of knowledge in a senior leaders team: objective knowledge and systems of knowing (Spender 1996). Objective knowledge refers to explicit, visible knowledge within individual team members, while systems of knowing refers to structures of interaction among team members for sharing their perspectives, pooling of knowledge, and development of shared understanding (Nahapiet&Ghashal 1998). Empirical research results revealed that a CIO’s strategic IT knowledge and business knowledge, as well as their interaction with other Top Management Team(TMT) members has significant influence on the diffusion and assimilation of IT within the organization (Armstrong&Sambamurthy 1999; Smaltz&Sambamurthy 2006).

Since a CIO have a leadership role in IT project, strategic IT knowledge and strategic business knowledge is indispensable for him to make IT strategy in accordance with organizational business strategy (Armstrong&Sambamurthy 1999). Also, interpersonal skills and political skills are needed for CIOs to deal with the potential conflicts amongst different departments or individuals (Smaltz&Sambamurthy 2006). Besides, rich interactions between CIO and other TMT members is important to increase CIO’s acknowledge of organizational business, make IT align with organizational business process (Armstrong&Sambamurthy 1999).

2.3 CIO’s competence

Managerial competence models have been of immense interest to practitioners and researchers alike. This led to the development of a theoretical framework of competence analysis model in the 1970s that has been widely adopted and used. The framework defines the concept of competence employing three “dimensions”: “Know how to be”, “Know what” and “Know how”. “Know how to be” can be explained as individual’s mental, physics and basic sense attitudes, value system, and factors linked to personal identity; “Know what” can be explained as individual’s knowledge of the work, tasks, methods, own role, the context and the company, while “Know how” can be explained as individual’s skills required to perform IS management activities (Boyatzis 1982; Spencer 1993).

According to the three-dimension competence model, the term “competence” is used to describe an overall set of individual characteristics influencing individual work behaviour. In turn, an individual’s behaviour is influenced by his/her psycho-social characteristics, the theoretical knowledge and practical experience (Pigni 2002). Whilst the model was developed in the Management area, Information Systems (IS), which also emphasizes the human aspects, began to identify sets of competence that represented a CIO’s profile. The CIO’s competences have been categorized into 12 subgroups (Ravarini et al. 2001). However, they do not provide the specific measurements of each competence, thereby reducing ways of conducting future empirical studies. Meanwhile, there is still a lack of theoretical proof for their categorization of CIO’s competence.

A CIO’s competence has been defined as “the knowledge and interpersonal skill of the CIO” which includes: strategic business knowledge, strategic IT knowledge, political skill and interpersonal communicative ability (Armstrong&Sambamurthy 1999; Smaltz&Sambamurthy 2006). Although the above competence includes CIO’s knowledge and interpersonal skills, it does not include leadership skill, which is also a very important aspect of CIO’s competence, and CIO’s leadership have been validated to play a very important role in IT projects (Bassellier et al. 2004; Eric Wang et al. 2005; Chun&Mooney 2009). However, leadership is a broad concept, and it is necessary to identify the critical leadership possessed by CIO. Considering an IT project is related to business process reengineering and organizational structure adjustment, a CIO’s ability to set up clear strategy and goals about IS projects and emphasises the exciting effects of the information system is indispensable for the deployment of IT, which is a kind of dynamic leadership (Agle et al. 2006; Leverman 2008). Thus we add dynamic leadership in the competence framework of CIO, and use it to describe a CIO’s strategic vision and articulation in IT management. Meanwhile, IT management includes direct activities such as managing the scope, time, and cost of projects; hence, a CIO’s experience in creating clear IT strategy and goals, setting IT budgets and controlling IT project is also very important to support the pursuit of main business objectives (Bassellier et al. 2003,2004; Chun&Mooney 2009).
Based on the above analysis, we redefine a CIO’s competence as a “CIO’s knowledge, experiences, interpersonal and leadership skills with regards to IT project”, and insert “dynamic leadership” and “IT management experience” as two important components of a CIO’s competence. According to Armstrong and Sambamurthy et al.’s definition, strategic business knowledge and strategic IT knowledge are related to an individual’s knowledge of business strategies, organizational work processes and knowledge of an organization's IT infrastructure, which can be classified as a “know what” dimension (Armstrong&Sambamurthy 1999). Political skill, communicative ability and dynamic leadership are related to a CIO’s personal characteristics; thereby being classified as “know how to be” dimension (Smaltz&Sambamurthy 2006; Ferris et al. 1999). IT management experience is related to a CIO’s skills in order to perform IS management activities, and are classified as the “know how” dimension (Bassellier et al. 2003,2004). Based on the previous studies the specific descriptions of each dimension of a CIO’s competence are described as follows:

<table>
<thead>
<tr>
<th>CIO’s competence</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Know How to be</strong></td>
<td></td>
</tr>
<tr>
<td>Interpersonal Communicative Ability</td>
<td>CIO’s ability to establish and maintain effective relationships and communication both inside and outside the company.</td>
</tr>
<tr>
<td>Political Skills</td>
<td>CIO’s ability to effectively understand others at work, and influence others to act in ways that enhance organizational objectives.</td>
</tr>
<tr>
<td>Dynamic Leadership</td>
<td>CIO’s ability to establish clear strategy and goals about IS projects and communicate an exciting vision of the future of the organization and motivate a group of people to pursue organizational aim.</td>
</tr>
<tr>
<td><strong>Know What</strong></td>
<td></td>
</tr>
<tr>
<td>Strategic IT Knowledge</td>
<td>CIO’s knowledge of potential and limitations of an organization's IT infrastructure, strategic IT actions of its competitors, and the potential of emerging information technologies for an organization's business.</td>
</tr>
<tr>
<td>Strategic Business Knowledge</td>
<td>CIO’s knowledge of business strategies, organizational work processes, firm’s products and services, industry recipes for success, and competitor strengths, weaknesses, and potential actions</td>
</tr>
<tr>
<td><strong>Know How</strong></td>
<td></td>
</tr>
<tr>
<td>IT Management Experience</td>
<td>CIO’s experiences in creating IT vision, developing IT strategy, creating IT policy and setting IT budgets to support the pursuit of main business objectives.</td>
</tr>
</tbody>
</table>

Table 1. CIO’s competence

3 CONCEPTUAL MODEL

Based on the aforementioned theoretical concepts, the conceptual model and four groups of hypotheses to be used for this research are illustrated in Figure 1.
As the leader of an IS project, a CIO has an important role of linking a software provider and the organization. Therefore, he/she should be sensitive to both external and internal environments, and offer directions for implementing or upgrading IT according to the business process internal to the organization and the external innovative technology (Willcocks et al. 2000). Currently Information Systems such as Enterprise Resource Planning Systems (ERPs) are in increasing demand within the organizations, and employees could utilise ERPs for work purposes. However, with the negative publicity attached to increasing costs due to the training and workshops, leading to productivity reduction, organizations are weary of developing and implementing ERPs. If a CIO has awareness and experience of the benefits of ERPs, advice and support could be provided by the CIO to the executive committees, and employees could be informed of the limits of the applications. Concurrently, the CIO could negotiate better terms and more support for the organization from the software provider, which could foster firm performance with fixed IT investment. Thus we have the following hypothesis:

\[
H1a: \text{CIO's interpersonal communicative ability positively moderates the relationship between IT investment and firm performance.}
\]

Meanwhile, IT implementation is always associated with business process reengineering. In order to successfully bridge the gap between IT and the strategic business objectives of the firm, the CIO who is facilitating IT-induced strategic change must not only be aware of the political ramifications of IT, but also be able to effectively and positively deal with the political processes in their respective organizations (Smaltz & Sambamurthy 2006). 14 CEOs from large organizations in the U.K were interviewed and it was proposed that political prowess was an essential quality of the ideal CIO (Feeny et al. 1992). As the leader of an IS project, a CIO’s political skills of understanding situations and dealing with potential conflicts amongst different departments or individuals is necessary during the whole IT implementation project (Stephens et al. 1992). Using appropriate conflict resolution methods, a CIO can manage the implementation process in a better manner by motivating employees towards working for the benefits of the teams and organizations, as opposed to individual desires. This would assist in reducing resistance and conflicts during IS implementation, which is beneficial to performance of an organization using IS (Shao et al. 2008). Thus we hypothesize that:

\[
H1b: \text{CIO's political skill positively moderates the relationship between IT investment and firm performance.}
\]

As the leader of an IS project, a CIO has the responsibility to define the fulfilled goals of IT project and to harness a strategy of pursuing the same goal within the organization. Thus a CIO’s dynamic leadership is important to establish holistic and long term visions, express and demonstrate beliefs to each employee with regards to IT project (Willcocks et al. 2000). The CIO needs to identify an organization’s status and emphasize needs for implementing the IT project as well as to highlight the

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**Figure 1. Theoretical Research Conceptual Model**

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benefits of an IS to the organization. If a CIO has the ability to establish a clear strategy and communicate an exciting vision and goals of organizational future after IS implementation, highlighting the impacts that the systems will bring to the organization, employees can be motivated and are more likely to use the IS for their daily routine processes, which is important for the achievement of the goals as well as the improvement of firm performance (Umble et al. 2003). Thus we hypothesize that:

**H1c: CIO’s dynamic leadership positively moderates the relationship between IT investment and firm performance.**

“Know what” is related to a CIO’s knowledge of organizational business processes and information techniques (Bergeron et al. 2003). As the leader of an IS project, a CIO should be familiar with the potential and limitations of an organization's IT infrastructure, strategic IT actions of its competitors, and the potential of emerging information technologies for an organization's business. This will lead to a timely upgrade of the IS and accounts for why strategic IT knowledge is considered to be more relevant for CIOs (Rockart et al. 1988). CIO’s competence to envision likely business impacts of current and emerging ITs was also considered as instrumental to IT assimilation (Sambamurthy & Zmud 1996). CIOs with a high strategic IT knowledge can better advise top management teams about IT issues, such as appropriate technologies to invest in, the timing of those investment choices, and the level of investments, which is beneficial for the improvement of firm performance. This led to the following hypothesis:

**H2a: CIO’s strategic IT knowledge positively moderates the relationship between IT investment and firm performance.**

As IS implementation is a continuous improvement process, the potential business value of IS applications cannot be fully realized until and unless they are extensively incorporated within the daily activities of an organization (Armstrong & Sambamurthy 1999). In order to bridge the gap between IT and the strategic business objectives of the firm, the CIO should be familiar with organizational business strategies and organizational work processes, industry recipes for success and competitor potential actions, which reflect an awareness of relationships between the organization and its stakeholders, the firm’s means of competing in the marketplace, and rivals' competitive moves (Armstrong & Sambamurthy 1999). It is found that an enhanced level of business-related knowledge distinguishes an IS executive from an IS functional manager (Stephens et al. 1992), and CIOs must possess "a broad business perspective" and knowledge of the organization and business expertise (Applegate & Elam 1992). Thus we consider a CIO’s strategic business knowledge as indispensable to the improvement of firm performance of an organization using IS and hypothesize that:

**H2b: CIO’s strategic business knowledge positively moderates the relationship between IT investment and firm performance.**

“Know how”, the third dimension of the conceptual model is related to a CIO’s experiences for performing IS management activities. Whilst knowledge of an IS is essential, experience is equally important. Since IS consists of complex technologies, its implementation is always associated with high risks and uncertainty (Umble et al. 2003). A number of IS implementation failures can be attributed to inappropriate IS planning and management (Bergeron et al. 2003). Hence, a CIO has a larger role in controlling and managing the IT implementation process (Willcocks et al. 2000). If a CIO is involved in a novel IS project and possesses the corresponding IT management experiences, IT strategy can be in accordance with current business processes in order to realize the coordination between IT and business objective, thereby assisting the organization enhance business efficiency and firm performance with IT (Willcocks et al. 2000). In the interim a CIO can also supervise and control IT project costs, identify financial and human resources deviations, and adopt timely measures in order to avoid the potential risks incurred during the implementation process. This can foster the alignment of the newly developed IS and business processes (Soffer et al. 2005). Additionally, employees can be encouraged to rapidly adapt to the new IS, assimilate IS knowledge and apply it in their daily routines, which is beneficial for the improvement of organization performance (Shao et al. 2008). This led to the following hypothesis:
H3: CIO’s IT management experience positively moderates the relationship between IT investment and firm performance.

According to KBV, ‘systems of knowing’ refers to structures of interaction among team members for sharing their perspectives, pooling of knowledge, and development of shared understanding. It is suggested that systems of knowing provides forums for top management team members that exchange their strategic IT and business knowledge, and blend them together to foster higher levels of IT diffusion within the organization. For CIOs, a frequent interaction between other top management team members enables them to achieve timely information with regards to organizational business, thus to plan and deployment IT to align with organizational business process, improve firm performance through the investments in IT. It is found that IT-related information could be disseminated more effectively between the CIO and the CEO through richer channels of communications, and this greater interactions in different IT forums is proved to have favorable influence on firms' IT success (Jarvenpaa&Ives 1991). Thus we add the construct of systems of knowing as a moderator variable in the conceptual model, and hypothesize that:

H4: The systems of knowing positively moderate the relationship between IT investment and firm performance.

A note regarding this conceptual model is that in order to reduce the impact of other factors that may influence organization performance, appropriate control variables will be added to this conceptual model. These include firm size, industry type and IS implementation time. This variation is necessary due to the variation in organization sizes, industry types and implementation durations among different enterprises and the variation of the above variables may lead to different firm performance.

4 METHODOLOGY

To verify and validate whether the conceptual model will be applicable in practice, a research method has also been considered and is detailed below.

To measure a CIO’s interpersonal communicative ability, political skill, strategic IT knowledge and business knowledge, Sambamurthy et al.’s(2006) scale will be referred to and targeted respondents will be the senior executive managers that CIO directly reports to. This is because they are more familiar with a CIO’s skills and knowledge with regards to an IT project (Smaltz&Sambamurthy 2006; Armstrong& Sambamurthy 1999). For the measurement of a CIO’s IT management experience, Bassellier and Benbasat’s (2003, 2004) scale will be referred to and the targeted respondents will be the CIOs. Dynamic leadership is measured according to Agle and Sonnenfeld’s (2006) scale and the direct subordinates of CIOs will be the targeted respondents. For the measurement of the construct of systems of knowing, Armstrong and Sambamurthy’s (1999) scale will be used, and the targeted respondents will be the CIOs.

IT investment can be divided into hardware expenses, software expenses, maintenance expenses and training expenses of the employees, and no uniform conceptualization of these expenses can lead to inconsistent results (Huang et al. 2006). Therefore, initially, the intention is to include all of the mentioned IT expenses as input of the model. Then, calculate the organizational annual average investment in IT resources. To provide a more complete and comprehensive measurement of firm performance, evaluation will be undertaken from four perspectives of the Balanced Score Card (BSC): financial perspective, customer perspective, internal process perspective as well as learning and growth perspective, and Chen’s scale will be referred to. Prospective participants include senior executives who have sufficient perspective and information of the organization and its performance. Details of the BSC perspectives can be obtained from the researchers (Chen 2006).

To collect the data, a pilot study will initially be employed. For this, approximately 10 experts from industry and academic will examine the questionnaire to ensure that the questions are simple, easy to understand. Once the questionnaire has been corrected and edited, the questionnaire will be disseminated to a small sample of organizations-about 20. From the obtained results, changes will be made to the questionnaires. The anticipated changes to the questions include shortening the
questionnaires to simpler, shorter versions such that busy individuals can provide replies to. Other anticipated changes are that some questions may have to be more open-ended.

Following several verification and corrections cycles, the final cycle of data collection will occur. For this, questionnaires will be sent to organizations of different sectors and firm sizes. The questionnaires will be disseminated using the postal service, hand delivery and e-mails. It is anticipated that 500 questionnaires to 100 enterprises will be disseminated. With regards to CIO’s competence, a single questionnaire will measure a CIO’s skills and knowledge from the higher level managers and directors. Another questionnaire will be the CIO’s own reflections of IT management experience, while a third will measure a CIO’s dynamic leadership from the lower level employees. A fourth questionnaire will be sent to senior executives(TMT Members) to measure IT investment, firm performance, firm size, implementation time and industry type. Since the measures for a CIO’s competence are obtained from multiple informants, and performance measures are obtained from those holding a managerial position, concerns about same-source bias are minimal in our research.

Data analysis and hypotheses testing will be primarily done using structural equation modelling (SEM) techniques due to the nature of the research models. Supplementary analyses using linear regression, factor analysis, as well as other commonly used statistical methods are also planned.

5 CONCLUSION AND IMPLICATIONS

From the existing theoretical reviews surrounding IT productivity, IT competence has been identified as an important factor for IT return on investment. However, immense research defines and measures IT competence at the organizational level, there is still a lack of an in-depth discussion of the specific competence construct and its measures at the individual level in the existing IT literature.

As a leader of an IS project, the CIO is expected to play an important role in IS implementation and deployment, and the competence displayed by this individual could strengthen the influence of IT investment on organization performance. Thus the aim of this research is to consider the “IT productivity paradox” by adding the moderator variable of CIO’s competence.

By proposing the conceptual model and hypotheses, the following industrial and academic contributions are foreseen. In terms of theoretical contributions, this research considers the variable of CIO’s competence, as well as the interaction between CIO and TMT as moderators between IT investment and organization performance, and explains the phenomenon of “IT productivity paradox” based on Resource-Based View and Knowledge-Based View further. These issues are novel since previous research focused mainly on the direct influence of CIO’s competence on organization performance with little consideration to CIO’s competence as a moderator variable. Also, by analyzing the role that a CIO plays within the organization, we argued that CIO’s competence should be reconceptualized and divided it into six sub-dimensions, which includes interpersonal communicative ability, political skills, dynamic leadership, strategic IT knowledge, strategic business knowledge and IT management experiences. Compared with previous competence frameworks, the new framework describes CIO’s competence more comprehensively; hence, laying a foundation for subsequent empirical studies.

For the industrial/practical contribution, it is anticipated that the theoretical foundations could offer guidance or ‘food for thought’ to CEOs. Traditionally, many CEOs pay more attention to IT tangible resources such as the hardware and software with little consideration of human resources. By proposing the conceptual model and illustrating how the hypotheses have been formed, the paper emphasizes the important role that a CIO is expected to play in IS implementation and deployment, and concludes that the competence displayed by this individual may strengthen the influence of IT investment on organization performance. Besides, the communication frequency between CIO and TMT members is also emphasized to foster the effective use of IT resources within the organization. Future research will focus on the examination of each hypothesis. And cultural factors can be added to this model to examine the influence of a CIO’s competence in diverse countries and organizations with different cultures.
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