Complementarity between client and vendor IT capabilities: An empirical investigation in IT outsourcing projects ☆

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ABSTRACT

This study investigates the direct and complementarity effects of client and vendor Information Technology (IT) capabilities on the success of IT outsourcing. Concretizing the concepts of client and vendor IT capabilities from the resource-based view, we emphasize the importance of complementarity in IT outsourcing. It was hypothesized that the complementarity between client and vendors IT capabilities adds value to outsourcing success beyond their individual effects. We also hypothesized that the increase rate of complementarity is higher when the IT capability levels of both parties are similar (i.e., either high or low) than when those of both parties differ. The proposed hypotheses were tested by using 267 client–vendor matched data, in which client IT capability was measured by members of vendor firms and vice versa. Results indicate that client and vendor IT capabilities are significant factors in outsourcing success and that the complementarity between client and vendor IT capabilities significantly influences outsourcing success. The increase rate of complementarity is higher when the IT capability levels of both parties are similar than when those of both parties differ. The results help deepen our understanding of the bilateral perspective of outsourcing success and support managers in making better outsourcing decisions in selecting clients and vendors.

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1. Introduction

Over the last decade, geographical growth has become one of the most significant developments in meeting the Information Technology (IT) needs of organizations in IT outsourcing aside from financial growth [24,41]. IT outsourcing, which is defined as handing over the management of IT assets, resources, and activities for required results to one or more external vendors, has become a commonly accepted and growing business practice involving important decisions [27,70].

An emerging stream of IT outsourcing research has focused on managing the relationship between clients and vendors [36,41]. By using various contextual variables from different theoretical perspectives, extensive empirical testing results have reported the importance of outsourcing relationships as the key antecedent of outsourcing success

[23,41]. Previous studies support the importance of relationship of both parties in IT outsourcing because successful outcomes are determined not by clients or vendors but by both organizations.

However, despite the efforts of prior studies, several weaknesses have been reported. *First*, client IT capability in outsourcing relationships lacks extensive research. The majority of previous studies examined IT outsourcing relationships and their success only from social and contextual aspects and neglected the importance of client IT-related capability in outsourcing decisions and relationship management [19,36]. *Second*, most studies overlooked the importance of vendor IT capability, despite the increasing importance of vendors in the outsourcing relationship [43,62]. Most previous studies concentrated mainly on client firms that choose to outsource. Several studies suggested that vendors must have IT competence or capability [43,57], but these studies are conceptual and exploratory without empirical investigations. *Finally*, although most previous studies emphasize the necessity of understanding both parties to obtain better outsourcing outcomes, client and vendor IT capabilities have never been simultaneously considered in a study [30,36]. For example, Han et al. [29] integrated the IT capability of a firm with social exchange theories to examine the causal structure of the capability, process, and relationship in IT outsourcing. However, their study was conducted from a client perspective only. Thus, the notion of complementarity between client and vendor IT capabilities must be extended to outsourcing

relationships and success. Complementarities between activities can be viewed as existing if, and only if, increasing the level of an activity (i.e., client IT capability) leads to a higher marginal return from increasing the level of other activities (i.e., vendor IT capability) [10].

To fill these research gaps, this study attempts to answer the following questions from the perspective of complementarity: 1) *What are the roles of client and vendor IT capabilities in outsourcing success?*; 2) *Does outsourcing success originate from the complementarity between these capabilities?*; and 3) *What kind of complementarity between these capabilities demonstrates better performance?* To answer these questions, we first conceptualized client and vendor IT capabilities based on prior studies that focused on the Resource-Based View (RBV). We then hypothesized the relationships between these factors and outsourcing success from the perspective of complementarity. This study may be one of the earliest studies to simultaneously consider client and vendor IT capabilities, as well as their interaction effect on outsourcing success from the perspective of complementarity. The proposed hypotheses were then tested by using a sample of 267 matched responses collected from both client and vendor firms in Korea. We believe that this study can contribute to our understanding of the bilateral perspective of outsourcing success and provide useful managerial guidelines to make better outsourcing decisions in selecting clients and vendors.

2. Theoretical development

Outsourcing success is defined as the level of fitness between client needs and outsourcing outcomes [41]. Outsourcing is motivated by strategic, economic, and technological benefits; hence outsourcing success can be assessed in terms of the attainment of these benefits [27,41]. Grover et al. [27] defined strategic benefits as the ability of a firm to focus on its core business by outsourcing routine IT activities. Economic benefits refer to the ability of a firm to utilize the expertise and economies of scale of the human and technological resources of the service provider, as well as manage cost structure through unambiguous contractual arrangements. Technological benefits refer to the ability of a firm to obtain cutting-edge IT and avoid the risk of technological obsolescence caused by dynamic changes in IT. Although client firms have high IT capabilities, they can still consider IT outsourcing to enjoy its different benefits (e.g., cost savings and/or new business opportunities).

Clients and vendors generally have the same objectives (i.e., making outsourcing projects successful) but have different roles and concerns [57]. Client firms are concerned with the selection of the best vendor, perceived replaceability of the vendor, and perceived switching costs and risks [70]. Replacing a current vendor with another is very difficult for the client firm because of the costs and risks of switching. Therefore, the major concern of client firms is the IT capability of their vendors in successfully conducting outsourcing projects. By contrast, vendor firms believe that outsourcing success is mainly dependent on the ability of clients to effectively acquire, distribute, and leverage IT-related resources [19,43]. To create a successful outsourcing project, client IT capability should be aligned with that of vendor firms and vice versa, even though clients and vendors have different roles in outsourcing projects [43,57].

Capability refers to the ability of organizations to integrate and deploy valued resources [2]. From the perspective of capability, client IT capability can be defined as *the ability to which a client firm acquires, distributes, and leverages IT-related resources or assets*. By the same token, we consider vendor IT capability as one of the most critical organizational abilities for improving IT outsourcing service performance. Thus, we define vendor IT capability it as *the ability to which a vendor firm identifies, responds, and manages IT-related client needs*.

Prior studies on client and vendor IT capabilities have been mostly conceptual; thus, formal constructs have not been clearly defined. However, their implications on the causal relationship between client and vendor IT capabilities and outsourcing performance are evident [13,56]. Client and vendor IT capabilities, which include organization-specific routines, processes, skills, and resources [32], are necessary to achieve outsourcing objectives. Client and vendor IT capabilities are more than specific sets of sophisticated technological functionalities [43,49]. These capabilities are used for managing and leveraging the technologies of the enterprise to sustain and create competitive advantage. Therefore, the IT capabilities of both parties should be considered from the onset of outsourcing project to ensure effective management [37]. Thus, the IT capabilities of both parties play critical roles in the achievement of predefined outsourcing objectives.

This study consolidates client and vendor IT capabilities as critical factors in outsourcing success. We assume that client and vendor IT capabilities enable both parties to interact and communicate effectively with each other, thereby leading to better outsourcing performance. On one hand, client IT capability ensures that IT resources are appropriately acquired, distributed, and managed to meet organizational requirements. On the other hand, vendor IT capability affords benefits to clients not only by providing the core skills required to build high-quality information systems but also by helping build good relationships with clients [43].

The complementarity between client and vendor IT capabilities results in a more positive and stronger IT capability effect on outsourcing performance. However, complementarity does not denote the transformation of a negative (or insignificant) relationship to a positive one and vice versa. Therefore, the presence of positive relationships between client IT capability and outsourcing success, as well as between vendor IT capability and outsourcing success, should be prerequisites to understand the complementary relationship between client and vendor IT capabilities. The next section considers the nature and constituents of client and vendor IT capabilities.

2.1. Client IT capability

Most prior studies investigated client IT capability primarily from the RBV of firms [8]. According to prior literature, client IT capability consists of IT resources or assets and its management ability. Bharadwaj [13] defined the specific IT resources of client firms as IT infrastructures, human IT resources, and IT-enabled intangibles. Ross et al. [60] classified client IT capability as a reusable technology base (technical asset), competent IT skill (human IT asset), and intimate relationship between the management of IT and business units (relationship asset) of client firms. Lee et al. [42] stated that industries demand a cadre of IT and technical skills in business operations, management, and interpersonal relationships to lead organizational integration and process reengineering activities effectively. They emphasized the capability of IT managers to appreciate business needs, collaborate with functional managers effectively, coordinate IT activities with the support of other functional managers, and anticipate future business needs. Feeny and Willcocks [19] characterized nine distinct IT functions as a set of core capabilities: IT governance, business systems thinking, relationship building, technical architecture design, making technology work, informed buying, contract facilitation, contract monitoring, and vendor development. They also mapped the nine capabilities with the skills and knowledge requirements framework proposed by Lee et al. [42].

Given that client firms possess a variety of IT resources, managers must carefully choose resources that should be prioritized in creating synergetic IT capabilities. We used the RBV, which explicitly recognizes the importance of intangibles [13], to identify measurable constructs that reflect client IT capability necessary for outsourcing success. We identified the three primary strategic areas of IT capability that affect outsourcing success: *technology management capability*, *organizational relationship capability*, and *vendor management capability*. These are the same constructs found in the study of Han et al. [30]. These constructs were conceptualized based on the study of Lee et al. [42], as well as the RBV-grounded studies of Feeny and Willcocks [19] on the operationalization of client IT capability [54]. These constructs were