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ORGANIZATIONAL STRUCTURE AND ABSORPTIVE CAPACITY IN OFFSHORE OUTSOURCING

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Abstract

The offshore outsourcing (offshoring) posits a high level of risk because of time zone difference, cultural difference and client's need for more controls over quality and schedule, etc. Knowledge gap between clients and vendors is one of the key challenges for outsourcing success. Offshoring vendors need to continuously acquire external knowledge from clients, assimilate and internalize the new knowledge to apply to outsourcing tasks. Offshoring vendors often have to re-structure project teams to adapt to clients' needs. This paper aims to investigate how organizational structure attributes impact vendor absorptive capacity. A case study approach is used to develop a preliminary set of propositions. Vendors are expected to consider the propositions, skillfully design and implement organizational structure to develop absorptive capacity. Future stage of this research study is discussed. Limitations and future research is addressed at the end.

Keywords: Organizational Structure, Absorptive Capacity, Offshore Outsourcing, Dynamic Capabilities

1 INTRODUCTION

Offshore IT outsourcing (Offshoring) has become an important global business activity for companies (Carmel & Tjia, 2005; Dibbern, Goles, Hirschheim, & Jayatilaka, 2004). Through offshoring, companies not only reap the benefits of reduced operating cost by 50 to 70 percent but also have a better focus on their core competencies. However, offshoring also carries many significant risks for clients and service providers as it involves a complex and challenging process characterized by knowledge intensity, culture challenges and high failure rate (Gopal, Sivaramakrishnan, Krishnan, & Mukhopadhyay, 2003; Lacity, Khan, & Willcocks, 2009; Rao, Poole, Raven, & Lockwood, 2006). In addition, knowledge gap between clients and service providers is one of key challenges for outsourcing success.

Past studies have attempted to identify organizational capabilities critical for the success of ITO. For example, technical capability and human resources management capability of vendors were suggested to be vital for offshoring success (Levina & Ross, 2003). Moreover, market changes and client needs require offshoring service providers to continuously acquire external knowledge from clients, assimilate and transform with their own knowledge to apply to outsourcing tasks. Therefore, the absorptive capability of vendors has been considered as another critical factor for offshoring success (Levina & Ross, 2003).

Absorptive capacity (AC) is a dynamic capability that firms can acquire and assimilate new knowledge and, correspondingly, make changes in their routines/processes and generate innovation (Cohen & Levinthal, 1990). One underlying premise of absorptive capacity is that it builds on prior related knowledge. Pre-existing knowledge base enables the firms to recognize new and valuable knowledge, absorb and integrate with existing routines and practices, and eventually apply to product development and create innovation (Cohen & Levinthal, 1990).

Despite the fruitful research efforts in absorptive capability, they largely focus on technological knowledge in the R&D setting (Volberda, Foss, & Lyles, 2010). However, the context of offshoring is far more complex than the R&D setting since offshoring involves organizations in disperse locations and knowledge workers in different cultures. As a result, vendors need to acquire and absorb many types of knowledge beyond technological knowledge, such as domain knowledge, process knowledge, technical knowledge, business knowledge and culture knowledge, etc. (Cha, Pingry, & Thatcher, 2008; Williams, 2011).

In addition, absorptive capacity comprises of not only external-oriented processes in acquiring information from external environment but also internal processes in transforming and exploiting the new knowledge and information (Cohen & Levinthal, 1990). Organizational structure configures tasks and activities such as communication structure (Cohen & Levinthal, 1990) which impacts the establishment of AC processes and the configuration of AC processes. Organizational structure influences communication patterns and decision-making processes which are critical for organizational learning (Huang, Rode, & Schroeder, 2011; Nonaka & Toyama, 2005). Organizational structure determines the distribution of expertise and knowledge. It is our proposition that the enduring configuration of organizational structure will affect the development of AC and renew the strategic resources such as people and technology and enhance organizational capacity of learning. Outsourcing vendors often have to adjust organizational structure, or design new processes and tasks in order to meet clients' needs and match with clients' established business processes. This understanding of the impact of organizational structure can help outsourcing vendors to intentionally cultivate AC. With a high level of absorptive capacity, vendors can learn quickly, adapt to new demands from clients and deliver satisfactory performance.

To summarize, this study aims to answer the research question "how organizational structure impacts absorptive capacity". Specifically we aim to find out how the different dimensions of organizational structure influence the dimensions of AC. A qualitative approach, case study, is adopted. Next section briefly reviews the IT outsourcing, AC literature and organizational structure. The case background and data collection process are introduced in section 3. Because this study is a work in progress, preliminary

data analysis is discussed in section 4. At last, section 5 concludes with the future research plan and the implications of this study.

2 LITERATURE REVIEW

2.1 Offshore Outsourcing

IT outsourcing is an intensive knowledge exchange process. It has a high demand on the clients and suppliers to exchange knowledge and build common understanding to achieve the expected outsourcing performance. For clients, transition to a new external supplier includes the processes of clearly specifying requirements, designing the interfaces with the vendor and establishing performance measurements. Although many IT suppliers are selected by proven technical capability (e.g. CMMI certificates), offshoring suppliers need to learn a large amount of information and knowledge about the clients' processes, company culture, business requirements and their preferred collaboration technology, etc. In addition, time zone difference and culture difference compels for effective communication and knowledge exchange. Cha et al (2008) confirmed that knowledge transfer from vendor to clients may not only save the cost in the short term but also plays a critical role in building a knowledge supply chain to avoid knowledge disruption and project loss.

Past studies have recognized the importance of increasing effective knowledge transfer and identified a few best practices of effective knowledge transfer (Cha et al., 2008; Lacity et al., 2009; Ramasubbu, Mithas, Krishnan, & Kemerer, 2008). However, a long term IT success lies in the suppliers' continuous acquisition of new knowledge and application to the outsourcing tasks. In the next section, we examine the service providers' capabilities and dynamic capabilities.

2.2 Absorptive Capacity

Absorptive capacity (AC) has been identified as a crucial factor in a firm's abilities to renew organizational competences and adapt to environmental changes (Jansen, Bosch, & Volberda, 2005; Lane, Salk, & Lyles, 2001; Zahra & George, 2002). At the organizational level, absorptive capacity is defined as the ability of a firm to recognize the value of new, external information, assimilate it and apply it to commercial ends (Cohen & Levinthal, 1990). Zahra and George (2002) re-defined AC as a set of organizational routines and strategic processes which firms acquire, assimilate, transform and apply knowledge. Most AC studies focuses on adaptation of companies to new knowledge originating in the external environment (Lewin et al., 2011). The sources of information include communication between the organization and external sources in the environment, exchanges between organizational units, and formal distribution practices in the organization (Cohen & Levinthal, 1990; Joshi, Lei, Avimanyu, & Shu, 2010). Zahra and George (2002) categorized the four dimensions of AC – acquisition, assimilation, transformation and application – to two components: potential and realized absorptive capacity. Potential absorptive capacity includes knowledge acquisition and assimilation. Transformation and application form realized absorptive capacity. Zahra and George (2002) suggest that two components are separate but complementary to each other. Firms cannot apply external knowledge without acquiring and assimilating firm. Some firms with the capability to acquire new knowledge may not be able to transform and apply to its own products or services. Potential AC forms a pool of knowledge which may be combined with existing knowledge and transforms. The conceptual differentiation of potential and realized AC suggests that, to foster AC, firms need to invest in routines and processes of both components. Lewin, Massini, & Peeters (2011) further argue that firms' AC differ in the configuration along two dimensions – the actual routines in practice and the extent to which the routines/processes are interdependent and complementary to each other.

In the IT outsourcing context, vendors need to be highly effective in communicating with clients in the external environment and continuously to learn new knowledge and apply it to outsourcing activities

(Levina & Ross, 2003). AC of IT outsourcing providers is generally developed through continuous interaction with clients and engagement in various learning activities. need to continuously adapt to clients' needs (Levina & Ross, 2003) Firms with prior existing knowledge are more capable of evaluating the potential of new knowledge and utilize it (Zahra & George, 2002). Vendor absorptive capacity depends on the expertise of those individuals who receive the information. When knowledge structures of information recipients are highly differentiated, the requisite level of background may be rather high. Therefore vendor absorptive capacity relies on client-vendor interface, shared knowledge and diverse knowledge structure of vendor employees.

Lewin et al (2011) claim that a proactive view of AC should comprise both the ability to identify and assimilate ideas from the external environment but also the ability to initiate changes from within the organization. An organization's absorptive capacity does not simply depend on the organization's direct interface with the external environment. It also depends on the transmission of knowledge across and within sub-units that may be quite far from the original point of entry (Cohen & Levinthal, 1990). In the IT outsourcing context, cross-project interfaces within the vendor company affect the vendor absorptive capacity and innovation performance.

Firms apply absorptive capacity to reconfigure existing capabilities (Cohen & Levinthal, 1990; Pavlou & El Sawy, 2006; Roberts, Galluch, Dinger, & Grover, 2011). Since programs are commonly used for IT outsourcing, this study explores the vendor AC at a program level. Past studies pointed out that IT outsourcing vendors face the challenge of balancing capabilities and organizational structure in order to meet the uncertainty in the client environment (Plugge, Bouwman, & Molina-Castillo, 2013).

2.3 Organizational Structure

Organizational structure involves power structure, roles and responsibilities, task design, and coordination (Daft, 2010). Organization structure is often viewed as a continuum with mechanistic and organic structures on the opposing extremes (Burns & Stalker, 1961). Bureaucratic and mechanistic structures fit a stable environment. Organic structures are well suited in an uncertain and dynamic environment. Past studies have examined multiple attributes of organizational structures (Huang et al., 2011; Martinez-leon & Martinez-Garcia, 2012). Following Huang et al (2011), we consider several of the most commonly mentioned sub-dimensions in this study, including flatness, centralization and employee multifunctionality.

Flatness is related to the relative number of hierarchical layers present (Huang et al., 2011). The number of hierarchy levels is a key difference between mechanistic and organic structures. It highlights the aspect of structural complexity (Burns & Stalker, 1961). Mechanistic structures have a long chain of communication from top to employees and consequently hinder communication across levels. The number of hierarchy levels is also related to spans of control. Information is often filtered across levels, resulting in only partial information available for employees. Usually standardized policies and procedures are implemented in mechanistic structures (Gittel, Weinberg, Pfefferle, & Bishop, 2008). Organic structures usually have less number of hierarchy levels and layers. Communication has fewer required links across levels in organic structure. Rich information may be passed in the communication chain and less formal policies and procedures are applied in organic structures.

Centralization is the degree of the dispersion of decision making authority (Huang et al., 2011). Mechanistic structures have high centralization and relational complexity. There is a high degree of horizontal differentiation strong functional focus and rigid department separation in a centralized organization. Job roles and responsibilities are organized according to power and authority in a centralized organization. Managers with authority need to coordinate organizational activities, intervene in problem resolution and other decision-making activities (Hankinson, 1999). In comparison, in a decentralized organization, employees participate in decision-making and have a high level of autonomy (Liu, Shah, & Schroeder, 2006).

Employee multifunctionality is the extent to which labor is divided between narrow and broad work tasks (Huang et al 2011). A centralized organization usually has high work specialization with a great emphasis on efficiency (Lawrence, Lorsch, & Garrison, 1967). In a decentralized organization, employees have opportunities to receive cross-trainings and perform multiple tasks. The chance of creating new knowledge creation is increased in such decentralized organizations where diverse employees have opportunities to work together.

Organizational design variables related to outsourcing success have received considerable research attention such as controls and IT governance, inter-organizational interface design, communication structure and best practices (Gopal & Gosain, 2010; Ramasubbu et al., 2008; Williams, 2011). Prior studies have also examined the impact of organizational structure AC (Jansen et al., 2005; Van Den Bosch, Volberda, & De Boer, 1999). Although these studies have confirmed the impact of organizational structure on AC, little is known about how vendor organizational structure stimulates vendors to absorb the new knowledge, assimilate and apply it for outsourcing success, even in the general business context.

3 ANALYTICAL FRAMEWORK

In this study, we will explore various types of knowledge vendors have to learn in the offshoring context. Through the external interaction with clients, vendor firms develop more knowledge about client operational processes, technology, management culture, expectations and criteria. The knowledge base enhances vendor's ability to identify and evaluate external knowledge. Vendors accumulate potential AC through acquisition and assimilation and realize the value of AC by transforming the knowledge and applying to generate successful outsourcing performance, process adaptation and the growth of the vendor company. In addition to learn from clients, vendor firms also learn from themselves from the past performance, reflection and experimentation. The integration of external-oriented and internal-oriented knowledge enhances program absorptive capacity. Vendor's absorptive capacity can strengthen, complement, and refocus the knowledge base of IT vendor companies.

Vendor AC is not the simple sum of individuals' knowledge. Organizational mechanisms defined by structure attributes stimulate workers to interact and build shared understanding and increase the capacity of learning. A decentralized organization with flat hierarchy level, dispersed decision-making processes and employee multifunctionality tend to ease the communication challenges, provide employees cross-training opportunities, and give employees autonomy to make decisions after new knowledge is integrated.

4 RESEARCH METHODOLOGY

Case study is adopted in this study for the following reasons. First, case study approach is amenable at solving the "why" and "how" questions (Yin, 2009) without controlling the research subjects or environments. It fits well with our purpose to investigate how organizational structure impacts the absorptive capacity of the outsourcing vendor in a natural environment. Second, case analysis can illustrate the complexity of factors affecting the research object. The in-depth understanding could be achieved by the case detailed description and systematic understanding (Weick, 2007).

4.1 Case selection and background

A software vendor company in China that recently completed a localization testing contract with a US firm is selected as the case study site. The vendor is one of the comprehensive software and information services companies in China. This company has more than 19,000 employees and serves more than 100 multinational clients. The main businesses include IT consulting services, IT solution development services, IT outsourcing services and IT training services. IT outsourcing service focuses on product development and testing services, product deployment and support services, IT infrastructure

management services, application development and testing services , legacy systems upgrade and migration services , contact center services , BPO, EPO, KPO, software product globalization services and multimedia content translation services and other services.

This localization testing contract was a large one for the vendor company in terms of the number of employees involved in the service delivery and its potential value to evolve into a long term contract or collaboration relationship. The client company is a leading IT company in US, which offers a family of software products built on a common platform. The outsourcing task was a localization testing service across 200+ products, 43 major languages and 61 non-main-stream languages. The project had more than 200 people and lasted about 2 years. The client's goal was to ensure product quality while achieving cost reduction. After a year-long tendering and screening, the client company decided to use multiple IT service providers. The case site is one of the service providers. Another major service provider is located in Europe.

4.2 Data Collection

This study used a variety of ways to collect data from different sources and then combined these data sources to confirm new findings through mutual authentication among data from different sources .The data collection lasted more than 10 months. The vendor company deployed the outsourcing project as a complex project (program) with multiple interdependent subprojects (projects). Multiple offshore IT service provider staffs in the project were interviewed. In this case study, a pre-designed list of interview questions was used to make sure a clear understanding of respondents and a systematic data analysis approach. Secondary documents such as meeting schedules, meeting minutes, testing procedure and problem cascade processes etc. were used to support the case analysis. In the first six months, the outsourcing project was structured in a centralized approach. Multiple serious problems emerged in the first six months, seriously delayed the project progress and created serious challenges to the outsourcing success. These problems include communication problems, workload management, and multitasking, low control on project monitoring and high risks in product delivery. The client became aware of these problems in the vendor and requested the vendor to re-structure to adopt a decentralized matrix structure.

4.3 Case analysis

The data analysis consists of a number of stages. First, interviews were recorded and transcribed. The interview transcripts were then coded to develop a detailed understanding of the questions: How organizational structure attributes affect the vendor acquisition capability, assimilation capability, transformation capability and exploitation capability. The aim is to identify the different effects of various structure attributes on the dimensions of AC. A preliminary code list was generated based upon the literature review. The interview transcripts were coded by two researchers independently. Second order themes were aggregated from the codes (Miles & Huberman, 1994). The data analysis has not finished yet. Although some patterns have been identified, a theoretical development of the qualitative analysis is still ongoing.

Next, we elaborate the data analysis process and theoretical development by examining the impact of organizational structure on acquisition and assimilation capabilities. Other theoretical propositions are briefly presented because of the paper limit.

Organizational Structure and Acquisition Capability

At the beginning of the outsourcing contract, the client had strong technological knowledge about the software products. The client also specified many testing processes such as a bug reporting process and a problem escalation process, etc. There was a large amount of information and knowledge exchange between the client and the vendor team. The vendor project team was restructured from a centralized hierarchical structure to a decentralized organic structure after the first six months.

In the hierarchical structure, an applied project manager (APM) was appointed as the sole contact point between the client and the supplier. The APM received a tremendous amount of information from the client side (Project Management Office PMO and several testing leads in client side). This APM needed to understand and filter the information and then pass to the right parties such as applied execution leads (AEL) in the vendor sub-project teams. As the project went on, the APM could not handle so much information, causing information delay and the elevation of the risk level. The APM became a communication bottle neck in the information exchange. The information flow between the client and the vendor employees required multiple information links, resulting in poor information transmission and unequal information distribution among multiple sub-project teams. The delayed information transfer and unequal distribution usually caused the backlog and repeatedly fixing the same issues.

After the first six month, the vendor team was structured in order to recognize the complexity and alleviate the workers' roles and responsibilities. After the re-organization, a new group of schedulers were added to the organizational structure to alleviate the workload of the applied project manager (APM) and the applied execution leads (AEL). This new group of schedulers consisted of schedule manager and schedulers. Their primary duties were to monitor project progress and control schedule. They interacted with internal subproject teams in the vendor site and also with the client to tackle schedule related issues. They shared the responsibilities of the AELs and APMs in the hierarchical organizational structure to a certain extent. The schedule monitored by schedulers and the quality monitored by AELs formed a matrix for the outsourcing success. In addition, APMs were also paired with test leads in the client firm to have more one-on-one interaction. The AELs were also included in the communication loop to ensure the right information distribution. When information was distributed, employees with diverse backgrounds exposed to the right information were more likely to recognize new information and acquire it.

The structural change relaxed the constraints imposed by the centralized approach to the vendor's ability to search external information, recognize it and acquire it (Zahra & George, 2002). In the hierarchical structure, the APM had to do the multitasking and passively sent to deal with any emergent issues. Information flow of technological knowledge and process knowledge was hindered and lost. The new organic structure with low vertical differentiation reduces the number of layers and shortens the communication chain by reducing the number of required links between the client and the vendor employees. In addition, the APM has a limited cognitive processing load and may not recognize the value of external information. The design of the scheduler position reflects the narrow horizontal differentiation. The scheduling expertise and project management skills are recognized and specialized in the scheduler positions. The design of the scheduler position and new interface contacts including APMs and AELs increases the capacity to search and recognize new knowledge. In the organic structure, the APM can concentrate on product related communication, problem solving and quality control. In addition, the authority and decision-making in the vertical hierarchical structure has been replaced by horizontal differentiation and collaboration between the APM and schedulers.

Proposition 1: When a high level of technological knowledge and process knowledge and a large amount of task information need to be acquired from a client, the vendor team should be structured with low vertical differentiation (flatness) and narrow horizontal differentiation to establish sufficient acquisition processes.

This theoretical proposition derived from our empirical analysis is corroborated in the extant literature. For example, Jansen et al (2005) pointed out that the effect of cross-functional interfaces such as task forces, and teams on AC. Cross-functional interfaces represent low vertical differentiation and narrow horizontal differentiation because workers in the task force and cross-functional teams usually come from various hierarchical levels and functional areas. The lateral forms of communication done by the cross-functional interfaces are found to facilitate knowledge flow across functional boundaries and hierarchical lines of authority (Jansen et al., 2005). When the applied PM is no longer the single point of the contact between the two organizations, the applied PMs and schedulers have more expertise to recognize the values of new knowledge from the clients. These persons on the cross-functional interfaces promote non-

routine and reciprocal information processing, contributing to the vendor's ability to build understanding about new external knowledge.

Organizational structure and assimilation capability

On-site staff visit is a good approach for client and vendor firms to increase lateral inter-organizational communication, analyse, process, interpret and understand the information obtained from external sources. Since the client had the predominant technological knowledge and process knowledge, 46 vendor employees travelled to the client site at the early project stage for a generic training. In addition, the vendor employees visited the client for the purpose of requirement collection, and on-site testing in product release at the end of the project. In order to have a practical understanding of the vendor work processes and overcome cultural barriers, 5 PMO members in the client firm visited the vendor company for the update-to-date project progress, understanding the work environment, providing trainings and participating in problem solving. The staff on-site visits increased communication frequency, minimized the culture difference and enhanced the effective knowledge transfer by building an open and trust culture. The enhanced horizontal interaction from the staff on-site visits encouraged formal and informal communication, resulting in more opportunities combine the new knowledge with existing knowledge.

In addition, the trainings from internal sources and external clients presented employees more opportunities to understand and learn new technological knowledge. One tester interviewee comments

“We have a knowledge sharing server. We usually use OneNote to create project documentations and share knowledge. Very good system. ... a lot of shared resources from the clients. We regularly solicit the training needs which have a specific problem (well defined). We try to look for internal experts who can solve the problem and provide training. If nobody in the vendor site can, we will contact some experts in the client side to get some tips or solutions. We usually record trainings (and store in the server recorded), employees can assess them multiple times if necessary.”

The routines of setting up problem-focused trainings provided employees opportunities to interact with internal and external experts. This active management of training and problem solving oriented approach assists employees to internalize the external knowledge and recodify to solve the problems.

Furthermore, employees had open access to the knowledge resources in the server. One tester interviewee explains that

“If you finish your product training, you can also try the trainings for other products. You never know which day you will need it (the other product knowledge) in test pass”.

Employees with a proactive attitude are more likely to learn. This participative culture stimulates employees to assimilate new knowledge and compare various product solutions.

The vendor assimilation capability was also enhanced by employee cross-assignment. The applied execution leads (AEL) usually assigned team members to various testing to avoid the person's multitasking in two or more testing tasks at the same time. The AEL assigned personnel by vertical product line reassignment— sending testers to other testing pass of the same product to take advantage the testers' product knowledge and high testing productivity. Other than vertical assignment, the applied execution leads also assigned the testers to other products' testing pass in the same testing cycle in order to get testing pass with high priority done first. These employee cross-assignment processes related to employee multifunctionality in organic structure allows the employees to have opportunities to take multiple tasks and learn new information from external sources. Employee cross-assignment creates the flexibility in task assignment and provides the testers opportunities to have access to other product knowledge and testing cases from clients.

Proposition 2: When technological knowledge, process knowledge and cultural knowledge from external and internal sources need to be assimilated by individual workers, the vendor team should be structured

with decentralization (lateral communication, participative management and employee autonomy) and employee multifunctionality (cross-training, cross-assignment and access to shared knowledge resources).

The literature on organizational learning corroborates this finding. Blumenberg, Wagner and Beimborn (2009) found that trainings are effective mechanisms for knowledge transfer between IT providers and clients in IT outsourcing relationships. Martinez and Martinez found that high autonomy has a positive impact on organizational learning. Vendor employees with high autonomy have enough freedom to seek out solutions to new problems or interact with others to explore new knowledge.

Because of the page limitation for a work-in-progress research, we have to cut the data analysis section related to organization structure and other AC dimensions. Other propositions include

Proposition 3: When new technological knowledge and process knowledge from other sub-project need to be internalized, the vendor team should be structured by decentralization (distributed decision making and employee participative management) and employee multifunctionality (cross-assignment on vertical or horizontal lines) to raise vendor transformation capability.

Proposition 4: When new technological knowledge needs to be applied to complete the outsourcing tasks, the vendor team should be structured by flatness (communication and less formal policies and procedures) and decentralization (employee participative management) to augment vendor exploitation capability.

5 DISCUSSION

This study aims to investigate the impact of organizational structure on the development of vendor absorptive capacity in the offshore outsourcing context. The preliminary empirical analysis showed how the vendor team re-structured to establish the various AC processes and impacted the vendor's absorptive capacity. We developed a set of preliminary propositions for vendors to skillfully design and implement organizational structure to attain absorptive capacity. We would expect managers to carefully choose structure attributes and design an organic structure which enables positive development of AC.

In the next stage of this research study, we plan to explore more on the impact of structure attributes to the configuration of potential and realized AC processes in the data analysis. It is true that multiple structure attributes need to be implemented together in order to develop the vendor AC. We also hope to deepen our understanding on how structures can be designed to achieve the complementariness of potential and realized AC. The configuration of AC demands a careful choice of various processes enabled to the attributes of organizational structure. In addition, it is interesting to probe what organizational structure attributes enable the re-configuration of the AC processes.

This study has several limitations including the use of a single case study, the selection of a Chinese offshoring vendor as the case site, and the use of qualitative method in which researchers may have self-serving bias. Future research may consider multiple case studies or examine more structure attributes.

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