Boundary Spanning Capabilities in Offshored Information Systems Development Projects: A Conceptual Framework

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ABSTRACT
As more firms seek to reap benefits from offshore outsourcing, many firms are facing failures in these ventures. IS capabilities literature has identified critical capabilities for firms that seek to offshore outsource. In this study we extend this theory and focus on boundary spanning capability as a critical IS capability for firms seeking to offshore outsource. We distinguish internal and external boundary spanning and conceptualize these in the offshored information systems development (ISD) context & present a conceptual research framework.

Keywords (Required)
Offshore outsourcing, boundary spanning, information systems development

INTRODUCTION
Offshore outsourcing of IT services such as IT development, maintenance, network and infrastructure management has been on the rise in the past decade (Gopal et al., 2003; Ang & Straub, 1998; Lacity & Willcocks, 1998; Sabherwal, 2003). Offshore outsourcing arrangements promise substantial cost savings and flexibility for the client IT organization (Ranganathan & Krishnan, 2006). While offshore outsourcing continues to grow over 20% annually, research shows that a stunning 65% of offshore outsourcing ventures end as failures and disappointments (Moore, 2004). Certain dynamics in offshoring efforts – such as the cultural and language barriers, spatial and organizational distances, and limited managerial expertise in managing distributed cross-cultural projects – accentuate potential risks in offshore outsourcing. These factors bring to the forefront the question of how to successfully manage offshore outsourcing arrangements.

There is a wealth of literature that informs our understanding of organizations’ decision to offshore (e.g. Lieblein & Miller, 2003), risks and challenges involved in offshoring (Carmel & Agarwal, 2002; Khan et al., 2003) and vendor relationship management strategies in offshoring (Sabherwal, 2003; Mirani, 2007). Building upon the dynamic capabilities perspective (Eisenhardt & Martin, 2000), a number of organizational theorists have elaborated on the criticality of vendor alliance management capability for improving business performance and organizational competitiveness (Kale and Singh 2007; Lavie, 2007). Several MIS scholars have also identified vendor relationship management to be a critical IS capability (Feeny & Willcocks, 1998; Levi & Ross, 2003; Ranganathan & Balaji, 2007). Focusing on vendor management, Feeny and Willcocks (1998) highlighted three capabilities – contract facilitation, contract monitoring and vendor development – among the nine ‘core’ capabilities pertaining to information system function in organizations. Ranganathan & Balaji (2007) extended these capabilities to the offshoring context, terming them as global IS vendor management delineating vendor selection, contract facilitation and relationship governance as its constituent capabilities. IS offshoring essentially involves crossing organizational, cultural and geographic boundaries and forging alliances with offshore vendors. In this paper, we focus our attention on the boundary-spanning capabilities as a critical component of the offshore vendor management capabilities.

Offshoring engagements are characterized by geographic distance (Carmel & Agarwal, 2002; Rao, 2004), cultural differences (Krishna et al., 2004; Rao, 2004), and barriers due to language differences (Rao, 2004; Zatolyuk & Allgood, 2004), among others. These factors clearly demarcate and the boundaries between client and vendor firms, occasionally exacerbating the
differences between them and hence present significant challenges in managing offshoring engagements\(^1\). Hence we narrowly examine the boundary spanning capability in offshoring engagements, focusing on how such a capability can enable firms to minimize the challenges imposed by organizational boundaries and enhance the potential benefits from offshoring.

In this study we seek to understand how the boundary-spanning IS capabilities may impact offshoring outcomes and enhance the organization’s competitiveness. We focus on offshored information systems development (ISD) projects in this study. Offshored ISD projects are labor intensive and are characterized by intense knowledge integration requirements (Boehm, 1987). Offshored ISD projects have also been marked by increased costs and diminished savings for the client organization (Dibbern et al., 2008). For these reasons, we believe offshored ISD projects present a unique and challenging environment to study the role of boundary-spanning capabilities.

**IS CAPABILITIES**

In this section, we review the definitions of resources and capabilities and present a summary of the resources and capabilities relevant to offshored ISD projects, identified in MIS literature.

According to the resource based view (RBV) theory, resources are defined “as assets and capabilities that are available and useful in detecting and responding to market opportunities or threats” (Wade & Hulland, 2004). Assets are the inputs that the firms use to create and provide goods and services to the market (Wade & Hulland, 2004). Capabilities are defined as skills and processes that can transform inputs into outputs of greater value (Amit & Schoemaker, 1993). The RBV framework has been used extensively in IS studies to identify IS resources such as technical skills (Ross et al., 1996), infrastructure (Zhu, 2004) and IS capabilities such as vendor management (Feeny & Willcocks, 1998), and IT business process integration (Bharadwaj, 1998). Compared to assets, it has been suggested that when deployed efficiently, capabilities can confer superior competitive advantage on a firm (Christensen & Overdorf, 2000). Extending the RBV view, Eisenhardt & Martin (2000) proposed the dynamic capabilities framework, defining dynamic capabilities as “the ability to integrate, build, and reconfigure internal and external competencies to address rapidly-changing environments”. Wade & Hulland (2004) suggest that many of the IS resources can be viewed as dynamic capabilities that enable firms to harness and develop other critical resources.

**IS Capabilities for Offshored ISD**

Prior literature has identified critical capabilities that may impact the firm’s ability to manage offshoring engagements. Some of these capabilities are highlighted (Table 1).

<table>
<thead>
<tr>
<th>Studies</th>
<th>IS Capabilities</th>
</tr>
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<tbody>
<tr>
<td>General IS Capabilities</td>
<td>IS-Business synergy (Bharadwaj, 2000; Jarvenpaa &amp; Leidner, 1998), IT management skills (Bharadwaj, 2000; Mata et al., 1995), Proprietary technology (Mata et al., 1995)</td>
</tr>
<tr>
<td>IS Capabilities in Outsourcing</td>
<td>Contract facilitation (Feeny &amp; Willcocks, 1998), Coordinating buyers &amp; suppliers (Bharadwaj, 2000), managing relationships with outsourcing partners (Benjamin &amp; Levinson, 1993; Feeny &amp; Willcocks, 1998)</td>
</tr>
<tr>
<td>IS Capabilities in Offshore Outsourcing</td>
<td>Systemic thinking on offshore sourcing, global IS vendor management, global IS resource management, IS change management (Ranganathan &amp; Balaji, 2007)</td>
</tr>
</tbody>
</table>

\(^1\) In this paper, we focus on firms that ‘offshore outsource’ as opposed to firms that ‘offshore to captive centers’
The studies that focused on IS capabilities of firms that outsource and offshore outsource have suggested that managing relationship with the vendor is critical. Ranganathan & Balaji (2007) identifying critical IS capabilities for offshore outsourcing, suggest that managing the boundary between the client and vendor is vital. They highlight the boundary spanning role played by IS executives and suggest that focusing on boundary spanning is essential to cultivating effective relationship governance.

Drawing from these prior findings, we focus on the boundary spanning capability of the IS division in offshored ISD projects. Boundary spanning capability is defined as the firm’s ability to engage specialists in related areas of knowledge in order to facilitate the sharing of expertise (Cross & Parker, 2004; Levina & Vaast, 2005). Firms that encourage boundary-spanning capabilities are seen to develop knowledge based competency (Carlile, 2002). The idea that ability to span boundaries of diverse professional fields can become an organizational capability is well acknowledged in prior literature (Grant, 1996; Kogut & Zander, 1992; Nonaka, 1994; Levina & Vaast, 2005).

In the context of offshored ISD, we distinguish between the client firm’s boundary spanning capability across its internal and external boundaries. The idea that managing within organizational boundaries and across-boundaries are distinct capabilities was earlier suggested in the context of new product development by Iansiti & Clark (1992). We build on this idea and recognize the dynamics underlying collaborating within the organization and with a team external to the firm.

Offshored ISD projects are knowledge intensive. Additionally, the vendor’s team is typically situated in a geographically and culturally distinct location which presents another distinct set of challenges. Typically, rich communication mechanisms such as face to face interactions are recommended for such projects. However, offshored ISD implies minimal face to face interactions. Under such conditions, research suggests additional efforts to establish a collaborative working environment (Walsham, 2002; Sarkar & Sahay, 2003; Levina, 2006). This prompts us to examine external boundary spanning capability of the client or boundary spanning behavior directed at the vendor. The knowledge intensive nature of offshored ISD projects also requires rigorous knowledge integration within the client organization. However, knowledge integration demands that the firm’s internal boundaries be spanned and knowledge sharing and knowledge transfer needs to be facilitated. To this end, we examine internal boundary spanning. In the following sections, we review the theoretical foundations for internal and external boundary spanning capabilities of the client firm and conceptualize the same in the offshored ISD context.

**INTERNAL BOUNDARY SPANNING**

Internal Boundary Spanning comprises the capabilities that are required to engage with different departments within the firm and to span these boundaries in order to facilitate knowledge transfer and learning (Pawlowski & Robey, 2004). Knowledge brokering is defined as a specific type of boundary spanning, where the IS professionals are able to span the firm’s inter-departmental boundaries. Knowledge brokering by IS professionals provides communication links or bridges between the business divisions and IS division and also between the business divisions themselves (Pawlowski & Robey, 2004). Knowledge brokering was found to facilitate knowledge transfer, sharing, translation & interpretation of knowledge and in establishing common goals for IS projects (Pawlowski & Robey, 2004). Levina (2006) suggests that collaboration problems exist within the client organization too and demand attention. Internal boundary spanning capability may be impacted by offshoring and calls to investigate the same has been issued (Pawlowski & Robey, 2004).

Prior literature has focused on knowledge integration within the firm, especially for offshored ISD projects. Internal boundary spanning capability, we argue, is the capability of the IS division (IS professionals in the firm), to function as external agents or third parties in the interactions with business divisions, in order to facilitate the knowledge integration and create a unified view of the project across the organization (Mitchell, 2006). Thus, we identify internal knowledge integration and IS-business synergy as dimensions of internal boundary spanning. In the following sections, we review the literature on knowledge integration and IS-Business synergy.

In offshored ISD projects, internal knowledge integration is a critical aspect of the project. Providing requirements to the vendor so they can develop the application is a key phase of the project and evidence suggests that up to 70% projects fail or exceed budget due to badly specified requirements (cite). Carmel & Tjia (2005) suggest that offshored ISD projects consist of four key types of knowledge – skills, process, domain and cultural norms. In order to develop system specifications or requirements, this knowledge has to be integrated from across the organization (Dibbern et al., 2007).
Studies | Internal Knowledge Integration
--- | ---
Faraj & Sproull, 2000 | Expertise Coordination – managing, coordinating & consolidating the expertise within the organization
Basselier & Benbasat, 2004 | Business competence – the set of business and interpersonal knowledge and skills possessed by IT professionals that enable them to understand the business domain, speak the language of business and interact with their business partners
Henderson, 1994; Mitchell, 2006 | Integrative Capability – ability to integrate knowledge within and across organizational boundaries

Table 2 Prior Literature on Internal Knowledge Integration

The ability to effectively integrate internal knowledge has been identified as an important capability for ISD in prior studies (Table 1). Basselier & Benbasat (2004) proposed ‘business competence’ of IS professionals to be an important capability of organizations. Business competence is defined as organization-specific knowledge and the interpersonal, management knowledge that IS professionals possess. The business competence of IS professionals enables them to form better partnerships with business (Basselier & Benbasat, 2004). To integrate knowledge, the experts or personnel who understand the business process of the system, have to be located and their expertise has to be incorporated with the rest of the knowledge. This aspect has been termed expertise coordination – cross departmental coordination of knowledge, and positively influences ISD project outcomes (Faraj & Sproull, 2000). On similar lines, integrative capability – the ability to integrate knowledge within and across organizational boundaries, has been identified as critical to timely completion of IS projects (Mitchell, 2006). Pawlowski & Robey (2004) suggest that IS professionals, by virtue of their role in the organization, have the capability to span internal boundaries and act as knowledge brokers. By spanning internal boundaries IS professionals facilitate knowledge sharing and integration (Pawlowski & Robey, 2004). Drawing from these studies, we infer that internal knowledge integration is an essential aspect of internal boundary spanning.

Internal boundary spanning also involves IS-business synergy. IS-Business synergy requires that the actions of IS and business divisions be coordinated, so that there is a common understanding of project goals and the plans to attain these goals (Reich & Benbasat, 1996). The need for such coordination is manifested in various aspects such as budgets for the offshored ISD project, joint planning (Mitchell, 2006), understanding the business needs, business appreciating the IS constraints and thus forth (Table 2). Disagreements and differences in opinions and goals need to be resolved so that a common view of the offshored ISD project can be created. Internal boundary spanning cannot be complete or effective in absence of synergies between the various business divisions and between business and IS divisions. Basselier & Benbasat (2004) point out that IS professionals have the advantage of understanding business processes of the firm as well as understanding information technology nuances, thus uniquely positioning them to act as liaisons. Thus drawing from these studies, we suggest that internal boundary spanning capability of the IS professionals in the firm, helps coordinate the organizational efforts to establish an integrated knowledge repository and creates a common understanding regarding the offshored ISD project.

<table>
<thead>
<tr>
<th>Studies</th>
<th>IS-Business Synergy</th>
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</thead>
<tbody>
<tr>
<td>Benjamin &amp; Levinson, 1993</td>
<td>Understanding the impact of IS on other business areas</td>
</tr>
<tr>
<td>Ross et al., 1996</td>
<td>IS Business partnerships</td>
</tr>
<tr>
<td>Bharadwaj, 1998</td>
<td>Integrate IS and business processes</td>
</tr>
<tr>
<td>Jarvenpaa &amp; Leidner, 1998; Bharadwaj, 2000</td>
<td>IS – Business synergy</td>
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</table>

Table 3 Prior Literature on IS-Business Synergy
EXTERNAL BOUNDARY SPANNING CAPABILITY

In this section, we define external boundary spanning\(^2\) and review the relevant literature in the following sections. We focus on how knowledge transfer is an important aspect of offshored ISD projects and explain how external boundary spanning capability is instrumental in facilitating this.

External Boundary Spanning Capability is defined as the ability to cross organizational boundaries to engage with an external organization and facilitate expertise sharing (Cross & Parker, 2004). In the context of offshored ISD external boundary spanning refers to cross boundary collaborative effort undertaken by the client firm in order to facilitate information exchange, sharing and collaboration with the vendor. Interorganizational boundary spanning is recognized as a key organizational capability (Grant, 1996; Kogut & Zander, 1992; Nonaka, 1994; von Hippel, 1988; Levina & Vaast, 2005). We propose knowledge transfer and cross-boundary coordination as the two dimensions of external boundary spanning. In the following sections we review the literature on these two dimensions.

Knowledge integration was cited as an important aspect of offshored ISD, facilitated by internal boundary spanning. In offshored ISD projects, a logical follow-up of the knowledge integration is knowledge transfer. Knowledge transfer is defined as systematically moving relevant knowledge, experience and skills between the client and vendor teams (Carmel & Tija, 2005). Knowledge transfer is cited as one of the critical success factors for an offshored ISD engagement (Chua & Pan, 2008). For offshored ISD projects, failed or incomplete knowledge transfers may result in inconsistencies that are discovered in later stages of the project causing extra costs and in some cases leading to project failure (Carmel & Beulen, 2005).

Prior research suggests that IS professionals are routinely expected to be able to span boundaries and develop an understanding of the organization’s business processes and facilitate information exchange (Levina & Vaast, 2004; Pawlowski & Robey, 2005). Findings from existing research also strongly suggest that interorganizational boundary spanning capability facilitates organizational learning and knowledge sharing (Henderson, 1991).

Recent research reviewing interorganizational knowledge transfer suggests that ability to bridge organizational boundaries is an essential capability for successful knowledge transfers (Argote, McEvily & Reagans, 2003). Examining the nature of knowledge transfer between R&D organizations, it was found that scientists able to bridge knowledge boundaries were more effective in facilitating knowledge transfer (Reagans & McEvily, 2003). Gittelman & Kogut (2003) suggest that in R&D industry, scientists who bridge scientific communities and patenting knowledge positively influence firm innovation. The findings from these studies strongly suggest that knowledge transfer is an important aspect of external boundary spanning.

The second aspect of external boundary spanning we examine is cross-boundary coordination. Cross-boundary coordination refers to efforts to achieve unity of efforts between the client and vendor (Gerwin, 2004). External boundary spanning in offshored ISD creates common ground between the client and vendor (Bechky, 2003; Cramton, 2001). Additionally it utilizes negotiation and transformation of knowledge across boundaries (Carlile, 2002) enhancing cross-boundary coordination. In environments with extensive knowledge integration, knowledge transfer is also enhanced by cross-boundary coordination (Gittell & Weiss, 2004). From the findings of these studies, we can infer that by creating common ground and framing the knowledge in a manner appropriate to the recipient, external boundary spanning capability enhances effectiveness of cross-boundary coordination and knowledge transfer and thus plays a critical role in offshored ISD projects.

CONCLUSION

Based on our examination of boundary spanning capability in offshored ISD projects, we present the following conceptual research framework.

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\(^2\) While external boundary spanning could include multiple IS vendors and external stakeholders such as the firm’s customers, we focus on external boundary spanning with the vendor contracted for the offshored ISD project.
Recent research has greatly enriched our understanding of IS capabilities critical to offshore outsourcing engagements. In this study we extend the framework on IS capabilities relevant to offshoring by focusing on a specific aspect of IS capabilities. We have presented the conceptual framework of our ongoing research project. Our proposed research method is case-based research. We intend to interview IS project managers in firms that currently offshore outsource at least one ISD project. The case-based research method allows us to understand in rich detail the nature of interactions between the client and vendor in offshored ISD projects. Our objective is to understand the influence and effectiveness of boundary spanning capability in offshored ISD practice. The constructs we intend to focus on – External Boundary Spanning and Internal Boundary spanning capabilities have been explored in IS research (e.g. Ranganathan & Balaji, 2008; Levina, 2004) but they have not been elaborated in empirical studies or explored specifically in the context of offshored engagements. Hence we propose to examine these constructs in detail using our interviews. By analyzing these interviews minutely, we also expect to be able to examine the veracity of the proposed research framework and refine it for a future empirical examination.

We believe this research project is relevant and timely as it examines IS capabilities that may have bearing on the offshored ISD outcomes. Offshored ISD projects have suffered failures and proved to be disappointments for client firms (Marquis, 2006; Dibbern et al., 2007). Findings from this study may guide us towards understanding how client IS managers can maximize the potential of their routine interactions with the vendor. The findings also have the potential to spur empirical studies on the boundary spanning capability.

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