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EXPLORING THE KEY CAPABILITIES FOR OFFSHORE IS SOURCING

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Abstract

While there has been a tremendous increase in the number of firms engaging in IS offshoring efforts, many firms have been unsuccessful in realizing the intended benefits from offshoring. Most firms acknowledge the potential gains from offshoring, but lack the key capabilities for effective IS offshoring. Building on the dynamic capabilities perspective, and drawing upon extant research in strategic alliances, international business, distributed work management and virtual teams, we propose four meta-capabilities – IS systemic thinking, IS vendor management, global IS resource management and IS change management – as critical for effective IS offshoring of application development. We present preliminary findings from a 2-phased research study consisting of focus group discussions with senior IS managers, followed by in-depth case studies of IS offshoring.

Keywords: Offshore IS sourcing, IS offshoring, capabilities, vendor management, application development, systemic thinking, resource management

Introduction

The trend towards Information Systems (IS) outsourcing has been on the rise for more than two decades (Lacity and Willcocks, 1998; Lee et al., 2004; Loh and Venkatraman, 1992). However, in recent years, increased availability of cost-effective IT expertise in Asian and European nations, coupled with technological advances to support globally distributed work (Evaristo et al., 2005), have led to a dramatic increase in the number of organizations considering offshore sourcing of IS work. A variety of offshore delivery models, ranging from on-site staff augmentation to captive offshore centers to hybrid onsite-offshore models, have become prevalent. According to Meta Group, the \$10 billion offshore market in 2004 is expected to register an annual growth of 20% until 2008. Reports from other market research firms also point to similar trends. Despite the increased efforts to offshore IS work, firms are facing several challenges in realizing the expected gains. Anecdotal case studies, practitioner articles and reports point to failures and disappointments with offshore initiatives (Overby, 2006). While IS managers acknowledge the apparent gains from offshoring, what is less clear to them is how to develop specific capabilities for effective IS offshoring. Offshore IS sourcing differs from traditional outsourcing and calls for distinct capabilities in order to be successful (Rottman and Lacity, 2004). Identifying the critical capabilities for effective IS offshoring is the fundamental goal of this paper.

Researchers examining IS sourcing have extensively examined the factors driving sourcing (Ang and Cummings, 1997; Ang and Straub, 1998), the decision process (Teng et al., 1995), and outsourcing outcomes (Grover et al., 1996) and have documented the industry practices (Lacity and Willcocks, 1998). In addition, several researchers have tried to identify the critical capabilities required to manage the outsourcing relationship (Feeny et al., 2005; Feeny and Willcocks, 1998; Levina and Ross, 2003). The rationale for building the capabilities perspective is that several sourcing relationships have evolved into a strategic alliance form the initial arms-length agreement (Kern and Willcocks, 2000), and hence require internal capabilities for effectively managing such relationships.

The theoretical developments in IS outsourcing notwithstanding, identifying the critical capabilities for offshore IS sourcing has not gained sufficient attention. Examining these capabilities is important for the following reasons. First, offshore sourcing involves the delegation of all or part of the IS function to an external service provider, located in a different country. This geographical separation introduces a number of issues that may be absent in domestic outsourcing context. Firms now have to contend with language barriers, cultural issues and time zone multiplicities *in addition to* differences in organizational cultures (Kliem, 2004). Second, offshore sourcing causes major changes in the internal configuration of a firm. The IT organization could shrink rapidly due to layoffs (Xue et al., 2004), and the users used to conversing with their in-house IT department face a challenging situation of directly interacting with the offshore vendor. Third, offshore sourcing also involves risks with respect to loss of core knowledge and increased risk of vendor opportunism. The outsourcing firm, in its drive for cost efficiency, could risk losing strategic human capital (Kale et al., 2000) to the vendor. In addition, due to differences in governing laws in different countries, vendor opportunism becomes a serious threat. While the outsourcing firm could have capabilities for managing domestic outsourcing, the trend towards offshore sourcing warrants a capabilities model specific to offshore sourcing.

Thus, the research question this paper intends to address is:

What are the key capabilities required for a successful offshore IS sourcing endeavor?

Our primary focus is on application development projects in offshoring. Application development projects are knowledge-intensive and involve extensive coordination between the client and the vendor, throughout the course of the arrangement (Tiwana, 2003). Therefore, application development projects provide an appropriate basis for exploring the key capabilities for IS offshoring that span the entire life-cycle of the arrangement. Given the exploratory nature of our research, we chose a qualitative approach to guide our overall study. Our study is being conducted in two broad phases. In the first phase, we conducted and analyzed focus group discussions with senior IS executives to arrive at broad-level meta-capabilities for application development offshoring. In the second phase, we propose to validate and extend our capabilities model through in-depth case-studies. The goal of the second phase is to disaggregate the meta-capabilities to their sub-dimensions and specific measures at an operational level.

Theoretical Background

The dynamic capabilities perspective (Teece et al., 1997) provides the overarching theoretical foundation for conceptualizing IS offshoring capabilities. The notion of dynamic capabilities distinguishes between capabilities and other types of resources available to the firm. While resources represent a firm's stock of assets, capabilities focus on the ability of a firm to leverage, apply and reconfigure the resources to achieve the organizational goals. Capabilities are the organizational processes and routines by which firms can develop, configure, integrate and combine internal and external resources so that they enable it to perform distinctive activities (Eisenhardt and Martin, 2000; Teece et al., 1997).

According to the relational view of competitive advantage (Dyer and Singh, 1998), a firm's critical resources may span firm boundaries and the potential strategic advantage could primarily emanate from external sources such as partnerships and inter-firm ties. Firms could fill their resource needs either by internal development or through external sourcing mechanisms. However, external acquisition of resources by itself does not guarantee any distinct benefits (Teece et al., 1997). It is the set of capabilities that determine how well the internal/external resources are effectively deployed and utilized. Therefore, capabilities for exploiting and managing the resources attain greater importance for attaining competitive advantage, than mere acquisition of resources.

The notion of capabilities has been extended to the research on IS sourcing as well. Deliberating on core IS capabilities, Feeny and Willcocks (1998) enumerated six components – leadership, informed buying, making technology work, contract facilitation, vendor development and contract monitoring – as comprising the IS service delivery capability. Shi et al (2005) empirically demonstrated the significance of four of these capabilities viz. informed buying, contract facilitation, contract monitoring and vendor development. Examining the supply-side of IS sourcing, Feeny et al. (2005) identified twelve capabilities for outsourcing vendors. Levina and Ross' (2003) work on vendor capabilities also lends credence to the notion of sourcing capabilities. Though their study examined IS vendors, their central message is that capability development is vital for value transfer to the client.

Recent progress notwithstanding, important gaps still remain in our understanding of capabilities that are critical to IS offshoring. Most of the extant empirical literature concentrates on domestic outsourcing context. Further, the preponderance of existing literature (Wade and Hulland, 2004) is focused at an abstract, aggregate-level of capabilities. While higher-order capabilities are valuable, it is important to disaggregate them to operational levels if they are to be relevant to practice. Therefore in this article, our goal is not only to identify the meta-capabilities for effective IS offshoring, but also seek to disaggregate them to specific measures that are close to the operational level.

Development of Conceptual Model

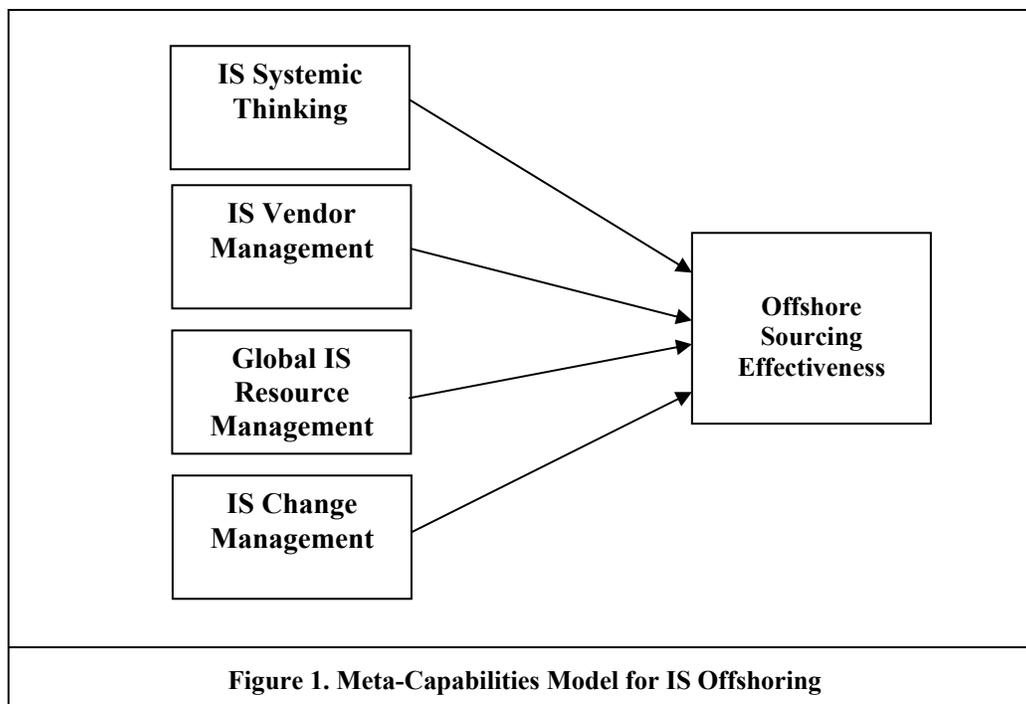
In this research, we define *IS offshoring capabilities* as the set of organizing processes a firm uses to exploit its internal and cross-border IS resources to achieve its offshore sourcing objectives. By shaping the ways in which firm-specific and vendor-related skills, knowledge, technical and human resources are coordinated and managed, offshoring capabilities fundamentally determine the effectiveness of a firm's sourcing efforts. Despite efforts by multiple organizations to develop capabilities specific to IS offshoring, there could be significant heterogeneity in these capabilities across firms, due to differences in learning and refinement of routine activities within a firm (Nelson and Winter, 1982). These discrepancies could arise from fundamental firm-level differences, variations in accumulated knowledge, and the extent of investments and efforts they undertake. Such variations in the nature and levels of the capabilities, could explain inter-firm differences in offshoring outcomes.

We draw upon three research streams to build our conceptualization: strategic alliances, international business and distributed work management. First, the strategic alliance literature offers insights about how firms can strategize, plan and engage in inter-firm partnerships. Second, the international business research offers insights into how firms can manage relationships that span national boundaries. International business researchers have examined cross-cultural challenges in multi-national business settings and have suggested organizational processes for overcoming these challenges. Third, literature on distributed work and virtual teams contributes ideas about processes for managing project teams drawn from client and offshore vendor organizations. Apart from these three streams, we also rely on the domestic IS outsourcing literature to expand our understanding of the capabilities for effective IS offshoring.

We combine insights from these research streams to build the conceptual model postulating the key meta-capabilities. IS offshoring capabilities represent a pool of competencies that are required for achieving the fundamental objectives of offshoring. These capabilities cover multiple aspects extending throughout the life-cycle of an offshore sourcing endeavor. They refer to an organization's ability to select its offshore vendor, choose an appropriate delivery model, to manage the available resources, to manage its relationship with the vendor and to govern the sourcing project. Our preliminary model of key offshore capabilities is shown in Figure 1. It consists of four meta-capabilities that are key in IS offshoring: IS systemic thinking, IS vendor management, Global IS resource management, and IS change management. Higher levels of these four meta-capabilities are postulated to contribute to better sourcing performance i.e., the realization of strategic, economic and technological benefits commensurate with the stated goals of the client (Ang and Straub, 1998; Grover et al., 1996).

IS Systemic Thinking

IS systemic thinking refers to the ability to clearly set goals, map expectations and choose appropriate sourcing strategy for the offshore sourcing arrangement. Lacity and Willcocks (1998) define this capability as "critical thinking", and argue that the overall business needs of the client should map the projects that are outsourced. Empirical evidence shows that organizations that evolve a selective IT outsourcing strategy perform better (Lacity and Willcocks, 1998). Strategic alliance literature refers to such a capability as 'alliance planning' or 'strategic planning'. Firms that proactively monitor their internal-external environments and exploit partnering opportunities can minimize environmental uncertainty and improve their competitive positions (Gulati, 1999). Quinn and Hilmer (1994) argue that strategic decision processes about sourcing specific functions can avoid certain pitfalls of uncoordinated or short-sighted decision processes. Lee et al. (2004) acknowledge that choosing the appropriate sourcing strategy is essential for outsourcing success. Effective organizations match their outsourcing strategy to their core competencies (Lacity and Willcocks, 2001).



One of the major stumbling blocks in offshore sourcing occurs due to hidden costs. According to Overby (2006) many offshoring firms consider cost savings as their main outcome from offshore sourcing. However, hidden costs in offshore sourcing can destroy the realized cost savings from an offshore engagement. Firms seeking to reduce costs through offshoring, often encounter rude shocks in terms of cost overruns in the short term. Therefore, factoring in hidden costs in the short-term, and applying strategies for alleviating it in the long-term, are two important strategic capabilities, unique to offshore sourcing.

Proposition 1: IS systemic thinking capability, incorporating the ability to set short-term and long-term goals and choose appropriate offshoring arrangement, will be positively associated with offshore sourcing effectiveness.

IS Vendor Management

Managing the vendor represents a significant part of offshoring arrangement. The appropriate selection of vendors, structuring of the contract and managing the vendor relationship are important pre-conditions for successful offshoring. Strategic alliance literature has highlighted the notion of “partner-fit” and its positive effect on learning and performance (Hoang and Rothaermel, 2005; Kale et al., 2002; Kale et al., 2000). Alliance performance is dependent on the extent to which the partners pool complementary assets (Dyer and Singh, 1998) and are compatible with each other (Madhok and Tallman, 1998) in terms of operating strategy, corporate cultures, management styles and nationality (Parkhe, 1993). Therefore, a client firm should invest in routines to scan the environment for potential vendors. This capability renders a firm with the needed leverage to switch between vendors and effect changes in partnerships if necessary. A related issue pertains to assessing the skill set of the vendors for perceived fit for the offshoring arrangement. For instance, the capability maturity model (CMM) provides a measure of vendor competence (Ethiraj et al., 2005). With such a standardized scale for assessing skill levels, comparison across vendors could be performed (Gopal et al., 2003). Thus, given the risks in offshore sourcing (Kliem, 2004), the capability to systematically assess skill sets allows a client to choose the best vendor possible.

In addition to vendor selection, structuring the contract also assumes equal importance. What, when and how to contract with the offshore vendors are constant questions in the minds of managers (Kliem, 2004). Lee et al. (2004) provide empirical evidence for the choice of various IS outsourcing modes depending on the kind of outsourcing performance desired. They classify the outsourcing modes as one of three types: hierarchy, arm’s length and

embedded arrangements. Results indicate that arm's length arrangements yielded highest cost efficiency, whereas embedded arrangements yielded highest technology catalysis. However, IS offshoring projects may have different performance requirements (Koh et al., 2004). Furthermore, contractual terms of the arrangement could also depend on the nature of the project (Gopal et al., 2003), and the national laws of the vendor nation. Contractual obligations can be interpreted differently in different nations. Practitioner outlets are rife with details about failing contracts and the long-drawn legal battle to salvage the remaining information system. Such legal issues need to be incorporated in the contractual obligations specified. Thus, the capability to choose the most appropriate kind of contract for a specific offshoring arrangement, allows the client firm to maximize value from the arrangement.

Proposition 2: IS vendor management capability, incorporating the ability to select, contract and govern the relationship with the vendor, will be positively associated with offshore sourcing effectiveness

Global IS Resource Management

Global IS resource management refers to the ability of the client to manage both the client and vendor resources that are applied in the offshoring arrangement. It concerns the routines available for assessing, coordinating and allocating resources where needed, in order to prevent under-use/overuse of resources. Several scholars have identified and classified key IS resources: *human, infrastructure and knowledge resources* (Bharadwaj, 2000; Ross et al., 1996).

IS human resources comprises of IS people with specific set of technical as well as business skills. IS activities are knowledge-intensive and requires specific technical skills (Ravichandran and Lertwongsatien, 2005). IS offshoring requires the interaction of team members distributed at different locations, working towards common project goals (Kliem, 2004). Managing the interactions across time, distance and cultural barriers lends itself to some interesting challenges for the clients (Espinosa et al., 2003). For instance, client firms face a unique dilemma of managing the team of people distributed across locations, yet potentially unable to supervise the day-to-day operations of the members. Further, cultural differences act as barriers to the effective assessment of the skill-set possessed by the vendor team members. In addition, due to greater turnover reported in the global IT industry, loss of key personnel could deadlock the project. In this case, standardized routines for managing skills transfer, creating buffer personnel and assigning personnel based on requirements, becomes extremely important.

IS infrastructure resources are technology-related resources such as hardware, software and communication networks, that form the building blocks of the firm's technical infrastructure (Ravichandran and Lertwongsatien, 2005). Infrastructure resources are subject to rapid changes due to decreased development time in the IT industry. Newer versions of hardware and software could endanger current projects, due to compatibility problems or obsolescence. In this scenario, standardized routines and processes for assessing infrastructure requirements that caters to the future needs of the project, becomes extremely important.

In addition, varying levels of knowledge resources might be required depending on the stage of the offshoring arrangement. In the initial stages of the offshoring arrangement, greater knowledge transfer between the client and the vendor occurs (Miranda and Kavan, 2005). In these stages, more client and vendor personnel are required to be collocated. In later stages however, collocation can be replaced with other forms of coordination. Second, the client might lack part of these skills and hence have resource gaps that it hopes to fulfill through the outsourcing arrangement. For example, Levina and Ross (2003) point out that the CMM level is usually higher for the vendor than for the client. In such situations, the client's capability to leverage the external knowledge resources available and assign them to positions where they are required renders flexibility to the arrangement. Also, the technical and managerial IS knowledge resident in the IT organization (Bharadwaj, 2000), may either be transferred to the vendor organization (Levina and Ross, 2003) or could be lost due to downsizing. Thus, the capability to effectively manage the knowledge resources affects offshoring performance.

Proposition 3: Global IS resource management capability, incorporating effective management of available IS human, infrastructure and knowledge resources, will be positively associated with offshore sourcing effectiveness.

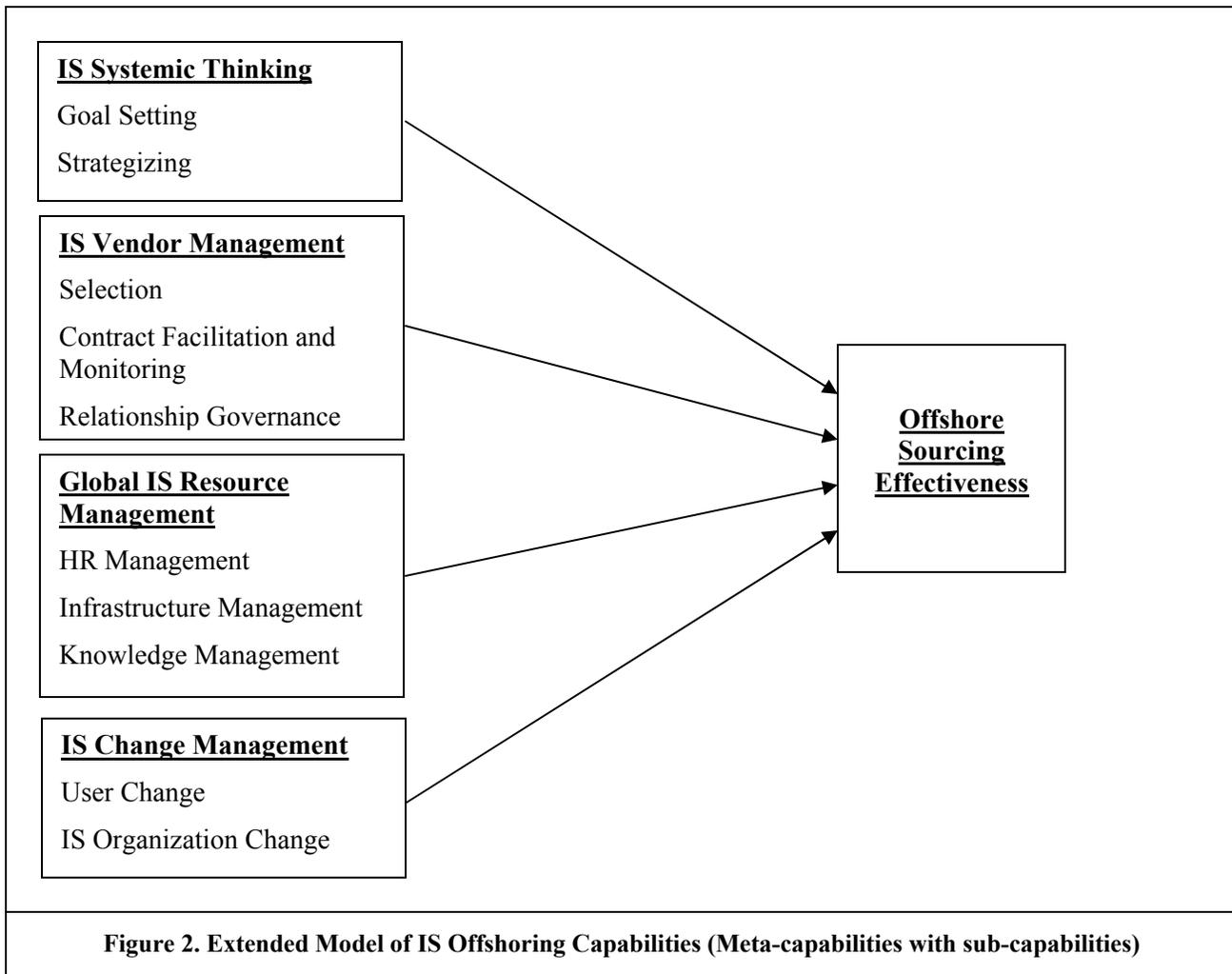
IS Change Management

IS change management has been the focus of several researchers in the past few years (Cooper et al., 2000; Markus, 1996; Markus and Robey, 1988). The introduction of offshoring arrangement within an organization is likely to

impact two groups of organizational stakeholders – the internal IS organization and the user communities. As offshoring is likely to disrupt existing work practices, interaction and communication routines, it is important to use appropriate change management tactics to mitigate negative outcomes. IS change management takes on a crucial role, as the organizational changes are caused by an entity *external* to the firm. In addition, several changes to the organization can occur at the same time due to offshoring: layoffs, restructuring in the IS organization, and changes in internal technical processes. To manage such changes, the client firm should invest in IS change management capability to address the concerns of internal IS and user groups.

For facilitating changes within users, a change agent role helps implement difficult changes in organizations working either in the traditional form, as a facilitator, or as an advocate (Nelson et al. 2001). Such a role in implementing change is required in an offshoring arrangement, to deal with any resistance to organizational change due to denial, inaction, or repression (Agocs, 1997). This capability is also concerned with the management of changes due to national cultural differences, as users may be required to communicate directly with offshore vendor team members. The global division of labor means that national cultural differences would surface (Krishna et al., 2004). Therefore, capabilities for managing changes within users should incorporate mechanisms for driving change both in the interface to the offshore vendor (Ferguson et al., 2005) and to manage any impacts of the offshore arrangement with the internal business unit partners (Markus, 1996).

Proposition 4: IS change management capability, incorporating the ability to manage changes in the user and IS organization, will be positively associated with offshore sourcing effectiveness



Proposed Research Design and Status of the Project

Our research is being conducted in two broad phases – The first phase is an exploratory one to identify the key meta-capabilities for IS offshoring through an extensive review of theories, prior research and focus group interviews. The output from this phase is the model shown in Figure 1. In the second phase, we utilize a qualitative approach for conducting in-depth case-studies to extend and validate our capabilities-model. Qualitative evidence for presence of these capabilities and their role will be assessed from the data gathered. We have conducted pilot case studies and the data gathered through the interviews provide initial support for our capability-model as shown in Figure 2. These interviews have also helped us identify and refine specific measures for each of the capabilities (See Table 1). We are currently analyzing a larger set of case studies. Our ultimate goal is to empirically assess the capabilities-model through a questionnaire survey of client firms.

Table 1. Preliminary Checklist of Qualitative Measures		
Meta Capabilities	Sub-capabilities	Measures
IS Systemic Thinking	Goal Setting	<ul style="list-style-type: none"> • Specifying overall goals for offshoring • Defining expected short-term benefits • Defining expected long-term benefits
	Strategizing	<ul style="list-style-type: none"> • Defining formal sourcing strategy • Distinguishing core, critical and commodity applications • Assessing the level of internal IT resources
IS Vendor Management	Selection	<ul style="list-style-type: none"> • Attending offshoring forums, talking to other clients • Evaluating vendor resource competence through site visits • Utilizing RFP or preferred set of vendors
	Contract Facilitation and Monitoring	<ul style="list-style-type: none"> • Selecting type of contract based on requirements • Drawing detailed and appropriate contracts • Developing comprehensive SLA
	Relationship Governance	<ul style="list-style-type: none"> • Assigning internal liaisons and steering committee • Setting specific performance goals, deadlines, review meetings • Building collaborative trust-based relationship with vendor
Global IS Resource Management	Human Resource Management	<ul style="list-style-type: none"> • Assessing vendor team member skills through interviews • Determining human resource requirement for each stage • Assigning appropriate human resources in each stage
	Infrastructure Management	<ul style="list-style-type: none"> • Determining infrastructure resource requirement for each stage • Assigning appropriate infrastructure resources in each stage
	Knowledge Management	<ul style="list-style-type: none"> • Assessing knowledge resource requirement for each stage • Facilitating knowledge transfer between client and vendor team • Facilitating knowledge integration between client and vendor team
IS Change Management	User Change	<ul style="list-style-type: none"> • Developing mechanisms for managing cultural differences • Developing mechanisms for managing changed work patterns • Developing mechanisms for managing user concerns
	IS Organization Change	<ul style="list-style-type: none"> • Developing mechanisms for improving employee morale • Developing mechanisms for managing reduced IS human resources • Developing mechanisms for managing internal IS process changes
Offshore Sourcing Effectiveness	Strategic, Economic and Technological Benefits	<ul style="list-style-type: none"> • On time • On budget • Expected deliverables • Expected quality • Overall satisfaction • Refocus on core competence • Reduced risk of technological obsolescence

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