

December 2006

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Recommended Citation

Sayeed, Lutfus, "A Qualitative Investigation of IS Offshore Sourcing" (2006). *AMCIS 2006 Proceedings*. 388.
<http://aisel.aisnet.org/amcis2006/388>

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A Qualitative Investigation of IS Offshore Sourcing

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ABSTRACT

The present study is a qualitative empirical investigation of the underlying decision process to offshore IT projects. The study is based on interviews of executives in fifteen large to medium size companies. Transactions Costs Theory and a process view of offshore sourcing provided the framework for studying the decision process. The data revealed several factors- the client's core competency, offshore vendor's local presence, virtual team management, employee turnover rate, negative publicity in the popular media, modularity of projects, and internal efficiencies achieved as a result of offshore sourcing- influenced the decision making process.

Keywords

IS outsourcing; offshore sourcing; decision making; qualitative research.

INTRODUCTION

Offshore sourcing of information technology (IT) work has recently received and continues to receive considerable coverage in information systems (IS) scholarly studies. Following Carmel and Nicholson (2005), we define offshore sourcing to include offshore outsourcing as well as offshore insourcing. Offshore insourcing is the situation when a company sources activities to its overseas units. The present paper is an empirical investigation of the decision making process underlying offshore sourcing of IT work.

The paper is organized as follows. The first section will discuss scholarly research relevant to offshore sourcing of IT work. Based on this existing research literature, the paper will develop a set of questions. An empirical study has been conducted to answer the questions. The findings of the empirical study will be presented followed by a discussion of the results and conclusions that can be drawn from the research data.

PREVIOUS RESEARCH ON OFFSHORE SOURCING OF IT WORK

Research on offshore sourcing of IT is an extension of research on IS outsourcing. A significant body of research already exists that addresses outsourcing of IT tasks (Ilie and Parikh 2004). Recently, a growing number of research studies are specifically addressing offshore aspects of IT sourcing (Carmel and Nicholson 2005). The "Kodak Effect" provided the first impetus to IS scholars to investigate IS outsourcing as a fertile research area (Loh and Venkatraman 1992). The Kodak Effect refers to Eastman Kodak's well publicized decision in 1989 to outsource most of its IT functions to IBM. As many other businesses followed Kodak's suit, Loh and Venkatraman (1992) presented IT outsourcing as an innovation diffusion phenomenon pioneered by the Kodak Effect. Loh and Venkatraman's work is significant because it provides a systematic theory based explanation of IT outsourcing.

Carmel and Agarwal (2002) interviewed IT executives in 13 Fortune 500 companies in technology as well as non technology sectors. They concluded that US companies are now in four stages in terms of IT offshore sourcing maturity. The stages are Offshore Bystander, Offshore Experimenter, Proactive Cost Focus and Proactive Strategic Focus. In the Offshore Bystander stage, a firm does not undertake any offshore sourcing though the firm may be sourcing domestically. These firms have access to significant IT resources in the US. It is also possible that managers in these firms have not carefully considered the offshore option. In the Offshore Experimenter stage, the firm conducts offshore sourcing on an ad hoc basis. Firms in this category do not coordinate their offshore activities. In the Proactive Cost Focus Stage, a firm sources its non core work to offshore centers, thereby reducing cost. Managers in these firms are very proactive in offshore sourcing of IT work because they appreciate the cost reduction achieved through the decision. Finally, in the Proactive Strategic Focus, a firm sources its core IT activities to offshore centers. Managers in these firms identify offshore sourcing as a useful mechanism to attain strategic objectives. Activities offshored by these companies include technology and product innovation, new product development, and access to new markets. During the last two stages, firms must be able to operate at a global level.

Following IS researchers who have used Transactions Cost Theory to investigate outsourcing (Ang and Straub 1998, Aubert et al. 1996, Lacity and Hirschheim 1993, Lacity and Wilcocks 1996, Wang 2002), Carmel and Nicholson (2005) investigated offshore outsourcing decisions as a series of contact, contract and control costs.

Ilie and Parikh (2004) presented a process based perspective on outsourcing research. They identified seven phases in the outsourcing process that can be generalized to the offshore sourcing process as well. The processes are 1) the decision to outsource/offshore, 2) vendor search and selection, 3) negotiation of the outsourcing/offshore sourcing contract, 4) implementation of the agreement, 5) operations, 6) evaluation of the outcomes, and 7) decision to continue or terminate the outsourcing/offshore sourcing process.

Researchers have underscored the need to conduct research based on qualitative data to explain outsourcing/offshore sourcing decisions in organizations (Teng, Cheon and Grover 1995). The present study addresses the need for research in this area based on qualitative data. In addition, the present study extends the findings of Carmel and Agarwal (2002), Ilie and Parikh (2004), and Carmel and Nicholson (2005).

RESEARCH QUESTIONS

The present study will answer two questions. First, can companies be classified using Carmel and Agarwal's (2002) four IT offshore sourcing stages?

Second, does the decision making process to offshore IT activities have a relationship with these stages? In order to answer the second question, we present five specific questions that integrate Carmel and Nicholson's (2005) and Ili and Parikh's (2004) work.

1. What were the reasons behind the initial decision to offshore IT work?
2. What are the channels used by companies to make the initial contact with their offshore partners?
3. What characteristics of an offshore vendor indicate that they would be reliable partners?
4. What are the major impediments to successful execution of offshore sourcing projects?
5. What are the legal, regulatory and environmental issues surrounding offshore sourcing of IT?

In addition to the five questions, the present research will investigate the following two exploratory questions. The answers to these questions will enhance our understanding of the IT offshore sourcing decision making process.

6. What types of IT sourcing projects are susceptible to offshore migration?
7. What are the advantages for relying on offshore sourcing to the outsourcing company beyond cost?

The first five questions are based on the work of Carmel and Nicholson (2005) and Ilie and Parikh (2004). Questions 1, 2, and 4 map Ilie and Parikh's first four phases. Question 5 is a combination of phases 3 and 5. The present study did not map the last two phases suggested by Ilie and Parikh. On the other hand, question 2 addresses contact costs, question 3 addresses contract costs and, 4 and 5 address control costs as suggested by Carmel and Nicholson (2005).

The answers to the above questions have theoretical as well as practical significance. First, the answers will extend the IS research on offshore sourcing of IT. Second, the answers to these questions will be helpful for managers who are offshore sourcing IT work or contemplating to do so.

METHODOLOGY AND DATA

The present qualitative study adopted a positivist research epistemology (Chua 1986). Further, Conversation Analysis was used to analyze interview data (Myers 1999).

Fifteen in-depth interviews of senior level IT executives were conducted in as many firms between September 2004 and January of 2005. The firms were selected based on convenience sampling. Executives in these firms were willing to be interviewed from a group of executives in 20 companies who were approached for the purposes of this study. Two of the interviews were conducted face to face while the remaining interviews were conducted over telephone. Eight of the interviewees had the title of Chief Information Officer (CIO), while seven remaining interviewees held titles of Vice President of IT, Senior Vice President of Operations, Chief Financial Officer (CFO), Chief Technical Officer, Director of Product Design, Director of Operations and General Manager. Six of the CIOs also held the title of Vice President of IT. All subjects were located in the San Francisco Bay Area.

Three of the companies were privately owned at the time of the interviews while the remaining twelve were publicly held companies. Twelve of the companies (not all public) were in technology sector while the rest were non technology firms. Of

the firms in the technology sector, 9 were software makers, one was a hardware manufacturer, one produced both software and hardware, and one was a global telecommunications company. Of the three non technology firms one was a bank (one of the largest in the nation), one was a public utility (one of the largest in the nation) and the other was a real estate company that handled mostly commercial properties in the San Francisco Bay Area.

The interviews were based on and not restricted to the seven open ended questions presented above. The interviews started with a discussion of the interviewee’s background, and firm profile. In addition, the interviewees were asked to enumerate their opinions on best practices for offshore outsourcing as well as insourcing. The goal of the questions was to establish a mutual exchange of information between the interviewer and the interviewee.

RESULTS

The data analysis followed guidelines for Conversation Analysis (Myers 1999). First, the companies were classified into Carmel and Agarwal’s (2002) categories. All 15 companies in this study utilized offshore insourcing or offshore outsourcing. Therefore, the first category of Carmel and Agarwal- Offshore Bystander stage did not exist in the sample. Table 1 shows the distribution of the 15 companies in the remaining three stages.

Carmel and Agarwal’s Offshore Sourcing Stage	Number of Companies
Offshore Experimenter (OE)	1
Proactive Cost Focus (PCF)	2
Proactive Strategic Focus (PSF)	12

Table 1. Distribution of Companies in Offshore Sourcing Categories

In order to answer the two research questions, we further analyzed interviewees’ responses within each stage. Following is a description of the reasons behind the initial decision to offshore IT activities categorized by Carmel and Agarwal’s (2002) offshore sourcing stages.

Reasons behind Initial Decision to Offshore

Offshore Experimenters (OE): The real estate company was classified in the OE stage. The CIO of the company championed the offshore outsourcing decision. The offshore outsourcing vendor created an intranet application for the agents and brokers of the company. The major motivation for the CIO was to develop an application at a price that is affordable for a small company. The company needed an inventory management and marketing tool that would provide timely information to its agents in the highly competitive San Francisco real estate market. The internal IT department did not have the resources to create such an intranet based application for the real estate company. As a result, the CIO convinced the management team to look outside. The bids from local software developers were viewed by the management as exorbitant while the offshore outsourcing vendor’s bid was considered affordable.

Proactive Cost Focus (PCF): The two companies in the PCF stage were a large bank and a hardware manufacturing company. The hardware company went looking for offshore outsourcing deals to reduce cost of production. In the hardware industry, firms have been forced to find ways to reduce costs of production and support because of continued decline in profit margins. The management was encouraged by the success of their initial offshore outsourcing endeavor and established IT insourcing operations in its production facilities offshore. Now, the company is very reliant on offshore insourcing. The bank resorted to offshore sourcing because the firm was finding it difficult to recruit and retain IT personnel in San Francisco.

Proactive Strategic Focus (PSF): Of the twelve firms classified in the PSF stage, nine were software companies of which five were Fortune 500 companies. Of the four remaining software companies, two were not publicly held but each employed more than 100 people globally. The tenth company was a Fortune 500 hardware and software producer with global operations. The eleventh company in the PSF stage was a global telecommunications company and the twelfth firm in this category was a public utility company.

Ten of these companies resorted to offshore outsourcing and then insourcing to reduce cost of programming. Initially, the applications they developed were not strategic in nature. However, as they became more adept at managing globally dispersed projects, they started offshore insourcing applications that were strategic in nature.

Of the twelve firms in this category, the smallest software company and the utility company did not use the offshore outsourcing followed by the offshore sourcing practice. The smallest software company, in this category, specialized in

customized application development for the insurance industry. The firm had inherited an offshore outsourcing contract from its predecessor company. The company had been reducing the offshore sourcing activities because they wanted to develop local teams capable of handling the task. However, the offshore team members in Eastern Europe have acquired business knowledge useful to the client. According to the CFO, the company could not afford the cost of hiring local programmers and support personnel with such deep knowledge of their software development specialization in the insurance industry.

The utility company resorted to offshore outsourcing for several reasons. First, the company did not have in-house resources to develop some of the applications because the IT department was too busy maintaining existing applications. Second, the applications were strategic in nature and the company wanted to work with outside vendors who had experience developing similar applications. Third, some of the other departments within the company were already offshore sourcing to reduce cost.

Channels to Make the Initial Contact with Offshore Vendors

OE: The CIO of the real estate company indicated that his contact with other CIOs and people in the IT field led him to investigate about potential offshore vendors. He initiated the contact with the current offshore vendor's US office.

PCF: The hardware manufacturing company contacted US offices of several vendors followed by an initial trial run with the selected vendor. After the trial run, the firm decided to set up their own offshore IT insourcing operations rather than depending on external vendors. The company already had a global presence for their manufacturing operations. They set up IT insourcing operations in one of their existing overseas locations. The bank initiated the contact with current offshore vendors based on research by in-house staff.

PSF: Nine of the companies in this category were software firms, two of which were start ups. Six of the software firms initially contacted offshore vendors' US offices. The seventh software firm started with contacting their call center contractor who referred them to one of the major IT vendors in India. Interestingly, the two of the start up software companies eventually acquired the vendors they initially chose to work with after a thorough research of offshore IT vendors. The eighth software firm contacted its offshore partner through contacts within its own software development team. The ninth and the smallest software company inherited the offshore vendor from their acquisitions.

The global software and hardware manufacturing firm in this category searched for and then selected vendors who had work experience with the manufacturer's products in offshore locations. The global telecommunications company had already acquired an engineering company in India that specialized in the telecommunications company's products. The telecommunications firm used the acquired firm to perform their IT quality assurance (QA) projects. The utility company initiated the contact with current offshore vendors based on research by in-house staff.

Characteristics of Reliable Offshore Partners

OE: The CIO of the real estate company mentioned that the size, past business as well as technical experience, and reputation of the vendor indicated reliability of the vendor. Additionally, he relied on his personal contacts with the vendor.

PCF: The VP and General Manager of the hardware manufacturer mentioned scrutinizing key personnel resumes in addition to the workflow procedures of the vendor. The VP of IT in the bank underscored the data and network security practices of the potential vendor in addition to experience in financial services industry.

PSF: The director of the telecommunications firm mentioned quality of key personnel, reliability of the vendor in the long run and language skills of the firm personnel. The VP of IT of the hardware and software manufacturer mentioned several factors in addition to technical resources of the vendor. These included quality of personnel engaged in the project, involvement of the senior management, attrition of personnel in the near future and past collaborative experience with the hardware and software producer. The CIO of the utility company emphasized the track record, financial stability, and business knowledge of the vendor.

The nine software companies in this category mentioned similar desirable characteristics in a vendor. These included: experience level with software development, understanding of business processes, ability to sustain long term relationships with clients, certifications on different platforms, current and future infrastructure, low employee turnover rate, and disaster recovery plans. The smallest software firm in this category inherited their offshore activities. However, the CFO of the firm mentioned that he would look for proven track record of the vendor if he were to look for a partner right now.

Major Impediments to Successful Execution of Offshore Sourcing Operations

OE: Communications problems with and lack of business knowledge of the vendor were cited as major impediments by the CIO of the real estate company.

PCF: The VP and general manager of the hardware manufacturer mentioned high turnover of employees in offshore locations as the major impediment. The Senior VP of the bank mentioned internal resistance to offshore sourcing, cultural differences, and management of virtual groups as challenges.

PSF: All firms in this category mentioned challenges related to management of virtual teams and retention of offshore employees as the major impediments to successful implementation of offshore projects. Communications problems resulting from cultural differences rather than time difference was the major source of difficulty in managing virtual teams. Executives in two of the firms indicated internal resistance to offshore sourcing continue to be an issue. CIO of one of the software firms mentioned offshore infrastructure and licensing issues as obstacles. The CIO of the utility company mentioned contract management as a possible hindrance.

Legal, Regulatory and Environmental Issues Related to Offshore Sourcing

OE: The CIO of the real estate company mentioned that small companies are sensitive to negative coverage of offshore sourcing in public media.

PCF: Both executives mentioned negative perceptions of offshore sourcing perpetuated by popular media as a source of concern. In addition, the hardware manufacturer VP mentioned Indian customs regulations as a source of difficulty for their operations. The manufacturer intermittently faced delays in getting their equipments past the Indian customs officials. The VP of the bank mentioned foreign laws pertaining to data confidentiality as a concern.

PSF: As in the PCF category, all executives were concerned about the negative publicity of offshore sourcing in popular media. In addition, the software company executives mentioned that considerable planning is required for visa procedures. The visa regulations affected executives and employees traveling to overseas locations as well as traveling to the US. Regulations regarding security of data and intellectual property rights, in some cases, restricted offshore sourcing of certain projects. Executives of software firms indicated that they take specific measures to protect intellectual property rights issues in their offshore locations.

IT Sourcing Projects Susceptible to Offshore

OE: The CIO mentioned that maintenance work for large applications is difficult for small companies. In his opinion, such maintenance jobs could be outsourced.

PCF: The hardware company VP mentioned modular projects with complete requirements specifications and projects that require on site teams can be offshored. The VP of the bank mentioned projects that require specific skills sets such as .NET, Java, DB2 etc. in this category.

PSF: The director of the telecommunications company suggested that programming aspects of application development are offshored. Like the PCF executives, he mentioned that modular projects are usually offshored. In addition to modularity, the VP of the hardware and software manufacturer mentioned location of the customers influenced offshore sourcing decisions. In her company, proximity to customers drove the offshore sourcing decision. She also mentioned that development of new software products that don't require an interface with onshore applications are usually offshored. The executives in software firms mentioned application maintenance, application support, quality assurance, well defined development work, and Web programming. In addition, they also mentioned projects that don't require customer interactions, projects that don't require IT realignment, and projects that require at least six personnel and three months to complete. The CFO of the smallest software firm considered large legacy applications as offshore projects. He mentioned that the inshore projects in his firm were smaller and involved cutting edge technology. The CIO of the utility company mentioned stand alone modules that don't affect other applications during development phase are good candidates for offshore sourcing.

Advantages of Offshore Sourcing beyond Cost

OE: The CIO in this category thought offshore sourcing is an opportunity. He suggested that offshore sourcing allowed his firm to concentrate in their core competency- selling real estate.

PCF: The VP of the hardware manufacturer mentioned that offshore sourcing allows his company to employ a 24 hour production cycle. He also mentioned that offshore sourcing freed up his employees from coding to more productive tasks. The Senior VP of the bank opined that offshore sourcing is enhancing her onshore employees' work environment.

PSF: The director of the telecommunications company mentioned access to workers with a "mathematical orientation" as an advantage. In addition to the 24 hour production cycle and access to larger skilled work force, the VP of the hardware and software firm mentioned broader access to global market as a distinct advantage of offshore sourcing. In addition to better

focus on core competency, the CIO of the utility company added that offshore sourcing allowed the IT department to better manage peaks and valleys of end user demands.

Similarly, executives of all software firms mentioned ready access to a large educated workforce as an advantage of offshore sourcing. They also mentioned the ability focus on core competency as another advantage. In addition, one CIO mentioned the reliability of data centers can be enhanced quickly through offshore sourcing. One CIO thought employees in several offshore locations have contributed to product development through innovative ideas. The CTO of a software firm thought the competitiveness of his US employees was being enhanced through offshore sourcing. A CIO mentioned that her firm has noticed better documentation in their projects due to offshore sourcing. Finally, the CFO of the smallest software company mentioned access to a large technical labor pool as an advantage.

DISCUSSION

The sample in the present study did not represent Carmel and Agarwal's (2002) Offshore Bystander category because all fifteen firms were offshore sourcing. Twelve companies classified in the PSF category engaged in offshore sourcing IT applications that required specific knowledge of their core business. The two companies in the PCF category were offshore sourcing their non core IT activities. The OE category company was offshore sourcing on an ad-hoc basis. Analysis of the subsequent seven questions does not provide evidence for a relationship among these categories and the offshore decision process. The executives' responses do not show any difference from one offshore sourcing category to another in five of the interview questions related to the second research question. However, the vendor selection process and opinion on benefits of offshore sourcing besides cost showed some variation among the offshore stage categories.

Strategic Resource Theory offers an explanation for the reasons provided by the respondents in the study for offshore sourcing. Strategic Resource Theory emphasizes the influences of physical, human and organizational capitals on a firm's strategic objectives (Barney 1991, Williamson 1975, 1985). According to this perspective, resource heterogeneity and resource immobility determine the competitive environment of a firm. Resource heterogeneity refers to the differential concentration of resources across firms while resource immobility refers to competitors' inaccessibility of other firms' resources. According to this theory, firms outsource or offshore their IT activities as a strategic response when the IT performance falls short of the firm's expectation. The decision to offshore is to seek out resources outside the onshore firm to compensate for the underperformance of a resource within the onshore organization.

In case of channels used to initiate contact with a vendor, eight of the companies contacted the local offices of offshore vendors. The bank (PCF) and the utility company (PSF) contacted their vendors based on research done by in house US staff. The smallest software company inherited their offshore sourcing project. This is an opportunity for further research as the existing IS offshore and outsourcing research has not addressed instances where a firm has to manage an inherited or acquired offshore project that is strategic in nature.

While evaluating the qualifications of a potential offshore IT vendor, the respondents in the three categories offered different criteria. All firms perused resumes of key personnel of the vendor. However, the real estate firm (OE) firm sought general technical expertise, past experience and personal contact. The hardware manufacturer and the bank emphasized characteristics of the vendor that are relevant for the clients' business. The hardware company scrutinized workflow procedures while the bank carefully reviewed security measures adopted by the vendor. On the other hand, the companies in the PSF category looked for collaborative experience of the vendor among other characteristics. Long term collaboration is essential for a strategic partnership.

Respondents identified quick turnover of offshore vendor employees and the difficulties of managing virtual teams as major impediments to successful execution of offshore projects. The CIO of the real estate company did not mention this as a difficulty because of the ad-hoc nature of the offshore project in his firm.

All respondents in the study mentioned the negative publicity of offshore sourcing as a concern. The software firms faced occasional visa problems. Moreover, the software firms were cautious about intellectual property rights issues of their projects.

Modularity was a key characteristic of a project for offshore sourcing. Maintenance of legacy applications was another offshore sourcing candidate. In addition, the hardware and software manufacturer took advantage of proximity of their offshore sites to their customers all over the world. It is interesting to note that all firms except the real estate company in the OE stage were outsourcing application development on an ongoing basis. The firms in the PCF and PSF categories were also offshore sourcing their business processes and some of their infrastructure activities on an ongoing basis.

The advantage of offshore sourcing beyond cost was the focus on core competency for the firms in the OE and PCF categories. However, the executives of PSF firms claimed other advantages such as increased efficiency and better documentation.

Table 2 provides a summary of the findings for each stage of offshore decision making process.

Offshore Decision Stage	Factor(s) Considered to be Significant
Reasons behind Initial Decision to Offshore: OE, PCF, PSF	Cost
Channels to Make the Initial Contact with Offshore Vendors: OE, PCF, PSF	US office of the Vendor
Characteristics of Reliable Offshore Partners: OE PCF PSF	Technical Expertise of the Vendor Vendor Expertise Relevant to Client's Business Collaboration Experience of the Vendor
Major Impediments to Successful Execution of Offshore Sourcing Operations: OE, PCF, PSF	Managing Virtual Teams; Quick Turnover of Vendor Employees
Legal, Regulatory and Environmental Issues Related to Offshore Sourcing: OE, PCF, PSF	Negative Coverage in Popular Media
IT Sourcing Projects Susceptible to Offshore: OE, PCF, PSF	Modularity and Scale of the Projects
Advantages Beyond Cost: OE, PCF PSF	Focus on Core Competency Efficiency and documentation

Table 2. Major Findings

CONCLUSIONS

The present study employed qualitative research techniques to investigate the underlying decision making process of offshore sourcing of IT work. The interview data offer a rich resource to explore this issue. Further analysis of the data will provide insights that will be valuable in understanding organizational and managerial issues relevant to offshore sourcing.

The findings indicate that IT managers use offshore sourcing as a useful management practice. Majority of the firms in the study viewed offshore sourcing as a strategic tool. However, cost cutting in IT operations remains a major impetus for seeking solutions overseas. Future studies may investigate the impact of offshore location on outsourcing decisions, if any. Also, the present study investigated the decision process of the customer. A study on the vendor perspective will complement the findings of the current research.

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