2003

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Abstract
This paper presents the findings of an ongoing research study into offshore information technology and systems outsourcing. Fieldwork was conducted in India and the United Kingdom to identify different strategies and scenarios. Based on the premise that offshore outsourcing poses greater risks than using suppliers from the home country, the research develops a risk assessment matrix comprising four scenarios: body shopping; maintenance and support of system hardware and software; IT architecture design; and strategy and product development. As offshore outsourcers develop resources and capabilities to offer high value-added work, this increases their own risk, and those of the customer.

Keywords: offshore outsourcing, risk assessment matrix, strategies, scenario

1. Introduction

Academic and practitioner interest in offshore information technology and systems (IS/IT) outsourcing has grown with reports of increased expenditure by US and European firms using overseas outsourcing suppliers (Nasscom, 2002). It is reported that firms spend an average of 12 per cent of their IT budget on offshore outsourcing, and this is predicted to grow to over 28 percent by 2004 (Nasscom 2002). The same study also shows that almost two out of five Fortune 500 firms currently outsource some software requirements to India to gain advantages of the high quality IT workforce and low cost base. Other countries that are well known for offshore outsourcing are Ireland, Vietnam, Taiwan, Russia, Israel, China and Philippines (Steen 1998, Amoribieta, Bhaumik, Kanakamedala and Parkhe 2001).

Studies by Terdiman and Karamouzis (2002) suggest that currently, India dominates 80-90 percent of the total offshore development revenue worldwide and is expected to be the key leader in offshore outsourcing in the next 5 years. The bulk of these revenues is reportedly generated from contracts with US software firms. Rajkumar and Mani (2001) define offshore outsourcing as, "*An activity where the supplier of software development is from another*

country than the firm that decides to outsource Information Systems" (p 64). Yet the global expansion of offshore outsourcing has resulted in the proliferation of vendors offering a range of IS/IT services (Currie, Desai, Khan, Wang, and Weerakkody 2003), suggesting that many different scenarios are present in the marketplace.

This paper presents the findings from research-in-progress on the strategies of the offshore IS/IT outsourcing firms. Focusing upon the strategic positioning; product/service portfolio; and value proposition as key constructs for investigating the offshore outsourcing business model (Currie, 2003), field research was conducted in 17 Indian and British firms during 2001. The findings reveal that many different scenarios of offshore outsourcing exist. Offshore IS/IT services were provided by indigenous Indian firms; wholly owned Indian subsidiaries of overseas (multi-national) firms; joint ventures with Indian firms; and third party agents acting as brokers. Product strategies of offshore firms could be delineated into a matrix, which relates risk to value, with many firms attempting to develop strategies to move up the value chain without incurring greater risk.

Against a background of the growth in the offshore IS/IT outsourcing market, this study reveals that many firms recognise they need to develop additional resources and capabilities (Barney, 1991) to become global players in the offshore outsourcing market. The research forms part of a research programme funded by the Engineering and Physical Sciences Research Council (EPSRC) and Economic and Social Research Council (ESRC) on "Assessing the deployment, hosting and integration of business critical information systems using application service providers" (BC-ASP), and "Developing e-business models by vertical and horizontal ASPs" (ASP-VH). The paper is divided into three parts. First we present an overview of the research study and explain methods of data collection and analysis. Second, we present a conceptual matrix of the different types of offshore outsourcing products/services developed from case research. Third, we conclude the paper by discussing how the research will progress to provide a richer picture of offshore IS/IT outsourcing scenarios.

2.   The Research Study

Offshore IS/IT outsourcing is a fertile area and one that is not well researched in the academic literature. Outsourcing has undergone many phases, from the cost-cutting and efficiency model of the 1980s (Takac, 1994), to the development of strategic partnerships with vendors in the 1990s (Cross, 1995; Willcocks and Lacity, 1998). Most of the research on IS/IT outsourcing is customer-facing, with case studies featuring different outsourcing scenarios intended to capture the benefits and risks (Lacity and Hirschheim, 1993). Interest in offshore IS/IT outsourcing has grown (Kumar and Willcocks, 1996), especially in the light of the Internet and e-commerce, which has facilitated communication across borders.

Firms entering into offshore outsourcing aim primarily to gain access to highly skilled professionals and reduced software development times with significant cost savings (Apte, Sobal, Hanaoka, Shimada, Saarinen, Salmela and Versalainen 1997). Sobol and Apte (1995) for instance examined 'domestic' versus 'global' outsourcing, which covers US firms outsourcing to non-US vendors. Other strategies exist that focus on risks, benefits and conditions under which offshore software development in India is practicable for US firms (Rajkumar and Dawley 1997, Kumar and Willcocks 1996) While these studies encourage more research on this topic (Lacity and Willcocks 1997), there is scope for research on the

supply-side to examine the strategies of offshore vendors for developing resources and capabilities embodied in new business models.

The extent to which offshore IS/IT outsourcing differs from *traditional* outsourcing (using a supplier from the home country) is subject to debate. Figure 1 captures some of the fundamentals of offshore IS/IT outsourcing also relevant to traditional forms of outsourcing. Yet additional risks may arise in situations where the customer and supplier fail to communicate effectively on contractual issues, etc. This is more likely to occur when the partners are from different cultures, than, for example, an Indian subsidiary (based in India) supplying IS/IT outsourcing services to its Indian owned parent firm (based in the US). Different IS/IT outsourcing scenarios are therefore likely to pose greater or lesser risks to both suppliers and customers.
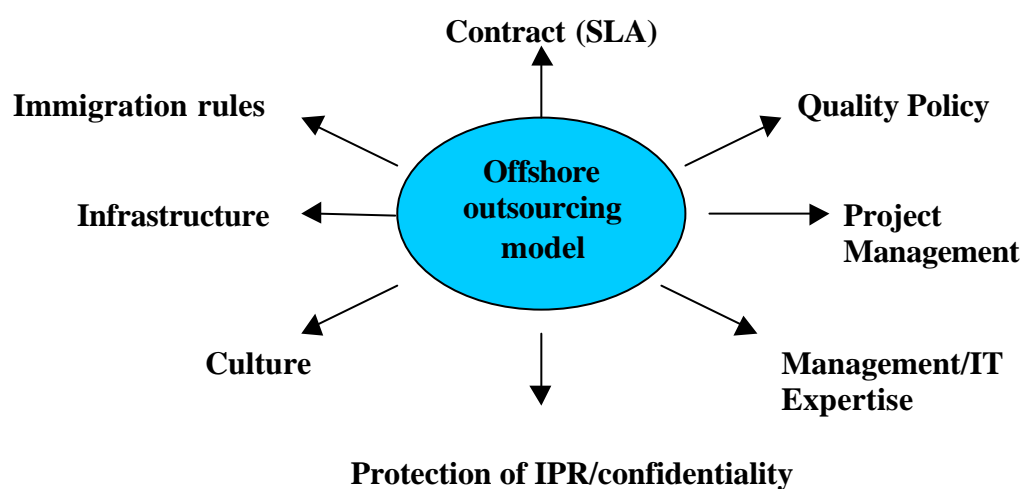
Contract (SLA)

Immigration rules   **Quality Policy**

**Offshore
outsourcing
model**

Infrastructure   **Project
Management**

Culture   **Management/IT
Expertise**

Protection of IPR/confidentiality

Figure 1: Fundamentals of offshore IS/IT outsourcing

Figure 1 is developed from the work of Ravichandran and Ahmad (1994) and Rajkumar and Dawley (1997). Modifications to represent some of the collaborators in this research have been made. The figure represents a generic offshore IS/IT outsourcing model. Firms engaging in offshore IS/IT outsourcing need to consider how the above factors may facilitate or inhibit the success of particular contracts. Table 1 captures the business value and risks of offshore IS/ IT outsourcing as portrayed in the literature.

BUSINESS VALUE	RISKS
Solution to the IT skills shortage One main reason for offshore outsourcing is a skill shortage. Some firms want to outsource in their own country, but the personnel available for specific tasks does not have the sufficient qualifications. Whereas, the programmers from countries like India have the right qualifications, e.g. JAVA and other Internet related skills (Robb 2000).	*Threat of opportunism* As outsourcing takes control of the IS function, some fear that, suppliers may take advantage of clients. In particular, firms that outsource may find themselves at a disadvantage when the outcome of the development is unsatisfactory. Thus, it becomes difficult to disengage a contract and also the money and time that was spent is considered as ill spent.
Cost efficiency Cost saving is also a major factor contributing to offshore outsourcing. Although local outsourcing to software firms in the US or UK may be possible, firms can gain a strategic advantage from the lower wages and benefits prevailing in countries such as India, where hourly, fully loaded programming rates can be 40 to 60 per-cents below those in the United States. (Amoribieta *et al* 2001)	*Unexpected Costs* These may arise because of a failure to analyse service and cost, making a poor estimate of the initial contract price. Usually it is seen when contracting services to the offshore outsourcer; they tend to bid as low as possible to attract more clients. But subsequently, this low price work becomes a very high investment when supplier fails to generate the work and thus needing to start at ground zero.
Competitive advantage According to Nasscom (2002), software development costs in India are estimated to be 30-40 per cent lower than those in developed markets. As the ranges of applications are achieved at a low cost, this will help generate revenue, offer new and better services.	*Trust & Security concerns* As the organisation relays mission critical information, trust & security are a concern as suppliers may not maintain confidentiality. Though the Indian government has laws on software piracy and data privacy which are seldom implemented.
Simplicity and remain focused on core competencies Outsourcing can benefit firms to focus on their core competences and activities while contracting out the less non core work which the market can do more cost effectively (Lacity & Willcocks 1997). This is also true for the offshore outsourcing model.	*Hidden costs* Hidden costs such as consultancy fees transfer of software license fees, and mitigation of data may defeat the cost advantage of using an offshore outsourcing. Sometimes, managing a project becomes difficult in a long distance environment, which could lead the project to overrun its scheduled completion date and estimated costs.
Round the clock service Time saving is another reason for outsourcing some of the in-house IS work to offshore outsourcers. In some cases the supplier is thousands of miles away in another time zone to the client. This gives the possibility of programming nearly 24 hours a day in the US and 18 hours a day for the UK. Thus reducing the development life cycle in half.	*Geopolitical risk* Instability of the political situation could act as a discouragement for the foreign investors to offshore outsourcing in India. Speed to market is a very important factor in certain firms. Therefore, if the development process gets delayed due to impeding factors like strikes or power cuts, it becomes difficult to continue the process.
Assurance of quality development More than 200 Indian firms are quality accredited and from these around 36 firms have capability maturity model (CMM) level 5 and 19 firms have CMM level 4. These firms are serving the need of over 255 fortune 500 firms(Nasscom 2002)	*Detailed specification is required* The product specification has to be delivered in great detail and at times it takes a long time to do this. Often, when a client needs something very urgently. The entire process of doing this offshore can be lengthy procedure. Sometimes the local culture and customs can also impede this process.

Table 1: Business value and risks from offshore IS/IT outsourcing

As the first phase of the research study was to identify issues and themes for further investigation, a case based research method was adopted (Yin, 1994). Methods of data collection and analysis are discussed in the next section.

2.1. Method of data collection

Since most of the research on offshore IS/IT outsourcing is customer-facing which explores the reasons why USA or European firms engage in offshore outsourcing deals, a research study was developed to explore the supply-side of outsourcing. In particular, the research investigated the strategies of offshore vendors in developing their business models to attract overseas customers. Since India is one of the largest countries for offshore IS/IT outsourcing activity, attracting investment from US and European firms, a sample of 17 Indian vendors was identified. Fieldwork was conducted in India during 2001 to elicit exploratory-descriptive data on the strategic positioning of these firms; their product and services portfolio and their value proposition to customers. The primary aim of this research was a

scoping study to identify the key issues relating to offshore IS/IT outsourcing, notably, the benefits and risks to both the supplier and customer. The case studies can be described as 'exploratory-descriptive' rather than analytical (Yin, 1994). While an important attribute of qualitative research is the ability to gain a detailed understanding of the opinions, ideas and experiences of firms, open-ended questions are considered to be effective in gaining 'authentic' feedback (Silverman, 2001). Interviews were conducted with managers and IT professionals across the 17 firms in Mumbai and Pune, India. From the seventeen firms five are small companies with less than 500 employees; four are medium sized firms with 501-1500 employees; and eight were typically large firms with over 1500 employees. Many firms were industry leaders in the Indian software market. This study discusses the findings from the first phase of the research project.

A grounded theory approach (Strauss and Corbin 1998) was used since it was not deemed appropriate to develop hypotheses to test a particular theory *(ibid)*. The scoping study was important since much of the literature on the Indian outsourcing market consisted of reports from industry analysts (IDC, Forrester, Gartner), all of which tended to offer an optimistic picture of the opportunities for growth in the offshore outsourcing market. The risks were therefore underplayed.

This key themes explored in the exploratory-descriptive cases are as follows:-

1. The strategic position of the outsourcing vendor in the Indian software market (e.g. wholly-owned Indian subsidiary of a US firm; Wholly-owned subsidiary of an Indian firm, etc).

2. The products and services offered by the firm/subsidiary (e.g. simple body shopping outsourcing services; high value added products/services)

3. The value proposition to customers (e.g. cost reduction, access to scarce IT skills, etc)

The data generated from the case studies was intended to provide a rich picture of the different offshore IS/IT outsourcing scenarios, which could be mapped into a matrix or conceptual framework.

2.2. Data analysis

All the interviews were tape-recorded and transcribed. As the initial research study intended to explore key issues of offshore IS/IT outsourcing, the semi-structured questionnaire gave respondents the opportunity to raise additional topics. This poses problems to the researcher since the data collected becomes difficult to organise and prioritise. Notwithstanding these problems, the case study data generated some interesting findings in relation to the different strategies adopted by vendor firms. It further showed that offshore IS/IT outsourcing is a complex topic where the different physical and organizational components of firms influence the particular business models they adopt.

Since interviews at some firms lasted only two-four hours, it was important to triangulate the data gathered using additional methods of data collection. Secondary source data was acquired and analysed to provide a fuller picture of vendor strategies, partnerships, products, services and customer profile. Much of this data was gathered through web searches and from company brochures and advertising literature. Media and press reports were also obtained. One of the pitfalls of interviewing vendor firms is the tendency of respondents to

give a more optimistic description of their resources and capabilities than is the case. Secondary source data is therefore essential to balance some of the statements obtained from management with other interpretations of events. Phase two of the research will also acquire and analysis customer interpretations of using offshore outsourcing firms.

4. Preliminary Results and Future Directions

Given the space limitations of the paper, it is not possible to discuss all the individual case studies. The cases have been presented in a recent paper Khan, Currie, Weerakkody and Desai (2003). Preliminary findings from the research found that Indian offshore IS/IT outsourcing vendors were engaged in four distinct types of work, with some overlap. They are presented in a matrix (Figure 2) that relates value added work with risk. Most of the Indian offshore firms carried out simple body shopping services, such as programming and systems development. The larger offshore vendors aimed to increase their product and service portfolio by offering higher value added work such as systems design and product development. Achieving this posed a challenge to these firms, especially as customers were reluctant to outsource business critical IS/IT activities. Firms headquartered in the US (owned by Indian entrepreneurs) were more likely to outsource higher value added work to their subsidiaries based in India, than indigenous US firms. Part of the reason for this was the cultural differences. However, as client-vendor partnerships develop, the trend will be for greater collaboration between US/European and Indian firms, especially where cost savings make outsourcing an attractive option.

	High	
	Designing the IT Architecture	**System Design and Product Development**
Value Added		
	Body Shopping	**Maintenance and Support for System Development**
Low		
	Low — Risk — High	

Figure 2. A matrix of offshore IS/IT outsourcing products and services

The current research work has identified different offshore IS/IT outsourcing scenarios within 17 Indian firms. The case study research has indicated that Indian firms are developing strategies to compete more effectively with European and US rivals. To do this, they will need to develop tangible and intangible resources and capabilities (Grant, 1991). Whilst the technical competencies of Indian offshore vendors are high (Amoribieta, *et al* 2001), the major challenge will be developing partnerships with international firms. The next

phase of the research will investigate more closely, how vendor firms are developing resources and capabilities to increase the value they provide to the end customer.

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