

Evaluating Offshore IT Outsourcing in India: Supplier and Customer Scenarios

Naureen Khan*, Wendy L. Currie, Vishanth Weerakkody & Bhavini Desai

Brunel University

+44 1895 274 000 Ext 3693 and +44 1895 251 686

* Naureen.Khan@brunel.ac.uk

Abstract

This paper presents the findings from an ongoing research study on offshore IT outsourcing. Field work was carried out in India and in the UK to evaluate the scale and scope of outsourcing activities. CEOs and CIOs were interviewed in fifteen supplier firms in India and two customer firms in UK, about strategic positioning in the offshore outsourcing market; benefits and risks from outsourcing; and other demand and supply-side issues. The findings suggest that, though offshore outsourcing offers new business opportunities for IT suppliers, much of the outsourced work continues to be low risk and low value. The challenge for outsourcing suppliers is therefore to devise strategies to move from body-shopping work to low cost, high value contracts, without incurring additional risk.

1. Introduction

For many years, firms have been advised to invest heavily in information and communications technology (ICT) to develop and sustain a competitive advantage. This message has been more forceful in the light of enhanced global competition and a constantly changing business environment. Coupled with this, firms have introduced new methods and practices to enhance efficiency of operations. IT outsourcing is one such strategy, and involves transferring IT assets and resources to a third party (Gilley and Rasheed, 2000). In simple terms, outsourcing consists in conducting one or more organizational activities, using external agents (Lacity and Hirschheim, 1993). IT outsourcing is defined by Loh and Venkatraman (1992) as *“the significant contribution of external suppliers in the physical and/or human resources associated with the entire or specific component of the IT infrastructure in the user organisation”* (p 9).

During the last decade, the term offshore outsourcing has gained interest and has continued to evolve with regard to its adoption and acceptance globally. Firms use outsourcing suppliers from different parts of the world through focused production facilities that give them a decisive edge in pricing, logistics and time to market. Rajkumar and Mani (2001) define offshore outsourcing as: *“When the supplier of software development is from another country than the firm that decides to outsource Information systems”* (p64).

The literature review conducted for this research reveals that very little attention has been focused on describing and understanding how offshore outsourcing can help firms manage the IT function. Research conducted to date has concentrated primarily on providing case study material on specific offshore outsourcing scenarios. Yet, much of this research has offered only descriptive insights into the reasons why firms adopt an outsourcing strategy, with little emphasis on the supplier market. In addition, some of the research has adopted an ethnocentric position with little real understanding of the culture and practices of offshore suppliers, especially those operating in India and other Asian countries. To some extent, this is a missed opportunity, yet an important oversight, given the growing importance of Indian offshore outsourcing as an emerging phenomenon.

The aim of this paper is to present some preliminary results from an ongoing research study into Indian offshore outsourcing. In particular, it examines the strategies adopted by IT suppliers to compete in the offshore outsourcing marketplace. An analysis on the business value of offshore outsourcing is adopted which provides a framework for understanding the market in Europe and South Asia. In particular, it focuses upon country, supplier, and software applications selection. The paper begins with a review of the generic literature on offshore IT outsourcing with particular emphasis on the strategic positioning of firms. We then consider Indian offshore outsourcing, as one of the most significant countries to enter this market. Following this, we give a brief overview of the research methodology used in this study. The paper then presents a benefits and risks framework, which is captured from the field research and secondary data analysis. The main finding from the paper is a taxonomy of offshore outsourcing scenarios where suppliers provide services from simple body-shopping outsourcing to complex software design and development work. So far, outsourcing suppliers serving the offshore market aim to increase their services portfolio by entering into high value contracts, without incurring the risks.

2. Background

Offshore IT outsourcing is an important and emerging field within the information systems literature. Yet few studies are available which examine demand and supply-side issues.

One of the reasons is the difficulty of conducting cross-cultural research, not least because of access problems, but also the risk of producing ethnocentric (culturally biased) findings. Notwithstanding these issues, offshore IT outsourcing cannot be overlooked by researchers given the growth of the global market.

2.1 Offshore IT Outsourcing

The dominant outsourcing markets of North America and Europe now face growing competition from Asia as suppliers seek new business opportunities and customers demand cost reductions. By the same token, the rapid developments in Information and Communications Technologies (ICTs), particularly the Internet and World Wide Web (WWW) have led many to identify new opportunities for outsourcing, such as Application Services Provisioning (ASP). During the 1960s and 70s, outsourcing was not a flexible activity since most of the work involved service bureau contracts which were difficult to manage overseas. During the 1980s and 90s, offshore outsourcing became easier as large technology suppliers increased their presence overseas, together with the management and consultancy firms. Still, offshore IT outsourcing was not a major phenomenon during this period, as most of the contracts resided in North America and Europe.

As ICT became more sophisticated, coupled with the growth in outsourcing more generally, offshore outsourcing became a possibility for many firms. The reasons were twofold. First, the high cost of IT labour as a result of the skill shortage, led many firms to seek cost reduction. The large suppliers, EDS, IBM Global Services and CSC, etc, were very expensive for large firms, and did not really support small and medium businesses (SMBs) (Ravichandran and Ahmed, 1993; Currie and Willcocks, 1997). Many smaller outsourcing suppliers therefore emerged to serve this 'niche'. Second, the internationalization of firms meant that outsourcing was becoming an accepted business practice, albeit with some failure scenarios (Kumar and Willcocks, 1996).

According to the National Association of Software and Service Firms (Nasscom 2002), the American market remained the leader in IT services spending followed by Western Europe, Japan, Latin America and Asia Pacific. The global IT outsourcing market has grown from \$96bn in 1998 to \$151bn in 2000 (IDC, 2000). Firms spend an average of 12 per cent of their IT budget on offshore outsourcing, and this is predicted to grow to over 28 per cent by 2004 (Forrester Research, cited by Nasscom 2002).

In the light of the present economic downturn, the primary motivation behind offshore outsourcing is cost reduction, especially lower per capita labour costs (Gopal et al., 2002 Ravichandran and Ahmed 1993). Forrester research (cited by Nasscom 2002) 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. Terdiman and Karamouzis claim that today, India dominates 80-90 per cent of the total of offshore development revenue worldwide and is expected to be the key leader in offshore outsourcing in the next 5 years (Gartner 2002). Other countries that are well known for offshore outsourcing are Ireland, Vietnam, Taiwan, Russia, Israel, Singapore, China and Philippines (Nidumolu and Goodman 1993; Steen 1998; Amoribieta et al., 2001). However, proficiency in English is still a key asset in becoming an offshore outsourcing supplier and the lack of this skill is a disadvantage for many firms.

Smith et al., (1996) defines offshore outsourcing as software development that is done in other countries than those that have traditionally dominated the software development industry. Firms entering into offshore outsourcing aim primarily to gain access to highly skilled professionals at a reduced cost (Apte et al., 1997). Firms like IBM, British Airways, British Telecom and General Electric have moved parts of their internal software development operations to countries like India and Ireland. These firms found the transition relatively easy due to lower cost, a loyal workforce, an English speaking culture, surplus of computer graduates and government incentives (Aeh 1990).

So far, much of the research on offshore outsourcing has tended to examine demand-side issues. The unit of analysis has often been outsourcing contracts between US firms and suppliers. Very few studies have focused on supply-side issues, especially between European firms and offshore suppliers. For example, Sobol and Apte (1997) examined 'domestic' versus 'global' outsourcing, which covers US firms outsourcing to non-US suppliers. Rajkumar and Dawley (1997) provide a further detailed overview study of risks, benefits and conditions under which offshore software development in India is practicable for US firms. Similarly Kumar and Willcocks (1996) analysed longitudinally (1993-96) a case of outsourcing by Holiday Inn, Atlanta to an Indian supplier. While others have invited more research studies on this topic (Lacity & Willcocks 1997), the lack of published literature suggests that opportunities remain to examine some of the strategic and operational factors relating to offshore IT outsourcing.

2.2. The Indian IT Outsourcing Market:

For years, software development activity in India was centred on mainframe and mini computers (Soota, 1994). However, with the emergence of PC's and client server technology and the increasing demand and evolution of technology specialisation of software, applications for vertical sectors like financial services/banking, manufacturing and insurance began to be developed. At the beginning, the practice was usually to send programmers to the respective overseas country, which is known today as "body shopping".

Although India's past policy of a protected, self-sufficient industry damaged the country's competitiveness in other fields, it contributed positively to its current software capabilities (Soota, 1994). In the early 1980s, many Indian computer firms entered the closed environment, setting up centres that undertook to design virtually everything, including chips, operating systems, compilers, graphics and software development tools. In telecommunications, the country grappled with the development of rural exchanges, switching systems, and other equipment. Having no base of proprietary mainframes, India adopted open systems and distributed computing even before they became popular in the West (Soota, 1994).

Then in the late '80s, the winds of liberalization brought in competition, and many of these integrated firms folded or found it not feasible to serve the Indian market alone. The pool of talent released gave rise to new entrants who forged a software industry with a strong export orientation. Many of the Indian computer firms entered into joint ventures with multinationals, mostly US-based ones, which welcomed the technological skills of Indians. Most of these joint ventures, like Digital Equipment Indian and HCL-HP began to do R&D for their overseas partners (Soota, 1994).

According to Soota (1994), the first of the multinational was Texas Instruments Inc., which in 1987 set up subsidiary in the south, in Bangalore, for developing computer-aided design (CAD) tools and chip design. Texas Instruments venture went through teething troubles, mainly connected with satellite communication links, and big players watched its efforts with scepticism. Fortunately, the then Indian government intervened with the department of electronics, which is the country's external telecommunications carrier, and resolved the communication issues. Since then, the department of electronics has introduced many innovations like software technology parks with 'ready-built' infrastructure and resources needed to assist

entrepreneurs and thereby encourage new investments. Much of the large business has come from customers like General Electric (GE) and Bell Northern Research, who had defined outsourcing plans, rather than through good marketing.

Against this background, the Indian IT offshore outsourcing industry remains under-researched, as little is known about supplier strategies and customer relationships. The next section gives an overview of the current ongoing research study.

3. Research Method

Field work was carried out in February 2002 in fifteen Indian firms, based in Mumbai & Pune, India. All the firms were selected from the technology sector, which is one of India's fastest growing areas. The research methodology was qualitative, using an open-ended, semi-structured questionnaire to conduct interviews with CEOs, CIOs and other managers-HR, marketing and accounting personnel (Yin 1994; Keen 1991; and Denzin 1978). The primary aim of this research was a scoping study to identify the key issues relating to offshore 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).

The interviews were carried out in fifteen supplier firms in India and at two customer firms in Britain. Of the fifteen Indian supplier firms, five were small firms with less than 500 employees; four were medium sized firms with 501-1500 employees; and eight were large firms with over 1500 employees. To retain the anonymity of the firms, they have been given letters from A to O with the letters l, m, and s referring to large, medium and small.

4. A Benefits and risks framework of offshore IT outsourcing

BENEFITS	RISKS
<p><i>Solution to the IT skills shortage</i> One main reason for offshore outsourcing is that very often there isn't enough talent in the own country. 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 do have the right qualifications, e.g. JAVA and other Internet related skills (Robb 2000).</p>	<p><i>Threat of opportunism</i> As outsourcing take control of the IS functions, some fears, supplier may take advantage of clients. In particular, firms that outsource may find themselves at a disadvantage when the outcome of the development is not satisfactory or disagreement with contractors. Thus it becomes difficult to disengage a contract and also the money and time that was spent is considered as ill spent.</p>
<p><i>Cost efficiency</i> 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)</p>	<p><i>Unexpected Costs</i> These may arise because of a failure to analyse service cost, making a poor estimate of the initial contract price. Usually it is seen when contracting services to the offshore outsource; they tend to bid as low as possible to attract more clients. But subsequently, this low price work become very high investment when supplier fails to generate work and thus start at ground zero. This could also result suppliers are not selected properly or poor selection process of an organization.</p>
<p><i>Competitive advantage</i> 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.</p>	<p><i>Trust & Security concerns</i> As the organisation relays mission critical information, trust & security are a concern as suppliers may not maintain confidentiality. Though the Indian government has law on the software piracy and data privacy but has very low implementation to tackle the problem.</p>
<p><i>Simplicity and remain focused on core competencies</i> 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.</p>	<p><i>Hidden costs</i> 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 the project becomes difficult in a long distance environment, which could lead the project to overrun its scheduled completion date and estimated costs.</p>
<p><i>Round the clock service</i> Time saving is another reason for outsourcing some of the in-house IS work to offshore outsource. 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. Due to this time zone difference, if an error occurs in the system it can be fixed overnight and the system can be fully available on the next day. However, this time saving is only possible if the supplier and customer have a good telecommunications and infrastructure.</p>	<p><i>Geopolitical risk</i> 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.</p>
<p><i>Assurance of quality development</i> 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)</p>	<p><i>Detailed specification is required</i> 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.</p>

Table 1: A benefits and risks framework for offshore IT outsourcing

Data collected from sample firms on the offshore IT outsourcing model is analysed in conjunction with the literature and summarised in Table 1 under the categories 'benefits' and 'risks'. The framework captures benefits and risks in a number of areas, including IT

skills shortages, threat of opportunism, cost efficiency, etc. Since the research focused mainly on the supply-side of offshore outsourcing, the information is of particular use to suppliers in formulating their strategies to enter and sustain their position in the offshore outsourcing

market. The findings from the field study supports the literature where indicated.

Whilst there are many risks relating to the offshore outsourcing model as mentioned in table 1, geographical distance is not in itself a major problem. In fact, there are potential problems unique to using offshore teams, but using best practices to ensure all potential difficulties are accounted for in the contractual documentation can minimize these risks. Today, a number of countries are emerging as combined local and global IT service delivery centers.

Countries like India and China have a labour advantage and the availability of a large population of skilled workers. These nations therefore offer many benefits to US and European firms, which seek an offshore outsourcing contact. Though China has the lowest base salary and a highly competent IT labour force, cultural and language differences are significant inhibitors. One of the interesting challenges for India, is that lower labour cost countries are becoming competitors, particularly those of China and Korea. The basic salary of a software developer in countries that supply offshore services is compiled below in table 2.

Country	Base annual Salary (US \$)
China	\$ 4, 750
India	\$5,850
Philippines	\$ 6,550
Russia	\$7,500
Indonesia	\$12,200
Japan	\$44,000
United States	\$63,000

Table 2 - Source: Lane (2001) Aberdeen Report

While India has positioned itself with highly competitive universities and technology institutions, it is considered as the second largest nation after the US that speaks English. The country produces 73,500 software professionals annually (Nasscom 2002) and has firms with quality assurance certifications like CMM, SEI and ISO indicating the management competency in software development and product quality. However, according to Gartner (2002) there are some Chinese software suppliers who have never even heard of CMM certification.

5. Supplier Strategies for offshore outsourcing

The IT industry has used offshore outsourcing for some time to reduce software development and maintenance costs and to gain access to skilled, low wage workers. In the last decade, a tremendous growth and change in e-business has been driving the software industry to move to countries like India and Ireland (Lane 2001). Our Research in India and Britain revealed two types of offshore outsourcing. We have identified them as 'offshore services' and 'body shopping'.

5.1 Offshore services: Our research shows that Indian offshore outsourcing firms' practice a number of strategies for offshore service development. These strategies are briefly outlined below:

a). Wholly owned Indian subsidiary: Some Indian enterprises set-up wholly owned facilities overseas to perform parts of the software development process. The most common practice is to perform systems analysis and design work at the customers' site, while rest of the development process is done from Indian offshore development centres. According to our field research, this strategy has proved to be useful for 57 per cent of the firms studied, particularly in areas such as dealing with new customer contracts, managing customer specifications, managing and controlling the project and providing maintenance support for existing customers. Key Indian players like Tata Consultancy services (TCS), Wipro, Infosys, Silverline technologies, and Ifex solutions are good example.

b). Joint venture with Indian firms: This is another strategy that was seen among the Indian software suppliers to enter the foreign market. Joint ventures are a popular method of expanding business and they also offers the opportunity for cross-fertilisation of skills and resources (Miller *et al.*, 1997). While Indian partners can offer process and product technologies at a low competitive price, foreign investors moving to India can benefit by using the joint venture strategy. Although Indian suppliers are proficient in spoken English, our research shows that some find it difficult to enter the offshore market, as some customers tend to be more comfortable with their local representatives. Customers often perceive the local suppliers as being more dependable and aware of the terms and conditions of the domestic software development environment. Interviews with senior managers revealed that this strategy was less popular among suppliers and customers in the UK. While only 35 per cent of the Indian firms surveyed used such a strategy, more significantly few have earned any substantial revenues from joint ventures. One such Indian firm is Infosys, who used a strategic partnership with a JASDIC park firm, (a Japanese firm) to enter the Japanese software market.

c). Direct Outsourcing to Indian firms: Mainly foreign investors who take their own initiative to research Indian software firms use this strategy. In this scenario, the investing firm coordinates with the Indian firm to hand over the offshore development work. It is usually the IT manager or a representative from the investor who takes the initiative to manage the project from their UK office, while the development work is carried out from India. Our research showed that firms using this strategy have had advantages, but also face a lot of difficulties. For instance, it is imperative that the outsourcing firm use a good decision making process for selecting the right supplier for the work they require, ensuring that they protect themselves from hoax firms on the internet.

We also found that differences in laws, regulations, infrastructure and culture can often impede this strategy. One UK firm using this strategy encountered significant difficulties when searching for an appropriate Indian supplier. A senior manager in this firm remarked,

“To find the correct Indian supplier for the work we needed to outsource was very difficult - the web search revealed a large number of suppliers whose presence was sometimes only limited to virtual”.

Therefore, it is imperative that the outsourcing firm should carefully evaluate the resources and capabilities of the Indian firms before signing any agreements, as discussed earlier in section 2.

The project manager in this firm also found that explaining his requirements and getting the desired result was fairly difficult. Culture was often cited as a barrier in this context, which prevented the planning and presentation of work.

d). Multiple Outsourcing Suppliers: This strategy is used by firms to spread the risk across different suppliers. Our research revealed that an e-learning firm in the UK, who used this strategy to outsource to an Indian supplier, found that they gained an advantage over their competitors who had offshore outsourcing arrangements. The entire project was run for a period of 12 to 15 months, with initially one Indian supplier in mind and a one-man-month payment method. Subsequently, the firm decided after 6 months to distribute their risk of dependency and achieve the target time of the project by appointing a second Indian supplier to carry out part of the work on a fixed-price basis. Due to this strategy of using two different teams in different offshore sites, the firm in the UK achieved better results than working with one Indian supplier. Although it is often difficult to coordinate with suppliers when outsourcing a project to two firms, in this case an experienced project leader filled the gap by coordinating the project.

e). Through a third party (agent): Marketing agents or a third party firm usually undertook this strategy. These firms handle the relevant work pertaining to the outsourcing venture or partnership and coordinates with the offshore suppliers. The rewards of this strategy include, relieving the outsourcing firm from project responsibilities such as employing new people, coordinating work and deploying the applications. However, the outsourcing firm could face the risk of losing touch with the project, which can result in the subsequent failure of the project to deliver the intended output.

5.2 Body shopping: The term body shopping according to Lacity & Hirschheim (1995) means, ‘a contract employee that is managed by a firm of employees’. From the research, it was found that 79 per cent of the Indian software suppliers started their business with body shopping (see table 1). Firms, to reduce investment risks, sustain growth and gradually increase their value in the market, used this strategy. For example, it is reported that in 1989 nearly 80 percent of Indian software export revenue was from providing contract personnel (Yourdon, 1989). By 2001 Indian firms were providing 58 percent of software development activity on client site (on site) overseas (Nasscom 2002).

6. Offshore IT Outsourcing strategies of Indian suppliers

Every firm is a collection of activities that are performed to design, produce, market and support its products. ‘Value’ activities are physically and technologically distinct activities a firm performs and are the building blocks by which firms create products valuable to its buyers (Porter, 1985). A firm’s value chain and the way it performs individual activities are a reflection of its history, its strategy and its approach to implementing its strategy and the underlying economics of the activities themselves.

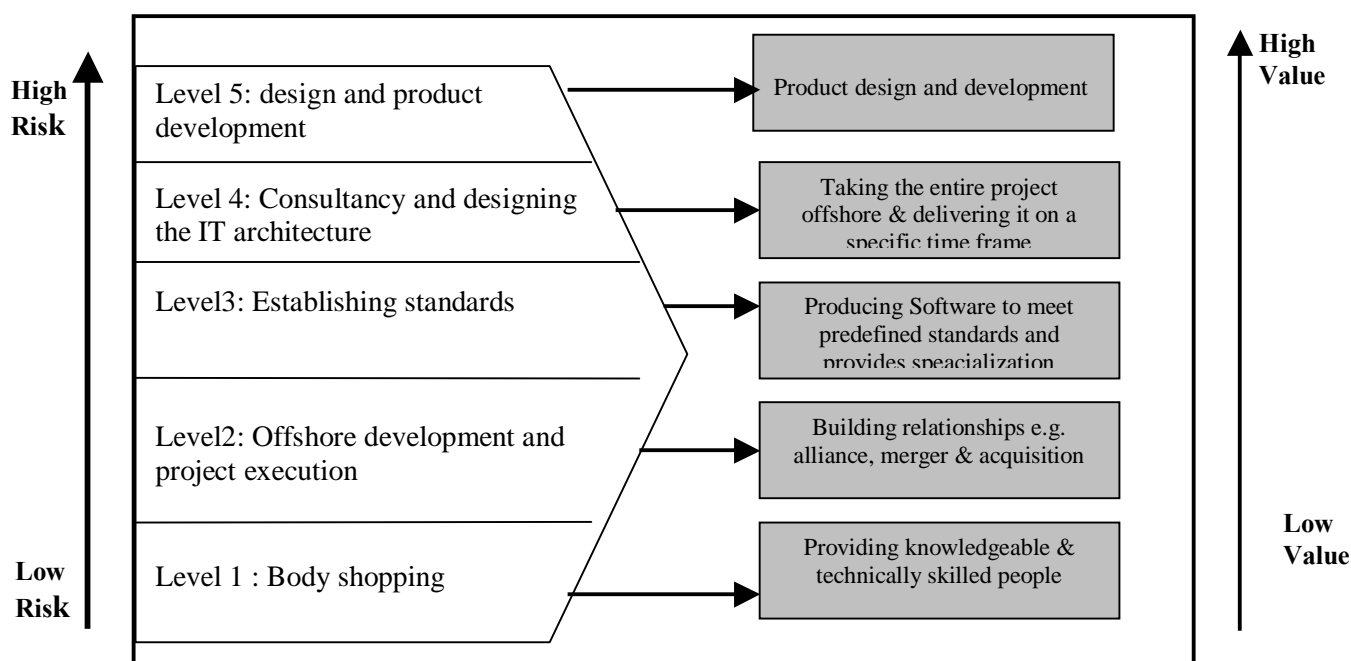


Figure 1: A Value analysis of the offshore outsourcing strategies used by Indian Firms

According to Porter (1985), the relevant level for constructing a value chain is influenced by the firm's activities in a particular industry.

Though firms in the same industry may have similar chains, the value chains of competitors often differ. For instance, Tata consultancy services (TCS) and Wipro technologies both compete in the software industry, but they have very different value chains embodying significant differences in software development operations, policies, contract, and after sale services. The difference among competitors' value chains is the key sources of competitive advantage.

In the context of offshore IT outsourcing between India and the UK, in competitive terms, 'value' be measured by the risks and rewards involved in the services offered. In this context, the strategies adopted by the Indian suppliers can be represented using a value analysis. Since we are not looking at all the links in the value chain, but only the type of outsourcing contracts

offered, we are unable to conduct a full value chain analysis.

Here, the value analysis for offshore outsourcing is structured into five distinct levels on the basis of risk and value parameters. Based on our field research, a conceptual model has been developed in Figure 1, which shows that structured high-risk areas were valued higher and low-risk areas valued lower by the firms studied. At the lowest level is "body shopping"; at the second level is "project execution" and "off-shore development"; the third level includes firms seeking to establish standards (i.e. ISO and CMM); level 4 is providing consultancy for designing and developing the IT architecture; and at the highest level (5) is product design and development, where firms do product design and development work.

Name of the firm	L1: Body shopping	L2: Offshore development and project execution	L3: Establishing standards	L4: Consultancy and designing the IT architecture	L 5: Design and product development
A s	Nil	High	ISO 9001, CMM -4	Nil	Customised
B s	Nil	High	Nil	Nil	Nil
C s	Nil	Nil	High	High	High
D s	Nil	Low	Nil	Nil	repetitive and customised
E s	High	Medium	Nil	Nil	Nil
F m	High	High	Nil	Nil	Nil
G m	Medium	High	Nil	Nil	Nil
H 1	High	High	ISO 9001,9002, CMM level-4	Nil	Nil
I 1	High	High	SEI level 5 PCMM, CMM level-5	High	repetitive and customised
J 1	High	High	CMM -5	High	repetitive and customised
K 1	High	High	ISO 9001 CMM level 5	High	Repetitive & customised
L 1	High	High	ISO 9001, PCMM, SEI 3, CMM level 5	High	Nil
M 1	Medium	High	CMM level-4	Nil	Nil
N 1	High	High	ISO 9001 CMM level 5	High	repetitive and customised
O 1	High	High	ISO 9001, PCMM, CMM level 5	High	Nil

Table 3: IT outsourcing activities of Indian suppliers

While the first two levels earn margins in percentage of the investments made, successful products and IT consultants generate profits up to higher multiples. This is primarily because, both, in products and consultancy businesses, risks are higher as acceptability in the market is critical. Further, the value-add is higher and hence the firms are able to command a premium.

Our research revealed that Indian firms are taking appropriate steps and acting wisely to increase the value of the offshore IT outsourcing trend. However, the value proposition of the Indian software industry in relation to the global market deserves a closer look. The Indian IT software and services industry grossed annual revenue of \$ 5.7 billion (Indian Rs 24,350) during 1999-2000 according to a NASSCOM (2001) annual industry survey. The bulk of this revenue was through exports, which earned Rs \$ 4 billion (Indian Rs 17,150). In exports, offshore services contributed more than 42 per cent, whereas on-site services contributed to about 58 percent. This means that almost all revenues earned by the Indian software industry were either by using skilled and qualified manpower abroad to work on client sites (body shopping) or by offshore development projects in India on the basis of specifications received from clients.

In 1999-2000, offshore services contributed to more than 42 percent of total exports, whereas on-site services contributed to about 58 percent of export revenues (NASSCOM & Mckensy 2000). In 1991-92, the percentage share of offshore services was a mere 5 percent and on-site services dominated with 95 per cent of total software exports. This shows a clear move up the value chain from "body shopping" to "off-shore development". Major Indian software firms like TCS, Infosys, Wipro, Satyam etc., are clearly moving up the value chain by setting up their own large, state-of-the-art software development centres and endeavouring into launching packaged products. However, it was revealed during the field research that, many Indian software firms are already facing price pressures from countries such as China and the Philippines. This is making it difficult for many firms to sustain their businesses as they move up the service chain to increase their value in performance.

Table 3 outlines the Indian firms investigated and their positioning in the value chain.

Firms that are moving from level 1 to higher levels showed a very positive pattern when moving up the offshore IT development ladder. They managed to lower risks and sustain growth and gradually increase their value. But, firms that have entered in the middle of the value chain face a tough challenge to compete with the other firms and position themselves globally. For example, firm D in Table 3 exploits its business with level 5 of the value chain, i.e. by designing and developing products for the financial sector. Although this firm has made a huge success in its local market and made a substantial growth at the beginning, net sales have declined by 60.5 per cent for the first few months of financial year 2002.

7. Discussion and conclusion

This paper provides a brief overview of some of the key issues relating to offshore outsourcing, with particular emphasis on the Indian market. The field research shows that the majority of firms are based in the lower level of the value analysis, i.e. 'body shopping' and 'offshore development', but are attempting to move up the value ladder to provide additional services. India has invested heavily in technical education and can provide a ready supply of highly skilled programmers at a relatively low cost compared with North America and Europe. The country has improved its infrastructure, particularly in the area of telecommunications. Favourable government tax incentives and the ability to complement UK and US time zones with a virtual around the clock approach are some of the advantages that this country has to far.

The field work illustrated in this paper shows how the Indian software industry is growing in the offshore outsourcing market. The global software market is currently estimated to be around \$150 billion, almost 30 times more than the revenues earned by Indian software industry and growing fast (Nasscom 2002). For Indian firms to gain traction in the marketplace, they need to increase their performance value and at the same time be aware of the risk factors involved in the chain.

The product development offering in level 5 of the value analysis involves intensive R&D, ability to pinpoint trends, predict business and technology requirements in the future, and have a strong sales and marketing network. For firms that are increasing their outsourcing offerings, it becomes less expensive to develop a product as they are often based on the same technical development environment and possess the same high skill levels as the level 5 firms. Also, some cost elements like sales and marketing expenses can be minimised by forming alliances and partnering non-competitive firms, which are strong in those areas. Our research findings show that some firms, i.e. TCS, Infosys, and Satyam, that were at level 5, achieved this status by consolidating their business and technical expertise gathered through working on other outsourcing projects. Also, many of these firms knew what products to develop and which clients to target. IT consultants usually work on available products and technologies to develop customised solutions that best match the immediate and future business requirements of their clients. Their business revenues are directly related to their success in developing IT architecture for their clients.

Labour costs are the single biggest expense in offshore outsourcing in India and definitely have a clear advantage in this domain. Software development costs in India is estimated to be 30-40 per cent lower than those in developed markets (Lacity & Hirschheim 1995).

It therefore makes business sense for Indian firms to move faster on the value chain ladder and get more involved in research & development (R&D), product creation, brand management and strategic consulting, and providing more net centric and e-commerce type interactive services to customers.

Most Indian software firms are hesitant to take a high-risk-high-return route and adopt the low-risk strategy of developing software (i.e. such as body shopping or partnerships) for large global software giants who then market them with their branding across the world.

According to a NASSCOM (2002) survey, R&D spending by the Indian software industry was a measly 3.4 percent of revenues earned during 1999-2000. Though this is a tiny fraction, our field research showed that the Indian software industry has the potential and talent to develop products for the offshore market. However, if the Indian software industry is to have a substantial impact on the global software market, it has to supplement its cost effective and resourceful labour offerings with round the clock service and quality assurance of its software development work. Moreover, we are convinced that Indian software firms will need to realign their business strategies and introduce new marketing strategies if they are to attract more European firms to outsource to India.

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