

Offshore Software Development Strategies of an Indian Vendor

A Study

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Based on the maturing information and communication technologies, offshore development of software applications by vendor organizations is a new trend for reshaping the IT strategy across the globe. Firms in their respective countries and industry associations are vying with each other to provide outsourcing services globally. These emerging aspirant producers of global softwares face new challenges, as offshore software development processes are knowledge intensive. They are further aggravated by the intense global competition, and warrant awareness of clients' risks and apprehensions in the outsourcing process. The author studies the various experiences related to the work practices of a medium-sized Indian software provider organization, having an onsite presence in the client country of New Zealand. The data of the study reveals the work practices associated with risk factors that are considered more important for successful implementation of software applications by the supplier organization-based on its past experiences. The analysis indicates that the vendor's success stories were based on a combination of strategies, which include optimizing economic benefits, implementing relationship management, and the use of integrated groupware solutions, all combined with an aggressive marketing temperament.

Introduction

With the maturity of information and communication technology, the cost of communication has reduced drastically, allowing relatively small companies to establish business relationships across different geographical domains. The primary motivation behind offshore development is cost, since with low per capita labor costs, clients can benefit from moving as much development work offshore as possible (Gopal, Mukhopadhyay and Krishnan, 2002). However, Kaiser and Hawk (2004) argue that offshore software development will increase for reasons beyond cost reduction as knowledge transfer cannot be assessed as a purely economic decision. This potential has been recognized by the Indian software market, which has opened itself up to the fast moving global economy. "India presently dominates 80-90% of the total offshore development revenue worldwide and is expected to be the key leader in offshore outsourcing in the next five years" (Khan, Currie, Weerakkody and Desai, 2003, p. 240). The changing trend of software development work is also evident in today's

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market figures. As demand for Indian software professionals is increasing, their prices are also increasing, so profit margins are shrinking and outsourcing in India is now getting susceptible to global competition (Kiviat, Rajan, Thomas and Tumulty, 2004). Alternative countries like Russia, China, and the Philippines are emerging key producers of software, thus intensifying competition, and Indian firms are getting mindful of this long-term threat. Moreover, the demands and expectations from the clients are also constantly increasing, and outsourcing supplier firms are in a "process of continuous learning, reflexivity, and re-negotiating the terms of relationship" (Sahay, Nicholson and Krishna, 2003, p. 22).

The literature of information systems outsourcing and offshore software development considers mainly a customer or global perspective rather than the offshore software supplier perspective (RajKumar and Mani, 2001). Therefore, how software suppliers utilize their organizational assets and re-define and re-negotiate client relationships with local and dispersed knowledge in the global software development scenario needs to be studied empirically. There is a need for unbiased empirical studies by academics to address the existing research gaps (Rottman and Lacity, 2004). A case study of an Indian software supplier was undertaken to understand their approach to relationship management and maintaining longevity of the outsourcing relationship with the client as they compete in this dynamic race of global outsourcing. An analysis of such work in practice provides interesting insights from the vendor's perspective into how client-vendor relationships can be effectively conducted in conditions of globalization.

Background

Software development is a knowledge-intensive activity and typifies work in the 'knowledge' or 'network' society. Typically for an outsourced software development activity, 70 to 80% of the work is done offshore and the remaining 20 to 30% is done onshore (Gopal *et al.*, 2002; RajKumar and Mani, 2001). However, this onshore-offshore mix is not static and shifts over time depending upon peaks and troughs of workload (Sahay *et al.*, 2003). Thus, proper knowledge integration mechanisms across customer-vendor boundary need to be in place, such as development tools to facilitate the coordination of various development activities; close customer-vendor interactions to build trust and confidence; up-front effort in designing the architecture of the system with the customer; use of mature software processes, and vendor's collaborative experience with a customer. (Gopal *et al.*, 2002; RajKumar and Mani, 2001; Sahay *et al.*, 2003; Tiwana, 2003). Hence, with such extended knowledge, the librarian law applies, which states, "The more knowledge that is available, the more effort has to be spent on the processes to use it".

How are knowledge-integration mechanisms built across client-vendor boundaries, to maintain stability in relationships and prolong longevity of the investment? The risks associated with investments are bidirectional, and can be associated with business, legal, political, infrastructure, workforce, social, and logistical issues which affect both the client and the vendor—both at the organizational level and also at the individual level. Minimizing such risks for

safeguarding investments is crucial to both the client or buyer and the vendor or seller, since both are partners to this exchange. For outsourcing to be effective, both parties need to obtain value from the exchange. Outsourcing arrangements involve both the customer and the vendor, where each contributes to the learning experiences through practices adopted for relationship building (Dibbern, Goles, Hirscheim and Jayatilaka, 2004). While customers typically look towards financial savings as a key benefit, vendors may seek to make an acceptable rate of return on outsourcing contracts, acquire industry specific knowledge, and build a strong reputation in their industry. However, there is an ongoing debate regarding these client and vendor benefits (Ang and Cummings, 1997; Dibbern *et al.*, 2004; Loh and Venkatraman, 1995; Nam, Rajagopalan, Raghav and Chaudhury, 1996; Rottman and Lacity, 2004).

Relationship Management and Project Success

The relationship between analyst and client in the organization is a social and political process (Urquhart, 1999), but IT professionals are still seen as lacking credibility, not in expertise but in relationship building (Bashein and Markus, 1997). Vendors are now adding skills like relationship management, organizational change management, and customer advocacy to their portfolio of skills, with some leading Indian vendors delivering customer-intimate enterprise solutions for clients (Moore and Martorelli, 2004). Thus, vendors are starting to expand their engagement and relationship management staff—an area which they had overlooked for a long time. For the vendor, good relationship managers pay for themselves because they are experts at winning new business, as well as uncovering or developing revenue opportunities within existing accounts. They also act as the intermediary between the client and the supplier's numerous development or support teams.

Another perspective by Sahay *et al.*, (2003) is that Indian firms have moved up the 'trust curve' to undertake more complex projects requiring greater interdependent team processes. "Trust is related to absence in time and space. There would be no need to trust anyone, neither individuals nor abstract systems, if their activities were visible and easy to understand. So the prime condition for trust is lack of full information" (Giddens, 1990, p. 33). Though lack of visibility across geographical boundaries cannot be ruled out, some transparency in information can be brought about by engagement and relationship philosophy and good relationship management skills (Moore and Martorelli, 2004).

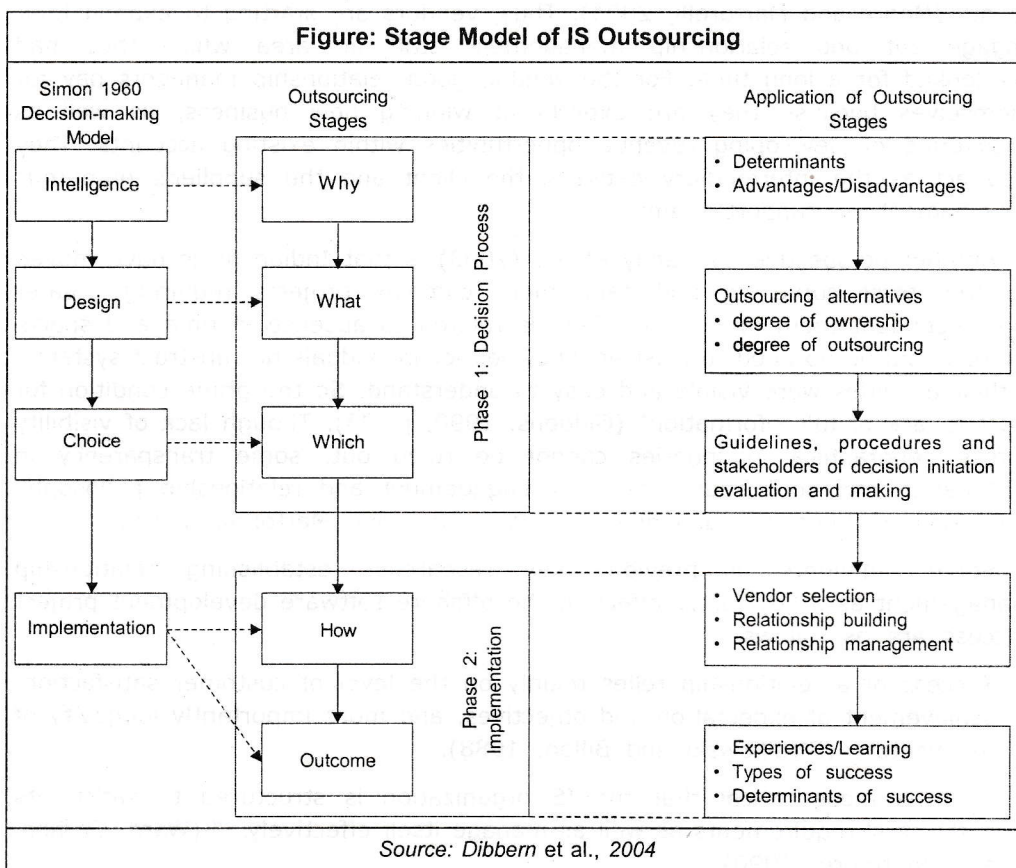
Some highlights of previous key researches establishing relationship management as a key factor affecting the offshore software development project success are as follows:

- Success of a relationship relies mainly on the level of customer satisfaction, achievement of expectation and objectives, and more importantly longevity of the venture (Stralkowski and Billon, 1988).
- "it is most critical that the IS organization is structured to satisfy its customers' requirements as well as manage itself effectively..." (Ward, Griffins, and Whitmore, 1990).

- It is crucial for vendors to expand their engagement and relationship management staff, who understand the offshore outsourcing process fully to help the client navigate its complexity, or else the project's chances are limited for success (Moore and Martorelli, 2004).
-“building up confidence with respect to the ability of the partners effectively to carry out the tasks they are supposed to on time and on budget” (Sahay, *et al.*, 2003, p. 252).

Stages of IS Outsourcing

Dibbern *et al.*, (2004) have adapted Simon's 1960 four stage model of decision-making to five stages to better reflect organization's implementing outsourcing. Stage 1 refers to 'why' or 'intelligence' while weighing the pros and cons of outsourcing. Stage 2 refers to 'what' or 'design' stage where organizations consider alternate outsourcing arrangements. Stage 3 refers to 'which' or 'choice' where the actual decision on outsourcing arrangement is made. Stage 4 is 'how' and is consistent with Simon's 'implementation' where contracts are negotiated and tools implemented for managing the outsourcing relationships. Stage 5 refers to 'outcomes' which is another stage of the implementation process reflecting on the consequences of making the outsourcing choice and the lessons learnt in defining the determinants of success.



The 'implementation' stage (Stage 4 + Stage 5) involves both the client and the vendor, where each contributes to the learning experiences through practices adopted for relationship building. Furthermore, during and even after the implementation, organizations evaluate their outsourcing experiences to learn lessons that help to achieve success and avoid undesirable outcomes.

A study by Rottman and Lacity (2004) identifies 20 practices to mitigate the risk of outsourcing from the client perspective to achieve satisfactory service levels. They emphasize open communication and face-to-face meetings with suppliers' employees to build trust and confidence in the relationship. Once the initial relationship has stabilized, it may include in-house/onsite/offshore supplier employees for extension of the development work. Other practices broadly include: A centralized project management office; hiring of an intermediary consulting firm to serve as a broker, guide and legal expert; choice of country sourcing locations; use of pilot projects to mitigate risks; secure information links; understand one's own organizational processes with respect to the supplier's processes and negotiate accordingly; use of fixed-price contracts; correct estimations of project size, effort and complexity; avoiding bottlenecks caused by time-zone differences; creating balanced scorecard metrics, amongst others. Loh and Venkataman (1995) have also studied the impact of opportunism risk and control risk by suppliers in IS outsourcing. The risks involved with offshore outsourcing cannot be underestimated, as opportunistic behavior by one external supplier could have a significant impact on a contract's life term.

Since relationship management involves both the client and the vendor, the above-mentioned practices affect the vendor too, and they should be aware of the client's perspective to mitigate risk. Successful relationships are termed as synching, involving a high degree of congruence between developer and client; and unsuccessful relationships are termed as sinking when there is a low degree of congruence between the developer and client (Heeks, Krishna, Nicholson and Sahay, 2001). Congruence fosters trust between client and developer, and this trust can progress the relationship to larger, more highly skilled projects with more offshore components. For the vendor, sustaining synching relationships will help in building up his reputation in industry, further increasing his business resilience, and eventually enhancing his global market position.

Research Methodology

The emphasis of this research is on the relationship between social, managerial, and technical factors involved within the offshore software development processes from a vendor's perspective. Case study research involves the in-depth study of a few people, an organization or an event, and the case study can be used to research information systems in their organizational setting so that researchers can build theory from practice. Myers (1997) suggests that the case study is particularly well suited to information systems research, as the object of study is the information system in an organization, and as Benbasat, Goldstein and Mead (1987) argue, the focus has shifted from technical issues to organizational issues.

An exploratory study was initiated through case study to provide insight from the vendor's perspective on how client-vendor relationships can be effectively conducted in conditions of globalization. Therefore, how software suppliers utilize their organizational assets to re-define and re-negotiate client relationships was analyzed. This study is concerned with exploration of both social and human problems in the dynamic environment of processes leading to successful offshore software development, so that a holistic picture may be analyzed and reported (Creswell, 2002).

Case Narrative

The case described here is about an Indian organization, hereafter referred to by the pseudonym InfoNet. InfoNet is a medium sized Indian IT services provider having approximately 170 employees, and has earned many export performance prizes from the Indian government. The main development center of InfoNet is at Vizac, India, and they also have offshore satellite centers in Auckland, Melbourne and Dallas. These offshore satellite centers are located at client destinations, and are considered important in understanding the client requirements, as well as bridging the existing cultural gap between the firms belonging to the two countries.

The management of InfoNet perceived the need for a centralized office at the client destination, with a strong client interface for effective relationship building. Accordingly, a vice president of operations, hereby, referred by the pseudonym, Patel, has been stationed as head of the Auckland division. Patel is a senior retired colonel from the Indian army, with some prior project management experience in software organizations. InfoNet had also hired some local consultants to serve as both broker and guide. Patel too had identified some major software contracts, which were currently in the development phase, and he was aggressively involved in marketing his parent organization to new prospective clients. He said that finding new business kept his job secure, as he was constantly under the threat of being sent back to India if the business slowed down.

The onshore team of software developers in Auckland were interviewed by the researcher to understand their work practices, and to provide insight into how client-vendor relationships were effectively conducted. These developers had provided software solutions to many clients in New Zealand (NZ) and Australia, including tertiary education, health services, online gambling, realtors, and others. The developers of InfoNet perceived their Indian roots as assets to their software development business, as NZ firms were open-minded in their choice of India as their sourcing destination. This open-minded attitude was attributed to India having already been branded as an offshore software provider, backed by its price sensitive strategy. Sahay, *et al.*, (2003, p. 4) also affirm that Indian firms are sometimes actually sought, because of the "knowledge capital they hold, the cost advantages they can offer, and the potential they provide to access new markets".

InfoNet regularly brought on-site team members to Auckland and Melbourne on six-monthly work permits from India, and these developers were replaced by other Indian programmers as and when their work permits expired. This also

enabled the developers to slip in and out of different technical, social, and cultural experiences, as has also been described by Sahay *et al.*, (2003). The developers worked six days a week, with each day's work extending beyond the customary eight hours. This strategy was preferred to hiring local technical staff from Auckland, as the salaries and working hours required by locals would not match their price structure. In the words of the vice president

"Here the check-out person at the grocery market is paid \$12 per hour, which is approximately Rs. 400, and he is supposed to work only eight hours a day, and 40 hours per week.....I cannot match the price of my competitors if I have to pay that much".

On the increasing cost of salaries of software professionals worldwide, Patel expressed some concern, but did not feel it was a cause of major concern presently.

InfoNet has also provided two dedicated phone lines to its parent company in India, in addition to other sophisticated project management tools to integrate datacom and telecom systems within their development environment. The team members are allowed to freely communicate with friends and family in India through the telecommunication media provided, knowing the family and social structure of the Indian mindset. The tool mostly used to communicate work between the onshore and offshore teams was Bynet. The developers were very appreciative of this tool and showed the researcher the practices associated for ensuring proper maintenance and software configuration management activities. InfoNet also maintained an up-to-date paper documentation of all changing definitions in the development effort. Universal templates to define, guide, and evaluate management practices were rigorously maintained. These standardized systems, codified in manuals, served as points of reference to coordinate activities across time and space. The InfoNet staff took great pride in these practices and showed the researcher many templates of past projects and current live projects. These documents are also necessary as InfoNet is a CMM—Level 3 certified company and is audited by international external agencies on a regular basis.

InfoNet feels a special need to build lasting relationships with clients having long-term projects and so has team members with good interpersonal skills assigned to the client. In the words of Patel:

"We provide a dedicated resource and he works as an extended arm of the client and so he gets well trained in the customer process and domain knowledge of the customer requirements..... this is both a knowledge strategy as well as a marketing strategy.....".

This strategy was referred by InfoNet as TLM or Technology Laboratory Model, in which the client provided the resources, while InfoNet established the environment by providing project management and analysis. Requirements of any task required by the client were communicated to the application developers in India, who took advantage of the seven and a half hour time difference to send the solution back. InfoNet presently holds a very big market of Australia and NZ on this model with a major client in the health sector, and are bound by a long-term intellectual property agreement with the client. Regular weekly

meetings are held with the client teams, to resolve any problems that may have arisen. The developers emphasized the importance of open communication and face-to-face meetings with the clients, as such meetings made them aware of the clients' concerns.

Another strategy which helped strengthen the relationship, and brought the two sides on closer ground was the major health sector client's visit to India. The human resources department of InfoNet in India was involved in the client's visit, and this visit brought a closer understanding between the two cultures of the client and the vendor. The clients were shown the vendor's sophisticated communication infrastructure at the home country, and the matured processes which are followed before the product is sent for user acceptance testing and integration into the final package. The management of InfoNet also shared reports and statistical data on estimations for project size, effort, and complexity to show the usage of defined and tested processes. Such visits were viewed as essential to stabilize the long-term relationships, as having seen the vendor's capabilities brought in a sense of trust and confidence within the client. The team of developers in India could also put a name to the faces of people whom they had been regularly corresponding with. The Indian team of developers also had intensive meetings with the client teams, and these meetings had concluded with some new extensions on the current project.

Analysis of Case

The above case study reveals the work practices followed by the Indian vendor to enhance the dynamics of software development processes. The vendor was aware of the clients' perceived risks, and accordingly had aligned their offshore team to benefit both of them. A snapshot of the vendor's strategies which emerged from the case data is shown in the Table.

While it is too early to comment on their strategies, it is interesting to analyze some of their methods in dealing with these issues.

The centralized office in downtown Auckland served as a central meeting place, thus mitigating the negativity associated with distant relationships of working with globally distributed colleagues. The importance of maintaining long-term client relationships through engagement managers was identified, and accordingly a relationship manager was appointed. The relationship manager's

Strategy	InfoNet
Centralized project management office	Yes
Relationship manager	Yes
Intermediary consulting firm acting as broker, guide and legal expert	Yes
Secure information links	Yes
Time zone difference used to extend the overall working hours	Yes
Cost advantage (through lower salary costs and longer working hours)	Yes
Create understanding of ethnic and corporate cultures	Yes
Aggressive marketing	Yes

task was to sustain existing relationships and also to establish new relationships through newly found business.

Weekly telephone conferences were held between the main center and the satellite centers, to maintain accuracy of information. InfoNet has realized the importance of face-to-face meetings, besides usage of electronic media and other sophisticated datacom and telecom tools. They have a small onshore presence at the client destination, which handles all communication at the customer site. Problems are communicated and solved by the programmers locally, without making the client aware of the involvement of the offshore developer team in India.

The dispersed time zone of seven and a half hours between NZ and India was fully exploited to extend the day from the current 10 hour working day to an 18 hour working day. This helped to accelerate investigation of problems to effectively reduce the turn-around time. One of the developers at InfoNet voiced the opinion that: "working at a distance is really great...you never have a problem for long".

InfoNet management was quick to realize the economic benefits of having software development work done by its own team of Indian programmers. This paid off both in terms of salary costs, and extra working hours put in by the developers. Moreover, the developers situated at the client destination too were morally bound to work these extra hours, given the fact that their work permits were authorized by InfoNet. InfoNet management made their developers aware of this obligation, and encouraged the developers to work late hours for six days each week.

Bridging the cultural differences was also considered a major relationship building exercise, and visits of clients to India were encouraged. This brought in a mutual understanding of each other's ethnic and corporate cultures, thus nurturing a sense of mutual respect for each other's social values, with each side enjoying the surprise element of a different society.

Conclusion

The aim of this paper is to provide insights into how client-vendor relationships can be effectively conducted in conditions of globalization. The case data reveals how the Indian vendor built stability in its relationship with the client, by showing an awareness of the client's apprehensions in dealing with an offshore vendor. It is interesting to note that the selected Indian company emphasized client engagement management experience. By providing the kind of "engagement style", vendors have established some long-term contracts, which could be further prolonged through new business opportunities. Besides the use of telephone conferencing, this medium sized vendor believed in face-to-face interaction with the clients. The vendor used the time and distance of their main development center to their advantage for problem solving, without letting it interfere with the clients' processes.

The importance of the customer relationship was recognized. Specific customers having high profitability for the organization were hospitably looked

after when visiting India, and made aware of the technical capabilities of the vendor company, besides exposing them to the vibrant Indian culture. Also, ongoing developer—customer interactions were used to identify new business opportunities from existing client accounts.

The vendor's strategy to keep local competition away was by maintaining the price sensitivity balance through use of developers from its parent company. Trained software professionals were brought regularly from the home country, keeping in view the cost benefits involved both in terms of office working hours and the salary paid.

The analysis indicates the vendor's success stories which were based on a combination of strategies, which include optimizing economic benefits, implementing relationship management, and the use of integrated groupware solutions, all combined with an aggressive marketing temperament. The findings reported in this study are the result of one case study. Exploratory studies of this type are required, though, so that the software community understands how practitioners actually work with offshore projects. ❧

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