AN EMPIRICAL EVALUATION OF CLIENT - VENDOR RELATIONSHIPS IN INDIAN SOFTWARE OUTSOURCING COMPANIES

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List of Publications

1. Book chapter

- Oza, N. and Palvia, S. September/October 2006. *Critical success factors in managing offshore software outsourcing relationships*. Global Information Technology Management. 4th (ed). Ivy League Publishing, USA.

2. Research papers in refereed international scientific journals

- Oza, N., Hall, T., Rainer, A. and Grey. S. May 2006. Role of trust in software outsourcing relationships. *Journal of Information and Software Technology*. 48. 345 - 354
- Oza, N. and Hall, T. November 2005. Difficulties in managing offshore software outsourcing relationships: An empirical analysis. *Journal of information technology cases and applications research (JITCA), Special issue on Global Software Outsourcing, 7(3).*

3. Invited talks in international conferences

- Oza, N. Jan 2006. EU – India software clusters: The Finnish software industry", *EU-INDIA-SME-LEARN-NET conference, Chennai, India.*
- Oza, N. Feb 2006. Identifying and Tailoring Your Product to the Needs of Rural Communities. *Connecting rural communities,* Commonwealth Technology Organisation, UK.

4. Research papers in refereed international scientific conference proceedings

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- Oza, N. and Mäkelä M. May 2006. The culture-based challenges in offshore software outsourcing. *International Association for Management Of Technology (IAMOT) 2006.* Beijing: China. [http://www.iamot.org/conference/viewabstract.php?id=1677&cf=10]
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5. Other scientific publications

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- Oza, N., Hall, T., Rainer, A. and Grey, S. May 2003. Role of trust in software outsourcing (Poster presentation of the literature review). *IEEE – International Conference on Software Engineering (ICSE), USA.*
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Abstract

The study presented in this thesis investigates offshore software outsourcing relationships. Offshore software outsourcing has been increasing continuously for the last decade. More and more software vendor companies from different countries such as India, Russia, Brazil and China are joining the offshore 'bandwagon'. Indian software companies especially have managed to secure a leading position as offshore software outsourcing vendors. However, with more client companies outsourcing their software operations offshore, issues associated with the establishment and management of offshore outsourcing relationships have become more important. With the growing volume of offshore outsourcing, the number of failures is also increasing. A review of the literature suggests that success or failure is mainly dependent on the management of relationships between client and vendor. Subsequently, it is imperative to identify critical factors that can help to better manage offshore software outsourcing relationships. Furthermore, it is also important to identify the difficulties faced in managing offshore relationships and also how clients and vendors develop mutual trust. Trust is important to understand in the offshore software outsourcing context as it has been reported as the most significant contributor to the management of any human relationship. Nonetheless, different advantages that motivate clients to outsource are also important in understanding offshore software outsourcing.

In this study, motivators, difficulties, critical relationship management factors and trust building factors are studied by means of empirical investigation into eighteen high maturity Indian software companies and six of their clients based in the USA and Europe. Multiple case studies with grounded theory analysis techniques are used to conduct the empirical investigation. Grounded theory, which is a part of qualitative research, helps to develop emergent model from empirical data. Furthermore, multiple case studies are used as objects to collect qualitative data and organise overall investigation. The research methods used were piloted with two Indian software companies before conducting the full empirical investigation.

The results of this investigation suggest that client companies are motivated to outsource their software offshore by cost savings, quality, flexibility, core competence, skills availability, higher productivity, faster development, technical expertise and high maturity of vendor. The results also uncovered difficulties faced by clients and vendors in managing relationships. Difficulties include managing cultural differences, expectation mismatch, language differences, loss of control, distance, time zone differences, workforce reshuffling and post-contractual matters. This investigation further identifies critical factors to managing offshore outsourcing relationships such as effective communication, a process driven approach, commitment to the project, transparency in actions, consistency in performance, value addition and allocating resources effectively in the project. Furthermore, results from this study suggest that previous work reference, experience and reputation in the offshore outsourcing business, background of the key vendor employees, investments, prototyping and personal visits from the client are important for achieving trust. This study also identifies that to maintain trust in the relationship both clients and vendors perceive critical factors such as commitment, process driven approach, communication, confidentiality, performance, honesty, transparency, demonstrability, personal relationships and working together in outsourcing project. Based on the results of the empirical results and their discussions, this study presents an emergent model and practical guidelines for managing offshore software outsourcing relationships.

The uniqueness of this investigation is in its large scale empirical investigation into high maturity software companies. Furthermore, most previous studies have investigated either clients or vendors, whereas this study investigates vendors and their corresponding clients. An investigation into trust in offshore software outsourcing relationships is also a significant addition to the existing literature relevant to software outsourcing. The empirical investigation gave rise to proposals for discussions and to an emergent empirical model. Thus the current body of knowledge in offshore software outsourcing is enhanced by this work. Moreover, practical guidelines, based on empirical results are proposed for client and vendors to help them manage their offshore software outsourcing relationships.

Chapter 1: Introduction

The study presented in this thesis investigates offshore software outsourcing relationships. The aim of this investigation is to present an evaluation of client-vendor relationships in Indian software outsourcing companies. Problems in relationships between clients and vendors are well documented (e.g. Krishna et al. 2004; Parkhe, 1998; Palvia, 1995). Such problems are said to underpin the increasing number of outsourcing failures reported in the press (e.g. Foote, 2004). As a result, there have been various calls for research into the effective management of relationships in software outsourcing (e.g. Kern and Willcocks, 2000; Lonsdale and Cox, 2000). This thesis is a response to those calls. An empirical case study analysis of eighteen high maturity software vendor companies based in India and six of their clients based in the USA and Europe is presented. Based on this analysis guidelines for better practices in the management of offshore software outsourcing relationships are presented.

1.1. Software outsourcing

1.1.1 Growth in software outsourcing

Software outsourcing has grown steadily during the last decade. The trade press (e.g. Computing, 2006; TechWeb 2004) and the academic literature (e.g. Lee et al. 2003; Lacity, 2002) confirm this growth. The META group, a research organisation, estimates that the offshore-outsourcing market currently exceeds $10 billion and is expected to grow. The recent trade press article reports that offshore software outsourcing to India has already reached $30billion mark and will continue to rise (Murray, 2006). The continuing growth in offshore software outsourcing makes it increasingly important that offshore software outsourcing relationships be managed effectively.

1.1.2 The geography of software outsourcing

Most software outsourcing client companies tend to be located in the USA, Europe, Australia and Japan. Vendor companies tend to be located in India, China, Vietnam, the Philippines, Ireland and Russia. India is currently the world's leading outsourcing vendor country posting an average annual growth rate of 40 percent over the last decade (Heeks et al. 2001). Cusumano et al. (2003) in their international empirical study of software outsourcing found that Indian organisations combine conventional best practices such as specification and review with more recent techniques such as software process improvement (SPI) and customer relationship management (CRM). This is said to allow Indian software companies to respond effectively to customer demands

(Cusumano et al. 2003). The Indian software industry now develops software for more than half of the Fortune 500 companies.

1.1.3 Failures in software outsourcing

Ensuring outsourcing success is not easy and various empirical studies report outsourcing failures. Ozanne (2000) found that 20-25% of all software outsourcing relationships fail within 2 years and 50% fail within 5 years. Lacity et al. (1995) report that nearly 70% of the companies that outsourced their software are unhappy with one or more aspects of their involvement with vendors. The literature indicates that problems with the 'relationship' between clients and vendors is the underlying reason for many failures (Palvia, 1995; Prakhe, 1998; Miles and Snow, 1992).

1.1.4 Difficulties in software outsourcing

Software outsourcing makes workforces that are geographically and culturally diverse work together on one project. This means that the client-vendor relationship is crucial for the success of the project. It is also crucial because mismanagement of client-vendor offshore outsourcing relationships can have far reaching consequences for both clients and vendors. Generally, contracts are used to guard against problems in the relationship. However, formal contracts, while necessary, are no substitute for good relationships (Parkhe, 1998; Humphrey, 1990).

The distance between client and vendor can also be a problem. When client and vendor are operating from different countries, management of the relationship becomes more complex. Herbsleb and Moitra's (2001) work on offshore software development notes how distance between project members and diverse workforces creates adverse effects. They conclude:

> *'As we increasingly work in virtual, distributed team environments, we will more and more face formidable problems of miscommunication, lack of coordination, infrastructure incompatibility, cultural misunderstanding and conflicting expectations'.*

1.2 Research in software outsourcing

With more companies outsourcing their software operations, issues associated with the establishment and management of outsourcing relationships have started attracting

research interest (Reifer, 2004; Lacity and Hirschheim, 1993). This increased research interest is also reflected in increased work on outsourcing failures (Firmbuilder, 2001) and on how outsourcing relationships can be made successful (Alborz et al. 2003). The main conclusion from the literature is that outsourcing success or failure is mainly dependent on the management of relationships between client and vendor.

Despite this there remains a lack of research into the management of offshore software outsourcing relationships. Kern and Willcocks (2000) suggest that the area in outsourcing that has received the least research attention is client – vendor relationships and the characteristics that describe such relationships. There have been numerous calls for more research into this aspect of outsourcing (Kern and Willcocks, 2000; Krishna et al. 2004).

This lack of research in software outsourcing relationships contrasts sharply with the amount of research in other disciplines that is focused on relationship issues. For example, the organisational (Kramer and Tyler, 1996), management (e.g. Blois, 1999), strategy (e.g. Ring, 1997) and social science literature (e.g. Gambetta, 2000) includes a great deal of research attention on managing a variety of different relationships. The research in these other disciplines has identified trust as the most critical factor for the success of any human relationship (Parkhe, 1998a; Kramer and Tyler, 1996; Luhmann, 1979; Williamson, 1975). Therefore it is reasonable to assume that trust is also important in software outsourcing relationships. Nevertheless, few research studies (e.g. Lander et al. 2004; Barthelemy, 2001; Sabherwal, 1999) have investigated trust in software outsourcing. Those studies that have recognised its importance call for more extensive empirical studies to extend current understanding of trust in software outsourcing relationships.

The lack of research on managing outsourcing relationships also means that very little published material is available to help practitioners improve their relationship management. Although frameworks such as ISO 9001, CMM and Six-Sigma are used increasingly by outsourcing vendors, these frameworks mainly help to improve technical competence in undertaking outsourced work. They do not assist clients and vendors to manage their outsourcing relationships. Recent work on managing outsourcing projects has been done by ITsqc (The IT Services Qualification Center) of Carnegie Mellor University. They have published a 'best practices' framework for

outsourcing vendors (eSCM-SP) and plan to publish a corresponding framework for clients in the future (Hyder et al. 2004). This work goes some way toward addressing the needs of outsourcing partners but is not tailored specifically to software outsourcing.

1.3. The outsourcing relationship defined

Terms such as 'sourcing', 'outsourcing' and 'e-sourcing' are often used interchangeably in connection with relationships between clients and vendors. Terms such as 'offshore' and 'global' are used in connection with outsourcing to indicate that client and vendor are located and operating from different countries. The major stakeholders in outsourcing relationships are the client and vendor, referred to in the literature as the 'parties' or 'partners'. Following Kern and Willcocks (2000), Lacity (2002) and Palvia (1995), in this thesis, software outsourcing is considered as contracting-out part or all of a client's software related services to a vendor. The client is referred to as a company that outsources to another company (i.e. a vendor) and a vendor is referred to as a company that delivers the work assigned by the client and receives the agreed remuneration. Furthermore, in this study the empirical investigation is conducted specifically into 'offshore' outsourcing relationships. Offshore is taken to mean the geographical distance between vendors and clients. For example, vendors (in this thesis Indian software companies) are located and operating from outside the client country (in this thesis USA- and Europe-based companies).

1.4. Scope

Empirical investigation in this study is focused on high maturity software outsourcing companies based in India and their clients in the USA and Europe. Subsequently, results of the study should be useful to both Indian high maturity software companies and their US and European clients. However, this does not limit the scope of the results. Results of this study will also be useful in terms of learning better practices in offshore software outsourcing, both for non-high maturity Indian software companies and for the companies from countries other than USA or Europe wanting to outsource their software to India.

India accounts for the world's highest volume of offshore software outsourcing business and has the highest number of high maturity software companies. Therefore this study has focused on highly mature Indian outsourcing vendor companies for the empirical investigation. A highly mature company has been defined in this thesis as achieving the

Software Engineering Institute's CMM (Capability Maturity Model) level four or five. Such a high maturity status provides an opportunity to investigate the practices of what should be state-of-the-art software engineering companies (Curtis, 2000). Nilay Oza had the appropriate background to obtain empirical data from Indian software companies. Moreover, a growing number of practitioners and academics are keen to learn more about the Indian software outsourcing scene.

In terms of client investigation, the US and European clients of participating Indian software companies were considered. This is partly because US companies contract out the highest volume of software work to India. European, especially UK, companies rank second in this regard (Tyson, 2004). According to India's National Association of Software and Services Companies (NASSCOM), 70% of US-based software activities that are outsourced offshore are contracted to Indian software companies.

1.5. Research questions

The literature review helped to identify four research questions in this thesis. The answers to the research questions will make it possible to gain insights into the four key elements identified in the literature review, that is the motivators of offshore software outsourcing, difficulties in offshore software outsourcing relationships, critical factors for managing offshore software outsourcing relationships, and building trust in offshore software outsourcing relationships.

Research question 1 What motivates offshore software outsourcing?

This question identifies the key motivators behind offshore software outsourcing. The answer to this question will clarify what motivates clients to initiate their outsourcing involvement with offshore software companies. It will also provide some insights into the strengths of Indian software companies in offshore software outsourcing.

Research question 2 What are the difficulties in offshore software outsourcing?

This question identifies the difficulties of offshore software outsourcing. It investigates difficulties perceived by clients and vendors in managing offshore software outsourcing. The answer to this question will help to identify gaps in offshore outsourcing relationships that indicate where potential failures in the relationship can emerge.

Research question 3 What are the critical factors in managing offshore software outsourcing relationships?

This question identifies critical factors in building effective offshore software outsourcing relationships. The answer to this question will help identify what outsourcing clients and vendors should do to manage their relationships effectively.

Research question 4 What are the factors for achieving and maintaining trust in offshore software outsourcing relationships?

This question evaluates the role of trust in offshore outsourcing relationships. The answer to this question will help companies to understand trust in offshore outsourcing relationships and how it can be achieved initially and then maintained throughout the relationship.

The empirical investigation will be used to answer the above four questions. The results of the empirical investigation will also be discussed qualitatively by taking existing literature into account and by means of cross-case comparisons. Based on the results of the empirical study, propositions will be developed. Empirical results will then be used to develop the emergent model for managing client – vendor relationships in offshore software outsourcing.

1.6. Contribution to knowledge

This thesis extends the current state of software outsourcing research with a detailed empirical investigation into offshore software outsourcing relationships. This thesis has two important contributions:

1 The thesis proposes an emergent model based on the empirical results, discussion thereof, and the existing literature. The uniqueness of the model in the context of software engineering studies also lays in its grounded case approach. Furthermore, by comparing state-of-art literature with the emerging empirical results and using cross-case comparison this thesis identifies testable theoretical propositions. These propositions can be used as substantiated research inquiries into offshore software outsourcing. The proposed model and underlying empirical results and propositions are most relevant to academics researching software outsourcing in India.

2 The thesis presents practitioner guidelines based on the analysis of empirical data collected from software companies. In this context, the proposed guidelines are evidence-based guidelines. Evidence-based guidelines have not yet been used in software engineering research. The proposed guidelines are relevant to the effective management of the relationship between client and vendor. These guidelines build on and complement existing advice published for outsourcing practitioners. The guidelines are very detailed and are tailored specifically for offshore software outsourcing relationships in India.

1.7. Research strategy

An empirical approach to research is taken in this study. Consequently, qualitative research is undertaken. As part of the qualitative research, multiple case studies methodology is used with grounded theory analysis techniques (referred to as grounded case approach) to conduct an empirical investigation. Based on Yin (2003), Patton (1990), Strauss and Corbin (1998) and Glaser and Strauss (1967), the overall research strategy is presented in Figure 1.1

Figure 1.1 shows the overall research strategy adopted in this study. The literature review is used to develop the basis for this study by developing research questions. The motivation for researching into software outsourcing follows from the literature review. The multidisciplinary literature review is conducted to explore the subject and the research methods that are suitable for the investigation. The organisational, management, social science and economic literature are particularly relevant to investigating software outsourcing relationships.

In this study, a grounded case research strategy is followed. The decision to use the grounded theory methodology with multiple case studies echoes the idea of developing theory from empirical data rather than testing an existing theory or hypothesis. Multiple case studies are used to collect empirical data and organising overall study. A pilot study is conducted before starting a full scale empirical investigation. The pilot study is particularly useful for understanding the application of research methodologies and for testing the reliability of their use. The pilot study also reveals provisional findings of research into offshore software outsourcing.

Figure 1.1 Research strategy

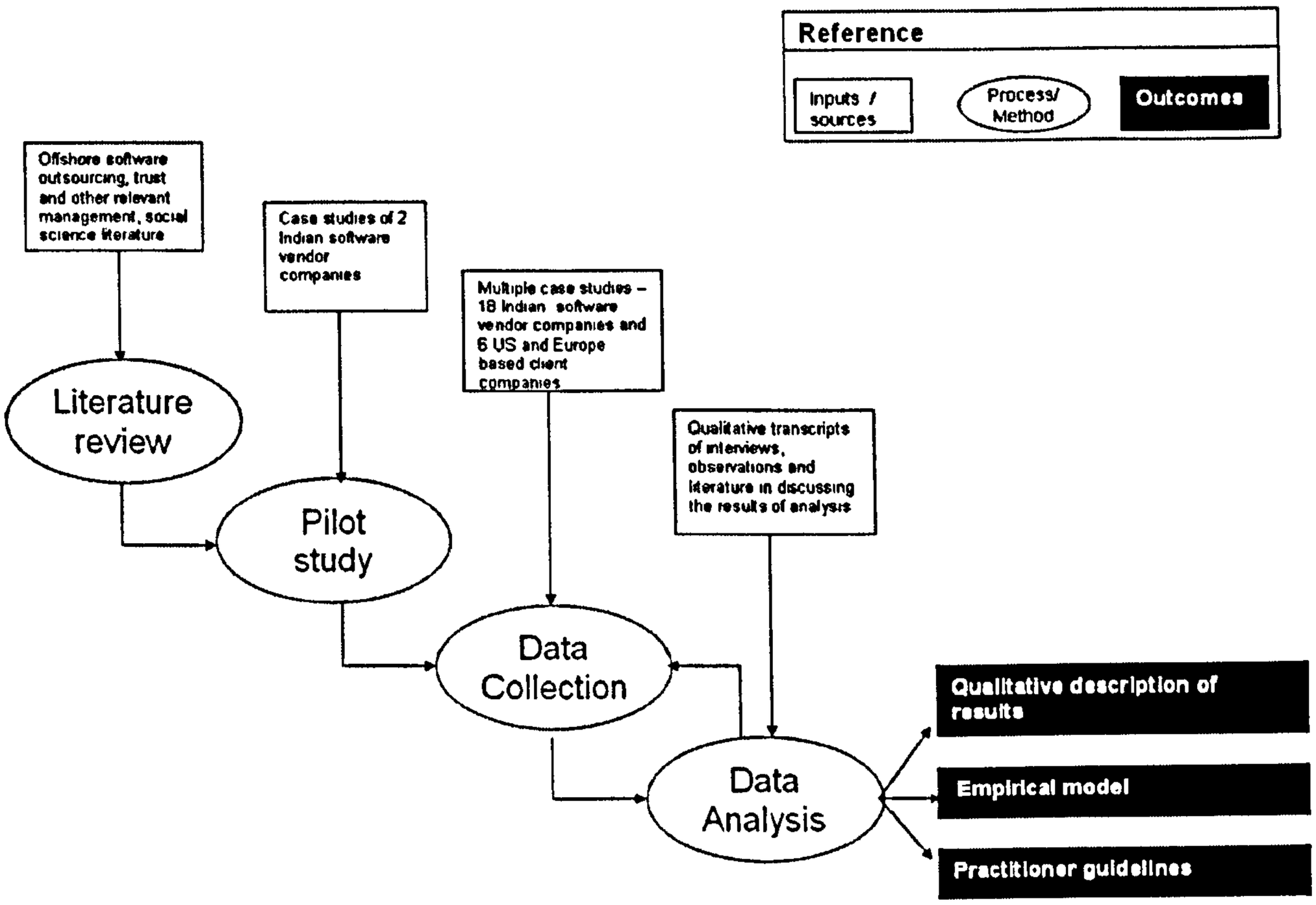


Figure 1.1 shows that qualitative data from multiple case studies (eighteen vendor companies and six of their client companies) are collected to address the research questions established through the literature review. Qualitative data are then analysed using the analysis methods of grounded theory research including open coding, axial coding and selective coding. Client data collection follows vendor studies to support the replication of the study and subsequently to strengthen validity of the results.

Figure 1.1 shows that based on data analysis, three outcomes are achieved in this study. First, all the empirical results are described qualitatively with cross-case analysis. Second, results of the study are discussed based on the existing literature to identify emergent research propositions. Subsequently, an emergent model is proposed, reflecting the empirical results. Third, based on the empirical results, provisional practitioner guidelines are developed, focusing on relationship management in offshore software outsourcing relationships.

1.8. Research protocol

Yin (2003) recommends to develop research protocol when using case study methodology. The research protocol gives a clear and complete outline of the methods and procedures used in the study. In the grounded theory literature, Strauss and Corbin (1998) also suggest that a protocol for building grounded theory should be established. A research protocol relevant to this thesis is presented in Table 1.1 (presented on page 19).

1.9. Overview of thesis

The main text of the thesis includes ten chapters, comprising mainly introduction and literature, research methods, results and conclusions.

This chapter has introduced the thesis. Chapter two presents state-of-art literature that establishes a basis for the empirical investigation. The literature review concentrates on three elements, general offshore software outsourcing literature, outsourcing relationships literature, and analysis of trust in literature across different disciplines. Research questions for the empirical investigation are identified on the basis of the literature review.

Chapters three and four present the research approach used to conduct empirical investigation. In particular, chapter three details the research methods used in this study, with a detailed explanation of the rationale behind the choice of particular research methods. Chapter four highlights the research procedure followed to implement the empirical research methods established in chapter three.

Chapters five, six, seven and eight present the results of the empirical investigation. The results are presented to answer the research questions established in chapter two of the thesis. These chapters also present the cross-case analysis derived from the empirical investigation in order to review how clients' and vendors' perceptions converge.

Chapter nine discusses the empirical results. The literature is brought in at this stage to review the results of this study. Emerging propositions and a model for managing offshore software outsourcing relationships is presented in this chapter. Chapter ten presents the main conclusions of this thesis. Conclusions are presented in terms of the research methods and empirical results of this study. Action points for future research work are also identified.

Table 1.1 Research protocol

Protocol issue	Methodology	Reference
Project introduction and objectives		Chapter 1
Relevant readings of the subject being investigated		Chapter 2
Data collection procedures should be established.	The standardised open-ended interview	Chapter 3 – section 3.1 Chapter 4 – section 4.1
Sampling strategy should be established.	A systematic random sample. Case studies of clients corresponding to the vendors.	Chapter 4 – Research procedure
Demographic information of companies and interviewees should be collected and documented.		Chapter 4 – section 4.2
Types and sources of data to be collected in the study should be determined.	Qualitative data –literature, interviews	Chapter 3 Chapter 4 – section 4.2
A data collection procedure should be established. The procedure should include how the data will be collected and from whom the data will be collected.	Visit to India for the data collection for 2 to 3 months No specific plan for client data collection as it would be based on the vendors participating in the study	Chapter 4 – section 4.1
Expected preparations prior to the data collection sites should be established.	The literature review on interviewing methods Pilot study at UH Specific arrangements to visit the companies	Chapter 3, Chapter 4 – section 4.1
Interview questions for the qualitative data collection should be determined.	Questions are piloted Questions are substantiated on the basis of the literature review	Chapter 2 Appendix 1
Questions	Questions will be open-ended, standardised and will seek relevant information from the participate	Chapter 4
Qualitative data analysis methods should be reviewed and determined.	Qualitative data analysis using the broad principles of the grounded theory approach	Chapter 3,4
Procedure for preparing collected data for analysis should be established.	Preparing collected data for analysis Grounded theory is to be used to analyse the data.	Chapter 4
Procedure of conducting qualitative analysis should be established.	Grounded theory – coding techniques	Chapter 4
Strategy for selecting empirical results for further discussion should be determined	Strategy for selecting empiric results	Chapter 4 – section 4.3.2, Appendix 3
The credibility of the research approach and analysis should be measured.	Inter-rater reliability, Replication, Generalisability of results	Chapter 3
Results of the analysis should be adequately presented.	Qualitative description Cross case analysis Discussion	Chapter 5 – 9
Limitations of results and the research methods should be reported.		Chapter 3

Chapter 2: Offshore software Outsourcing

The aim of this chapter is to provide a context for the contribution this research will make to the existing knowledge in offshore software outsourcing. The literature is reviewed to present the current understanding of offshore outsourcing, relationship management in offshore outsourcing, and the role of trust in offshore outsourcing relationships. However, the current understanding is also built based on the historical note of what had primarily motivated software outsourcing.

2.1 Software outsourcing

Software outsourcing is generally considered as the contracting-out part or all of a client's software activity to one or more vendors. Outsourcing generally describes the use of an external provider to perform one or more organisational activities (e.g. the purchasing of a product or service). Different terms such as 'facility management' and 'contracting-out' were in use until the word outsourcing emerged in the 1970s. Software outsourcing emerged in the late 1980s and has been reported as one of the strongest and most sustained business trends since then (Lee et al. 2003; Hendry, 1995; Kern and Willcocks, 2000).

2.1.1 Origins of software outsourcing

The main reasons behind the emergence of outsourcing are competition and recession, core competence, and the growth of communication technology. Lee et al. (2003) report that outsourcing originated from the professional services and facility management services in the financial and operation support areas during the 1960s and 1970s. Furthermore, they also report that during the 1980s outsourcing lost momentum. This happened because companies started buying the necessary systems and application software to assemble them into an infrastructure suitable to their requirements rather than outsourcing the development. Therefore software activity became one of the important functions to support organisations' core business.

The companies such as American Airlines and Merrill Lynch are reported to have used in-house software development to beat competition and obtain customer loyalty (Lacity and Hirschheim, 1994). However, the cost of developing and maintaining software activity in-house increased continuously. Consequently, in the late 1980s outsourcing started growing again. This momentum started in 1989 with Kodak's well documented (Kern and Willcocks, 2000; Nam et al. 1996) decision to outsource. Subsequently, the

number of outsourcing contracts grew and outsourcing emerged as a key method of managing software activity (Loh and Venkatraman, 1992). Since then software outsourcing has grown consistently in scope and volume (McCarthy, 2004). Some of the key reasons behind the revival of outsourcing trend are presented here.

2.1.1.1 Competition and recession

A combination of competition and recession is considered as one of the prime reasons for the growth in outsourcing. Hendry (1995) reports that during the late 1980s and early 1990s the effects of recession made competition stronger. Competition and recession made cost cutting and downsizing imperative for the survival of many companies (e.g. Juric et al. 2005; Lacity and Hirschheim, 1993). Companies were forced to look much harder than before at efficiency and costs (Hendry, 1995).

Therefore companies chose to contract-out their software activity whose contribution was difficult to measure and demonstrate (Lacity and Hirschheim, 1993). The situation is also reflected in Miles and Snow's (1992) work on the causes of failure in collaborated companies. They observed that the emergence of collaborated companies was related to increasingly rapid changes in product and process technologies and to changes in the nature of international competition. Kakabadse and Kakabadse (2005) also attribute the emergence of software outsourcing to increased competition and recessionary pressures. The similar perception can also be observed in initial studies on offshore outsourcing (Kanter, 1989; Reich, 1991; Handy, 1989). For example, according to Reich's (1991) perspective:

> *'Outsourcing was not only desirable but necessary if western business was to survive and prosper'.*

To survive competition and recession, in the late 1980s, many companies implemented software outsourcing mainly to cut their costs. Since then cost savings has been found to be the most cited reason for outsourcing (Drezner, 2004; Takac, 1994). The trade press reports many examples of software outsourcing where costs are reduced by 10% to 50% off in-house software costs (McLaughlin, 2003; Krass, 1990). However, the cost, which was predominately only reason to outsource decade ago, is gradually changing.

2.1.1.2 Core competence

Competition and recession made companies focus more on the core activities of their business. The idea of concentrating more on the core business activity was fundamental to the concept of core competence (Prahalad and Hemel, 1990). However, the implementation of core competence motivated companies to outsource their non-core activities. One of such non-core activities were related to software. Software activities were not considered core business activities due to a lack of tangible value on the 'balance-sheet' of companies and some businesses even considered software as a 'cost-burden' (Lacity and Hirschheim, 1993). Consequently many companies started to remove the non-core activities, such as software, from their business.

However, the core competence was not aimed at eliminating non-core activity (Prahalad and Hamel, 1990). It is also reflected in Hendry's (1995) argument that the core competence of an organisation should be found in the whole and must be cultivated and developed for competitive success. Nevertheless, the misinterpretation of core competence gave motivation to software outsourcing (e.g. Gilley and Rashid, 2000). Lacity and Hirschheim (1994) explain that companies want to focus on core business activities. They report:

> *'Senior executives have come to believe that the most important sustainable competitive advantage is strategic focus by concentrating on what a company does better than anyone else while outsourcing the rest'.*

For example, the Northern Health Authority (NRHA) (Bird, 1992) outsourced its entire software activity (which was considered non-core) to increase management efforts in core business activity. The director of NRHA reported:

> *'We wanted to reduce the management burden by ensuring that we would no longer be responsible for providing information technology'.*

Furthermore, RMI Titanium outsourced its software activity (Haavind, 1991) as it needed capital to expand its production capacity. As the software activity was getting more expensive RMI could allocate more capital to production by outsourcing its software activity. The senior vice president of the company claimed:

'By shifting over to our main business, RMI increased revenues 27% in 1988 and 21% more in 1989'.

Eastman Kodak (Krikpatrick, 1991), Bank of England (Wilder, 1991), and BP Exploration (Goodwin, 1991) are the other examples of companies outsourcing software activity to concentrate more on core business activities. The idea of investing the savings gained from software outsourcing into the core business of the companies still continues.

2.1.1.3 Growth in information and communication technology

Growth in information and communication technology also encouraged companies to outsource. Due to the birth of internet, transfer of information became more efficient and less costly. This helped companies to utilise vendors' expertise. In relation to this, Hendry (1995) explains:

'As information technology has developed, the complexity and amount of information that can be transferred have increased enormously, while the cost of making that transfer and the time taken to make it have both radically decreased. At the same time, the geographic range of cost-effective transportation and communications has also increased, further enhancing the scope for effective information transfer'.

Growth in communication technology made continuous on-site visits unnecessary. The progress of outsourced work has started to become available 'as it happens' to the client company. Other reasons behind the emergence of outsourcing include restructuring of companies, moving into a new area of business, moving to an outsourcing culture, and dissatisfaction with in-house software performance. Analysis of the reasons reported for outsourcing strongly suggests that vendors are able to provide software activities at cheaper prices. However, it is important to know the reasons why vendors seem to be in a better position to deliver software activities at cheaper costs. The underlying theory supporting the outsourcing decision is the economies of scale.

2.1.2 Transaction cost theory

Transaction cost theory is probably the most widely applied theory for analysing software outsourcing (Qu and Brocklehurst, 2003; Lacity and Hirschheim, 1993; Nam et al. 1996; Currie and Willcocks, 1998). Transaction cost theory was developed by Coase (1937) and further developed by Williamson (1975). Williamson argues that there are transaction costs in using a market (i.e. external suppliers). Transaction costs

consist of operational costs such as the costs of monitoring, controlling and managing transactions and contractual costs. To cut down the transaction cost is the core in Williamson's (1975) argument.

Therefore Williamson (1975) suggests that managers should consider total costs (production costs plus transaction costs) when taking the decision to outsource. Lacity and Hirschheim (1993) also claim that when taking an outsourcing decision, managers must consider production costs and transaction costs.

Williamson theorises that an internally produced transaction is usually more efficient. This is because the transaction costs associated with monitoring an outside vendor outweigh the savings gained from the vendor's production efficiencies. However, in the light of the current growth of outsourcing, this argument does not seem to be holding. In software outsourcing clients are able to manage low transaction costs and make savings on production costs by outsourcing the software activity. This is possible because outsourcing vendors can provide lower production costs through economies of scale achieved by sharing computer hardware and software among multiple clients (Cachon and Harker, 2003; Krass, 1990). Cachon and Harker (2003) concluded that scale economies provide a strong motivation for outsourcing. They found that Even if the vendor's technology is no better than the client's technology and the vendor is required to establish dedicated capacity, the clients strictly prefered to outsource.

Williamson also claims that the market will always be able to provide cheaper production costs through economies of scale. However, he emphasises that using the market will incur transaction costs. Lacity and Hirschheim (1993) also claim that outsourcing companies need to spend more money monitoring supplier behaviour because they may behave opportunistically. Opportunistic behaviour is referred to the behaviour of client or vendor when any of them do not adhere to the common interests of the project and behave deceitfully.

Aubert et al. (2004) analysed outsourcing decisions of 355 surveys using transaction cost theory. They found that participating companies outsourced more readily when activities were less complex, easier to measure, and more standardised. Aubert et al. (2004) also found that the companies rely on outsourcing when they have a more formalised setting and when they have formal tools to measure the services delivered.

Furthermore, companies outsource more readily if outsourcing activity has low uncertainty of results. In summary, companies will only outsource if the transaction costs stay at a level that they can make savings after calculating the total cost (transaction cost and production cost) of the outsourced work

2.1.3 Offshore software outsourcing

The cases studied in this thesis are all offshore outsourcing projects. Therefore it is important to understand the context of offshore outsourcing.

2.1.3.1 Growth of offshore outsourcing

Offshore outsourcing was initially used for data processing work. However, since the 1990s companies have been outsourcing many software activities offshore. For example, software design, testing, development and maintenance have been outsourced offshore since the 1990s. Gurbaxani (1996) in his study of 50 outsourcing contracts suggests:

> *'The nature of software outsourcing is changing in significant ways and that the strategies and options managers can pursue are becoming more diverse and varied. Many evidences are published in the literature to highlight this growth'.*

Along with software activities, generally, the amount of software outsourcing has consistently increased during the last decade (Hendry, 1995; Krishna et al. 2004). During this period, companies have also started to outsource their software activity outside their own country. This outsourcing was referred to as an offshore outsourcing because software activity was outsourced to a country other than the country of the client company.

The trade press (e.g. Computing Express, IT weekly, Computing) and the academic literature (e.g. Lee et al. 2003; Lacity, 2002) suggest that offshore outsourcing has maintained a 20 percent growth rate. Mckinsey Global Institute predicts that offshore outsourcing will continue to increase and may achieve growth rate of 30 to 40 percent (Drezner, 2004). According to the International Data Corporation (IDC) the offshore market for the US companies is at $6.9 billion in 2005, with a 20% annual growth rate. IDC also estimates that the US firms will outsource $17 billion worth work offshore by 2008.

Trade press magazines such as IT Week and research companies such as Gartner and Forrester regularly report the growth projections of offshore outsourcing. For example, Forrester predicted that European companies will spend more than $5bn on offshore outsourcing by 2009, and that a quarter of this money will come from the UK companies.

McCarthy (2004) argued that the near-term growth of offshore outsourcing will accelerate due to broadening of offshore outsourcing services, increasing visibility and increasing centres from client companies in countries such as India, China and Russia.

2.1.3.2 The geography of offshore outsourcing

Growth in offshore outsourcing is increasingly seen in terms of developing countries emerging to undertake software outsourcing work. Countries such as India, Ireland, China and Russia are countries with an increasing offshore outsourcing presence. These countries mostly get software outsourcing work from client companies in the USA, Japan, Australia and the European countries (particularly the UK). India's share of the total offshore outsourcing services is significantly larger than any other country (Minevich and Richter, 2005). The other emerging countries are China, Russia, Mexico and Ireland. Minevich and Richter (2005) predict that China will become the biggest competitor to India in offshore outsourcing and may also overtake India in offshore outsourcing share by 2015.

A few studies (e.g., Athreye, 2005; Heeks, 1996; Chordas, 2003; McLaughin, 2003) focus on the Indian software outsourcing industry. However, a general lack of research on offshore outsourcing is also reported in the literature (Khan et al. 2003, Currie, 2000). Though India is one of the first offshore software outsourcing countries and remains the most successful offshore outsourcing country, it is reported to have not received significant research attention (Khan et al. 2003). Khan et al. analysing the strategies adopted by Indian software suppliers to compete in the offshore outsourcing marketplace claim:

> '*Much of the research in offshore outsourcing offers only descriptive insights into the reasons companies adopt an outsourcing strategy, with little emphasis on the supplier market*'.

2.1.3.3 The Indian software industry

An investigation of the Indian software industry is central to this thesis. Therefore it is important to build an overview of the Indian software industry.

Overview

Many published reports and the trade press claim that India leads offshore software outsourcing. More than half of the Fortune 500 companies now outsource some or all software requirements to the Indian software companies. Mclaughlin (2003) also notes that the Indian offshore outsourcing will grow because of its capability to provide cheaper and better software. Taylor (1996), in his study on offshore outsourcing reports:

> *'The greatest conscious effort by any single country to provide external vendor services to client companies in the West is India with a 12% share of the total foreign opportunity'.*

In 1974 Tata Consultancy Services undertook the first Indian software export project. However the initial growth of export in the Indian software industry was slow (Heeks, 1996) until the late 1980s when significant economic policy reforms and a liberalisation of the economy took place that facilitated growth in outsourcing. Economic policy reforms and liberalisation helped attract offshore projects (Clott, 2004). Big US companies such as IBM, Citigroup, General Electrics, and Texas Instrument started to open their own offshore centres in India (Heeks, 1996). In the 1990s the growth and volume of the software exports expanded rapidly and the trend continues.

Growth

India's software industry has been growing consistently for the last decade. In 1990, India's software exports were $131.2 million, which by 2001-02 had reached $8.7 billion. Figure 2.1 presents figures of India's software export industry growth since 1999.

It is clear from Figure 2.1 that the growth of India's software industry has been consistent and continuous. Figure 2.1 shows that in 2004 the total software exports reached $12.8 billion. Software export in 2003 was $9.9 billion - 33% higher than the software exports of 2002. Furthermore, Figure 2.1 shows that the software export has at least doubled in 2004 since 2000.

Figure 2.1: India's software export between 1999 and 2005

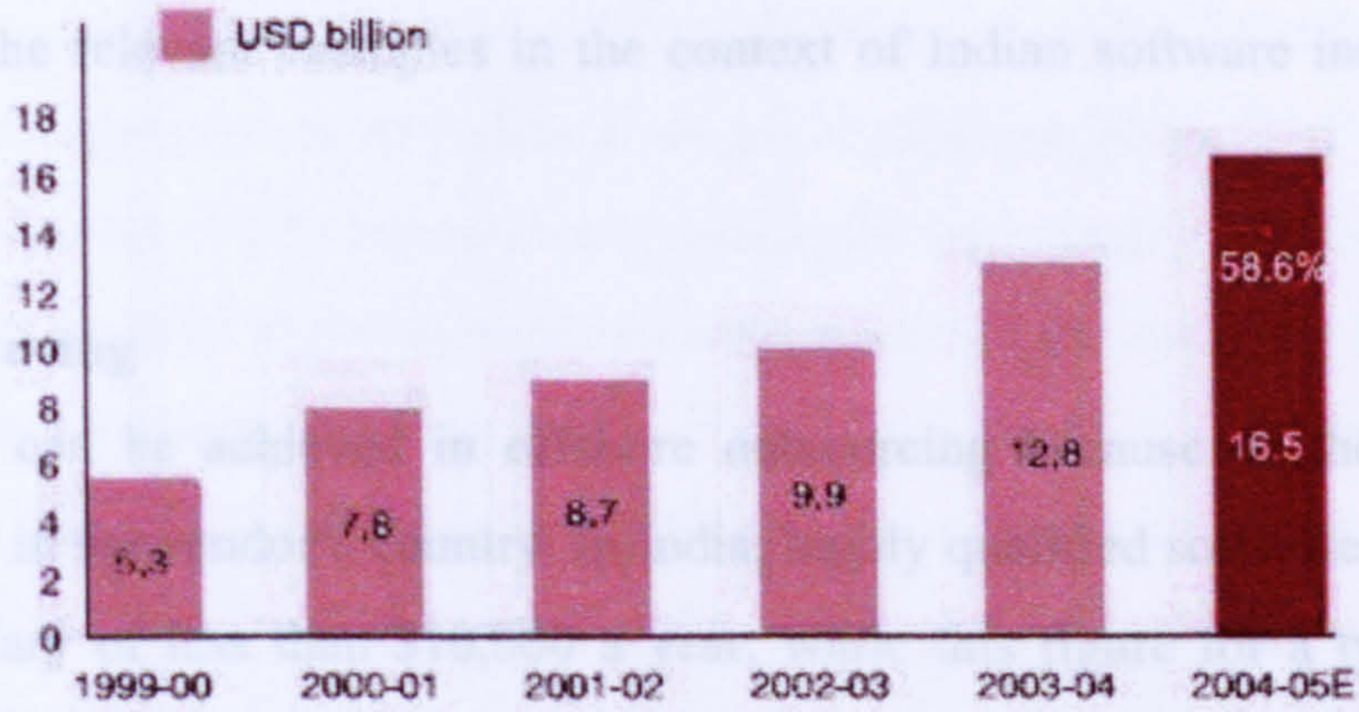


Figure 2.1 indicates that NASSCOM is expecting software exports to reach $16.5 billion in 2005, which in fact reached $22 billion at the end of 2005. NASSCOM has set a target of $50 billion of annual software and service exports by 2008. McLaughlin (2003) referred to a quote for highlighting India's growth and approach to software outsourcing. It reads:

'Anything you can do I can do better, and cheaper.'

The worldwide software industry revenue was reported to be $550 billion in 2000. India accounted for only 1.5 percent of this worldwide software industry revenue. India's current share in this market is estimated to rise to less than 5 per cent till 2008. Furthermore, China is also emerging as another parallel and may take over India's worldwide leadership in this business in the next twenty years (Minevich and Richter, 2005). Minevich and Richter (2005) reported that by next decade, many companies will not outsource to a particular country at all. Instead, they will turn to large multinational corporations with access to a variety of resources and expertise across the globe and the ability to spread risk. They also synthesise that China will lead the global outsourcing business in terms of its competitive position overtaking India's current position by 2015. The factors considered for this synthesis were population growth, GDP growth, labor supply and IT expertise.

2.1.4 Motivators of offshore outsourcing

A variety of motivators supporting the growth of offshore outsourcing are acknowledged in the literature. Although some motivators are only specific to a

particular country, most motivators are applicable to offshore outsourcing in general. Therefore, this subsection reports major motivators for offshore outsourcing. Particularly, the relevant examples in the context of Indian software industry are also presented.

2.1.4.1 Cost saving

Cost savings can be achieved in offshore outsourcing because of the cost-efficient skilled labour in the vendor's country. In India, highly qualified software engineers earn an annual salary of less than $10,000 a year, while this figure for a typical software engineer in the US is from $50,786 according to Salary.com (Chordas, 2003).

Although offshore outsourcing has additional transaction costs, companies are reported to be able to save around 30% of the total project costs (McLaughlin, 2003). Chordas (2003) reports a case study of Ebix.com who set up its own offshore operation in India in May 2001. A variety of activities such as software development, call centre operations, and data conversion were outsourced to Ebix.com, India. The result of the offshore venture for the Atlanta based company was an annual cost saving of $12 million.

2.1.4.2 Quality

Cost is not the only motivating factor in offshore outsourcing (King, 2005). The quality of software activity outsourced offshore has been reported to be acceptable by the clients. For example, Indian software companies have been reported to provide particularly high quality software (Bhatnagar and Madon, 1997). Pfannenstein and Tsai (2004) have studied the effects of offshore outsourcing on the American software industry. They note that Indian software companies provide high quality software through disciplined work and mature development processes. They cite a comment from the director of the Forrester Research:

> *'India is a culture more focused on quality and process than America is. They tend to be much more disciplined. They have done the most to turn software development away from the mystical black art to a real business process'.*

Quality in the Indian software industry is also reflected in the high maturity of Indian software companies. India has the highest number of CMM level 5 companies. More than half of all CMM level 5 companies in the world are located in India (Moitra, 2001)

In addition, most Indian software companies have achieved ISO 9001 certification. Other quality certifications such as COPC, SixSigma, People-CMM have also been achieved by a large number of Indian software companies. Arora and Asundi (1999) identify two reasons why Indian software companies seek quality certification. First, it is a marketing device to signal to potential customers that the company follows a well-defined and documented development process. Second, a well-defined process has improved the ability of companies to estimate and manage the time and resources required for a project, helping them bid for larger projects, thereby expanding their business.

Although India has many domestic challenges to overcome such as poverty and illiteracy, the Indian software industry has matured and is predicted to play a significant role in software services and product markets (Bhatnagar and Madon, 1997). Despite many illiterate people, the existing skilled human resource has remained one of the most important reasons for companies to outsource to India.

2.1.4.3 Skilled human resource

Utilising skilled human resource in the vendor country is also a major motivation for offshore outsourcing (Kobitzsch et al. 2001). Countries such as the US and the European countries have a shortage of human resource with software development skills. Whereas countries such as India, China, Vietnam and Russia have a large number of skilled software professionals.

In the context of India, human capital is the major advantage. Although the overall literacy rate in India is low, India accounts for the highest number of people who can speak English after the US. English remains important in the software outsourcing business.

A good educational system in major cities of India facilitates high quality human capital. Good education in mathematics and science has enabled India to develop the skilled human capital needed for the software industry. There are over 2,500 government recognised polytechnic institutions. These institutes produce more than 70,000 software professionals every year (Gupta, 2001).

As of 2003, over 500,000 people were employed in the Indian software industry (McCartney, 2003). With the growth of the software industry, the requirement for human capital has also increased. According to India's National Association of Software and Services Companies (NASSCOM), the software industry employed nearly one million people in 2004 and is expected to employ over two million people by 2008. The growing requirement for skilled software professionals can create problems for India in the future if the demand surpasses supply (Kriplani, 2005).

2.1.4.4 Latest technology

The other major motivation for offshore outsourcing is the availability of the latest technology in the vendor company. It can be costly for a company to invest regularly in the latest technology for in-house software activity especially if software is not a 'core' business of the company. However, by outsourcing software activity to the outside vendor, companies can access the latest technology. Outside vendors tend to be updated with the latest technology developments to compete in the market and to capitalise on economies of scale (Currie and Seltsikas, 2001).

2.1.4.5 Other motivators

There are other motivators particularly reported in the context of the Indian software industry: reliable communication infrastructure (Dossani, 2002), democracy (Clott, 2004), entrepreneurial abilities (Taylor, 1996), gaining a 24 hour development lifecycle by using time zone differences (McLaughlin, 2003) and access to new markets (Kobitzsch et al. 2001).

In summary, the literature review into the growth and motivators of offshore software outsourcing helps form an empirical inquiry into the following research question:

What are the motivators of offshore software outsourcing?

2.2 Offshore outsourcing relationships

This section evaluates offshore outsourcing relationships.

2.2.1 Failures and difficulties in offshore outsourcing

There are many reports on the growth and benefits of offshore outsourcing. However Palvia (1995) argued that most papers only report the positive aspects of offshore

outsourcing. Only a few papers were found to have reported failures and challenges in offshore outsourcing (Nam et. al. 1996; Herbslab and Moitra, 2001).

2.2.1.1 Failures in offshore outsourcing

Nam et al. (1996), in their investigation of 93 North American client companies found that 36 companies did not intend to continue their relationship with a vendor. King (2005) notes that JP Morgan decided to perform many software activities that it had previously outsourced, and has not renewed its $5 billion contract with IBM. Furthermore, Foote (2004) investigates 90 offshore outsourcing initiatives and his analysis confirms that more than half of the offshore outsourcing initiatives 'fail' in terms of achieving the stated cost savings or performance objectives. Foote claims that ignoring people and organisational issues in offshore outsourcing is a 'recipe for failure'.

Failures are reported in requirement determination, contract execution, implementation or installation of the final product. However, underpinning many of these failures is the management of the relationship. Kishore et al. (2003), in their longitudinal study of four companies conclude that:

> *'Outsourcing should be considered more as a management of relationship with service providers rather than as a simple subcontract for software commodities'.*

2.2.1.2 Difficulties in offshore outsourcing

Issues such as how to communicate, adjusting to another culture, styles of work, and different time zones become critically important in offshore outsourcing. For example, the cultural difference in two companies (client and vendor) should be understood and respected in the case of offshore outsourcing. Whereas companies operating in the same region need to pay less attention to such issues.

Foote (2004) reports that offshore outsourcing is more complex than domestic outsourcing. He further adds that offshore outsourcing presents higher levels of risk, which has raised failure rates even for companies that have good domestic outsourcing track records. The literature reports a variety of challenges in offshore outsourcing such as high coordination costs (Aubert et al. 1998), geographical distance (Herbslab and Moitra, 2001), information security related issues (Blackley and Leach, 1996) lack of direct communication (Pyysiainen, 2003), possible loss of knowledge about outsourced

activity (Gonzalez, 2005), cultural misunderstandings (Kobitzsch et al. 2001) and infrastructure problems (Barthelemy, 2001). Only relevant challenges are discussed here.

Infrastructure problems

The Indian government has taken considerable steps to improve the infrastructure by developing express highways, international airports and increased power supply. However, still, many outsourcing vendor companies in countries such as India and China do not have stable infrastructures. For example in a few Indian cities problems of infrastructure such as congested streets, ineffective public transport, frequent power cuts and water shortages in software centres threaten the industry's growth (Heeks, 1996).

Technical incompatibility

Krishna et al.'s (2004) long term research on offshore outsourcing found that it is useful for clients and vendors to harmonise the technologies and processes they use for outsourcing activity. Building this 'harmony' is also a potential challenge in offshore outsourcing.

Distance

Offshore outsourcing becomes even more critical and complex as clients and vendors operate from different countries. This is mainly due to distance and lack of direct control over the project. For example, Herbsleb and Moitra's (2001) work on global software development notes how distance among project members has a variety of effects. They conclude:

> *'As we increasingly work in virtual, distributed team environments, we will more and more face formidable problems of miscommunication, lack of coordination, infrastructure incompatibility, cultural misunderstanding, and conflicting expectations'.*

Differences in geography may not seem problematic with access to communication tools. However effective communication can still be difficult. For example, Kobitzsch et al. (2001) indicate companies should consider the local customs of the region where the work has been outsourced to. They report that clients and vendors follow different off-days and religious or national holidays which should also be taken into consideration:

'India celebrates its Independence day on 15th August, for instance, while the US celebrates on 4th July. Other Indian holidays – Republic Day (26th January), Gandhi Jayanti (2nd October), or Holi and Diwali (based on Hindu calendar) – do not even exist in the UK or American counterparts. Although seems minor cultural differences, ignoring such cultural specialities could produce resentment and damage morale' (Kobitzch et al. 2001).

Cultural differences

Krishna et al. (2004) in their long term research on offshore outsourcing found that differences in norms and values cannot be harmonised as they derive from differences in cultural background, education and working life. They cite a practical example from Nicholson et al. (2000) to report:

'British managers in an outsourcing relationship with a particular Indian software supplier found that Indian programmers, in deference to authority, would not voice criticism in face-to-face meetings but would sometimes send their opinions in email messages after the meetings had disbanded. The British managers, used to intense interaction and the development of ideas through meetings, felt frustrated at this 'polite' behaviour'.

Chordas (2003) in his work on offshore outsourcing to India reports a comment from one offshore client:

'In offshore engagements you have to learn how to do business with people from different cultures. Even simple cultural differences, such as shaking one's head back and forth, can imply different things in different cultures. In the US, this gesture generally implies 'yes', but to an Indian employee it signifies that he or she is listening to what you are saying'.

Loss of jobs

There has been immense discussions on the job losses at client side due to offshore software outsourcing. Particularly in the USA and UK there have been concerns about this issue. Herbsleb and Moitra (2001) pointed out that many individuals' job might be threatened because of offshore outsourcing. The trade press have been reporting job loss predictions (e.g. IT Week, 2006). In the USA, there have been strong political campaigns against offshore outsourcing and states such as New Jersey and California have passed anti-outsourcing bills where government contracts may not be outsourced to offshore software company. Due to such campaigns, the perceived loss of jobs may create difficulties in managing client - vendor relationships. The fear of losing jobs may

also lead to client employees' lack of cooperation in transferring outsourcing work to the client.

Transfer of work

Transfer of the outsourcing work from client to vendor should be effective. If it is not done properly, there may be substantial problems in the relationship and the final outcome of the project. Transfer of work may be difficult due to lack of domain knowledge, lack of understanding and experience of joint work between client and vendor, cultural differences, perceived loss of business knowledge and jobs.

In summary, outsourcing software activity offshore increases the challenges for the client and the vendor. The challenges reported above can be overcome with effective management practices. However, there is another major challenge in offshore outsourcing. Agreeing the right and complete contract is reported to be a difficult task for the client and the vendor in offshore outsourcing. This is referred to as the problem of incomplete contract.

2.2.1.3 Incomplete contract

A contract is used between client and vendor to regulate their expectations from outsourcing activities. A contract is considered as the most important tool to manage outsourcing projects. Lacity and Hirschheim (1994) say that:

> *'If a company decides to outsource, the contract is the only mechanism to ensure that expectations are realized'.*

However, it is unlikely that the contract can cover all possible future contingencies. For example, Brynjolfsson (1994) in his work on incomplete contracts theory notes that:

> *'Real world contracts are almost always incomplete, in the sense that there are inevitably some circumstances or contingencies that are left out of the contract, because they were either unforeseen or simply too expensive to enumerate in sufficient detail'.*

Furthermore, Beulen and Ribbers (2002) in their work on software outsourcing contracts also claim that the opportunity to include all details in the contract is very limited. Beulen and Ribbers relate this limitation to time pressure and the costs associated with the preparation of the outsourcing contract. For example, in some cases the company may consider it essential for certain software services to be quickly

available. Therefore client and vendor often agree on a procedure for dealing with changes that lead to situations that are not covered by the contract (Gietzmann, 1996). Contracts in software outsourcing are almost always incomplete. It is difficult to include all relevant details in the contract. Therefore, the 'incomplete' nature of contracts means that a good working relationship between clients and vendors is necessary.

It is evident from the literature review that offshore software outsourcing suffers from several failures and many challenges may be uncovered by the empirical investigation. Therefore this research conducts an empirical inquiry into the difficulties faced by clients and vendors in offshore software outsourcing. The intended research question is:

What are the difficulties in offshore software outsourcing?

2.2.2 Managing offshore software outsourcing relationships

The importance of effective relationship management is evident from the failures and challenges reported in offshore outsourcing. Ineffective relationship management can lead to a failure in an offshore outsourcing project. Many challenges such as distance, cultural difference and incomplete contracts can be resolved with effective relationship management.

2.2.2.1 The importance of outsourcing relationships

Many published reports suggest that managing relationships in outsourcing is important. Outsourcing has grown in volume, geographical area, and activities; the challenges have outpaced the mechanisms in place to manage outsourcing projects. The emergence of offshore outsourcing indeed made managing the relationship more challenging. Kirkpatrick (1991) argues that understanding the relationship that arises in outsourcing is critical. Offshore outsourcing not only brought new challenges but also made existing challenges more severe to tackle. New challenges also make the management of offshore outsourcing relationships critical. Furthermore, it is also reported to be difficult to achieve a successful outsourcing project without successful relationship management between the client and the vendor (Foote, 2004)

Managing relationships in offshore outsourcing is highly important. Krishna et al.'s (2004) longitudinal work on cross-cultural issues in offshore software outsourcing concludes that active management of the client-vendor relationship is of key

importance. Brereton's (2004) work on the software supply chain also indicates that a relationship between client and vendor in outsourcing is vital for success. Furthermore, Kern and Willcocks (2000) in their UK-wide empirical investigation of seven outsourcing relationships find that:

> *'Outsourcing seemingly is only successful when relations are effective and functioning'.*

Although the importance of relationship management is evident, it is still relatively under-explored in the context of research studies. A dearth of research, in terms of practitioner guidelines to manage offshore outsourcing relationships, is evident. Many studies confirm that research is necessary in this area. For example, Kern and Willcocks (2000) suggest that the outsourcing relationship and the characteristics that describe such a relationship is the area in outsourcing that has received the least research attention.

Khan et al. (2003) confirm that most studies have focused primarily on providing case study material on individual offshore outsourcing scenarios. This limits the generalisability of the results as the results are reported only from the individual cases. Furthermore, Currie (2000) looks at the strategic positioning of large IT service providers in the software and computer services industry. She calls for further research in the management of outsourcing relationships particularly to focus more on the vendor community. Khan et al. (2003) also report that the supplier market has received little emphasis in previous research.

It is critical to manage offshore outsourcing relationships effectively. It is also clear that more research is necessary to tackle the growing challenges in offshore outsourcing. So far only a few studies have addressed solutions to build successful offshore outsourcing relationships. Some of the frameworks helpful in managing offshore outsourcing are reviewed in the next subsection.

2.2.2.2 Frameworks in offshore outsourcing

Smith et al. (1996) propose a framework from the resource, environmental and project management perspectives of outsourcing. This framework covers a wide range of issues such as resource requirements, factors that affect resources and the characteristics of

software projects that affect resource requirements in offshore outsourcing. Kern and Willcocks (2000) propose exploratory framework of outsourcing relationships. Their framework is based on an empirical investigation of twelve UK based companies. Their framework focuses on behavioural, contractual and financial issues relevant to outsourcing. However, none of these frameworks concentrate on relationships issues as part of their proposed frameworks. Most frameworks concentrate on specific issues such as outsourcing decision (Willcocks and Fitzgerald, 1993); types of contracts (Nam et al. 1996); feasibility of an offshore option (Ravichandran and Ahmed, 1993) and financial issues (Loh, 1994) but seem to have overlooked the management of outsourcing relationships.

Few outsourcing projects seem to be using the above frameworks. Most outsourcing companies use quality frameworks such as ISO, CMM, or SixSigma to demonstrate their capabilities in managing offshore software outsourcing projects. However, these frameworks do not cover offshore outsourcing or relationship issues. Recently a few frameworks such as COPC (for customer contact centres and transaction processing centres) and BS-15000 (for software service management) have been presented specifically for outsourcing. Outsourcing clients may impose a variety of these frameworks (such as ISO, CMM, COPC etc.) on their vendors (Hyder et al. 2004). Implementing a variety of such frameworks may not prove productive as IT Service Qualification Center of CMU (ITsqc) notes (Hyder et al. 2004):

> *'Even if each of the frameworks provides a significant value-added increment to a vendor's capability, the diversity of emphases and perspectives could be counter productive'.*

Carnegie Mellon University (CMU) has presented a framework – eSCM-SP (eSourcing Capability Model) which claims to cover 'all' sourcing issues. At this stage, CMU has presented eSCM for vendors (eSCM-SP). A similar model for clients is currently under development. The main objectives of eSCM-SP (Hyder et al. 2004) are to:

1) give service providers guidance that will help them improve their capability across the sourcing life-cycle
2) provide clients with an objective means of evaluating the capability of service providers and

3) offer service providers a standard to use when differentiating themselves from competitors.

Although eSCM-SP goes some way to address the needs of outsourcing partners, it is not tailored specifically to software outsourcing. The framework seems more relevant to business process type of outsourcing (BPO). eSCM-SP is also at a high level of granularity which means low level detail of relationships is not addressed. e-SCM-SP attempts to cover all issues of outsourcing project. This limits the amount of low level detail presented for specific areas of outsourcing project management. The framework also concentrates primarily on evaluation of the vendors' capabilities.

e-SCM does not directly emphasise relationship management. However, some relationship practices are suggested in the framework. e-SCM mention trust as one of the critical factors in the analysis but there is not any further research presented on trust-building mechanisms. The guidelines presented in this thesis will complement eSCM-SP with guidelines for client-vendor relationships. These guidelines will be at a lower level of detail and tailored specifically for software outsourcing relationships. However, to develop detailed guidelines a review of critical factors in offshore outsourcing relationships is necessary.

2.2.2.3 Critical factors

Most outsourcing studies directly or indirectly suggest that relationship management is critical to the success of an outsourcing project. However, only a few studies (e.g. Lacity, 2002; Kern and Willcocks, 2000; Kishore et al. 2003) concentrate on the critical factors to manage the relationship in offshore outsourcing. Therefore, it is vital to study the critical factors in managing offshore outsourcing relationships. This subsection reports some of the critical factors documented in previous investigations.

Kern and Willcocks (2000) suggest that issues such as communication, exchange of information, and cultural convergence are critical in managing the relationship. Brereton's (2004) study on software supply chain indicates mutual respect and a willingness to share information transparently as critical for successful relationships. Stralkowski and Billon (1988) claim that the success of the relationship relies mainly on the level of customer satisfaction, achievement of expectation, and longevity of the venture. Kishore et al. (2003) claim that a mutual understanding between clients and

vendors is very critical for the success of outsourcing relationships. In relation to this, Kishore et al. (2003) suggest that mutual understanding between clients and vendors should be developed by adequate mechanisms for information sharing.

Lacity (2002) on the basis of long term research experience in outsourcing suggests that the ability to commit to what was agreed, to fairly adapt to change, and to identify value-added services are critical to success. Nam et al. (1996) emphasise the technical competence of the vendor as critical in the relationship. Nystrom's (1997) findings indicate that understanding different cultures and developing cross-cultural communication skills are critical success factors in offshore outsourcing.

In addition all of the above studies suggest the role of trust in outsourcing relationships. For example, Stralkowski and Billon (1988) focus on customer satisfaction, achievement of expectation and longevity of the venture, and Kishore et al. (2003) claim about mutual understanding have echo of trust. Moreover, other studies more directly suggest that trust is one of the most critical factors in managing outsourcing relationships (e.g., Kern and Willcocks, 2000; Kishore et al. 2003; Sabherwal, 1999; Nam et al. 1996). However, the importance of trust is described at highly abstract levels by most studies. A detailed investigation into trust is lacking. Therefore in relation to the critical factors in managing outsourcing relationships trust building mechanisms are investigated separately in this thesis. On the basis of the above literature review, this study will conduct an empirical inquiry into the following research question.

What are the critical factors in managing offshore software outsourcing relationships?

2.3 Trust

One of the critical factors in managing outsourcing relationships is trust. A great deal of research attention to trust is seen across other disciplines. Although the outsourcing literature has acknowledged the importance of trust, no proper investigation of trust in outsourcing relationships has been done.

2.3.1 Understanding trust

A few researchers (e.g., Gambetta, 2000; Deutsch, 1962; Luhmann, 1979; Blau, 1964) from a variety of disciplines (e.g., social science, psychology, management) have published substantive work on the meaning of trust. Despite this there is no generic

definition of trust (Mayer et al. 1995) and this makes trust a difficult concept to work with. Various definitions, characteristics and types of trust are reviewed in this subsection. A working definition of trust in software outsourcing relationships is proposed in this section.

2.3.1.1 Defining trust

The lack of general consensus on the meaning of trust is well documented. For example, Mayer et al. (1995) in their work on defining trust analyse the literature from a wide range of disciplines. They identify a lack of clarity in the definition of trust. This lack of clarity is particularly related to relationships between risk and trust. Costa et al. (2001) also argue that different definitions of trust have been proposed across disciplines without any effort to harmonise individual definitions. McKnight and Chervany's (1998) research on the definition of trust argues:

> *'Researchers have remarked and recoiled at the literature confusion regarding the meanings of trust and distrust. The problem involves both the proliferation of narrow intra-disciplinary research definitions of trust and the multiple meanings the word trust possesses in everyday use'.*

Furthermore, Marsh (1994) in his work on formalising trust in computer science argues:

> *'We are all 'experts' on trust, at least our own brand of it, and there is the problem, since, as there are so many different 'experts', each of which could define trust differently, there are as many differing definitions, and thus views, of trust. This does not make life any easier when we wish to study the phenomenon.'*

Although disagreements are reported, there are some common characteristics prevailing across various definitions of trust. Widely accepted definitions of trust are found in the sociology (Gambetta, 2000), social psychology (Deutsch, 1962), organisational (Mayer et al. 1995) and management literature (Anderson and Narus, 1990).

The definitions show that researchers across all disciplines identify two important issues relating to trust (Costa, 2000; Mayer et al. 1995):

- The willingness to be vulnerable (risk)
- (Positive) expectations.

Risk is common to most definitions of trust. Some researchers define trust as confidence in expectations (e.g., Gambetta, 2000) while others define trust as confidence in expectations that others will 'do what is right' (Hollis, 1998).

Approaches to trust definition

Two approaches to defining trust have emerged: a predictive approach and a fiduciary approach. Hoffman (2002) reports that a predictive approach argues that X trusts Y when X predicts that Y will at least do no harm in a circumstance in which X's interests depend on Y's behaviour (e.g., Coleman, 1990; Gambetta, 2000; Dasgupta, 1988). The fiduciary approach involves more than predicting the behaviour of others. It includes the trustor's perceptions that trustees have a responsibility to fulfil the trust placed in them even if it means sacrificing some of their own benefits (e.g., Cheung and Lee, 2006; Holis, 1998; Anderson and Narus, 1990; Kegley and Raymond, 1990). Both approaches show an element of predictability in their explanation.

Williamson (1993) claims that the underlying problem of a predictive definition of trust is that trust and trusting relationships are subsets of risk and risk-taking behaviour – trust implies risk, but risk-taking does not necessarily imply trust. On the other hand, Hoffman (2002) suggests that in a fiduciary approach the concept of obligation successfully distinguishes trust from the broader category of risk. Messick and Kramer (2001) extend this view that when the trustor places their trust in the trustee, s/he does so in the belief that the trustee is obliged to fulfil the trust.

However, a predictive approach to trust in outsourcing relationships seems most relevant to software outsourcing. Clients and vendors are rational individuals (Lacity and Hirschheim, 1993) who may consider risk in trust but are unlikely to consider risk-taking as trust. Further to this, an emphasis on obligation does not suit the 'rational' (i.e. selecting the profitable choice) nature of outsourcing practitioners. This suggests that a fiduciary approach is less appropriate to this study.

2.3.1.2 Characteristics of trust

The literature on trust reveals three characteristics of trust relevant to this study – Risk, expectations and rationality. These three characteristics are discussed in this subsection. The characteristics are then further reviewed in the context of outsourcing relationships.

Risk

Risk is considered one of the most important characteristics of trust (Mayer et al. 1995). The context of risk is also very relevant to offshore outsourcing when clients' outsource software activity to the vendor in another country. The main debate in the context of risk is considering trust as risk or risk taking itself.

According to Mayer et al. (1995), there is no risk taken in willingness to be vulnerable (i.e., to trust), but risk is inherent in the behavioural manifestation of the willingness to be vulnerable. They claim:

> *'One does not need to risk anything in order to trust; however one must take a risk in order to engage in trusting action.'*

In contrast, some authors (e.g., Cummings and Bromiley, 1996) have proposed that trust is a 'risk taking behaviour' or the 'willingness to engage in such behaviour'. Luhmann's (1988) view is that without a situation in which the possible damage may be greater than the advantage one seeks, it would only be a matter of rational calculation that leads to choosing the course of action because the risks remain within acceptable limits.

In relation to this, Mayer et al. (1995) claim that trust is not involved in all risk-taking behaviour. Gratton (1973) also found that people did not experience trusting relationships in decision-making under conditions of risk. They seem to differentiate risk as trusting behaviour rather than a component of trust. Deutsch (1962) 'assumes risk' in trusting behaviour whereas Mayer et al. (1995) consider trust as a 'willingness' to assume risk.

Gambetta (2000) clarifies that trusting a person means believing that when offered a chance, he or she is not likely to behave in a way that is damaging to us. His view relates to outsourcing where clients and vendors have their own interests in addition to the common interests of the outsourcing project. Client and vendor will also come across each others' sensitive business information and one can exploit the chance to damage the other. If a trust-based relationship is assumed, clients or vendors will not exploit such a chance.

(Positive) Expectations

Another characteristic revealed in trust definitions is '(positive) expectations'. All the expectations from both sides may not be necessarily documented or formally agreed. Both clients and vendors will have hidden expectations that are expected to be satisfied. In relation to this, according to Liwicki and Benedict (1996) trust is based on expectations that go beyond the characteristics or intentions of those involved, including also considerations about the situation and the risks associated with acting on such expectations.

However, Tyler (2001) claims that although there is a widespread support for the importance of expectations in shaping trusting behaviour, there are also signs that these expectations are not a complete representation of trust. He notes through empirical evidence that those high in trust feel a moral obligation to cooperate, and do so irrespective of what others in their group are doing or are expected to do.

Rationality

Rationality encompasses both - risk and expectations. Trust is said to be inspired by rational actions. From a rational perspective, trust is a calculation of the likelihood of future cooperation (Williamson, 1993). This rational perspective also exists in outsourcing where an outsourcing project starts with the calculation of how clients and vendors can satisfy their interests. The rational perspective recognises that people must engage in self-centred actions and be '*continually making provisions for the possibility of opportunistic behaviour*' by others (Limerick and Cunnington, 2000). This helps to build trust in long term exchange relationships.

Some authors argue that a rational perspective is not required to build trust. Parsons (1967) argues that rational individuals have no incentive to build trust in the first place. Cook and Emerson (1978) have also recognised that the existence of trust cannot be seen in purely rational terms. They show that individuals use trust in their actions with a moral force that runs counter to purely rational considerations.

In relation to outsourcing relationships, both clients and vendors are rational individuals (Lacity and Hirschheim, 1993). They must trust that both of them will not damage common interests to satisfy their individual interests. However Hardin (1993) believes that it is difficult to imagine a relationship in which the trustor unconditionally trusts the

trustee. Furthermore, Marsh (1994) also notes that in a trust-based relationship the trustor takes a chance that the trustee will not behave in a way that is damaging to the trustor, given that choice (supported in Gambetta, 2000). Therefore, rationality is considered in this study where the actions of clients and vendors in outsourcing relationships are rational.

2.3.1.3 A working definition

From a variety of approaches to defining trust, documented definitions of trust across disciplines and characteristics of trust, this study presents the following working definition of trust in the context of offshore software outsourcing relationships:

> *'Trust in offshore software outsourcing relationships is about the positive expectations of client and vendor for each other's actions, rational interests in maintaining relationship and the awareness of risk in the expectations'.*

The Appendix 9 presents various definitions of trust that were taken into account before developing a working definition.

2.3.1.4 Types of trust

In general, researchers have identified two themes of trust: one is interpersonal trust, which characterises a relationship between two individuals, and the other is general, institutional, social or system trust, which characterises attitudes toward collective entities or social organisations (Hall et al. 2002). Outsourcing relationships require trust at both levels, for example between two outsourcing managers as well as trust between two companies. Luhmann's (1979) work on trust as a sociological concept clarifies that trust does not operate only at personal level but also on a social (system) level.

Types of trust reported in the literature of professional work relationships are also widely accepted in general business relationships (Blois, 1999; Liwicki and Bunker, 1996). This analysis of trust is highly relevant to outsourcing relationships (Sabherwal, 1999). Three types of trust reported in the professional work literature are:

- Deterrence-based trust,
- Knowledge-based trust and
- Identification-based trust.

Each of the three types is explained here.

Deterrence-based trust

It is usually based on the calculation of rewards and penalties. Deterrence based trust is also referred as calculative trust. It is generally found in short term contracts or in the initial phase of business relationships when both parties do not have much knowledge about each other.

Shapiro et al. 1992 explain that deterrence based trust is based on the behavioural consistency that the transacting partners will do what they agree. This is based on the fear of the consequences of not doing what they agree. The consequences have greater implications than the promised reward in this type of trust. Liwicki and Bunker (1996) claim that trust is fragile and partial when it is deterrence based.

Based on this, in the initial phase of outsourcing relationships trust can probably be described as deterrence-based. This type of trust is due to the fear of consequences fostered by contractual arrangement. However it is difficult to trust someone when you have never dealt with them before (Parkhe, 1998a).

Knowledge-based trust

As transacting partners work together knowledge about each other grows. However, it requires some time to reach this stage of trust. It can be more difficult, particularly, in the context of offshore outsourcing, where clients and vendors are geographically separated. This study will concentrate on the mechanisms of how clients and vendors can build knowledge about each other to enable them to develop trust.

Liwicki and Bunker (1996) suggest that knowledge-based trust is grounded in predictability – 'knowing the other sufficiently well so that the other's behaviour is anticipatable'. Knowledge-based trust develops over time and is based on the knowledge built through a history of interaction that allows the trustor to believe that the trustee's behaviour is predictable and that he or she will act trustworthily (Lindskold, 1978). It can also develop from previous knowledge of the prospective trustee.

Parkhe (1998a) suggests that the development of trust can be based upon each partner's private history of cooperation or on the company's reputation. Dasgupta (1988) also

supports this view of how reputation enables knowledge-based trust. However, only reputation or previous work experience is not enough to build knowledge-based trust.

Knowledge about the other party is cultivated by gathering data, matching actual behaviours against expected behaviours (Parkhe, 1998a) and noticing reactions to different situations (Liwicki and Bunker, 1996).

Outsourcing relationships can build knowledge based trust over time from previous experiences. However, knowledge-based trust from the beginning of the relationship is relatively unlikely unless the trustor has had positive experiences of the trustee in the past, or the trustor gets excellent feedback from the trustee's previous outsourcing clients. A strong reputation in the outsourcing industry may foster knowledge-based trust.

Identification based trust

At this stage of trust, transacting parties work strategically to achieve mutual goals. In the context of outsourcing, this trust can be achieved when client and vendor have less specific interests and more common interests to undertake a particular project.

Liwicki and Bunker (1996) explain that identification based trust can be assumed when the trustor can be confident that his or her interests will be fully protected and that no monitoring of the trustee is necessary. Moreover, Kramer (1993) explains that identification based trust exists when the trustor understands and appreciates the trustee's desires to achieve mutual understanding where each can effectively act for the other. A long term relationship is envisaged between transacting partners before acting on behalf of each other. A long term relationship with knowledge based trust can turn into identification based trust. In offshore outsourcing, it seems difficult to achieve this trust. However, there is evidence where long term strategic outsourcing has turned into strategic partnerships (Zviran, et al. 2001; Willcocks and Fitzgerald, 1993).

Extending the understanding of trust, the next subsection reviews how trust can be built between the client and the vendor.

2.3.2 Building trust

This section provides practical findings on trust building in various disciplines that are relevant to trust building in offshore outsourcing relationships.

2.3.2.1 Trust research across disciplines

Trust has received a great deal of attention from scholars in various fields, from the social sciences (Luhmann, 1979), economics (Williamson, 1993), organisational literature (Creed and Miles, 1996), health studies (Hall et al. 2002), politics (Hoffman, 2002), computer science (Marsh, 1994) and international alliances (Parkhe, 1998). Here, an analysis of the standpoints in the various literatures is presented.

Organisational literature

Lewicki and Bunker (1996) explore trust within companies. They identify three sets of professionals to whom trust is relevant: personality theorists, who analyse elements of trust in personal relationships, sociologists and economists, who view trust at both an intra- and inter- organisational level, and social psychologists, who focus on trust in interpersonal transactions. Halliday (2003) analyses trust in business relationships. He concludes that trust is also relevant to professionals involved with the management and marketing of services – particularly in business relationships. Findings from the organisational literature show that trust is highly likely to be relevant to outsourcing clients and vendors.

Creed and Miles (1996) present a conceptual framework that explores organisational trust in terms of the behaviours of managers. They warn that in organisational relationships trust requirements are high and the consequences of failing to meet these expectations can be severe. They also claim that both scholars and managers appear willing to treat trust building as an expected managerial behaviour because the absence of trust can cost high. Morgan and Hunt (1994) report that work relationships characterized by trust, engender cooperation, reduce conflicts and increase commitment to the organization. Furthermore it is reported that regardless of the organisational level, building trust depends, in part, on the emerging knowledge of mutual interest (Gambetta, 2000). Holmes and Smith (1997) also report that it is the ability to be a trusted cooperator that allows an organisation to be a really effective global competitor. These findings seem relevant to the importance of trust in outsourcing relationships.

International business literature

Luo (2002) empirically investigates the development of trust in cross-cultural alliances. He reports that trust aids better performance and also positively affects other variables such as resource sharing and risk sharing. The context of cross-culture is highly relevant to this study. Luo (2002) indicates that the development of trust is important to manage outsourcing relationships successfully. However, in the context of cultural differences between alliances, Luo identify that cultural distance between alliances does not influence the level of trust negatively.

Parkhe (1998) in his work on building trust in international alliances says that international alliances are flourishing and that trust is critical to successful international alliances. Some of the trust-building factors presented in Parkhe's (1998) work include:

- consistent and reliable interactions
- establishing formal and informal channels of communication
- using best resources and
- maintaining each other's expectations

The alliances studied in Parkhe's (1998) work are international in the sense that they are multi-national companies. Therefore the findings reported above are also relevant to outsourcing relationships investigated in this study. However, this study extends the scope of 'international' by analysing offshore outsourcing relationships between clients and vendors who are multi-national companies and geographically distributed.

Parkhe (1998) claims that in a trust-based relationship transacting parties attempt to structure and run the alliance in such a way that it serves the interests of the all involved. However, Pyysiainen (2003) argues that trust is realised only in action; without shared experiences trust is not likely to survive. Blois (1999), in his investigation of business relationships also reports that trust evolves through growing knowledge and understanding of the people with whom we interact.

Lewis' (1990) work on business partnerships also indicates that the client and the vendor should proactively work on mutual interests to develop trust. This is also reflected in Parkhe's (1998) investigation. Parkhe (1998a) indicates that proactiveness in working on mutual interests reduces surprises and helps build confidence.

Management literature

It is reported that the development of trust in offshore outsourcing is not possible through the traditional means. Some of the traditional means of trust building are informal corridor talks (Herbslab and Moitra, 2001), working together under one roof and pop in one another's office when something is required (Pyysiainen, 2003).

Offshore outsourcing relationships engender geographically distributed and cross-cultured teams with no traditional form of team work environment (Herbslab and Moitra, 2001). Kanawattancahai and Yoo's (2002) investigation on the nature of trust in virtual teams (i.e. geographically distributed teams) shows that the establishment of trust is of more importance in the virtual team relationships as it leads to more open communication, higher quality decision-making, risk taking, cooperation and satisfaction in the decision-making process. They also found that better-performing teams not only quickly established trust at the beginning, but also managed to maintain it at a higher level throughout the project.

Findings from the investigation of virtual teams are relevant to outsourcing relationships where client and vendor teams work together from geographically distributed locations. However the virtual teams investigated by Kanawattancachai and Yoo (2002) had the same goals (or interests) whereas outsourcing relationships encompass specific goals of the client and the vendor from the outsourcing engagement in addition to common goals.

Costa (2000) investigates trust within teams and explores its relation with performance at both team and organisational levels. She notes that in teams, with low levels of trust, members tend to share less information and ideas, are less personally involved, and impose more controls when coordination is necessary. On the other hand Zand (1972) identifies that teams with higher levels of trust seem to be more open to discussion, develop more innovative and original solutions and solve their problems effectively.

Health care literature

Trust is also of interest to disciplines where human relationships are core. In health care, trust is an important element of improving patient care. Jhons (1996) notes that in both clinical and organisational settings trust is an important element to nursing. Relating to this, Hall et al. (2002) suggest that trust is critical to patients' willingness to seek care,

reveal sensitive information, submit to treatment, and follow medical recommendations. Other health care literature also identifies the importance of trust in relation to patient care and trust in the health system (e.g., Richardson, 1987; Semmes, 1991). Here, the identification of trust is at both individual and system levels, i.e. trust between patient and physician, and trust between patient and the association of physicians in general. In outsourcing, trust of one party in the other party can be analysed at two levels. One may be seen as the trust of a client in an individual project manager (due to the knowledge of his/her past history, long experience or exceptional credentials) and the other as the client's trust in the vendor organisation at a higher level.

In summary, trust is important across a variety of disciplines. Different disciplines tackle it within a specific context and with particular views. Important features of trust in outsourcing relationships are:

- Trust-building is important in any relationship.
- Trust can be more important when trustor and trustee operate from different countries.
- Trust develops over time with increased knowledge of working together.
- Trust promotes performance of the collaborative engagement.
- Some trust building factors are consistent - reliable interactions, a company's reputation, establishing formal and informal channels of communication, using best resources and maintaining each other's expectations, commitment.
- Trust affects resource sharing, risk taking, and cooperation positively and also reduces conflicts in the relationship.

The next subsection specifically looks at trust research in offshore outsourcing relationships.

2.3.3 Trust research in offshore software outsourcing relationships

There are research studies of outsourcing relationships but specific investigations of trust are very limited in this area. The literature analysis of trust across disciplines reveals that many aspects of trust are relevant to outsourcing relationships.

Sabherwal (1999) empirically investigates outsourced information systems development projects. He reports four types of trust: calculus, knowledge-based, and identification-based. The fourth type is trust based on a project's early success. His

empirical findings suggest that achieving project goals improves trust based on early performance achievement. However, this may not alone guarantee trust in the longer term. Performance achievement is also dependent on the client's capability in providing the necessary information to the vendor and consistency of the expected performance. However, Lewis (1990) emphasises that the vendor may have to contribute more by getting the necessary information from the client and achieving the agreed commitments on time. This is reported to be helpful in increasing trust in the relationship.

Sabherwal (1999) concludes that in addition to recognising the value of a formal, well-prepared contract and appropriate structural controls, the partners in outsourcing relationships have to trust each other. His study is limited in the sense that the conclusions are based on eighteen cases, of which thirteen were from the vendor's viewpoint. Additional factors identified by Sabherwal (1999) are presented in the summary table at the end of this chapter. Other research studies specific to trust in outsourcing relationships, except Sabherwal (1999), are scant.

A few studies in outsourcing relationships acknowledge trust as an important factor and report the need for further research in the area. For example, Kern and Willcocks (2000) in their research into the relationship practices of twelve companies involved in outsourcing, suggest that the area in outsourcing that has received the least research attention is outsourcing relationships and the characteristics that describe such relationships. They consider trust as one of the important behavioural dimensions in their findings. McGrath and More (1999) investigate trust in inter-organisational relationships. In their study they note a variety of views on trust and the complexity of inter-organisational relationships. They claim that understanding trust in collaborative relationships (i.e. outsourcing) is extremely difficult, though very useful for practitioners. Hoecht (2002) claims that trust can be helpful in reducing the risk of betrayal in strategic outsourcing relationships.

Zviran et al. (2001), in their case study of outsourcing relationships found that a gradual development of trust can lead organizations from being simply committed to a contract to becoming long term strategic partners. Nevertheless, there remain relatively few empirical studies investigating trust in outsourcing relationships. Humphrey (1990) reports that trust is the foundation for an effective contract. He argues that when a

trusting relationship is assumed, the software development process has a new degree of freedom, requirements can be handled more rationally, and a great deal of expensive documentation becomes unnecessary.

Based on the above literature survey this research will conduct an empirical inquiry into two aspects of trust development. The intended research question is:

What are the trust achieving and maintaining factors in managing offshore outsourcing relationships?

2.4 Summary

This chapter focused on motivators, difficulties, relationship management factors and the role of trust in offshore software outsourcing.

Offshore outsourcing has been growing and becoming critical to manage. Many offshore outsourcing projects are reported to fail due to inefficient management of the relationship between outsourcing clients and vendors. Inefficient management of the relationship is reported as the main cause of failure in offshore outsourcing projects. In relation to this, a variety of challenges exist to manage offshore outsourcing relationships successfully. Some of the challenges are geographical distance, time zone differences, cultural differences, and incomplete nature of contract.

This chapter also focused on the solutions proposed in the literature to overcome challenges in offshore outsourcing. Researchers have proposed frameworks and critical factors to manage offshore outsourcing projects. However, the relationship management has been reported to have attained the least research attention. Considering the offshore outsourcing failures, challenges and their critical relation to the relationship management, this forms an important area of investigation. Critical factors identified in managing offshore outsourcing are communication, information sharing, mutual understanding, cultural convergence, value addition to outsourced software activity and trust building between outsourcing client and vendor.

The literature suggests that trust building is important to all the disciplines reviewed in the literature. Different viewpoints of trust were presented that clarified its meaning. It was identified that risk, expectations and rationality are important characteristics of

trust. Four types of trust – deterrence-based, knowledge-based, identification-based and performance-based trust were also identified in the literature. It was uncovered from the literature that establishing formal and information channel of communication, managing expectations and reliable interactions were some of the important trust building mechanisms. It was also uncovered that company's reputation and previous experience in the industry can be helpful in building trust in the relationship. This study analyses trust research in outsourcing relationships and identifies a need for more empirical research in trust that is applicable to outsourcing practitioners. Considering the importance of trust and lack of research in the context of offshore software outsourcing, this study will exclusively focus on the empirical investigation into trust building mechanisms in client – vendor relationships.

Subsequently, the study presented in this thesis will empirically investigate the following four research questions:

- What are the motivators of offshore software outsourcing?
- What are the difficulties in offshore software outsourcing?
- What are the critical factors in managing offshore software outsourcing relationships?
- What are the trust achieving and maintaining factors in offshore software outsourcing relationships?

A detailed empirical investigation into the above questions is presented in the subsequent chapters. Here, Table 2.1 presents a summary of the main themes identified in the literature review conducted in this chapter. Table 2.1 is presented on the following page. Some of these themes will be later brought in when the results of the empirical investigation will be discussed. A detailed strategy on the selection of the results and how the investigation will be conducted is presented in the following chapter.

Table 2.1: A summary table of the literature review with example

Motivators	**Difficulties**	**Managing relationship**	**Trust Building**
Cost savings	Distance	Communication	Establishing structures
Quality	Cultural differences	Cultural convergence	Communication setup
Skilled human resource	Infrastructure problems	Personal relationship	Vendor's desire for contracting in future projects
Latest technology	Technical incompatibility	Expectation management	Shared experience between client and vendor on other projects
Reliable communication	Loss of jobs	Longevity of venture	Developing small system first
Infrastructure	Transfer of work	Mutual understanding	Background knowledge of key members from client-vendor organisation
Democracy		Transparency	Visit of client delegation to vendor site
Entrepreneurial abilities		Flexibility	courtship
Time zone differences		Commitment	Shared goal (project oriented)
Growth opportunities		Technical competence	Recruiting manager in vendor's language
		Value addition	Working together in the project
			Project's early success
			Jointly celebrating completion of interim deliverables
			Showing tangible results

Chapter 3: Research methodology

This chapter presents the empirical research approach used in this study. Empirical approaches have been used in a variety of established disciplines such as medicine and social science. Software engineering has also adopted an empirical approach to research and its use is growing. The growth of empirical studies in software engineering is reflected in its growing use by researchers, as evidenced by the increase in empirical tutorials, workshops and grants from funding agencies (Perry et al. 2000). The rationale of the research methodology used in this study is presented in this chapter. The overall research approach is qualitative. The research methodology is case study based. Data collection is done using multiple case studies with qualitative interviewing. Analysis of the data collected using a grounded approach. A model is then built using the proposition aspect of grounded theory. Here, in the following section, the background to empirical research is presented.

3.1. Empirical investigation

Empirical research in software engineering is the exploration of some aspect of software development. Empirical investigations have been extensively used across disciplines such as medicine, social science and psychology. In software engineering, the number of empirical studies is growing and more studies are focusing on human aspects of software engineering (Seaman, 1999). Recent empirical studies of these human aspects have increasingly focused on studying business and management aspects of software engineering projects. This may be because many in the software industry have recognised that software development also presents a number of unique management and organisational issues, or 'people problems' that need to be addressed and solved in order for the field to progress (Seaman, 1999). Thus a number of research studies have been conducted to substantiate the rationale behind research into non-technical issues of software engineering. For example, Harrison and Wells (2000) note that it is increasingly important to understand human issues in software engineering. The use of empirical research for investigating human issues of software engineering has also increased (Seaman, 1999). For example, Perry et al. (2000) found that an empirical approach in software engineering helps in understanding how and why things work, and allows us to use this understanding to implement this approach in the real world. Given the potential importance and increasing use of an empirical research approach in software engineering and its extensive use in other disciplines such as medicine (Weiss and Sampson, 1986) and social sciences (Yin, 2003), the empirical approach is also

used in this study. Indeed, since the research focus of this study is on human issues such as relationship management and trust, it was essential to choose an empirical approach.

There are also some limitations to the use of empirical studies in software engineering. Basili (1996) suggests that the many differences between individual software projects make comparison difficult. Dixon-woods et al. (2004) argue that it is difficult to appraise empirical work that has used qualitative methods as appraisal relies on subjective judgement. Kitchenham et al. (2002) report that other disciplines such as medicine have used empirical studies for a long time and still face difficulties in conducting these studies. So it is not surprising that software engineering researchers have problems (Kitchenham et al. 2002). Perry et al. (2000) claim that the biggest barriers to using empirical studies in software engineering lie in the details of conducting them. They argue that too little reliable information on how to conduct empirical investigations is available for researchers. Perry et al. (2000) state:

> *'Empirical studies in software engineering would fail to have the impact they have had in other fields because there is a gap between the studies we actually do and the goals we want those studies to achieve'.*

3.2. Qualitative and quantitative research

Empirical research is broadly categorised into quantitative or qualitative research. However, a research study can utilise both research approaches in a single project. This study utilises mainly qualitative research.

3.2.1. Qualitative research

Qualitative research is said to be useful for examining certain phenomenon, developing insights, and reporting those insights to others (Potter, 1996). It begins with the acceptance that phenomena can be interpreted in a variety of ways. It involves the studied use and collection of empirical data resources such as case studies, personal experience, interviews and surveys (Yin, 2003). Qualitative methods are derived from the ethnographic and field study of anthropology (Pelto and Pelto, 1978) and sociology (Bruyn, 1966). Patton (1990) presents three viewpoints of qualitative research:

1. Qualitative research is holistic

Patton explains that researchers using qualitative methods strive to understand phenomena and situations as a whole. Patton (1990) says:

'The holistic approach assumes that the whole is greater than the sum of its parts; it also assumes that a description and understanding of a program's context is essential for understanding the program'.

This research is holistic in the sense that it conducts a research inquiry to understand offshore software outsourcing phenomena. It covers wide ranging issues such as motivators, difficulties, critical factors and trust so as to understand the subject under investigation more comprehensively.

2. Qualitative research is inductive

A qualitative research strategy is inductive in that the researcher attempts to make sense of the situation without imposing pre-existing expectations on the research setting. Qualitative designs begin with specific observations and build toward general patterns. Themes or dimensions of analysis emerge from open-ended observations as the researcher understands the organising patterns that exist in the empirical world under study. The important dimensions emerge from analysis of the cases being studied without presupposing in advance what those important dimensions will be.

This research is also inductive, as no prior hypothesis or assumptions are made to conduct an inquiry. Results of this study are based on the themes that emerged from the multiple cases (Yin, 2003) studied using standardised open-ended interviews.

3. Qualitative research is a naturalistic inquiry

Qualitative research is naturalistic in that the researcher does not attempt to manipulate the research setting. The research setting is a naturally occurring event, program, relationship, or interaction that has no predetermined course established by and for the researcher. Rather, the point of using qualitative methods is to understand naturally occurring phenomena in their naturally occurring states. Willems and Raush (1969) define naturalistic inquiry as

'the investigation of phenomena within and in relation to their naturally occurring context'.

This research is also a partially naturalistic inquiry as Nilay Oza did not have control in selecting the cases for the study. Moreover, the entire population under investigation was considered for the study rather than just a sample.

3.2.2. Quantitative research

Quantitative research uses data that are structured in the form of numbers or that can be immediately transported into numbers. Quantitative approach is usually deductive as it tends to test the theory rather than inductively generating the theory. In this study, the use of quantitative method is limited. It is only used to identify the frequencies of qualitative results. The reason for the limited use of quantitative methods is that the data collected in this study is all in qualitative form and the sample is 'small' enough to conduct quantitative analysis. Thus results in this study are also described qualitatively to give an 'insider view' of offshore software outsourcing. The decision to use qualitative research was also based on Inu's (1996) suggestions for using this type of research:

> *'From an 'ecumenical' perspective, which recognises the need for both qualitative and quantitative research, I do not see that one method is generally superior to the other. Instead, I find it suitable to ask when, and under what circumstances, one approach is more appropriate than the other. A form of qualitative research, for example, would be desirable when asking questions about meaning, human value or the understanding of social processes not previously explored or when searching for new theory grounded in the perceptions and traditions of social groups. Questions of magnitude, rate, incidence, or prevalence, on the other hand, generally yield only to quantitative research'.*

Quantitative research is used in this thesis to present the occurrence of themes across case studies. However, this is not to underestimate the importance of quantitative research methods. One reason for not utilizing quantitative methods is the small sample size, which makes the quantitative data less convertible. The other reason is that the subject under investigation is relatively new in the literature, which is makes research of a qualitative nature more appropriate.

3.3. Research methodology: Multiple case studies

The overall research methodology in this study is based on a case study approach. Kitchenham et al. (1995) note that case studies are an important part of empirical study in various 'soft' sciences such as sociology, medicine, and psychology. Although case study research is used in many empirical studies across disciplines, in software

engineering it is relatively under-utilised. For example, Glass et al. (2002) examine 369 research papers in six leading software engineering research journals to analyse the state of software engineering research. Their findings suggest that only 8 out of 369 research papers used case study methods. Yin (2003) defines a case study as an empirical inquiry that:

> *'investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident'.*

When the same study includes more than one case it is considered to be a multiple case study. Yin (2003) claims that the single case study is potentially vulnerable in the sense that a case may later turn out not to be the case it was originally thought to be. Therefore the use of multiple case studies has increased in recent years (Yin, 2003). The evidence from multiple cases is often considered more compelling and the overall study is therefore regarded as being more robust (Herriott and Firestone, 1983). Multiple cases give an opportunity to replicate the same analysis on multiple occasions. Conclusions arising independently from multiple cases may be regarded as more powerful than those based on a single case (Yin, 2003). Furthermore, Yin (2003) explains that the contexts of multiple cases are likely to differ to some extent. Therefore, if in these cases the same conclusions can result from multiple studies; those conclusions will have strong external generalisability. Consequently, this thesis has investigated multiple case studies.

MacNealy (1997) explains that case study research is a qualitative tool that aims to provide a rich description of an event or of a small group of people or objects. Therefore one primary advantage of the case study is that it increases understanding of the context being studied. The case study has been found more advantageous especially in areas that have not received much research attention (MacNealy, 1997). That is because a case study can provide rich detail leading to a fuller understanding of a person, group, or situation (Yin, 2003; Kitchenham et al. 1995; MacNealy, 1997).

There are two major concerns about case studies, lack of rigour in case study research, and the lack of generalisability of the results of case study research (MacNealy, 1997; Guba and Lincoln, 1994; Denzin and Loncoln, 2000). However, the criticism of the lack of rigour in case study research is addressed by Yin (2003), who takes the view that in case study research hardly any methodological texts exist to provide investigators with

specific procedures to be followed. This view has also been found in Kitchenham et al. (1995) and MacNealy (1997). Kitchenham et al. (1995) appreciates Yin's (2003) book on case study research as a 'notable exception'.

Yin (2003) explains that the case study investigator 'should work hard to report all evidences fairly'. MacNealy (1997) also states that the information collected in case studies is subject to bias as these studies are typically carried out by one person. Nonetheless, Yin (2003) argues that bias can also enter other research such as experiments and surveys. He says:

> *'The problems are not different, but in case study research, they may have been more frequently encountered and less frequently overcome'.*

Yin (2003) also comments on criticisms of the lack of generalisability of results in case study research. He says:

> *'Case studies, like experiments, are generalisable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a 'sample', in doing a case study, your goal will be to expand and generalise theories (analytic generalisation) and not to enumerate frequencies (statistical generalisation)'.*

Case studies are sometimes expensive to conduct (MacNealy, 1997) and take too long '*resulting in massive, unreadable documents'* (Yin, 2003). Case study research is generally reported to be difficult to undertake (Kitchenham et al. 1995; Yin, 2003) because there are hardly any guidelines to follow. Furthermore, there is hardly any way of screening or testing for an investigator's ability to do good case studies (Yin, 2003). In this sense, Yin (2003), quoting from the book by Hoaglin et al. (1982) '*Data for decisions: Information strategies for policymakers*', writes:

> *'Most people feel that they can prepare a case study, and nearly all of us believe we can understand one, since neither view is well founded, the case study receives a good deal of approbation it does not deserve.'*

Yin (2003) advocates a multiple case study design that increases the substantiality of the results. Substantiality increases because evidence from multiple cases is considered more compelling, and the overall study is therefore regarded as being more robust (Herriott and Firestone, 1983). Furthermore, Yin (2003) argues that multiple cases

provide an opportunity for direct replication and that analytic conclusions arising independently from two case studies are more powerful than those based on a single case study. This is referred to as replication logic.

3.3.1 Data collection – Qualitative interviews

Yin (2003) presents a thorough description of potential sources of evidence in a case study that applies well to grounded theory-building case research (Mäkelä, 2004). Examples include documents, archival records, interviews, direct observation, participant observation and physical artefacts (Yin, 2003). In this research, data is collected through interviews and observations. In this research, knowledge of conducting interviews in qualitative research is also derived from Patton (1990).

Qualitative interviews can be conducted in different ways, such as the informal conversational interview, the guided interview and the standardised open-ended interview. The informal conversational interview allows the interviewer to be highly responsive to individual differences and situational changes. However, it requires that the interviewer is able to explore a field setting or program over a fairly long period of time to collect systematic information. Furthermore, the information collected differs for each person interviewed. This makes it difficult to find patterns and to analyse the collected data. This approach is not suitable for this empirical study as it is only possible to spend a short time at the field site and interviewees are only available once for a short time.

The guided interview approach includes a list of issues to be explored during an interview. The interviewer is free to build a conversation, to word questions spontaneously, and to explore and probe, but always with the focus on a particular, predetermined subject (Patton, 1990). Data collection becomes somewhat systematic for each respondent. However, important and salient topics may be inadverntly omitted due to the scope for building conversation around any topic within the predetermined subject area. It may also result in substantially different responses, thus reducing their comparability. This approach may fail to compare responses and to identify similar patterns across interviewees. Therefore, the guided interview approach to interviewing is not appropriate for this study, either.

This study has used standardised open-ended interviews to collect qualitative data. Standardised open-ended interviews are useful when it is possible to interview participants only once for a limited period of time. Patton (1990) explains that the standardised open-ended interview consists of a set of questions carefully worded and arranged with the intention of taking each respondent through the same sequence and asking each respondent the same questions in essentially the same words.

The benefit of the open-ended interview is that the evaluator obtains data that is systematic and thorough for each respondent. Furthermore, due to standardisation respondents answer the same questions, so responses are more comparable and data on the topics addressed in the interview tends to be complete for each respondent. Walsh (2001) also claims that open-ended questions allow for a variety of individual responses and fit better with the aim of getting an 'insider view' of a situation. Open-ended questions also help the researcher to avoid accidentally introducing any of his or her own preconceptions and therefore protect the validity of the data (Walsh, 2001). In this sense the open-ended nature of questions within the standardised structure of the interview helps this study to systematically collect useful data.

However, the standardised open-ended interview approach is also not without weaknesses. The standardised wording of questions may constrain and limit the openness and relevance of questions and answers (Patton, 1990). This can reduce flexibility and spontaneity (Patton, 1990). In this study the spontaneity of interviewees is captured within the context and scope of the questions by means of flexible probing (Patton, 1990).

3.3.1.1 Means of collecting data in interview

In this study, face-to-face and telephone interviews are used. The face-to-face interview is said to be more useful because it allows researcher and interviewee to react to 'non-verbal' signals. Thus face-to-face interviews are preferred if sufficient resources are available. Some of the reported advantages include sufficient time for an interview, the opportunity for observation, and access to the natural setting of an interview (Bernard, 2000). However, face-to-face interviews can be time-consuming and require extensive resources, especially if the interviewee is not located near to the interviewer.

Although telephone interviews have not been considered a very efficient way of collecting interview data (Bernard, 2000), they may be a better way of collecting data if the researcher has limited resources to visit each interviewee. In support of telephone based interviews, Dillman (1978) claims that data collected in a telephone interview can be as valid as data collected in a face-to-face interview. Telephone interviews are inexpensive and convenient to conduct, which also saves time and administration overheads (Bernard, 2000).

In this study, all vendors were interviewed face-to-face, while clients were interviewed over the telephone. There was no particular reason for not conducting face-to-face interviews with clients, but the participating clients were few in number and they were geographically scattered in the USA and Europe. Consequently, it was not practically possible to visit each participating client in a country.

3.3.1.2 Types of interview questions

In all types of interviews, and particularly in standardised open-ended interviews, the importance of questions cannot be overlooked. Patton (1990) suggests:

> *'The evaluator must decide what questions to ask, how to sequence questions, how much detail to solicit, how long to make the interview, and how to word the actual questions'.*

Patton (1990) identifies six types of interview question that can be asked on any given topic, as follows:

1. Experience/behaviour questions – These questions are aimed at eliciting descriptions of experiences, behaviours, actions and activities that would have been observable had the observer been present.

2. Opinion/value questions – These questions are aimed at collecting data on what people think about the world or about a specific program. They tell us about people's goals, intentions, desires, and values.

3. Feeling questions – These questions are aimed at understanding the emotional responses of people to their experiences and thoughts.

4. Knowledge questions – These questions are aimed at finding out what the interviewee considers to be factual. The assumption here is that certain things are considered to be known - these things are not opinions, they are not feelings; rather, they are the things that one knows, the facts, of the case. However, Patton (1990) argues that knowledge may be merely a set of beliefs rather than facts.

5. Sensory questions – These questions are aimed at collecting information on the sensory apparatus of the interviewee. such as what is seen, heard, touched, tested and smelled.

6. Background/demographic questions – These questions are aimed at identifying characteristics of the person being interviewed. Answers to these questions help the interviewer locate the respondent in relation to other people.

In this study, interview questions relating to opinion, knowledge and background were asked. Other types of questions, such as feeling questions and sensory questions, are not appropriate for this study because it did not aim to understand the emotions of outsourcing practitioners or their sensory apparatus.

3.3.1.3 Sequence of the interview questions

The sequence of interview questions is considered to be important (Patton, 1990). There are no fixed rules of sequence when organising an interview. However, the standardised open-ended interview requires one to determine the sequence of the questions in advance. In this context, Patton (1990) suggests that initial questions should be about non-controversial present behaviours, activities and experiences which ask for relatively straightforward descriptions. Such questions also require minimal recall and interpretation and encourage the interviewee to talk descriptively. Therefore such initial questions help to set the context of the interview. Patton (1990) further suggests that once the context is established it is appropriate to ask questions relating to the interviewee's interpretations and opinions. Patton (1990) advises that knowledge questions also need a context and should be asked in conjunction with specific questions about program activities and experiences that have a bearing on knowledge. Patton advises keeping background questions to a minimum. This study takes Patton's (1990) suggestions into consideration in deciding the sequence of questions.

3.3.1.4 Wording of the interview questions

Patton (1990) emphasises the wording of questions in qualitative interviewing. He says:

> *'The way a question is worded is one of the most important elements determining how the interviewee will respond. For the purposes of qualitative measurement, good questions should, at a minimum, be open-ended, neutral, singular and clear.'*

Patton (1990) emphasises that when using qualitative interviewing for data collection it is critical that questions be asked in a truly open-ended fashion. Truly open-ended means that the question should permit respondents to respond on their own terms. He further adds:

> *'The truly open-ended question does not presuppose which dimensions of feeling, analysis, or thought will be salient for the interviewee. To be truly open-ended a question cannot be phrased as a dichotomy'.*

In addition to considering the types, sequence and wording of questions, it is important that the question be clearly understood. Patton (1990) believes that making what is being asked clear to the interviewee is the interviewer's responsibility. He also claims that the clarity of the question is an important part of establishing rapport with an interviewee, as unclear questions can make the interviewee feel uncomfortable, ignorant, confused, or hostile. In order to measure the clarity of questions and other elements such as types, sequence and wording, a pilot study was undertaken before conducting the actual interviews.

3.3.2 Sampling

A sample is generally a certain part of a statistical population whose properties are studied to gain information about the whole. When dealing with people, it can be defined as a set of respondents (people) selected from a larger population for the purpose of a survey, for example a population of presidents or professors or students.

In this study, the targeted population is high maturity Indian software outsourcing companies. High maturity is taken to mean companies at CMM level 4 or 5. The sampling method used in this study is a combination of simple random sampling and systematic random sampling. A sample is a simple random sample if each unit in the population has an equal chance of being selected. In this case, invitations to participate in the empirical study were sent to all high maturity Indian software outsourcing

companies. However, as regards client companies, only clients of participating Indian software companies were considered for inclusion. This was systematic random sampling, as the consideration of client companies was based solely on the relevant Indian software vendor company's participation in the study.

Random sampling is free from sampling bias. However, researchers may introduce bias into the study design.

3.3.2.1 Sample size

This will depend on what you want to know, the purpose of the inquiry, what is at stake, what will be useful, what will have credibility and what can be done within the available time and resources. With fixed resources (which is usually the case), one can choose to study one specific phenomenon in depth using a smaller sample, or to seek breadth by using a bigger sample. The validity and meaningfulness of and insights generated from qualitative inquiry have more to do with the information richness of the cases selected and the researcher's observational and analytical capabilities than with the sample size.

3.3.2.2 Sample representativeness

A sample is representative if it adequately reflects the parent population. If it does, results achieved by investigating a sample can be generalised to the target population. Generalisability in this study is increased by replication of cases. Moreover, the established research process was followed to investigate all case studies produced comparable results.

3.4. Data analysis: Grounded theory

A grounded approach to analysing the case study data is used. This approach includes the use of grounded coding techniques as well as the development of a model based on propositions that emerge from the data analysis. There is no right or prescribed way to go about organising, analysing, and interpreting qualitative data because different people manage their creativity, intellectual endeavours, and hard work in different ways (Patton, 1990; Yin, 2003; Strauss and Corbin, 1998). Qualitative results are often considered 'softer' or 'fuzzier' than quantitative results. Consequently, results are more difficult to summarise or simplify (Seaman, 1999). However, they are said to have

strong external validity, which is often lacking in more statistically based quantitative methods (Seaman, 1999; Walker et al. 2003).

3.4.1. Grounded theory

The aim of the grounded theory is to develop theory from data rather than to use data to test a theory or hypothesis. There are various perceptions of the meaning of theory. For example, some authors say that theory is just a model that has been established for a long time (e.g. Sutton and Staw, 1995). and alternatively use 'theorizing' or 'theoretical insights' for 'lesser frameworks' (Weick, 1995). Strauss and Corbin (1998) refer to 'theory' in describing the end-results of following a grounded theory approach. Consequently, the following definition of grounded theory has been adopted (Strauss and Corbin, 1998):

> *'A set of well-developed themes that are systematically interrelated through statements of relationship to form a theoretical framework that explains or predicts phenomena'.*

In terms of software engineering, Seaman (1999) viewed grounded theory as part of the qualitative research methods for studying non-technical issues in software engineering, such as human aspects. She noted the emerging interest in studying human aspects of software engineering. However it can be argued that research into the human aspects of software engineering is a part of social science. This suggests that social science methods such as grounded theory can be used in software engineering research.

Grounded theory research allows important propositions to emerge from themes identified in the cases studied *without presupposing in advance what the important propositions will be* (Patton, 1990). In other words, it advocates developing a sense of the situation without imposing pre-existing expectations on the phenomenon or setting under study (Glaser and Strauss, 1967). The grounded theorist begins with specific observations and builds toward general patterns from the empirical world under study. The analysis can focus on individuals or other units of analysis. In the case of individuals, analysis begins with individual experiences without restricting what those experiences will be in advance of the fieldwork. In the case of units, the researcher compares multiple programs, organizations, or communities to look for unique characteristics that make each setting a case in itself. In both type of analysis, the theory

that results from the findings is grounded in real-world settings (Glaser and Strauss, 1967). In this study, the unit of analysis is high maturity Indian software companies.

3.4.2. Coding

Data interpretation and analysis in the grounded theory approach involve making sense out of what people have said, looking for patterns, putting together what is said in one place with what is said in another place, and integrating what different people have said. However, analysis is the phase of grounded theory research where researchers can utilize grounded theory-specific methods. In essence, analysis is done by conceptualizing, reducing, elaborating and then relating data and themes to integrate them as an emergent model or a theory. Coding is central to the grounded theory research process. Here, three distinct phases of coding generally employed by grounded theorists are discussed (Strauss and Corbin, 1998).

Phase 1: Open coding

Open coding refers to the process of identifying the thoughts, ideas and meanings contained in the properties of the data (Strauss and Corbin, 1998). Basically, the researcher looks for concepts with an open mind. Every new theme identified inductively is taken into account and a codebook is established. Properties are characteristics of a theme and dimensions refer to the location of a property along a continuum. Researchers should try to openly identify as many themes as possible to develop several themes with their underlying concepts. Open coding can be done throughout the analysis process, though most open coding is generally conducted in the initial phase of analysis.

Phase 2: Axial coding

Axial coding is the process of grouping the coded themes in main themes and sub-themes (Pidgeon and Henwood, 1996). Particular themes are selected for further work. However, a strategy for selecting particular themes from the results should be developed and followed. Otherwise, selection may become biased and the end result may not be traceable. In this study, the strategy for selective coding is explained in section 4.3.1.

Connections between a particular theme identified in open coding and related themes are grouped to identify higher-level themes representing properties of the linked themes.

Thus contextualization of the phenomena occurs in this phase, based on cumulative knowledge about the relationship between the main theme and others.

Phase 3: Selective coding

Selective coding is the process of integrating the main and sub themes identified in open and axial coding respectively. Strauss and Corbin (1998) say that during the process of open coding and axial coding core themes that hold best and that are central to all other themes should emerge with high frequencies of mention (explicitly or implicitly). Core themes should also be logical and consistent and the data should have no retrospective force. Subsequently the theory or a model is developed. The following subsection focuses on propositions and theory building.

3.4.3. Propositions and model building

Once the core theme is found, major themes need to be related to it by propositions. This process of integrating propositions and higher level themes develops into emergent model. This theory should be outlined as an emergent model. Once the emergent model has been outlined, researchers should refine it by removing superfluous matter and supplementing poorly developed themes, amplifying them by means of further theoretical sampling if necessary.

Propositions generated in this process are validated by comparing them with raw data. More iterative coding is needed if the propositions do not fit the data. Replication can be claimed if there is a theoretical reason to believe that different results were arrived at due to an intervening external factor. This kind of replication has been labelled *theoretical replication or replication logic* as opposed to *literal replication* (Yin 2003).

Propositions are developed from the empirical results and presented in the form of explicit sentences extracted from the transcripts. Explicit presentation makes it easier for readers to grasp the entirety of the model presented, based on the propositions. It also enables them to discern the structure of the results and the contributions to knowledge. The literature is also brought in to the discussion when developing propositions.

3.4.4. Bringing in the literature

At this point, existing literature should be brought into the discussion of emergent themes. It is about comparing the propositions and themes that have emerged with the existing literature in order to evaluate overlaps and differences. Eisenhardt (1989) claims that tying the emergent results to existing literature enhances the internal validity, generalisability, and theoretical level of the study. The emergent results often rest on a very limited number of cases, so comparing them with the literature enhances the overall quality of the study. As a result, a contribution to the body of knowledge is identified. However, substantiating the contribution to the body of knowledge by distinguishing one's results from those already achieved by others may present a challenge. Contrasting literature can even be helpful in producing new insights into factors such as new dimensions or constructs (Eisenhardt, 1989). On the other hand, contrasting literature may also merely reduce confidence in the validity of the results.

3.4.5. Grounded theory and the case study

Grounded theory and the case study method partly overlap. However, grounded theory research should not be considered as a sub-area of case study research. All case studies do not create grounded theory (Mäkelä, 2004; Stake, 1994) as case studies can be written for purely descriptive or theory-testing purposes (e.g. Eisenhardt, 1989; Yin, 2003). Case studies can also serve as illustrative tools as used in teaching. Similarly, not all grounded theory studies need to employ case studies as data. Other data such as large-scale statistical data can be used to conduct grounded theory investigations (Mäkelä, 2004).

An important implication for this study of taking this view lies in the use of the case study with a grounded approach (Mäkelä, 2004). Here, case studies are mainly used to collect data (based on Yin's recommendations) and grounded theory is used to identify themes in the case data. In this sense, case studies may be conceptualised as a choice of 'object of study' (Stake, 1994), which is not uncommon in research following grounded theory methodology. Mäkelä (2004) refers to this approach as grounded case research.

3.5. Ensuring credibility of results

There is no set standard for verifying the quality of a qualitative research study (Patton, 1990; Strauss and Corbin, 1998). The quality of results in this study is measured by the

integrity, objectivity and generalisability of results. (Patton, 1990; Strauss and Corbin, 1998; Yin, 2003).

3.5.1. Integrity in analysis

Patton suggests two ways to address integrity in qualitative analysis. The first way is to look for rival or competing themes and explanations in the patterns, and plausible explanations derived through inductive analysis. Rival explanations can be tested inductively or logically. Inductively means looking for other ways of getting the data that might lead to different findings. Logically means thinking about other logical possibilities and then seeing if those possibilities can be supported by the data. In this thesis, integrity is addressed by comparing the empirical results and the state-of-art literature to evaluate rival explanations and propositions.

In this study, rival or competing themes are identified by means of cross-case analysis of a particular theme. For example, cost saving is a particular theme identified as a motivator for offshore outsourcing. However, cross-case explanations embedded in this theme give rise to rival explanations. Therefore, an explanation indicating a deviation from cost saving to another factor may become a competing theme. Such explanations are observed and reported in this thesis. The second way to address integrity (i.e. logically) is to consider cases and instances that do not fit within the identified patterns. Patton clarifies what could be considered as a negative case with the following example:

> '*In an employment training program where the large majority of participants complete the program and find satisfying employment, an important consideration in the analysis may be an examination of the program dropouts and the people who do not find satisfactory employment*'.

In this study, all cases studied are successful cases of offshore outsourcing relationships. Therefore there is no negative case in the sense of a failed offshore outsourcing relationship. Patton (1990) suggests that the negative case should be considered in the sense of identifying a case which doesn't apply to the identified theme. In this sense, this study reports all cases that do not fit the theme. Replicating themes are then reported as results of the analysis.

3.5.2. Concerns about objectivity

The most frequent allegation about qualitative research is that it is inevitably 'subjective'. Patton (1990) considers that to be subjective means to be biased, unreliable and irrational. Subjective data implies opinion rather than fact, intuition rather than logic, impression rather than confirmation. However, Patton (1990) doubts the possibility of anyone or any method being totally 'objective'. In this sense, *subjectivity is inevitable.*

Guba (1978) has considered the issues of objectivity and subjectivity in considerable depth. He notes that in all areas of social science the data collected should be reliable, factual, and confirmable.

> *'There seems to be no intrinsic reason why the methods of a properly trained naturalistic inquirer should be any more doubtful a source of such data than the methods of an investigator using a more quantitative approach'*

He suggests that the issue is more clearly stated by talking about the 'neutrality' of the evaluator rather than objectivity or subjectivity. Patton (1990) notes that the point is to be aware of how one's perspective affects fieldwork, to carefully document all procedures so that others can review methods for bias, and to be open in describing the limitations of the perspective presented. Research procedures are described in the next chapter of this study.

3.5.3. Generalisation

Patton points out that the small sample sizes involved in qualitative methods make it impossible to generalise results. Cronbach (1975) argues that empirical generalisations in social phenomena are too variable and context-bound. He also claims that '*generalisations decay*'. He says (Cronbach, 1975):

> *'At one time a conclusion describes the existing situation well, at a later time it accounts for rather little variance, and ultimately is valid only as history'.*

Guba (1978) recommends tackling generalisation as follows:

> *'The evaluator should do what he can do to establish the generalisability of his findings. Often naturalistic inquiry can establish at least the 'limiting cases' relevant to a given situation. But in the spirit of naturalistic inquiry he should regard each possible generalisation only as a working hypothesis, to be tested again in the next encounter*

and again in the encounter after that. For the naturalistic inquiry evaluator, premature closure is a cardinal sin and tolerance of ambiguity a virtue'.

House's (1978) work concentrates on both the data evaluated and the report that is generated from it. His view of generalisation is that findings are most useful with regard to the particular setting from which those findings emerged, and that the interpretation of findings is particular to those people who need and expect to use the information generated by evaluation research. He writes (House, 1978):

'In summary, evaluation persuades rather than convinces, argues rather than demonstrates, is credible rather than certain, is variably accepted rather than compelling. This does not mean that it is mere oratory or entirely arbitrary...Once the burden of certainty is lifted; the possibilities for informed action are increased rather than decreased'.

This study considered the entire population of high maturity Indian software companies for participation in the investigation. However, the population of high maturity companies does not represent all software companies in India. A participating company may also show bias in selecting a particular person for interview. Moreover, the study investigates only six client companies, and this may result in less generalised results. This may also limit the applicability of the practitioner guidelines presented in this study. The results may still be directly relevant to the population of Indian offshore software outsourcing vendor companies and clients from the US and Europe who outsource to Indian software companies participating in the study. However, the extent to which the population in this research represents the entire offshore software outsourcing industry is more problematic.

Generalisability of results also depends on the accuracy of the coding scheme. This study therefore uses an inter-rater reliability test to check the accuracy of coding schemes established in the study. The coding scheme is evaluated by two researchers to review its accuracy. The Cohen kappa method of measuring reliability is also used to check accuracy in this study. The Cohen Kappa method is said to check '*how much better than chance the agreement is between a pair of coders on the presence or absence of binary (yes/no) themes in texts'* (Bernard 2000).

3.6. Pilot study

Generally the term pilot study is used for 'a small scale version or trial run' undertaken in preparation for the major study. However, a pilot study can also be the pre-testing or 'trying out' of a particular research instrument. In this research the aim of the pilot study is to evaluate the research methods and uncover preliminary findings in the subject area. De Vaus (1993) says: *'Do not take the risk, pilot test first'*. Van Teijlingen and Hundley (2001) point out that a pilot study may give advance warning about where the main research project could fail, where research protocols may not be followed, and whether proposed methods or instruments are inappropriate or too complicated. The importance of a pilot study is also highlighted by Mason and Zuercher (1995), as follows:

'Pilot studies can be "time-consuming, frustrating, and fraught with unanticipated problems, but it is better to deal with them before investing a great deal of time, money, and effort in the full study'.

Pilot studies are a crucial element of good study design. Conducting a pilot study does not guarantee success in the main study, but it does increase the likelihood of success (Van Teijlingen and Hundley, 2002).

This study pilots two cases to evaluate the research questions, interview methods and analysis methods. Several issues relating to research questions, such as the questions designed to be asked during interviews and the sequence and nature of questions were piloted. An additional pilot study was undertaken to evaluate interviewing skills before undertaking the pilot case study interviews. The literature on pilot studies notes that they are '*underdiscussed, underused and underreported*' (Prescott and Soeken, 1989). Analysis of data collected during the pilot study is presented (Oza et al. 2004).

3.7 Limitations in the research methodology

The combination of grounded theory and case study methods is arguable as there is substantial overlap between two methods. For example, one could argue that the approach used in this study is just an inductive case study. Researchers such as Eisenhardt (1998) have mentioned about building theories from case study research. However, distinct to grounded theory method are its coding techniques, replication logic and theoretical sampling (Strauss and Corbin, 1998). In this study, coding techniques and replication logic were implemented based on Strauss and Corbin's (1998) recommendations. The implementation of theoretical sampling in this study was

limited, as the data collection did not happen based on the saturation of the sample. For example, participating vendors were already determined. However, the participating clients were determined based on their participating vendors which resulted in an overlap between data collection and analysis. This overlap is important to following grounded theory approach.

The standardised open-ended interviews used in this thesis to collect main empirical data are limited as they reduce the extent to which individual differences and circumstances can be taken into account (Patton, 1990). Moreover, in this study the participating companies identified the interviewees and it was not possible to identify how each participating company selected interviewees. This limitation is addressed in two ways. First, the interview questions were not released until the time of the interview, so the participating company did not have specific knowledge of those questions when selecting an interviewee. Second, during the interviews each interviewee was asked about his or her personal background. This yielded information on his or her educational background and commercial experience in the context of managing outsourcing and working in the software industry, thereby helping to verify that the right person was being interviewed.

Another limitation when analysing qualitative data is the reliability of views or perceptions reported by the interviewees. When the interviewee is being interviewed, s/he may possibly censor some comments in order to look good. This type of limitation is the most difficult to prevent or even measure, because it results from outright deceit on the part of the interviewee. In addition, interviewees rely on their memories and on assumptions about how things are done in other projects. However, a perception found in multiple cases is unlikely to be unreliable. Furthermore, the interviewees in this study have extensive experience in the software industry and the outsourcing business and they all hold senior positions in a company. This may increase confidence in the qualitative data. Nevertheless, the manner in which a question is formulated can also result in inaccurate responses. Detailed attention was paid to sequence, wording and order when formulating questions for this study.

All the cases studied are 'success cases'; no case study identified any failed outsourcing project. All participating vendor companies have been successful outsourcing vendors for many years. These companies are India's top software exporters. The clients studied are also some of the major players in their field. Therefore, all the case studies were of

success and no negative or failed case of outsourcing formed part of this investigation. Nonetheless, this study can contribute to a relatively young business area by providing best practice guidelines derived from highly successfully outsourcing relationships. Nonetheless, there is a limitation in that the study of failed outsourcing projects could have provided additional insights into potential difficulties in offshore software outsourcing.

3.8. Summary

In this chapter, the research strategy was presented. Empirical research is appropriate to this study due to the nature of the inquiry that is into human issues of software engineering. Qualitative research is almost exclusively employed in this study. Multiple case studies combined with the grounded theory approach are used to conduct a qualitative research study. Multiple case studies form a strong basis for qualitative analysis. Grounded theory then helps to uncover emergent themes and a model from the study. In the following chapter, the research procedure is presented describing how the research methodology established in this chapter was implemented.

Chapter 4 Research procedure

This chapter details the procedure followed to execute the overall research design, including data collection, data analysis and quality measurement. This chapter also describes the demographic setting of the research project and the process of classifying common themes emerging from the qualitative data. Specific examples are presented to explain how the research methodology is implemented.

4.1. Procedure for data collection

Qualitative data was collected via case interviews and observations in eighteen vendor companies and six client companies. In particular, standardised open-ended interviews were conducted with both clients and vendors. The standardised open-ended interview is a widely used technique in qualitative analysis using case studies. Particularly, when using multiple case studies, standardised open-ended interviews are important as they offer an opportunity to examine emergent themes across cases (Patton, 1990; Yin, 2003).

Nilay Oza spent three months (from January to March 2004) in India collecting qualitative data from high maturity Indian software companies. Nilay Oza conducted all interviews at the participating companies' premises. Each interview took place in an appropriate environment, either in the interviewee's office or in a company meeting room. No other person was present during the interviews. Nilay Oza's personal experience of visiting Indian software companies is described in Appendix 6. Client companies' data was collected via telephone interviews. The procedure for selecting case companies is described in the following section.

4.1.1. Selecting the company

4.1.1.1. Vendor companies

- Vendor companies were selected on the basis of on NASSCOM's list of CMM level 4 and 5 companies in India. A case database of all 78 high maturity (14 CMM level 4 and 64 CMM level 5) Indian software companies was developed. This database including each company's contact details, fields of business, client list and any relevant contact is available at [http://homepages.feis.herts.ac.uk/~on2ab/companies.html]
- All 78 high maturity companies were sent an email invitation to participate in the project.

- Those who showed interest in the project by e-mail reply were sent further details about the study and the benefits they could achieve by participating in the study. They were also sent criteria for selecting the person to be interviewed. This was in line with the criteria set for this study, of interviewing only a person with long term (at least five years) experience in the software industry and direct experience of managing outsourcing relationships.
- In some cases, telephone calls were made to the companies to discuss the appropriateness of the person to be interviewed for this study.
- The companies who showed further interest and were able to select an appropriate interviewee were then contacted directly by Nilay Oza. This process included a series of e-mail and phone communications between the company and Nilay Oza.
- Tentative interview dates for a personal visit were scheduled.

4.1.1.2. Client companies

- Client companies were identified on the basis of the information available on the vendor's website about their major clients.
- To identify relevant client participants, a list of attendees at the International Conference on Software Engineering (ICSE) - 2003 was also used.
- The case database for clients was developed based on the list of available clients outsourcing to participating vendors. A full list of the clients contacted for this study is available at: [http://homepages.feis.herts.ac.uk/~on2ab/companies.html]
- The same procedure as established in 4.1.1.1 was followed to invite client participation.

4.1.2. Data collection

4.1.2.1. Vendor companies

- All the vendor companies were personally visited for the case interviews
- One week before the scheduled interview date, each interviewee was contacted via email. The day before an interview, a phone call was made directly to the participant.
- All interviews started at the scheduled time. Necessary arrangements were made to arrive at the interview location on time.
- Before starting the interview, information concerning audio recording and ethical approval, was read out to interviewee. Appendix 1 shows a transcript of the text read out to interviewees.

- All interviews were audio recorded.
- Notes were taken during the interview. After each interview, additional observations were also noted.
- Each interview took between 35 and 50 minutes. Interviewees were not provided with questions in advance so as to avoid prejudgements affecting the interview.
- Each participant was assured of data confidentiality and protection prior to interview.
- All interviews were transcribed by Nilay Oza for analysis.

4.1.2.2. Client companies

- Each client company was interviewed over the telephone. Six client companies participated in the study. Four clients were based in the US and the other two were based in the UK. It was not practical to visit each client personally.
- All interviews were audio recorded and relevant notes were also taken during the interview. A note of observations was made after the interview.
- Each interview lasted between 35 and 50 minutes. Interviewees were not given questions in advance to avoid prejudgement affecting the interview.
- Each participant was assured of data confidentiality and protection prior to interview.
- All interviews were transcribed by Nilay Oza for analysis.

4.2. Demographics - Case profiles

4.2.1. Vendor companies

Out of population of 78 high maturity Indian software companies (64 CMM level 5, 14 CMM level 4), 20 companies (15 CMM level 5 and 5 CMM level 4) participated in this research. All 78 companies were invited to participate in this study. Two interview recordings could not be retrieved due to an audio recorder problem. They are not included in the investigation. Therefore 18 cases are analysed. Given the population of 78 high maturity companies in India, the response rate for this study, of 20 participants in total, is 26%.

4.2.1.1. Common characteristics

In addition to CMM level 4 or 5, some of other demographic characteristics were common to all participating companies. For example, all companies were multinational in the sense that they are of Indian origin with a presence in multiple countries. They

had a client base in Europe, the USA, Australia and Japan. All companies had been in the outsourcing business for more than five years. Furthermore, all interviewees had direct experience of managing software outsourcing projects. All interviewees had studied at least to graduation level. All interviews were conducted in English. Specific demographics on interviewees and the company's demographics are shown in Table 4.1.

4.2.1.2. Profile of interviewees

Table 4.1 shows that all the interviewees held senior position in their company. This is consistent with current best practice, according to which conducting separate case interviews with homogeneous but contrasting groups is believed to produce information in greater depth than would be the case with heterogeneous groups (Shaw, 1999). Given that all interviewees held highly responsible positions in their companies, their decisions made an important contribution toward the success of outsourcing projects. In this sense, the information received from these interviewees is also of greater value. Table 4.1 shows that interviewees from companies such as C2, C4, C8, C12, C14, C15, and C16 held one of the highest positions in their companies. Table 4.1 also shows that some companies such as C5 and C11 had created specific posts in their companies to manage outsourcing relationships.

Table 4.1: Demographics of the vendor companies

Company	Interviewee's profile	CMM level of the company	Workforce size	Experience of interviewee in software industry (number of years)	Company's experience in outsourcing (number of years)	Place of the interview
C1	Global delivery manager	4	5000 - 10000	5-7	5-10	Bangalore
C2	Director	5	1000 - 5000	8-10	5-10	Delhi
C3	Senior project manager	4	5000 - 10000	>15	5-10	Bangalore
C4	Chief operating officer	5	>15000	>15	5-10	Mumbai
C5	Relationship manager	5	10000 - 15000	8-10	5-10	Mumbai
C6	Chief information officer	5	10000 - 15000	>15	5-10	Mumbai
C7	Senior project manager	5	5000 - 10000	5-7	5-10	Mumbai
C8	Country manager, India	5	1000 - 5000	8-10	5-10	Delhi
C9	Project manager	5	5000 - 10000	5-7	5-10	Mumbai
C10	Chief operating officer	5	5000 - 10000	8-10	5-10	Mumbai
C11	Senior relationship manager	5	>15000	8-10	>10	Bangalore
C12	Associate vice president	5	5000 - 10000	>15	>10	Bangalore
	Assistant vice president					
C13	Marketing manager	5	1000 - 5000	5-7	5-10	Bangalore
	Engineering manager			5-7		
C14	Business development manager, Europe	4	10000 - 15000	8-10	5-10	Mumbai
C15	Senior business development manager	5	>15000	>15	>25	Mumbai
C16	Director, quality	5	1000 - 5000	8-10	5-10	Mumbai
	Marketing manager			5-7		
	Software engineer			5-7		
C17	Managing consultant	5	10000 - 15000	>15	5-10	Bangalore
C18	Senior manager	5	>15000	>15	>10	Bangalore

4.2.1.3. Experience of interviewees

Table 4.1 shows that fourteen of the eighteen interviewees had more than ten years' experience in the software industry and the rest had at least five years' experience. This suggests that in addition to direct experience of managing software outsourcing projects all interviewees had considerable knowledge of the software business and the software development cycle.

4.2.1.4. CMM Level and companies' experience of outsourcing

Table 4.1 shows that none of the participating companies is below CMM level 4. This high maturity status suggests that all the companies are likely to follow best practices in their undertakings. Opinions obtained solely from high maturity companies will also help to increase the current body of knowledge in the sense that the knowledge gained can be used to improve overall practices in the discipline.

Table 4.1 shows that four companies have been working as vendor outsourcing companies for more than ten years. Another seven have been in the outsourcing business for eight to ten years. All the companies have at least five years' experience of managing outsourcing projects.

4.2.1.5. Workforce size

Table 4.1 shows that all participating companies are large companies in terms of the number of employees. For example, all companies have at least one thousand employees. Eight have more than ten thousand employees. Another six companies have a workforce of between five and ten thousand. The remaining four have fewer than five thousand employees. The relatively large human resources of these outsourcing companies are an indicator of their influential presence in the offshore outsourcing market.

4.2.2. Client companies

After collecting and analysing data from eighteen vendor companies, this study also collected data from corresponding clients so as to increase confidence in the results. A case database of sixty four clients was developed. Only clients of participating vendors were included in the database. Six client companies participated in the study. The client

companies studied are based in the UK and USA. Table 4.2 shows some of the demographic characteristics of client companies.

4.2.2.1. Profile of interviewees

Table 4.2 shows that all the client interviewees held senior positions, including head of the department and senior executive posts. All interviewees had extensive experience both in the client's field of business and in managing software outsourcing. This long term experience, along with important positions in the companies, made an important contribution toward the decision making and success of outsourcing projects. Each interviewee had at least five years' experience of software outsourcing and at least ten years' experience in the client's field of business.

4.2.2.2. Business area, size and location

Table 4.2 shows that client companies were doing business across different sectors such as pharmaceutical, telecommunications and business support. Clients were not intentionally selected across different business areas for this study.

Table 4.2: Demographics of the client companies

Company	Interviewee's profile	Workforce size	Experience of interviewee in the client's area of business (number of years	Experience of interviewee in software outsourcing (number of years)	Company business	Company location
C1	Outsourcing manager	>15000	8-10	>25	Business support	UK
C2	Chief information officer	1000-5000	>25	5-10	Education and research	USA
C3	Head of the department	1000-5000	>25	5-10	Taxation	USA
C4	Senior project manager	1000-5000	10-15	5-10	Pharmaceutical	Netherlands
C5	Technical lead manager	10000-15000	8-10	5-10	Technology and manufacturing	USA
C6	Senior project manager	>15000	10-15	5-10	Telecommunication	USA

The participating clients happened to be from different business areas. Table 4.2 shows the origin of the companies that participated in this study. Four were from USA and two were from Europe, that is the UK and Netherlands. Three companies had workforces of

between one thousand and five thousand, while another three companies had more than ten thousand employees.

4.3. Procedure for data analysis

This study covers a total of 26 cases. Audio recorded case interviews were transcribed for analysis. Grounded approached coding techniques were used to analyse interview transcripts. Grounded theory principles were also used in developing the propositions from the themes which emerged using the grounded coding technique.

4.3.1. Coding techniques

Coding techniques specific to grounded theory analysis were used in this study to analyse qualitative data. Coding was done in three phases.

Phase 1: Open coding

Open coding was used to identify all the preliminary themes. In this phase, each case transcript was coded with as many themes as possible. This was done by taking each statement in the transcript into account. Emergent themes were developed by placing emphasis on the meaning, the interpretation and the intention of the data presented by interviewees. When a particular theme was identified, the text was marked and coded in relation to that theme. The codebook was developed in parallel, adding new themes and mapping existing themes against those identified. Appendix 2 presents the codebook of this study. All the coded themes were then grouped corresponding to their research questions. This relates to axial coding.

Phase 2: Axial coding

In this phase, themes were further grouped by similar properties. It was important to note here that better sequencing of interview questions helped to collect information in a more systematic manner which in turn helped at this stage of axial coding, where it became easier for the researcher to group themes. However, transcripts were further reviewed to check for anomalies or new additions to themes. All the themes were also transferred to the codebook to explain their meanings and the criteria against which they were coded. Subsequently, axial coding helped arrange all themes identified in the phase 1 of open coding. The resulting themes were used to develop matrices representing all the identified themes. Matrices are shown in Appendix 4. A graphical presentation corresponding to each case was developed. All the themes identified in a

particular case were identified in the graphical presentation of that case. Appendix 3 (Figure A3.1) shows one example.

Before starting further work on the identified themes, it was ensured that all themes were established fairly and were traceable to the actual interview quote based on which they were categorised.

Phase 3: Selective coding

In this phase, a model was developed based on empirical evidences. Selected themes were carried forward for the discussion and relevant propositions were identified. Selected themes were used to develop the models. Particular themes from the literature were also brought in to the discussion for developing the model. The following section describes the strategy used for selecting particular themes for further investigation.

4.3.2. Strategy for selecting results

The literature review was used to develop main research questions and provisional insights into what had already been investigated in the area of study. Research questions were answered by empirical investigation. These answers basically presented the themes that emerged from the empirical investigation.

It was important to determine which results from the literature review (chapter 2) and the empirical investigation (chapter 5, 6, 7, 8) should be carried forward to the discussion chapter (chapter 9) for model development. The strategy for selecting themes comprised two phases:

Phase 1: Strategy for selecting themes for the discussion

A theme (which emerged in the literature review and empirical investigation) was carried forward to the discussion chapter if it satisfied at least one criterion in the strategy. Each theme was reviewed against the following three criteria (in order):

Criterion 1. A theme that was identified by both groups - client and vendor.

Criterion 2. A theme that was not identified by criterion 1 but is identified in at least half of the total number of case studies in one group – client or vendor.

Criterion 3. A theme that was not identified by criterion 1 and criterion 2 but is overlapping with the theme identified in the literature.

Results of applying the above three criteria are presented in Chapter 9.

Phase 2: Strategy for selecting themes for the model

Themes identified in the first phase were compared to develop the offshore software outsourcing relationship management model. The proposed model only considered the themes relating to critical factors and trust building as they were relevant to the relationship management. The criterion includes identifying overlapping themes between critical factors and trust building. The resulting themes were used in the model. Chapter 9 shows the results relating to this phase.

4.4. Measuring credibility of the results

Based on Patton (1990), the credibility of this study is ensured by addressing the integrity, validity and accuracy of the results. Measuring credibility in grounded theory results is similar that of general qualitative research. For example, results of the empirical investigation are based on how they are coded from the transcript. Therefore it is imperative to ensure the reliability of the coding scheme established in the study. A widely adopted and documented way of measuring such reliability is by using Cohen's Kappa measure of agreement. This is also referred to as an inter-rater reliability test. In this thesis, an inter-rater reliability test was undertaken with one of the department's researchers with no knowledge of this thesis. In an inter-rater reliability test, themes assigned by the invited researcher are compared to the category system developed by the researcher (in this case Nilay Oza). It took two rounds of inter-rater reliability tests to agree on a category system. Ultimately, 89% reliability was achieved. Both iterations of the inter-rater reliability test are presented in Appendix 5.

To calculate the inter-rater reliability score, a Cohen's kappa inter-rater reliability test was performed. Cohen's kappa measure of agreement between the evaluations of the 2 raters (Nilay and the other researcher) was positive: 37 valid cases gave a value of k = 0.89 representing a 'substantial' agreement (Dunn, 1989). The 37 cases related to three classified sub-themes were selected from 18 interview transcripts. The k value of 0.89 is taken to indicate that the classification scheme is reliable.

In this study, objectivity is mainly addressed through transparency in how the final results were achieved. Chapter 9 details a complete procedure on how exactly final

results were achieved. This allows reproducibility of the results and re-use of the analysis strategy used in this study for other similar study.

4.5. Reporting the results

In this thesis a grounded analysis of multiple case studies is presented. Grounded theory, when used to analyse case studies, requires results to be presented in the form of a qualitative description. This means that results are presented based on cross case issues rather than individual cases (Yin, 2003). In this context, this thesis includes individual chapters presenting the results of four main themes of the study including motivators, difficulties, critical factors in relationship management, and trust building in offshore software outsourcing

4.6. Pilot study

Before implementing the research procedure presented in this chapter on case profiles, this thesis conducted a pilot study with two high maturity vendor companies. The main objective of the pilot study was to evaluate the research procedure, make any necessary changes and present provisional results from the study. Four companies replied initially. Two of them (that ranked higher in the list of software exporters) were selected for the pilot study. The list of top 20 software exporters was accessed from the NASSCOM. All twenty companies were high maturity companies. Before undertaking the pilot study, a qualitative interview session was undertaken with senior researchers at the Systems and Software Research Group, University of Hertfordshire, to develop better qualitative interviewing skills. Nilay Oza also underwent the generic research skills training provided by the University of Hertfordshire to understand and learn different research methods. Appendix 7 shows a list of all the generic skills training sessions undertaken during the PhD.

The pilot study helped in producing provisional results from the investigation. The pilot study was presented at the ACM Workshop on Interdisciplinary Software Engineering Research (WISER) (Oza et al. 2004).

4.7. Summary

This chapter presented the procedure for implementing the research methodology established in chapter 3. Demographic data of the participating case companies were also presented in this chapter. This procedure will help any other researcher to execute

the research methodology. The procedure is mainly focused on data collection, data analysis, credibility of results and presentation of results. The procedure for data collection was based on the research questions established through the literature review. A procedure for selecting case companies was developed. Empirical data was collected from outsourcing clients and vendors. Empirical data from vendors was collected by visiting 18 Indian software companies in India and data from 6 corresponding clients based in the USA and Europe was collected over the telephone. The data collection was done based on the recommendations of Patton (1990) and Yin (2003). The data analysis procedure focused mainly on grounded theory coding techniques, that is open coding, axial coding and selective coding (Strauss and Corbin, 1998). The procedure for verifying the quality of the results was then developed on the basis of the inter-rater reliability method. The procedure for presenting the results was also developed, mainly focusing on the 'multiple case studies' presentation approach. This chapter then reported the pilot study investigation that was conducted before moving on to the actual empirical investigation. The next four chapters present the actual results of the empirical investigation.

Chapter 5: Motivators in offshore software outsourcing

5.1. Study aims

This chapter and the next three chapters present an analysis of the qualitative data collected from eighteen high maturity Indian software companies and six of their corresponding clients involved in offshore software outsourcing. Empirical results presented in the following four chapters are the answers to the research questions established in the literature review (chapter 2). Empirical results are presented with the cross case analysis between client and vendor perceptions. Themes are first analysed across cases in each group i.e. client and vendor. Then, themes are analysed for their replication across both groups of the study i.e. client and vendor. In this chapter, research question 1 is answered:

Research question 1: What are the motivators of offshore software outsourcing?

This research question is answered on the basis of what clients and vendors perceive as advantageous in offshore software outsourcing. The advantages perceived by the clients and vendors to the case-interview question are referred to as motivators in offshore software outsourcing. In this context, vendors' perceptions are analysed in terms of what they think motivate their clients to outsource software to them; clients' perceptions are analysed in terms of what motivated them to outsource their software offshore to the Indian software companies. All interviewees were asked the following question:

1. What do you think are the advantages of offshore software outsourcing?

5.2. Vendors' views on motivators

Figure 5.1 shows vendors' perceptions on what motivate clients to outsource their software to them. Figure 5.1 shows ten unique motivators which emerged at least in five cases. These motivators are described here.

Clients can save more cost by offshore outsourcing

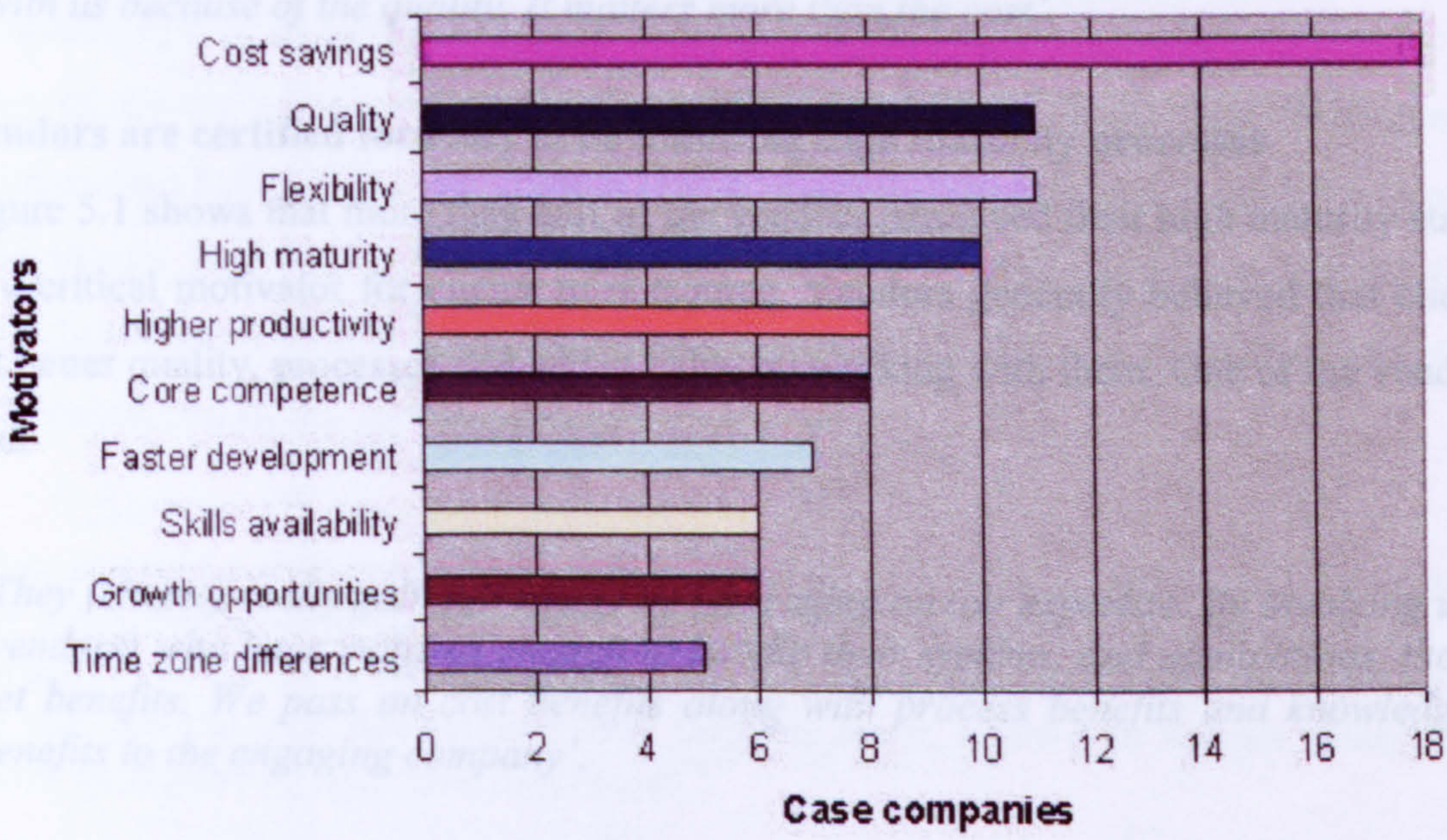
Figure 5.1 shows that all eighteen vendors perceived that 'cost saving' motivated their client's decision to outsource. One of the vendors said:

'*One advantage is common and quite well known, which is the cost arbitrage like US or UK cost compared to Indian cost which could be upto 50 to 60% cheaper and therefore prime motivation has to be cost savings.*'

However, in one case, a vendor identified that cost may not be the prime motivator in all situations. This vendor said:

'There is definitely one advantage that everybody knows, outsourcing saves cost. But it doesn't work everywhere, there are some customers for whom money is not a problem and they are really interested in getting the best, so there we bring our highly mature processes, our qualities and our commitments'.

Figure 5.1: Motivators of offshore software outsourcing relationships – Vendors' perceptions



Vendors also identified other motivators that, according to them, motivate clients to outsource. Vendors also consider that their high quality work motivates clients to outsource. One vendor said:

'*They (clients) come for the cost saving but stay for the quality*'.

Clients get good quality at a low cost with added flexibility of resource allocations

Figure 5.1 also shows that flexibility and quality are other frequently identified motivators of offshore outsourcing after 'cost'. Vendors perceived that their clients get at least acceptable quality at a significantly low cost. Vendors also perceived that they

get flexibility in addition to the low cost and good quality advantages. One of the vendors reported:

> *'While saving cost is the prime motivation, the other thing is ability to manage variable requirements. There are situations in which even the resources might be required in numbers that are not locally available which can be satisfied by outsourcing. They get lot of flexibility in terms of workforce and managing requirements of the organisation according to the market situation at much reduced cost'.*

Another vendor, focusing more on the quality of the work as motivator, said:

> *'In addition to our generic outsourcing abilities, we have a very robust offshore model in place for the last 15 years. This delivers extremely high quality at low cost which definitely attracts the customer. They come for the cost advantage but stay with us because of the quality. It matters more than the cost'.*

Vendors are certified formally to be following high maturity processes

Figure 5.1 shows that more than half of the vendors perceived their high maturity status as a critical motivator for clients to outsource. Vendors generally believed that clients get better quality, processes and added value by working with them. One of the vendors said:

> *'They (clients) really gain advantage by leveraging on our expertise. By involving us (vendors) who have matured enough to handle their systems, and applications, they get benefits. We pass on cost benefits along with process benefits and knowledge benefits to the engaging company'.*

Clients can concentrate more on the core business activity

Figure 5.1 shows that nearly half of the vendors reported that the core competence could also be one of the critical motivators for outsourcing. Vendors commented that the clients can exploit their software expertise at a very low cost. Vendors said that clients can concentrate more on their core business in terms of investing money and effort, by outsourcing software to them. One vendor said:

> *'I mean the core advantage primarily is about focusing on what your core business is. So the idea or the message that typically almost every outsourcing company communicates is, you do what you are good at and focus on your core business and we will do what we are good at that we will bring out the best in both the classes and that proves good for businesses of both of us'.*

Clients can achieve higher productivity and faster development cycle

Less than half of the vendors perceived that clients can achieve higher productivity in their business and faster development of the outsourced work. Vendors perceived that higher productivity and faster development could help their clients to reach consumer of the product faster than other competitors. One vendor said:

> *'Looking at IT product companies globally, they all are generally funded by venture capitalists. Their core focus is milestone management. They need to achieve x milestone and goals by a specific time. Therefore focus obviously is towards options in terms of cost and how they can reach market faster than anybody else. And time to reach to market becomes lesser by outsourcing'.*

Client can achieve benefit of time zone differences and skills availability in India

Six vendors perceived that software related skills availability in India is very huge compared to their client counterparts. Vendors believed that it is easier and quicker for them to recruit software engineers with required skills in India than their clients. Vendors also believed that the skills availability in India is sufficient enough for them to offer twenty four hour software development service to their clients by utilising time zone differences between client and vendor countries. In terms of exploiting time zone differences, one of the vendors stated:

> *'You can add a shift in a pat, when you follow the sun, because when the USA closes for a day, India opens the next day so actually gain twelve hours or fourteen hours to be able to do the work which otherwise you will not be able to do. You probably have to wait for the next day to come and start the work, which can happen round the clock by exploiting time zone differences'.*

There are business growth opportunities

Figure 5.1 shows that a quarter of vendors perceived that outsourcing helped to grow the business of both parties. Therefore vendors considered that growth opportunity can also motivate clients to outsource. Growth opportunity for the clients was reported in terms of entering into the 'local' market to sell their products or services. For vendors, growth opportunities were in terms of 'tapping' into client's market to get more outsourcing projects. One vendor said:

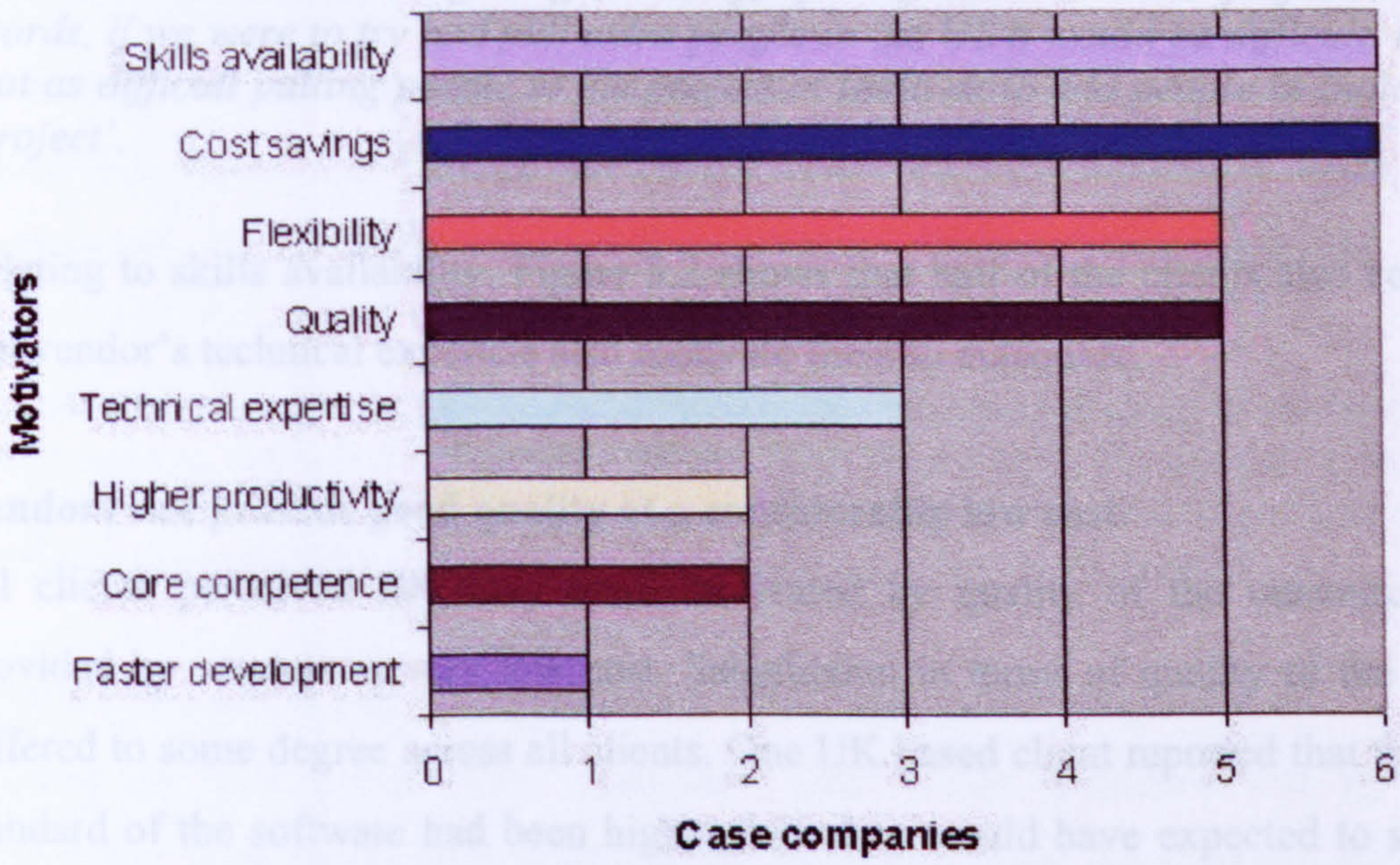
> *'There are many growth opportunities for both of us from the business perspectives. This market is a very high growth market because in a typical industry, the growth rate is 6-8% whereas software development or software offshoring is still increasing at 30-35% rate so from that perspective, it really gives lot of growth opportunities.*

And this growth also gives client companies huge potential to expand their market by selling their products here. And we also help them in that'.

5.3. Clients' views on motivators

Figure 5.2 presents the motivators identified by clients for offshore software outsourcing. A total of six cases were studied in this investigation, and as shown in Figure 5.2, eight different motivators emerged from the clients' perception. Each motivator emerged in at least one case. In this context, the emergent motivators are presented here.

Figure 5.2: Motivators of offshore software outsourcing relationships – Clients' perceptions



Clients can save more cost by offshore outsourcing

Figure 5.2 shows that all six clients identified that cost saving motivated them to go for offshore outsourcing. One client reported:

'Being straight and honest, the biggest advantage is cost. For this particular project, we talked to the company in Netherlands and in Belgium, they gave us quotes for the work we wanted to outsource and the cost quoted from the Indian company was at least half of that. So, is the cost is the significant factor, I have to say'.

Another client said:

'Cost saving is advantageous in the sense that, to retain and bring ourselves upto speed, would have been more expensive and would have taken much more time and this could have increased our total expense'.

Software related skills availability and technical expertise are very high and can be exploited in the vendor country (i.e. India)

All clients considered that the availability of software skills in India was one of the motivators to outsource. Clients considered that it is sometimes difficult for them to pull out people with particular software skills from the local market. Skills availability was also a motivation for clients in terms of bringing in the skilled people from offshore destination for limited time period to complete a software project. One client reported:

'We never seemed to be getting all the people we wanted in the project, in other words, if we were to try and pull extra people in the US it would be difficult, but it is not as difficult pulling people to the project in India or to add people in India to the project'.

Relating to skills availability, Figure 5.2 shows that half of the clients also considered that vendor's technical expertise also motivate them to outsource.

Vendors can provide good quality at a considerably low cost

All clients perceived that they were motivated by quality of the outsourced work provided by vendors at very low cost. Satisfaction in terms of quality of the software differed to some degree across all clients. One UK based client reported that the quality standard of the software had been higher than they would have expected to see in the UK. Whereas another client said that '*he wouldn't say a quality advantage but there is no quality disadvantage.*' All clients had reported that they were satisfied with the quality of the outsourcing company and they perceived that at least an acceptable standard of quality is achieved when they outsource to their vendors in India.

One client reported:

'It is the value for money equation if you like. For what we pay for, at least the equivalent quality we get here in India, at the significantly lower cost'.

Clients' viewpoints on quality were also related to skills availability in offshore outsourcing. One client said:

'I think, if I was very concerned, having that expertise that we can draw on is a key advantage, for example in one of the largest UK based project, we picked about 150 developers, and we just don't have those numbers with the right skills and quality here. And in addition, quality level of Indian market is very good'.

Offshore outsourcing provides flexibility in allocating resources of the company

Relating to skills availability, clients reported that they get flexibility of using skilled resources as required and pay accordingly. This, according to clients, allowed them to allocate their own resources more efficiently. One client said:

'The vendor provides flexibility and gives us an advantage. Basically being able to tap into specialist resource in this case computer programmer with particular language and to be able to use it as we want to use it rather than having to pay for it five days a week to full time employees'.

Clients can concentrate more on their core business activity

Figure 5.2 shows that two of the clients considered 'concentrating more on core business and outsource non-core activity – software, offshore'. One client said:

'We wanted some specialist focused expertise (in this case computer programs) and we didn't want to employ full time employees doing themselves. We wanted to focus more on our core business strengths. And the vendor provided this advantage of tapping into specialist resource of computer program, which was their core strength'.

Clients can achieve higher productivity and faster development cycles

Relating to 'core competence' motivator, clients also identified that by offshore outsourcing, they can achieve higher productivity and faster development cycle. These were reported to lead to a faster marketability of the product. One client said:

'The advantage for us I think was that we had relatively small staff and outsourcing in this situation made it possible for us to bring very large staff in with relevant skill set. And this actually made it possible to complete the project in reasonable amount of time. If we would have done this project internally, it could not have been completed within the timeframe we needed to get it done'.

5.4. Cross case analysis

There are similarities and differences in the perceptions of clients and vendors on what are the key motivators behind outsourcing decisions. Table 5.1 highlights the cross case analysis of the results.

Table 5.1: Cross case analysis of motivators of offshore software outsourcing

Motivators reported by both clients and vendors	Motivators reported only by clients	Motivators reported only by vendors
Cost	Technical expertise of vendor	High maturity of vendors
Flexibility		Growth opportunities
Quality		Time zones
Core competence		
Higher productivity		
Faster development		
Skills availability		

5.4.1. Motivators reported by both clients and vendors

Table 5.1 shows that there are seven motivators common to both groups. This suggests that these motivators were identified by at least five vendors and one client. The focus here is on identifying the themes replicated across both groups – clients and vendors. Both groups seem to consider that one of the key motivators behind offshore outsourcing is low cost coupled with acceptable standard of quality work. This study suggests that the cost saving has become a 'de facto' motivator for offshore outsourcing. However, it has to be noted that the high maturity vendors are now talking more about cost savings integrated with quality and processes rather than only cost savings. It can be speculated that if the cost motivator becomes less attractive, then clients may in-source their offshore outsourcing projects or outsource them to a country where they can get cheaper prices. This may be the reason that the high maturity Indian vendors of this study identified process and high quality work as also the potential motivators to outsource to them.

Skills availability in India was identified as a motivator for offshore outsourcing by all the clients. Interestingly, only two vendors identified it. This suggests that vendors either may not be aware of the strength of human potential available in India or they may not be aware of the skills shortages in the client country. It may also be possible that vendors were considering skills availability in India as their one of the strengths in quickly allocating the resources for the outsourced projects but not necessarily considering it as potential motivator for getting outsourcing projects. Although both groups have identified skills availability, there seems a gap in terms of why skills availability is a motivator and how much it can affect the offshore software outsourcing decision.

Table 5.1 also shows that the views of both communities seem to converge on quality and flexibility. Clients identified that they were highly satisfied with the quality of software and services provided by the Indian vendors. Similarly, vendors also perceived that their quality of work is part of their clients' motivation to outsource to them. This suggests that quality and flexibility have been effectively marketed and implemented by vendors, and clients seem to have recognised these motivators.

Some of the other motivators such as core competence, faster development, and higher productivity also have similar perceptions in both groups. Both communities considered that concentrating on core business and outsourcing the non-core activity i.e. software activity and achieving the faster development of the software by using vendor's expertise and resources could motivate offshore outsourcing initiative.

5.4.2 Motivators reported by clients

Table 5.1 indicates that the clients identified that one of the key motivators for them to outsource was the technical expertise of the vendor company in software. Relating to the technical expertise, vendors focused on their high maturity processes.

5.4.3 Motivators reported by vendors

Vendors reported five additional motivators for clients to outsource to them. More than half of the vendors considered that their high maturity is one of the motivators for clients to outsource to them. However no client specifically identified vendors' high level maturity as a potential motivator for offshore outsourcing. This may lead to a speculation that the clients do not have enough understanding or experience of high maturity processes. Having said this, clients' views about vendors' technical expertise and high quality work probably reflect the high maturity of vendors.

Nearly half of the vendors considered faster marketability of the outsourced product as a key motivator for clients to outsource. In this context, clients talked about high productivity and faster development which may lead to faster marketability of the outsourced product. A quarter of vendors considered that time zone differences could be useful in offshore outsourcing and beneficial to clients to gain a 24-hour work cycle. However none of the clients considered that time zone difference could motivate them to outsource offshore. Vendors also considered that offshore outsourcing could create growth opportunities and increase financial revenue for both groups. Clients also did not

identify that they could have broader market base by offshore outsourcing. This may suggests that the clients, in this study, probably are considering offshore outsourcing as getting low cost – quality work from the vendor and not expanding their own product sales by entering new marketplace.

5.5. Summary

In this chapter, motivators of offshore outsourcing were identified. Both clients and vendors focused on motivators such as cost savings, good quality work, core competence, higher productivity, faster development, flexibility of staffing and time and skills availability. However, unlike vendors, clients considered technical expertise of the vendor as one of the motivators. Vendors identified a few motivators such as high maturity, growth opportunities and time zone differences which were not perceived by clients.

The results suggest that, although frequently cited, cost saving is not the only factor motivating offshore outsourcing. In other words, a combination of less cost and good quality is becoming a motivator to offshore outsourcing to India. Furthermore, vendors' views also indicate that they prefer marketing their high quality with less cost to sustain their dominance in offshore software outsourcing market.

Based on the strategy identified in chapter 3 for selecting emerging results for further discussion, the following motivators will be carried forward in the Discussion chapter.

Table 5.2: Motivators to carry forward in the Discussion chapter

Cost	Flexibility	Quality
Core competence	Higher productivity	Faster development
Skills availability	High maturity	technical expertise

Motivators show the positive side of offshore software outsourcing. However, understanding difficulties, which can be faced in conducting offshore software outsourcing, is worthwhile. This will also give a balanced perspective to the investigation. Subsequently, the next chapter reports an analysis of possible difficulties in offshore software outsourcing.

Chapter 6: Difficulties in offshore software outsourcing

6.1 Study aims

In this chapter research question 2 is answered:

Research question 2: What are the difficulties in offshore software outsourcing?

Perceptions of both sides are analysed to understand the potential difficulties that might be experienced in offshore software outsourcing. A table is presented suggesting the provisional solutions to the identified difficulties. The following two interview questions were asked to analyse difficulties in outsourcing:

1. What do you think are the disadvantages of offshore outsourcing?
2. What difficulties do you face in managing offshore outsourcing relationships?

It was noted during analysis that perceptions of both clients and vendors reflected difficulties, they have experienced in offshore outsourcing. They did not report on any specific disadvantage of outsourcing. Therefore, answers of the two interview questions are presented as 'difficulties' in offshore software outsourcing.

6.2. Vendors' views on difficulties

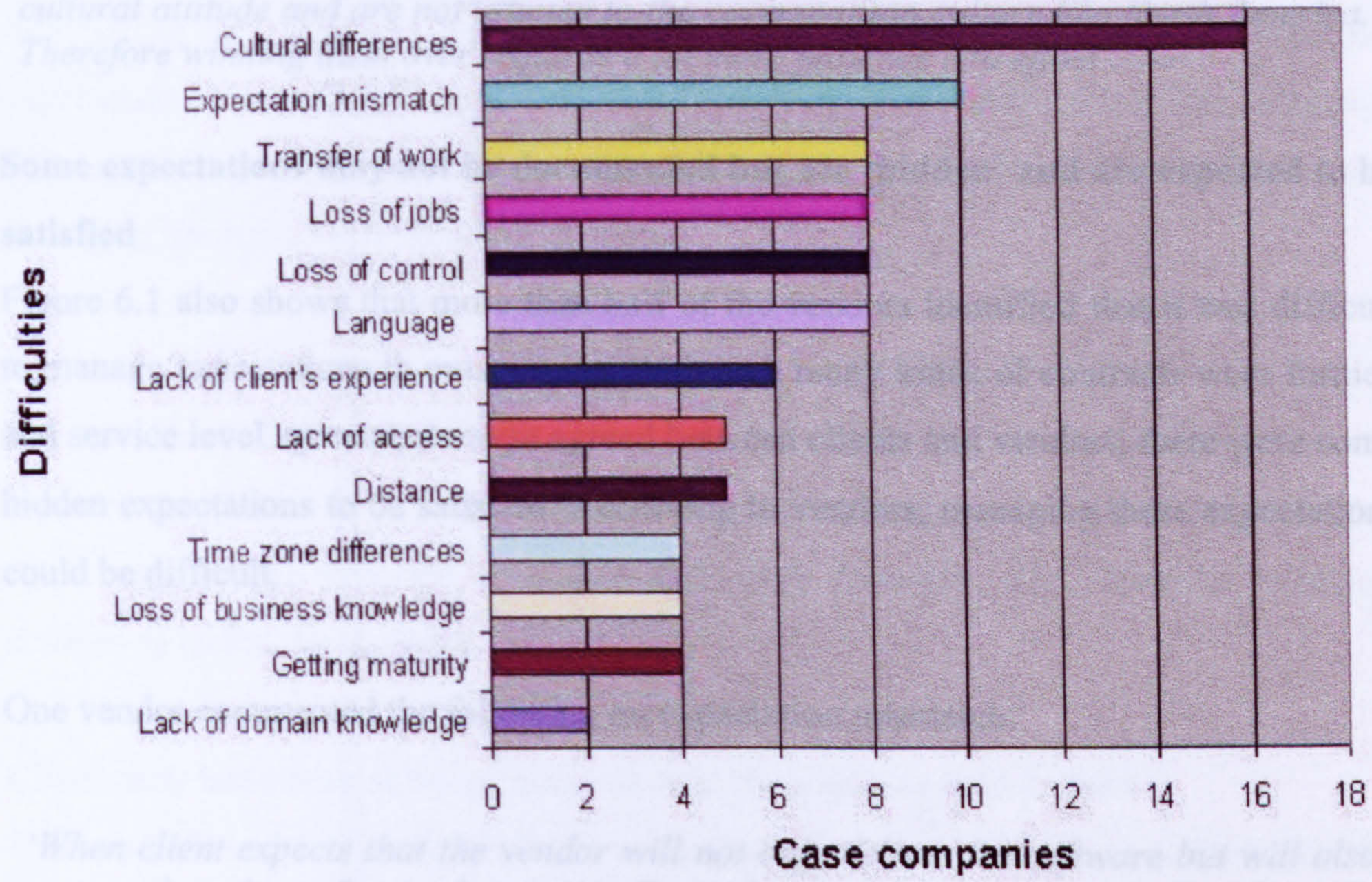
Figure 6.1 presents difficulties identified by vendors in offshore outsourcing. Figure 6.1 shows thirteen difficulties cited by vendors.

Cultural differences can create difficulties in managing offshore relationship

Figure 6.1 shows that managing cultural difference was identified by most of the vendors as one of the difficulties in offshore outsourcing. Sixteen out of eighteen vendors reported various kinds of cultural issues they and their clients face in outsourcing. Cultural issues generally included the different approaches to work, the way people talk and interpret things, religious matters, dietary habits and adapting to different working styles. Most of the cultural difficulties identified were centred around interpersonal relationships and not towards the working culture. One vendor reported that:

'What you say and mean in India and in another country could be entirely different. We need to overcome those challenges. I think it requires a lot of work, both by the outsourcing client and the vendor to ensure the matching of minds. We invest a lot to make it happen'.

Figure 6.1: Difficulties in offshore software outsourcing relationships – Vendors' perceptions



One vendor identified how the different background of the person matters in the relationship:

'Suppose you are working with an academic person. The kind of things s/he look for are different from the person with the industrial background. So you have to actually understand the client's need, attitudes and nature. If you are not doing it, you face trouble'.

According to some vendors, day-to-day customs also contribute to the difficulties of outsourcing where people from different cultures work together. Certain behaviour, which seems normal for one person, can be completely unusual and exceptional for another person. One of the vendors said:

'If I talk about culture related issues, sometimes I have faced difficulties due to food habits and other type of things like having Tilak (religious symbol on the forehead) and other religious kind of matters. But I haven't seen any major difficulty with any culture, as far as work culture is concerned'.

A few vendors identified cultural differences on the basis of countries. Some shared their experience about how it was different to interact with European compared to American clients. One vendor said:

> *'As far as culture is concerned, I have faced instances of cultural difficulties especially from Europe and much less from North America. I think in Europe it has to do with cultural changes. European people usually come with a conservative cultural attitude and are not attuned to the cosmopolitan culture like North America. Therefore winning them over requires a lot more patience and effort'.*

Some expectations may not be documented but are 'hidden' and are expected to be satisfied

Figure 6.1 also shows that more than half of the vendors identified that it was difficult to manage expectations in outsourcing. Although many kinds of contracts were formed and service level agreements were agreed between clients and vendors, there were some hidden expectations to be satisfied. According to vendors, managing these expectations could be difficult.

One vendor commented the following on expectation mismatch:

> *'When client expects that the vendor will not only deliver the software but will also ensure that the software becomes effectively used, you run into a problem. So expectations must be set right'.*

Another vendor reported that expectation management can be difficult and both sides need to attend to it:

> *'Expectation management is the first thing that you need to do with your customer. Both sides need to set up channels and be able to articulate facts clearly'.*

With the growth of outsourcing, vendors think that clients are expecting more and more to exploit the outsourcing engagement:

> *'I think now customers have become very demanding. They expect a lot and probably want to pay less. So I think that is where sometimes it is difficult to manage their expectations to deliver quality, with delivery on time, with less defects at minimal cost'.*

Another issue relating to expectation mismatch was about expecting instant benefits from outsourcing. One vendor reported that:

'If you expect that we have carried out outsourcing and from day one we are going to see the benefits out of it, it doesn't happen at all. The most important thing is one needs to be fairly patient. It is also about the vendor who should clearly explain to the customer the benefits of the entire process of outsourcing and when they can be expected. Then you need to constantly monitor and correct if necessary'.

In general, vendors think that expectation mismatch is one of the major difficulties in outsourcing and it has to be tackled with effort. In addition to cultural issues and expectation management figure 6.1 also presents other difficulties like language difference, managing loss of control, managing the perception of loss of jobs and managing the transfer of outsourcing work.

Not having common language platform may harm the relationship

Vendors faced difficulties due to language differences mainly in the European and Japanese markets where English was not the main language of business. However, vendor companies reported that they had used managers with bilingual language abilities to tackle the challenge.

Client may have fear of losing control over their outsourced project

Vendors believed that it was difficult to manage client's fear of losing control over the outsourced work. Especially due to 'offshore' nature of project, client may felt that vendor may opportunistically take control over the project. Vendors also believed that such fear may limit the client to be fully transparent in sharing project information.

Client employees may fear losing job

Vendors also report that it could be difficult for clients to manage the perceived loss of jobs. However, vendors believed that loss of jobs is a politically motivated phenomenon. One vendor said:

'Looking from the client perspective one difficulty is managing loss of jobs because the client has to manage the rationalisation of his workforce, if he has to do that properly then that also comes into transition management issues, so that leads to lot of bad blood and lot of acrimony. There can also be a public outcry. So that creates a bad image or reputation for the organisation, which could be a short term disadvantage or a long term disadvantage depending on the overall impact of such initiatives'.

It may prove difficult to transfer required knowledge from client to vendor side

As figure 6.1 shows, managing the transfer of work could be difficult in outsourcing relationships. Nearly half of the vendors considered that managing the transfer of outsourcing work from the client to the vendor can be difficult. Vendors perceived that client's lack of experience in outsourcing activities, fear of losing business knowledge, fear of losing control and sometimes the vendor's lack of domain knowledge might hinder the successful transfer of the outsourcing work. One vendor said it can not possible to control the transfer of knowledge. He said:

> *'You simply cannot control it. You know it is like I have read a book and I give it to you. If you read a book you are going to remember what is in it. We can sign a number of agreements that you will not disclose the contents of the book, but how can I tell you that you will not remember what you have read in the book? That will simply not be possible because here we are talking about sharing of human knowledge which is not possible to control'.*

Distance can create difficulties in managing offshore relationships

Figure 6.1 shows that vendors considered geographical distance as one of the difficulties reported in outsourcing relationships. Nearly a quarter of vendors thought that distance could be a major difficulty. Vendors thought that the distance creates lack of access for the clients that could increase fear of losing control and losing business knowledge. However, vendors reported to have used various communication tools and processes to overcome this challenge. Some vendors also perceived that getting maturity in the relationship was difficult. They thought it was mainly due to the client's lack of experience in outsourcing and sometimes the vendors' high maturity processes might not match with the client's working processes. Figure 6.1 shows that less than a quarter of vendors considered time zone difference as a difficulty. Vendors perceived that working in different time zones could be sometimes difficult for outsourcing practitioners such as project managers. They have to work at odd times which have implications on their personal life.

6.3. Clients' views on difficulties

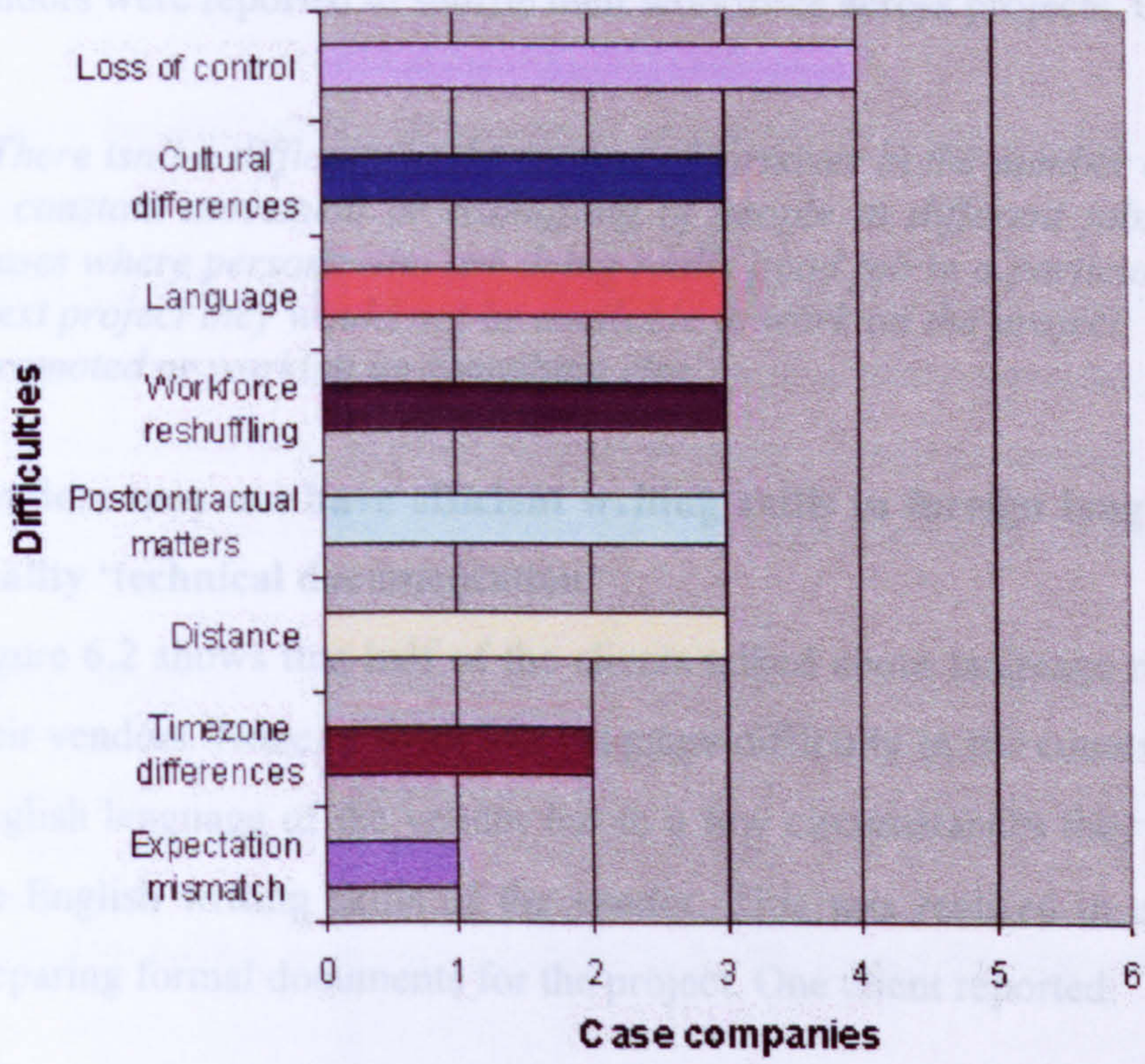
Figure 6.2 presents difficulties identified by clients in offshore outsourcing. Figure 6.2 shows eight unique difficulties emerged from clients' views. In this context, the emergent difficulties are identified here.

Loss of control may create difficulties in managing relationship with the vendor

Figure 6.2 shows that loss of control is the most widely acknowledged difficulty from outsourcing client companies. Clients perceived that they tend to loose control over outsourced software operations and knowledge of the product. One client reported:

'If we have something offshore, then keeping control is little bit more difficult to maintain and when the project is being expanded, to bring lot of people on board, getting them up to speed and maintaining knowledge of what is going on in that particular project is quite difficult. So there is a danger that sometimes things can go down towards wrong channel'.

Figure 6.2: Difficulties in offshore software outsourcing relationships – Clients' perceptions



Geographical distance between client and vendor may be difficult to manage

Relating to the loss of control, another difficulty acknowledged by clients was geographical distance. In addition to creating difficulties in controlling the outsourced project significant geographical distance between client and vendor can also create problems in managing the relationship. In some projects client and vendor did not get a chance to conduct face to face meetings or meet each other which might create difficulties in relationships. One client reported:

'You are giving something to people a long distance away and that creates some of the difficulties. For example, it creates a lack ability to knock on somebody's office

door or lack of ability to have short focus meetings which are quite usual if something is being done at your location. Therefore because of a great distance, there is a challenge to the general management of the project, I think'.

Vendors reshuffle employees across projects

Figure 6.2 also shows that the other major difficulties identified by the clients are frequent reshuffling of employees at the vendor side, vendor's lack of language proficiency and some of the problems due to differences in the corporate culture of the vendor.

Some of the clients reported that it was difficult for them when they could not continue working with people whom they had built a good rapport. This happened because the vendors were reported to shuffle their workforce across projects. One client said:

'There isn't a difficulty in the context of turnover in the number of people but there is a constant movement or reshuffling of people in different jobs. So we get several cases where persons who are doing really good job in a particular project and in the next project they would not be available to work on the project. They would either be promoted or working on something else'.

Vendors may not have efficient writing skills in foreign language to prepare high quality 'technical documentation'

Figure 6.2 shows that half of the clients talked about language related difficulties with their vendors. None of them had language difficulty in the context of understanding the English language of the vendor but in a few circumstances they have had trouble with the English writing skills of the vendor. This was realised in exchanging emails and preparing formal documents for the project. One client reported:

'When I was doing one of the largest UK based project, I found that, people from subcontinent tend not to use article 'the' at many places. Under normal circumstances it does not matter, but if we are submitting documents to our client then we have to spend quite a lot of time in this. Although the quality of the technical stuff was very good, it just needed to batten a few odd phrases'.

Vendors do not say 'NO' to any request

As far as the culture is concerned none of the clients reported to have any problems with the vendors because of their culture differences. All clients reported that they have a very positive working relationship with their vendors. However, half of the clients

reported that they had cultural difficulties in terms of the way the problem was approached by the people at the vendor side. One client reported:

'The biggest thing I had problem with the culture, whether it is a country thing I don't know but people there don't like to say 'NO' or not telling you, 'you are wrong' when actually you are'.

One of the clients was very upset with the vendor's approach and wondered whether it was due to cultural difference. He said:

'I was very upset when I discovered myself that somebody who was very key person and with whom I worked on three or four major deals for number of years and when he left the vendor company, they didn't bother to tell me and I was very upset with that'.

It may be difficult to get enough cooperation from vendor after the contract is finished

Figure 6.2 also shows that three clients said that they had some problems with the post-contractual service of their vendors. Problems in post-contractual services experienced in terms of sorting out any errors or issues such as knowledge transfer once the installation of the software was completed at the client side. One client said:

'Everything went very well except in the very last part where we had some difficulties in terms of bringing closure of the project and making sure we had an adequate knowledge transfer back to our company. We went back and forth a little bit with the vendor. However it was not a major problem. But there was an issue as to how much knowledge transfer was required, what we felt was that it wasn't enough and so we ended up having someone stay outside for the longer time then the vendor wanted'.

Client employees may have to work at odd hours

Figure 6.2 shows that less than half of the clients identified that they sometime experienced difficulties because of time-zone differences. For example difference in time-zones can limit the communication between the client and the vendor. In this context one client said:

'There are three locations involved in our operations, one of them is in Pennsylvania, we are in Phoenix and the other one is in Bangalore. Typically, I have to come at 6:30 in the morning in order to talk to people in Bangalore because it is a twelve and half hour difference. In case of our Washington centre, which handles software product operations, if they find bug in the software product after nine o' clock in the morning then people in India are no longer available to react on the bug. And we

have to wait until next day or very late at night so that we can talk to the people in India. So, we have to leave an email so next day when they come in, they can react to the problem'.

Vendor may misunderstood what is expected in the project

Figure 6.2 shows that one client reported that they had difficulty in dealing with the vendor because the vendor misunderstood the expectations of the project.

'One scenario is where they are too expensive. For example, in one particular project I got a quote from a vendor company and I found that they had completely misunderstood what we wanted. And I just couldn't get them into the agreement I went off to find another vendor'.

6.4. Cross case analysis

Clients and vendors have some differences in their perceptions on the difficulties in undertaking an offshore outsourcing project.

Table 6.1: Cross case analysis of difficulties in offshore software outsourcing

Difficulties reported by clients and vendors	Difficulties reported by clients	Difficulties reported by vendors
Cultural difficulties	Workforce reshuffling	Loss of jobs
Expectation mismatch	Post contractual matters	Transfer of work
Language		Lack of client's experience
Loss of control		Lack of access
Distance		Getting maturity
Time zones		Loss of business knowledge
		Lack of domain knowledge

6.4.1. Difficulties reported by clients and vendors

Table 6.1 shows that there are six 'difficulties' common to both communities. However, differences persist in the way both communities discuss on the same concern. Vendors have identified more difficulties than the clients. Many of which reflect potential client concerns such as loss of jobs and loss of business knowledge due to outsourcing. Clients did not report those concerns.

Although clients and vendors both reported cultural difficulties, they talked about these problems very differently. Vendors considered cultural differences in terms of differences in the customs, habits and other societal differences. Table 6.1 suggests that none of the clients reported any of such problems. Rather, clients talked about culture

differences in the sense of dealing with differences in the corporate culture of both companies. For example, clients had concerns that vendors did not proactively argue against client's decisions or views. Some of the clients reported that they actually discuss issues personally after the meeting with individuals to get their opinion. This may relate to one of the subcontinent's conventional cultures that they cannot override or argue against their peer's views.

Most clients reported the difficulty of losing control over outsourced work. Nearly half of the vendors showed awareness of this concern but report mechanisms to tackle this concern. More than half of the vendors reported expectation mismatch as another potential difficulty. However, only one client reported this difficulty. Less than a quarter of vendors identified geographical distance as a difficulty in comparison to half of the clients. Vendors may not have considered geographical distance as challenge because most vendors reported to have advance communication tools and processes in place.

Both communities reflected on language difficulty. However, the clients were focusing on the English writing skills of vendors. Clients' perceptions indicated that vendors were highly competent in technical language but not in professional English writing. Vendors concentrated on the language in terms of the European and Japanese market where they had trouble due to language difference. However, they reported that they have tackled this difficulty by employing and training their project managers in different languages.

6.4.2. Difficulties reported by clients

Post contractual matters and reshuffling of the workforce in outsourcing projects were difficulties only identified by clients. Clients report that vendors reshuffle their workforce across projects which create difficulties for clients in managing relationships. It creates problems for clients in terms of going through the same process of getting rapport with the new person and also making him/her acquainted with the project and people. Clients' also indicated that the post-contractual service from the vendors was not always satisfactory. However, a few vendors commented on this issue indirectly where they say that clients have become more demanding in terms of expecting not only the software but also how the software becomes effectively used.

6.4.3. Difficulties reported by vendors

Table 6.1 shows that there are seven other difficulties reported only by the vendors. But some of these are potential client concerns. For example, nearly half of the vendors considered that it could be difficult for clients to handle job losses due to offshore outsourcing. But none of the clients reported such an issue. A few vendors also report that lack of access to clients' resources creates difficulty for them to work out solutions. However, this was also related to vendors' lack of domain knowledge. For example, vendors in India are less likely to know how a primary school operates in the UK. This can create difficulties for them when they are developing a software system for primary schools in the UK.

Vendors also identify difficulties if the transfer of resources and knowledge from clients to vendors is ineffective. Vendors report that inadequate transfer of work can happen due to a client's fear of losing control or business knowledge of the outsourced product. Clients talked about knowledge transfer to them once the project is completed. For example, one client identified that after the completion of the outsourced work knowledge transfer from the vendor was not as much as they wanted.

6.5. Summary

In this chapter difficulties in offshore software outsourcing were discussed. Some of the common difficulties perceived by both the clients and the vendors were cultural differences, expectation mismatch, language differences, loss of control, distance and time zone differences. Views of both clients and vendors suggest they did not face any difficulty in terms of technical aspect of software development. But both of them faced difficulties relating to all non-technical issues.

Vendor views suggest that the majority of them found cultural differences and managing hidden expectations difficult to manage. However, clients seemed to find it difficult to keep control over outsourced project. In terms of managing cultural differences, clients had problems relating to managing corporate differences whereas vendors had problems relating to managing customary differences. Clients had also difficulties in post-contractual services offered by vendors such as software implementation.

Based on the strategy identified in chapter 3, for selecting emerging results for further discussion, the following emergent difficulties will be carried forward in the discussion chapter.

Table 6.2: Difficulties to carry forward in the Discussion chapter

Cultural differences	Expectation mismatch	Language
Loss of control	Distance	Time zone differences
Workforce reshuffling	Post-contractual matters	

Difficulties reported in this chapter were published in three academic publications (Oza and Hall, 2005; Oza, 2005; Oza and Mäkelä, 2006a). Difficulties raise the importance of identifying the critical factors to successfully manage offshore outsourcing relationships. Critical factors will then be helpful in identifying recommendations for practitioners and addressing solutions to difficulties in offshore outsourcing relationships. Subsequently, in the following chapter results focusing on critical factors in client – vendor relationships are presented.

Chapter 7: Critical factors in managing offshore software outsourcing relationships

7.1. Study aims

Following on the empirical investigation of motivators and difficulties in offshore outsourcing, critical factors to managing offshore outsourcing relationships are presented in this chapter. Subsequently, research question 3 is answered here.

Research question 3: What are the critical factors in managing offshore software outsourcing relationships?

This question presents the perceptions of clients and vendors in relation to the critical factors in managing offshore outsourcing relationships. The question collects information about how clients and vendors manage relationships with each other and what they consider important in managing their outsourcing relationships. At the time of the interview, the following questions were asked to address these critical factors:

1. How do you manage the relationship with the client?
2. What do you think are the most important factors in managing relationships?

7.2. Vendors' views on critical factors

Figure 7.1 presents the perceptions of vendors in terms of what they perceive as critical in managing their relationships with the clients. Figure 7.1 identifies seventeen critical factors.

Figure 7.1 shows that communication, a process driven approach and resource allocation are the most frequently cited critical factors in managing outsourcing relationships. Seventeen out of eighteen vendors identified process as an important factor in managing relationships.

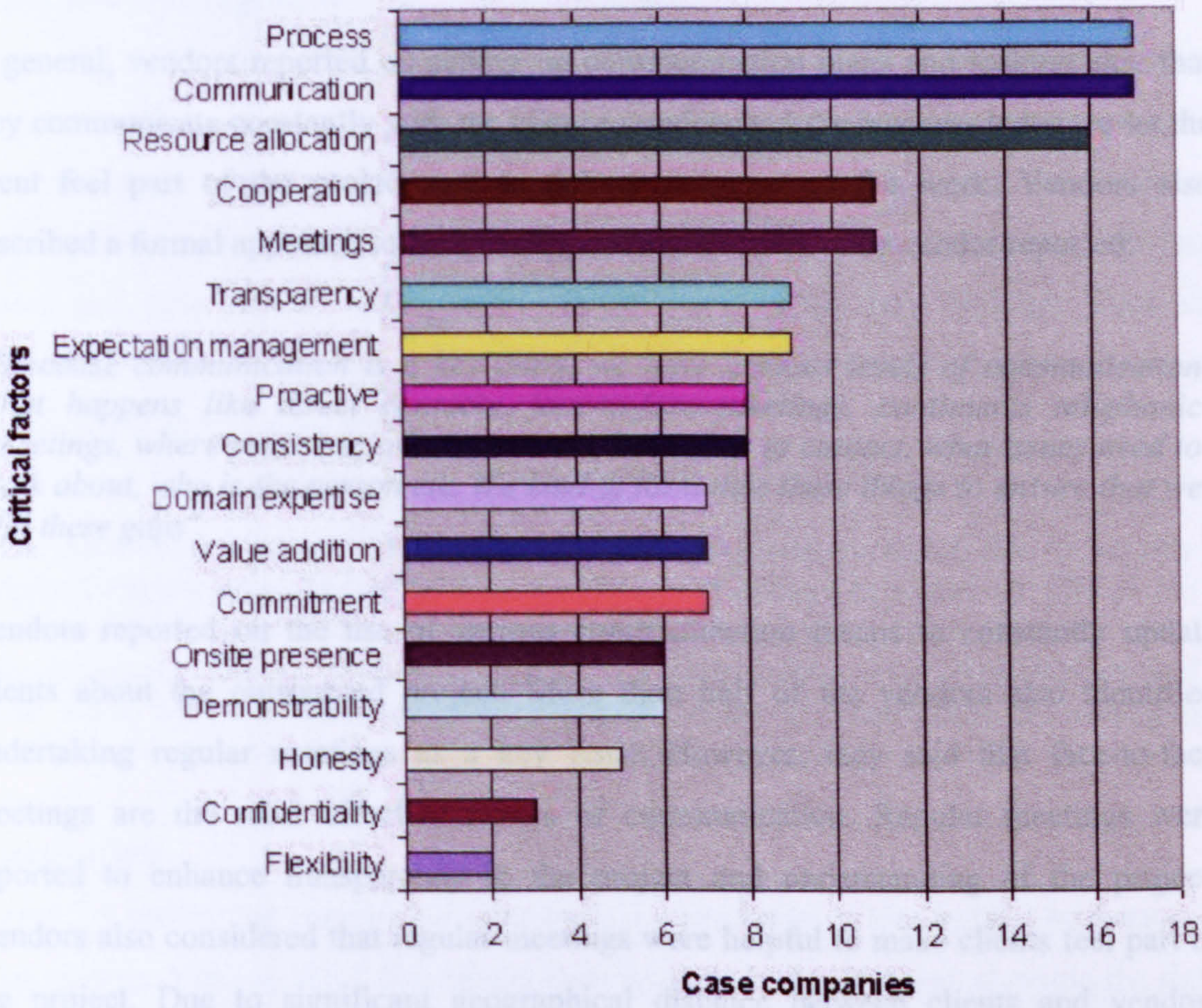
Process driven approach

Most vendors reported that establishing the right processes from the beginning of the project is very important. One vendor described how processes are useful:

> *'Processes are very important. Actually when things are going fine, nobody cares, frankly speaking. But my processes have accountability when things go wrong. Processes are very important to make sure that a certain level of quality is*

maintained. If processes are in place, there will be some accountability, some transparency into why it is going wrong'.

Figure 7.1: Critical factors in managing offshore software outsourcing relationships – Vendors' perceptions



Some vendors also said that processes cannot be rigid. One vendor said:

'Process is critical as it builds faith in the customer that ok they are going to use this process, they are going to follow it, regular feedback on the process and on the various aspects of what is happening at what stages should be delivered. I am not denying the importance of process but the fact that process should not be such that you can't be flexible, it is very important to be flexible and adapt to the client's requirements and no process can be 100% adaptive so I think while process is important to act as a guideline, it must be flexible to the client'.

Communication

Maintaining constant communication with clients was another frequently identified critical factor. Vendors identified various means of communication, including email, phone calls, conference calls, net meetings and video conferencing. One of the vendors said:

'Setup the communication matrix, who is going to be responsible for what, there are multiple channels of information flowing in, setup the communication channel very well, you must just use the telephone to say at least 'hi' initially, but keep it on, keep communicating more than required so that none of them have that anxiety about what is happening and what is not happening'.

In general, vendors reported on setting up communication plans and making sure that they communicate constantly with the client to understand the business better, to let the client feel part of the project and to deliver progress on the work. Vendors also described a formal approach to maintaining communication. One vendor reported:

'Because communication is a key thing, we have various levels of communication that happens like direct contacts, face-to-face meetings, continuous telephonic meetings, where processes are established, how often to contact, what issues need to talk about, who is the person etc. We kind of formalise these things to ensure that we fill these gaps'.

Vendors reported on the use of various communication means to constantly update clients about the outsourced project. More than half of the vendors also identified undertaking regular meetings as a key issue. However, they said that face-to-face meetings are the most effective means of communication. Regular meetings were reported to enhance transparency in the project and understanding of the project. Vendors also considered that regular meetings were helpful to make clients feel part of the project. Due to significant geographical distance between clients and vendors frequent face-to-face meetings were not possible.

Resource allocation

Figure 7.1 shows that vendors also identified resource allocation as a critical factor in managing offshore outsourcing relationships. Vendors said that how they allocate resources in terms of people, skill sets, time and processes for the outsourced project are important. Vendors varied in their ways of establishing resources across their outsourcing projects. Figure 7.1 shows that six interviewees reported that their onsite presence (at the client site) is an important part of managing relationships. For example one vendor said:

'We have an account manager for each and every large account. We allocate our resources at project and business sides. From the project delivery side, we have project directors, project managers and every one who is facing the client side

whether the designer, programmer or anyone, play very core part in how we manage the entire relationship. From the business side, we have a client champion who mirrors the account manager, who makes sure that the entire account management is cohesive and there is a project plan that exists for every account from the business side as well as the execution side'.

Expectation management

Figure 7.1 also shows that more than half of the vendors identified managing expectations as one of the critical factors in managing relationships. The results presented describing the difficulties in offshore outsourcing suggest that vendors consider the management of these expectations as challenging and difficult. Vendors report that both clients and vendors should know what they will get from an outsourcing project. Vendors also identified that all expectations should be clearly specified and agreed. One vendor said:

'The fundamental of our relationship is that the expectation match has to be very high. Therefore what we can offer to the client, the manner in which we offer it, the manner in which we will expect to get paid for the work we offer, what the client should expect from us, how will that ramp up expectations, how that delivery will take place, we try to make all these absolutely clear. If expectations are managed well and are very clear, there is no tension in the relationship'.

Cooperation

Figure 7.1 shows that vendors consider mutual cooperation is also critical in managing relationships. Vendors think that clients must be cooperative in terms of giving the right inputs when needed. Mutual cooperation is also considered critical in the sense that vendors identified outsourcing relationships to be mutually beneficial. They also think that both should consider outsourced work as a common goal rather than being opportunistic in any action. One vendor said:

'I think, first of all, when a relationship gets established, and when it would work. It could get established and work if there is a win-win situation for both. And therefore there has to be an important contribution, which, each party in the relationship brings in. Obviously, what customer brings in is an opportunity for us to do business, create success, get more revenue and establish our good track record. So that is clearly the fundamental reason why we are here. And the customer should get good value for money. The customer has to get various things such as the combination of cost savings, quality, our experience, and our highly disciplined processes'.

Transparency and honesty

Figure 7.1 shows that half of the vendors identified transparency as one of the critical factors. Vendors mainly highlighted the importance of transparency in their processes, demonstrating the progress of the project and communication. One vendor said:

> *'It is important to be transparent in all undertakings with the customer. It helps. And it means that whatever is happening here on the project, customers should be in a position to take a view of it'.*

In relation to being transparent, a few vendors specifically commented on honesty as a critical factor. Vendors reported that clients and vendors should be honest and straight in their approach. One vendor said:

> *'When you say certain things, follow it and make sure you can do it as stated. If you cannot, be straight, don't wait until the disaster happens; tell that person that you cannot do it and also tell them why you can not do it. One has to be very honest in your commitments with the client'.*

Other critical factors

Figure 7.1 also shows that vendors consider it important to be proactive in terms of delivering information, outcomes and services to clients. Figure 7.1 also shows that nearly half of the vendors identified value addition as an important factor. Vendors considered value addition in the sense that how they can create value for clients' project by delivering beyond the contracted deliverables of the outsourced project. Furthermore, a quarter of vendors identified that it is also important to be consistent in delivering successful outcomes to clients. One of the vendors said:

> *'I will say consistency in delivery is very important. If you commit something, the ability to deliver it and maintain that is extremely important. Consistent delivery helps building an effective relationship with the client'.*

Other critical factors shown in figure 7.1 are domain expertise, demonstrability, honesty, client visits, and confidentiality. Vendors commented that they have to be competent enough and have expertise in the area of work to manage a relationship. A quarter of vendors commented that they should be able to effectively demonstrate their processes, offerings and project outcomes to the clients. One vendor said:

> *'There are many things a customer expects as a given but it is important that it needs to be highlighted to the customers because many US and UK customers still are not*

aware of the offshore outsourcing business model, and how it works and what are the key issues to be taken care of, so there are learning curves for them. Therefore we as a vendor should be able to demonstrate our capabilities and results effectively to our clients'.

Only a few vendors referred to the importance of confidentiality in managing relationships. However, the majority of vendors had internationally recognised BS7799 certification and other confidentiality measurements in place. BS7799 (now referred to as ISO17999) is an international standard that sets out the requirements of good practice for information security management. However, the majority of vendors did not explicitly specify confidentiality as a critical factor in managing relationships.

7.3. Clients' views on critical factors

Figure 7.2 presents the critical factors identified by clients in managing their offshore outsourcing relationships. Figure 7.2 shows ten critical factors emerged from clients' views.

Communication

Figure 7.2 shows that constant communication is the most widely reported critical factor in managing offshore outsourcing relationships. Clients said that constant communication had been their main strategy to manage relationships with vendors. However, clients reported the use of various means of communication. Some clients used mainly emails to communicate with vendors. Whereas others used conference calls, net-meetings and occasional telephone calls to communicate with vendors. One client who considered his outsourcing relationship successful said:

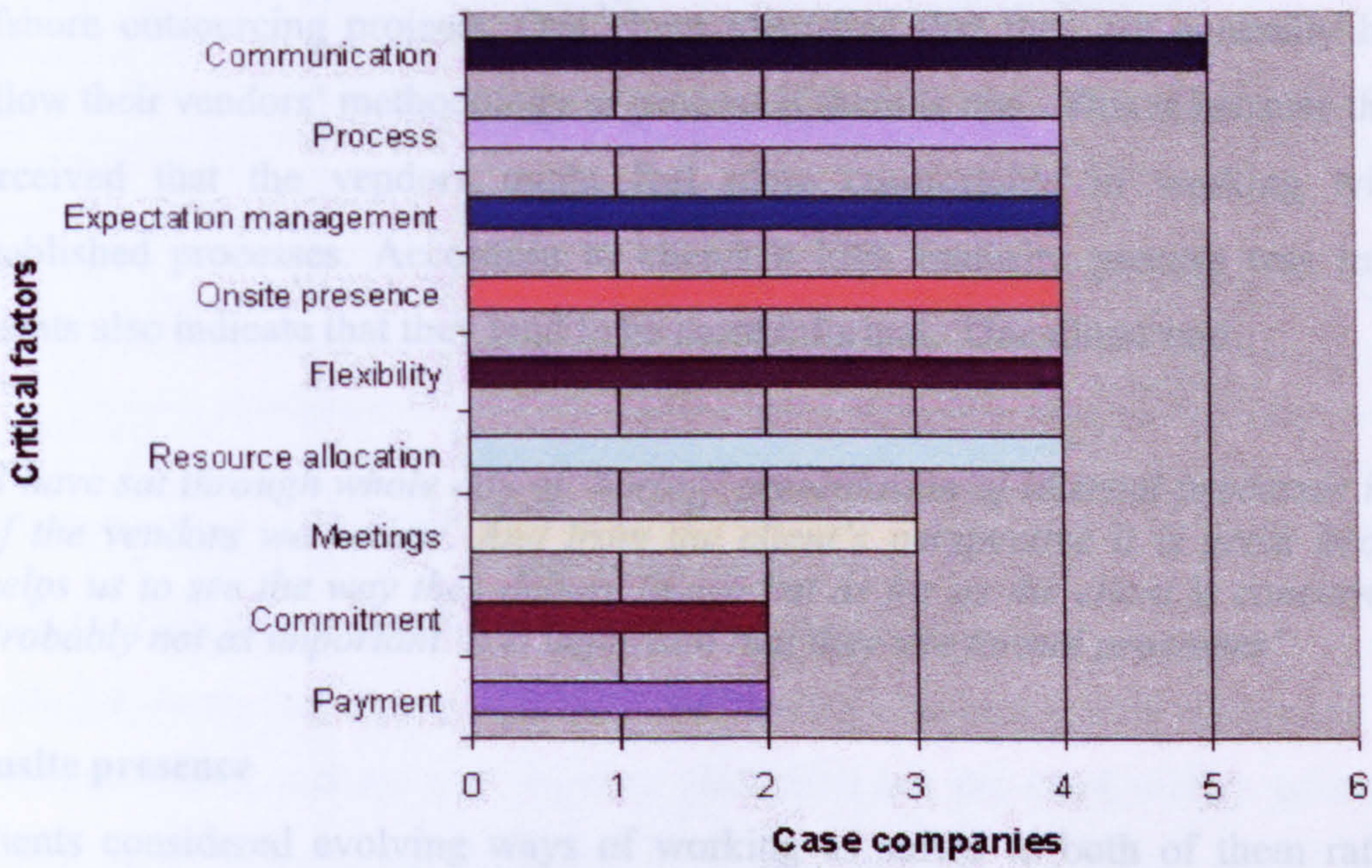
'The relationship is virtually exclusively on email, occasionally telephone calls, but not frequently. We have access to a joint server, sharing the actual work, in this case obviously the computer software. But the contact is exclusively by email'.

Whereas one client reported that verbal communication with vendors was critical in building their relationship. He identified constant communication as the only strategy. He said:

'I guess the only strategy we have is that we have constant contacts with them (vendors), in other words, because they are so far away, if you don't have contact with them at least once a week, things seem to fall apart. So I guess that contact is the main strategy. We have verbal communication with them once a week where we meet them for about an hour, and we use net-meeting and conference calling for that.

So we have whole group in Washington and Phoenix who sit down and talk for an hour with the folks in India to find out their progress. We also constantly deal with emails, probably in order of twenty or thirty a week where in between our weekly meetings, if there is any question from any side, or get an update like that'.

Figure 7.2: Critical factors in managing offshore software outsourcing relationships – Clients' perceptions



Expectation management

In terms of expectation management, clients emphasised determining what is expected from outsourcing project and that it should be conveyed to vendor in detail.

'Knowing what you want very specifically and with great details, specifying all these and communicating it to the vendor is very important. I think the biggest problem is that the people tend to think that something will get done or seems obvious that something will get done and they don't specify it, don't state it specifically and at the end they don't get that done and the problem with the vendor arises. So you should know what you really want to have get done and communicate that in detail'.

Resource allocation

Furthermore, resource allocation was considered to be a key issue. Clients reported how they allocated resource to manage relationship effectively. One client said:

'When we begin a project as I said, we have documents of what type of work exactly needs to be done so from those documents we can decide how many people are

necessary and what sort of skill-sets those people have to have. The overall management structure is designed and then our management people go to the management India to assign relevant people and resources for the project'.

Following vendor's process and being flexible

Flexibility in the relationships was another critical factor identified by majority of clients. In relation to this, clients also emphasised a process driven approach. However, they reported that they were not following any formal quality process in managing offshore outsourcing projects. One client identified that they are generally happy to follow their vendors' methodology or process if there is one. This is because this client perceived that the vendors might feel more comfortable in working with their established processes. According to clients a high maturity process was important. Clients also indicate that they tend to be more informal. One client said:

'I have sat through whole day of 'boring' presentation of internal processes in some of the vendors we review. And from the client's perspective it is great because it helps us to see the way they deliver things but as far as the client is concerned it is probably not as important. It is important that they use formal processes'.

Onsite presence

Clients considered evolving ways of working as suited to both of them rather than necessarily following a blueprint of some process especially when the project is relatively small. In relation to this, clients identified an onsite presence of vendor employee. The majority of clients identified bringing some individuals from the vendors' side to their own site to understand the project. Clients also had visits to the vendors' site initially. In some cases, clients identified that throughout the life of the project there was someone from the vendor side at their site to work as a key contact person and to address any of their concerns. One client appraised the management of the project as highly satisfactory. He commented on the vendors' presence at his site:

'Overall the way the project was managed was very good. They brought a person to our site who directly worked with my project manager. They had here an onsite manager, there were six people who worked directly with us and they had a team of many more in India working on the project'.

Regular payments

Figure 7.2 shows that clients also identified making regular payments to vendors and committing to what they have agreed in the project. One client said:

'You need to have timeline of payment which the vendor will always want and that you know, those payments are made when the work is done. But that has to be periodically throughout the project'.

7.4. Cross-case analysis

Table 7.1: Cross case analysis of critical factors in managing offshore software outsourcing relationships

Critical factors reported by clients and vendors	Critical factors reported by clients	Critical factors reported by vendors
Communication	Payment	Cooperation
Process		Transparency
Resource allocations		Consistency
Expectation management		Proactive
Flexibility		Domain expertise
Onsite presence		Value addition
Meetings		Demonstrability
Commitment		Honesty
		Confidentiality

7.4.1. Critical factors reported by both communities

Table 7.1 shows that there are eight critical factors common to both clients and vendors. Communication, process and resource allocation are the most widely acknowledged factors from both sides. Vendors identified the use of more verbal means of communication such as telephone calls whereas clients identified more use of email communication. Furthermore vendors described to following a formal approach to communication by planning a communication matrix to consider issues such as when to communicate, how much to communicate and how often to communicate whereas clients indicated an informal approach.

In the context of process, the approaches of clients and vendors differ. Vendors generally were highly concerned about following CMM processes. However, clients considered process to be important but ignored its importance in the sense that they were content to know that vendors were following CMM processes. Clients did not consider implementing any formal processes within their own organisation. Clients talked about a flexible approach to managing offshore outsourcing relationships. Most clients considered flexibility essential in a process driven approach.

Both clients and vendors had similar views on resource allocation and meetings as critical factors in managing relationships. However, resource allocation was considered

a vendor's responsibility. Vendors also suggested the importance of establishing resources for clients to retain control and monitor an outsourced project. However, in one case, client had not even met the key individual of a vendor company with whom he worked for two years. However, the outsourcing project was considered successful.

However, most clients identified the onsite presence of individuals from the vendor company to be important. A few vendors also commented that an onsite presence as part of their resource allocation strategy. Onsite presence was considered important in the sense that the client can have one locally based contact point available for any issue of concern.

Most clients considered expectation management as an important factor. Half of the vendors also considered the importance of expectation management. Both clients and vendors specified that they should have a clear understanding of what is expected from each other and whether these expectations have been clearly communicated. The importance of expectation management is suggested when both communities say that it is difficult to manage expectations.

7.4.2. Critical factors reported by clients

Table 7.1 shows that making regular payment was only considered by clients. Two clients considered that paying vendors as agreed in the contract is important in managing relationships. It sounds obvious that payment should be done for the work conducted by the vendor. However, in practice, there have been cases where relationship starts getting problematic when client does not pay according to the agreement. None of the vendors raised this issue.

7.4.3. Critical factors reported by vendors

Table 7.1 suggests that there are nine critical factors identified only by vendors. Half of the vendors identified that both clients and vendors should proactively input to the project without fearing the loss of control or knowledge. Furthermore, vendors also considered that the outsourced project should prove mutually beneficial to be successful. Although none of the clients identified these factors directly, their views probably indirectly reflect what vendors perceive. For example, clients' perceptions on 'working together' or 'being flexible' may imply what vendors consider as 'cooperation' in the relationships. Furthermore, vendors emphasised specifically that

person visit from the client to the vendor's site helps to build a good relationship. This is reported to give vendors an opportunity to demonstrate their capabilities in undertaking the outsourcing project. In relation to this, clients talked about occasional face-to-face meetings with vendors as critical to building good relationships but they did not emphasise visiting the vendor's site as part of their relationship management efforts.

However, some of the critical factors such as domain expertise, value addition and confidentiality were not mentioned by clients. For example, vendors considered that they should be able to add value to the outsourcing project by offering something additional to the contracted deliverables or by helping clients to improve their existing processes. However, clients did not identify this issue. This may lead to speculation whether vendors actually do add value and if they do, then to what extent. However, it might be possible that the six clients investigated in this study might not have experienced added value in their outsourcing projects.

Vendors reported to have extended their efforts in assuring their clients on confidentiality by achieving international certifications of security standards and transparency in their operations. However clients did not comment on confidentiality. This may be possible because clients might be very satisfied with their vendors' security arrangements or clients may not have enough awareness on security issues in offshore software outsourcing.

Only vendors considered domain expertise as critical in building their relationships. The reason why clients might not have considered domain expertise as critical could be that they are not necessarily exposed to problems stemming from lack of domain expertise. However, clients mentioned an onsite vendor presence during the project. This may provide opportunities for vendors to understand the local domain for the relevant outsourcing project. Therefore it is difficult to speculate that the clients do not have knowledge of domain expertise issue as a critical factor.

7.5. Summary

In this chapter critical factors in managing offshore software outsourcing relationships were identified. It is evident from the analysis that both clients and vendors have several commonalities in their perceptions on the critical factors to managing their

relationships. Communication between clients and vendors, process driven approach to work and efficient resource allocation to the project emerged as crucial in managing relationships. Communication mainly involved undertaking regular meetings and exchanging information regularly with each other over phone and emails. Resource allocation was further evident in allocating vendor representative at client site. Such onsite presence was considered important to clients as main point of vendor contact available locally. Furthermore managing 'hidden' expectations and being flexible to adjust to unpredicted changes were considered important. 'Distance' limited clients to conduct regular physical check over outsourced project in offshore outsourcing. Similarly, vendors did not have any direct opportunity of verification on the inputs they receive for the project. Therefore, commitment from both sides was also identified as critical in managing relationships.

Following on the similarities in perceptions of clients and vendors, a few emergent differences were also identified. For example, client views did not directly indicate the importance of cooperation, transparency, process driven approach and proactiveness. Vendors considered process driven approach as critical to managing their outsourcing project and subsequently deliver outsourced project successfully. Vendors' approach to managing relationships emerged as somewhat more formal than of clients. However, clients were happy to acknowledge that their vendors follow high maturity process driven approach.

Based on the strategy identified in chapter 3, for selecting emerging results for further discussion, the following emergent critical factors will be carried forward in the discussion chapter.

Table 7.2: Critical factors to carry forward in the Discussion chapter

Communication	Process	Resource allocation
Expectation management	Flexibility	Onsite presence
Meetings	Commitment	Transparency
Consistency	Value addition	

Critical factors reported in this chapter were used in writing a peer reviewed book chapter for the 4th edition of *Global Information Technology Management* (Oza and Palvia, 2006). The book is intended to be published around September 2006. Following on this investigation of critical factors, it is imperative to understand how trust is built in the client – vendor relationship. The rationale for investigating trust was established

in the literature review chapter. The role of trust is significant in any human relationship across disciplines. Subsequently in this study trust is investigated in detail with empirical perspective. The results of the empirical investigation into trust in offshore software outsourcing are reported in the following chapter.

Chapter 8: Critical factors to building trust in offshore software outsourcing relationships

8.1. Study aims

In this chapter, the results relating to trust building are presented. Trust building factors are investigated in terms of achieving trust initially referred to as trust achieving factors and then maintaining it in an ongoing relationship referred to as trust maintaining factors. Subsequently, research question 4 is answered here.

Research question 4: What are the trust achieving and maintaining factors in offshore software outsourcing relationships?

This question elicits the perceptions of clients and vendors in relation to trust in offshore outsourcing relationships. The question collects information on how clients and vendors develop trust in the relationship. Development of trust is analysed in terms of achieving trust initially in the relationship and then maintaining it in ongoing relationship. At the time of the interview, the following questions were asked to address trust:

1. How do you achieve trust initially?
2. How do you maintain trust in the ongoing relationship?

8.2. Vendors' views on achieving trust

Figure 8.1 presents the trust achieving factors identified from vendors' perceptions. Figure 8.1 suggests six trust achieving factors important to the initial phase of offshore outsourcing relationships.

References

Figure 8.1 shows that fourteen out of eighteen vendors consider references provided by previous clients as a critical factor to achieving trust in the initial phase of the relationship. Vendors believe that relevant references help clients to get an idea of their strengths to undertake the outsourcing work. References were considered as the primary source of initially achieving trust by vendors. One vendor said:

'References help us to a great extent, if I pull out a long customer list then people will see that they are working with scores of such companies, they can work for us'.

Vendors also report that it is important to give 'relevant' references to the client. References should not be referred randomly but chosen based on the prospective client's interests such as the area of business, outsourcing objectives and geographic location. One vendor said:

'References are important but two things are most important who gives you that reference and also who talks to the client. You should know your customer well. For example, if you are going to work with a company such as Sony then a Philips' reference will work best but if you are going to work with for example Fujitso then a Siemens' reference will work best. If you are going to work with any technology company then you may go for a Lucent's reference. Because people understand, these are the companies you have worked without problems, so you must be a good one'.

Experience

While showcasing references is considered important by most of the vendors, the other factor identified to gain initial trust was vendors' experience in managing offshore outsourcing projects. Figure 8.1 shows that half of the vendors specifically identified that their long term experience in the offshore outsourcing business helps them to get initial trust from the client. In this context, all vendor companies interviewed in this study have at least five years of experience in offshore outsourcing.

Market reputation

Figure 8.1 shows that vendors also consider their market reputation as a critical factor to gain trust initially. This reputation was also part of the good references and long experience of offshore outsourcing. Reputation building was also reported to be based on the CMM and other quality certifications, market revenue, brand name being ranked among the top software companies in India. One vendor said:

'XYZ (name is changed) as a brand name is recognised all over the world. They understand that we won't go wrong, even if we go wrong, they know that we will take care of things and that kind of trust can be there, through our reputation. It definitely helps to have this brand reputation to get initial trust'.

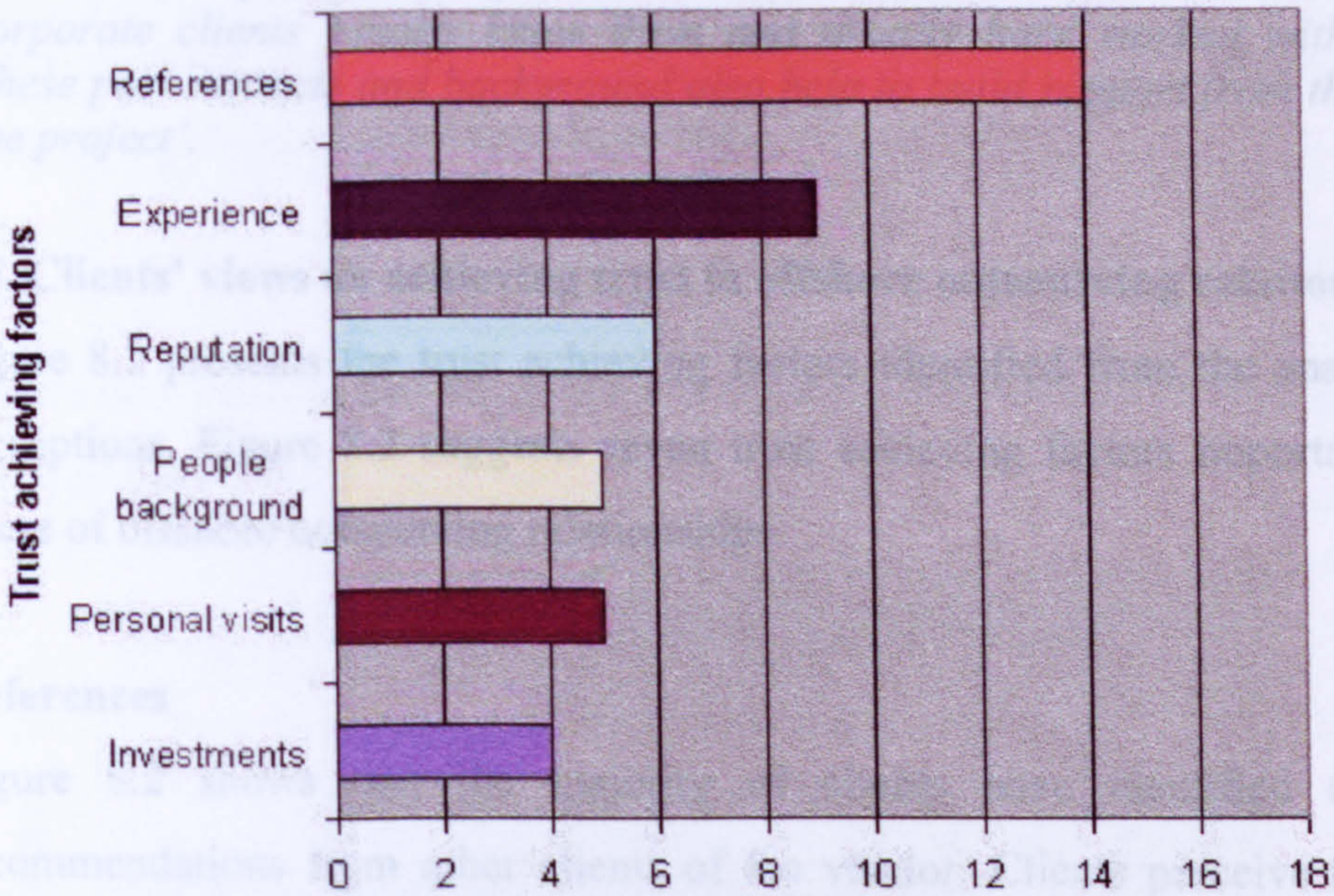
Personal visits

Figure 8.1 also suggests that nearly a quarter of vendors considered a client visit as critical to achieving trust in the initial phase. Vendors believe that a client visit to their

company gives clients an opportunity to understand resources and processes at the vendor's site. One vendor said:

> *'We encourage our customers to visit our site. This gives them an opportunity to see exactly how we work and what resources are here to do their work – our infrastructure, processes, people etc. Because once the client sees things physically, the chances of misinterpreting our abilities or resources would be less when he goes back'.*

Figure 8.1: Trust achieving factors in offshore software outsourcing relationships – Vendors' perceptions



Investment

Other factor identified by the vendors to achieve initial trust was their investment capabilities in conducting outsourcing project successful. Figure 8.1 shows that a few vendors believed that their willingness to invest in a client's project helped them to achieve trust from the client in the initial stage of the relationship. One vendor said:

> *'For example, sometimes we require to build talent beyond the stated delivery of the product. Now to build such talent, it may require investment from our side which may not benefit us in near term. But this investment and other initiatives we take beyond stated outsourcing contract get us customer's confidence or trust that we value the relationship and we are willing to invest for their project'.*

Employee background

Vendors recognised that the people facing clients are very important. Vendors reported that they make sure that those people have all the relevant capabilities, experience, and attitudes. Vendors also reported that their people's higher educational background and multi-national exposure also helped to initially achieve trust in clients. One vendor reported how their experience in previous employment helped to achieve trust in clients:

'In our company we have around 15 management leaders, or consultants I would say. All consultants have more than twenty years of experience in the industry. And most of them have worked in TCS and IBM etc and they have done ideal jobs in the past for these companies. Being in TCS, IBM and other multinational companies, big corporate clients usually know them and usually have worked with them before. These past contacts and background also help to build rapport from the beginning of the project'.

8.3. Clients' views on achieving trust in offshore outsourcing relationships

Figure 8.2 presents the trust achieving factors identified from the analysis of clients' perceptions. Figure 8.2 suggests seven trust achieving factors important to the initial phase of offshore outsourcing relationships.

References

Figure 8.2 shows that the majority of clients have identified that they value recommendations from other clients of the vendor. Clients perceive that the positive references given by other clients in similar businesses are useful to build initial trust in the vendors. However, in some cases the client company had already had experience of working with the vendor. In this case, clients took internal references and trusted the vendor to a greater extend as they had already had good experience with the vendor. One client said:

'In this particular case, we inherited trust because our company has worked with this supplier before. Therefore an internal reference from a distant colleague in our organisation who had worked with the supplier was taken. And he had good experience of working with them which built our initial trust'.

Reputation

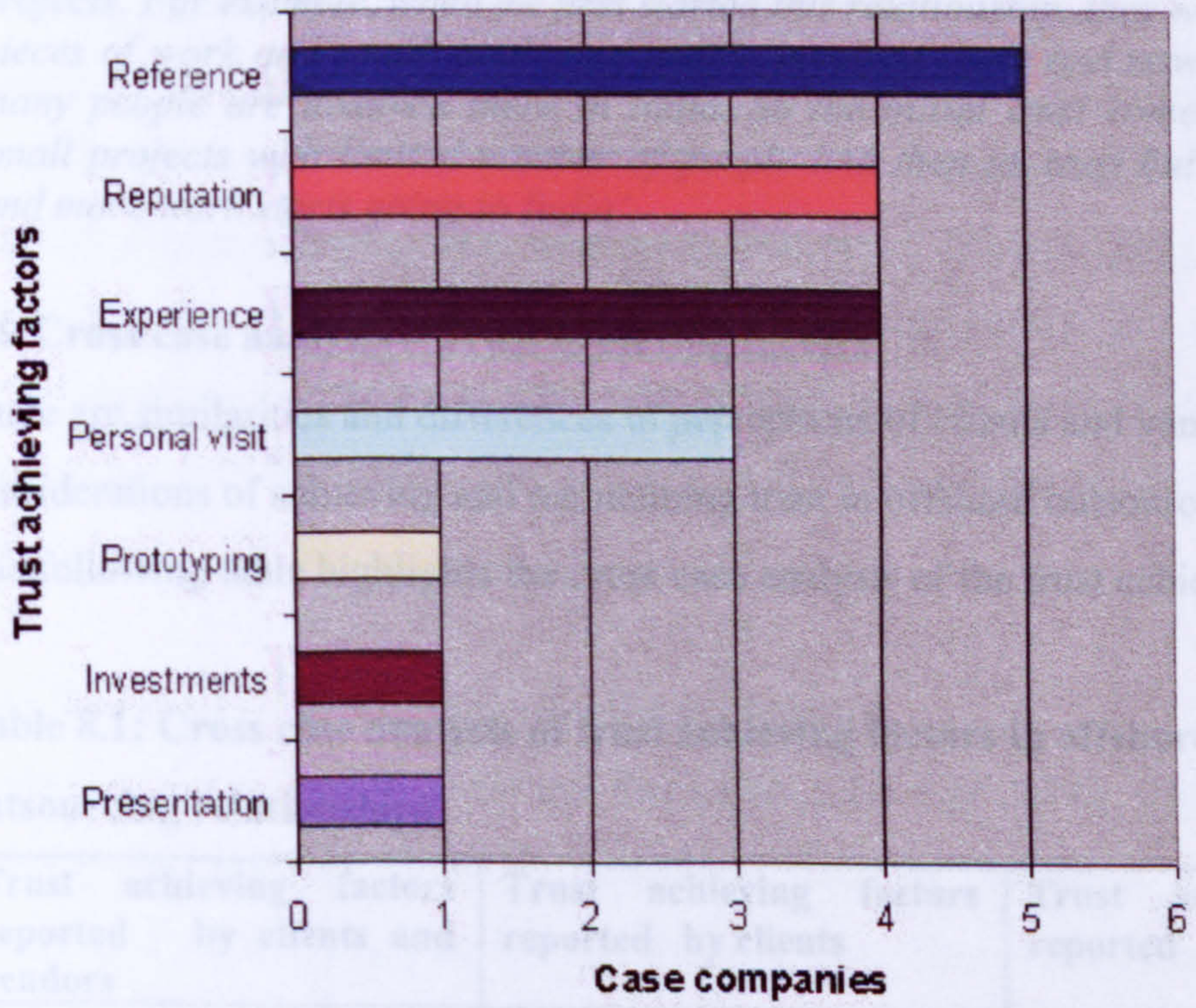
Figure 8.2 also shows that the reputation of the vendor company is also important for the client in achieving initial trust in vendors. Clients considered reputation in various perspectives such as high maturity status, multinational presence of the vendor

company, international awards achieved by a vendor company and the credibility of the vendor in the software market.

Experience and Investments

Figure 8.2 shows that the client company's positive previous experience with the vendor helps achieve initial trust in the relationship. Client's own experience of undertaking offshore outsourcing project was also reported to be helpful in achieving initial trust. Four clients reported that their previous experience helped to achieve initial trust in the relationship. They also considered that vendor's long term experience in conducting offshore outsourcing projects increased their trust in the vendor. Additionally, only one client reported that vendor's capacity and willingness to invest in conducting outsourcing project helped to achieve trust.

Figure 8.2: Trust achieving factors in offshore software outsourcing relationships – Clients' perceptions



Personal visits

Figure 8.2 shows that half of the clients also identified a personal visit as important to achieving initial trust in vendors' capabilities. One client explained:

'It would have been far better, and it is always better, at least in the beginning of the relationship, to have a meeting face to face at least initially. It might have helped to get on a lot quicker. I don't think there has been any particular problem in our relationship with the vendor because we did not meet, but it would have been desirable'.

Vendor presentation and prototyping

Only a few clients identified that the initial presentation done by a vendor was important to build initial trust in the vendors' capabilities. One client also considered it important how much a vendor invests in terms of resources, effort, expertise and time in the outsourced project. These investments by the vendor could also foster initial trust in clients. However, in one case the practical implementation of a vendor's work was considered to be more important than their past records of successful projects. In this context, the client identified that they conducted small projects initially with the vendors. Their capabilities and performance in the small projects helped them to build initial trust which turned into large outsourcing projects. The client said:

'I think the initial trust comes from seeing how their performance does in small projects. For example, when we first started this relationship, they were getting small pieces of work and small number of people involved there and now two years later, many people are involved there in India. So the initial trust comes by working on small projects with limited number of people and then as trust builds, more people and more work starts going to India'.

8.4. Cross case analysis – Trust achieving factors

There are similarities and differences in perceptions of clients and vendors on their considerations of achieving and maintaining trust in offshore outsourcing relationships. The following table highlights the cross case analysis of the trust achieving factors.

Table 8.1: Cross case analysis of trust achieving factors in offshore software outsourcing relationships

Trust achieving factors reported by clients and vendors	Trust achieving factors reported by clients	Trust achieving factors reported by vendors
Reference	Presentation	People background
Reputation	Prototyping	
Personal visits		
Investments		
Experience		

8.4.1 Trust achieving factors reported by clients and vendors

Table 8.1 shows that there are five critical factors common to clients and vendors in achieving trust in the initial stages of outsourcing. Both communities widely acknowledge that references were important to initially achieve trust. However clients or vendors did not talk about checking the client's credibility through references such as whether the client would be able to pay the agreed money to the vendor. The reputation of the vendor in the software industry and offshore outsourcing industry was also considered critical. Clients judged reputation on the basis of various merits claimed by the vendor such as maturity level, professional certifications, resource allocation plans to carry out the project, references of previous clients, number of projects done in the same domain and market revenue. Furthermore both clients and vendors identified the importance of personal visits and previous outsourcing experience to build initial trust in the relationship. Clients and vendors also considered investment in the project by vendors as an important factor to achieving trust.

8.4.2 Trust achieving factors reported by clients

Table 8.1 shows that there are two critical factors only mentioned by clients in achieving initial trust. Clients reported that the vendors' initial presentation was useful to build initial trust. This indicates that the vendor's presentation was effective enough to satisfy clients regarding their capabilities. However, Table 8.1 suggests that vendors themselves did not identify the importance of the presentation in terms of achieving trust. One client worked on a succession of small projects in the starting phases of the relationship with the vendor. The vendor's performance in the small projects built trust in the client.

8.4.3 Trust achieving factors reported by vendors

Table 8.1 shows that two critical factors in achieving initial trust were uniquely reported by vendors. Vendors identified that the academic and professional background of their key people helps to build trust. However clients did not identify whether they reviewed the background of the people involved in the outsourcing project.

Overall vendors commented on important aspects of clients trusting them but did not say anything about their trust in the clients. Clients also only commented on how they build trust in the vendors rather than visa versa. When asked about this issue, clients

generally acknowledged that it is important for vendors to trust commitments to payment, and inputs given to the project. Clients also identified that it is of not much importance in terms of vendors trusting the clients as the clients are the buyers and they have prime interests in getting project done successfully.

8.5. Vendors' views on trust maintaining factors

Although establishing trust in the initial phase of outsourcing relationships is a good starting point, it can not be taken for granted. Figure 8.3 suggests that ten trust maintaining factors important to the initial phase of offshore outsourcing relationships.

Demonstrability

Demonstrability was identified as articulating outcomes in a convincing way to the client. In this context, one vendor said:

> *'When you say something, you need to back it up with action. For example if I am telling you that I am investing in capabilities, I should show how I am doing it. These are the number of people I am training, this is the kind of investment done on building training and packages etc. Whatever it may be, I need to demonstrate that we are doing what is required. Only the demonstrability of results can build trust'.*

Honesty

Vendors identified honesty as a critical factor in addition to transparency. Honesty was mainly referred to in terms of showing capabilities realistically and giving 'real' information to clients about project progress. One vendor said:

> *'You have to be upfront and honest with your client. You should not hide anything from him, whether it is good or bad, whether it is going to earn you a flack for that moment. This is very important for the long lasting relationship and to achieve trust'.*

Process

Vendors also considered that a process-driven approach can help to gain trust from the clients. Vendors indicated that due to high maturity processes they produce high quality software and give methodical and transparent service to the client. This is believed to be a key factor in achieving client trust. One vendor said:

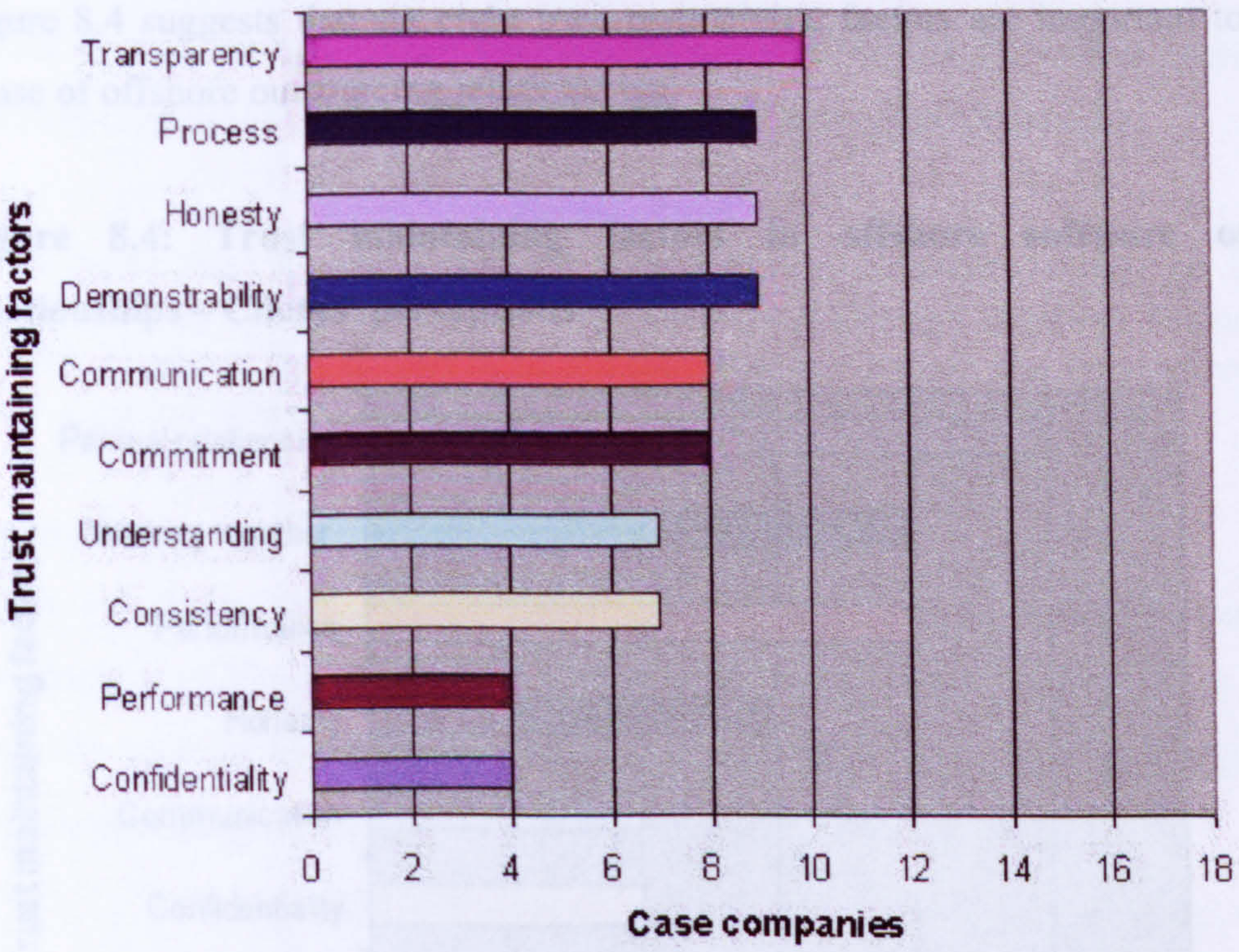
> *'Process provides a framework to people on both sides on how to progress. It also helps to avoid misunderstanding and many of the pitfalls which may have been experienced earlier. So, processes, I think are the most critical thing not only from a technical point of view but also from a relationship point of view'.*

Communication

Figure 8.3 shows that nearly half of the vendors believe that regular communication helps to maintain trust. One vendor said:

> *'If we assume that the client has given the contract to a deserving vendor and that the vendor has enough capabilities, then to have trust, the communication line has to be thoroughly defined. There should be enough communication between vendor and client to prosper trust in the relationship'.*

Figure 8.3: Trust maintaining factors in offshore software outsourcing relationships – Vendors' perceptions



Commitment

Furthermore, commitment into the project and the relationship was important for vendors. Vendors considered that they have to show their commitment through the resources they allocate the effort they put in and services they offer to the client. One vendor commented:

> *'How committed you are, is very important to maintain trust. What are you doing to make this relationship work? Then how keen are you to make this relationship work'?*

Other factors

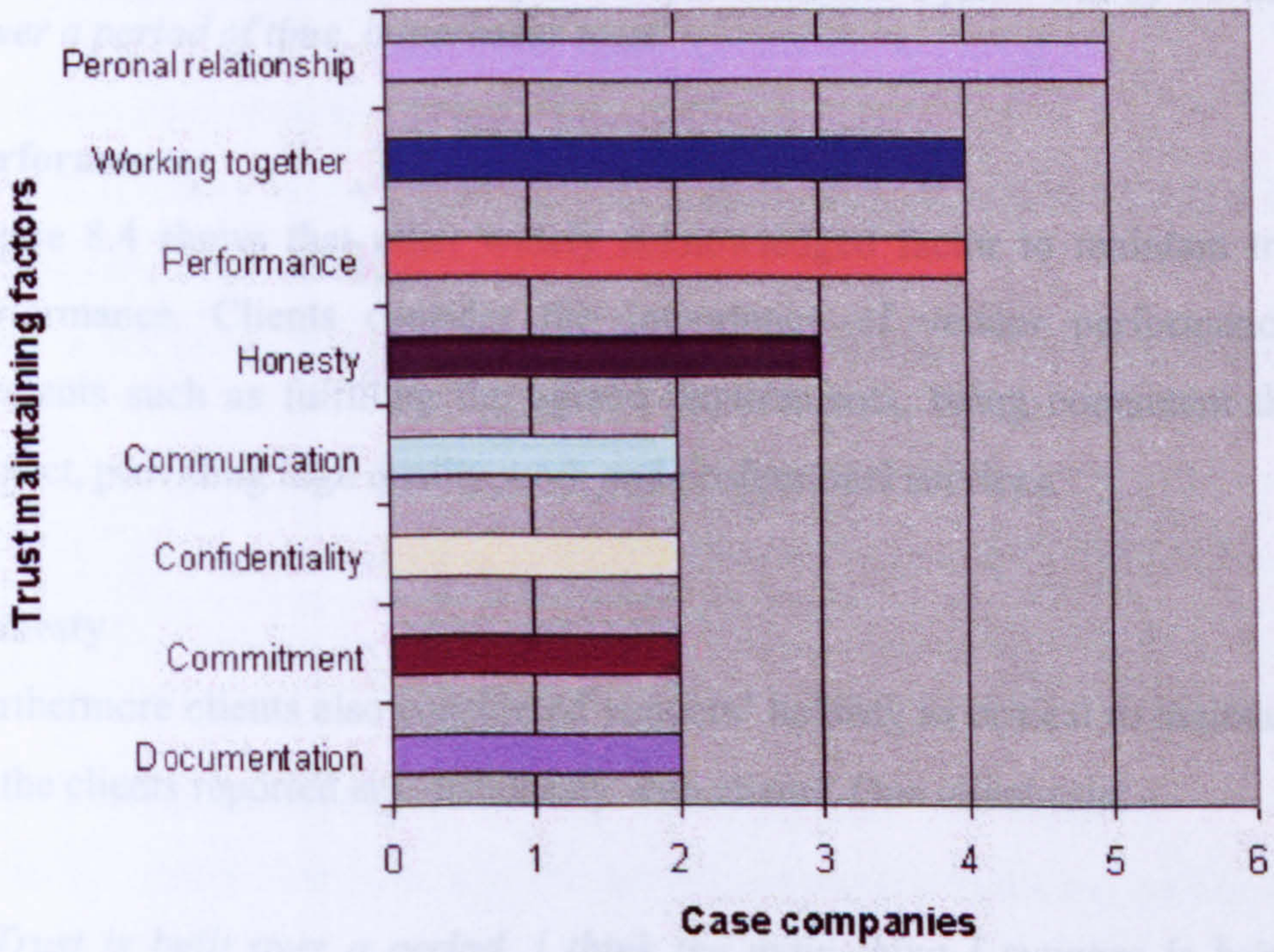
Figure 8.3 shows that less than half of the vendors considered consistency, understanding, confidentiality and performance as critical factors in maintaining trust. Consistency was considered in the sense that trust cannot be taken for granted. Vendors believed that they have to consistently work towards maintaining trust in the relationship. One vendor said:

'Trust is very intangible once you get it, it is not forever. It can go or bend over period of time also. So it may be there or it may not be reproducible. So, you have to consistently go on and do it, you cannot take it for granted'.

8.6. Clients' views on trust maintaining factors

Figure 8.4 suggests that six eight trust maintaining factors are important to the initial phase of offshore outsourcing relationships.

Figure 8.4: Trust maintaining factors in offshore software outsourcing relationships – Clients' perceptions



Personal relationship

Figure 8.4 shows that the majority of clients identified personal relationships with the key person from the vendor as a critical factor in maintaining trust. One client reported:

'Personal relationship with the individuals facing us is very important to build trust. It can only be built over a period of time because you don't trust somebody from day one and it is the person you trust not the company you trust'.

Another client commented on personal relationships:

'I think most of the trust was based on personal relationships with the representative we had here on our campus from the vendor company. They were extremely knowledgeable and professional. What they did, the way they worked, really, you know, it built enough trust. They knew what they were doing. So eventually we built trust'.

Working together

Figure 8.4 shows that majority of clients also considered that trust usually builds over a period of time as both communities work together. However, clients emphasised this working together issue as critical in maintaining trust. One client said:

'You build trust by going through pain together. Sometime things go very badly wrong and for whatever reasons, and you work it through together. Whoever's fault is that, sometime it is neither of us but our customer's fault. But by working together, over a period of time, it increases trust'.

Performance

Figure 8.4 shows that other widely acknowledged factor to maintain trust is vendor performance. Clients consider the importance of vendor performance in various elements such as fulfilling the agreed requirements, being competent throughout the project, providing high quality work and professional services.

Honesty

Furthermore clients also considered vendors' honesty as critical to maintain trust. None of the clients reported any dishonesty with clients. One client said:

'Trust is built over a period. I think the main thing I suppose is being open and honest and that increases trust. Even if something is going to go wrong, if you know it, tell me about it as early as possible when you come to know about it so that we can work it out together'.

Other factors

Figure 8.4 shows that clients also report other critical factors such as documentation, commitment, confidentiality and communication. A few clients considered that trust can be built through formal documentation. One client said:

> *'When you outsource something, you are working with someone you don't really know. I think what you really need to do is you have to build your trust into the documentation. Documentation has a great value. If you put something in your documentation and both parties sign then I think that it not only sort of mitigate the risk but it also to me increases trust. Because if someone is willing to say that here is what I am going to do, it is in writing, and I am going to sign this document then they are saying to you I am a trustworthy person, I am willing to be open about what I am doing and here it is'.*

Clients also report that vendor's commitment to completing the work is also important to develop trust. Clients consider that trust is also built by keeping communication constant with the vendors as it helps to review the commitments. Clients also report that trust also develops if the vendor can assure that clients' data and code are safeguarded through confidentiality measures.

8.7. Cross case analysis: Trust maintaining factors

Table 8.2: Cross case analysis of trust maintaining factors in offshore software outsourcing relationships

Trust maintaining factors reported by clients and vendors	Trust maintaining factors reported by clients	Trust maintaining factors reported by vendors
Commitment	Personal relationship	Transparency
Communication	Working together	Demonstrability
Confidentiality	Documentation	Processes
Performance		Consistency
Honesty		Understanding

8.7.1. Trust maintaining factors reported by clients and vendors

Table 8.2 shows that there are five trust maintenance factors common to clients and vendors. Client and vendor views are similar on commitment, communication and confidentiality. There also does not seem to be any difference in terms of how clients and vendors perceive these factors. However, vendors seem to put more emphasis on formal procedures to maintain trust whereas clients tend to follow an informal approach to maintaining trust. Having said this, clients acknowledge that vendors' high quality services helps to maintain trust. Both communities also report that they have to be honest in terms of the status of the outsourced project. Vendors report that they have

tools and project management mechanisms for clients to monitor the status of their project. Clients also confirmed that vendors' honesty could help maintain trust. However, measuring honesty could be subjective and seems that trusting the honesty of the vendor could come in a long term relationship.

None of the clients or vendors talked about how much trust they put in each other. They talked about continuous efforts to maintain trust but it is not clear up to what level they have trust.

8.7.2. Trust maintaining factors reported by clients

Table 8.2 shows that there are three critical factors common to clients only. Clients identified that the personal relationship with the representative of the vendor company is a critical factor to build trust. Although vendors did mention expertise and the background of their employees as important factors, they did not comment on the relationship of these key employees with the client. A working together approach to maintaining trust was identified by the majority of clients but was not directly reflected in vendors' perspectives. However, vendors commented on cooperation as a trust maintaining factor which echoes the working together approach identified by clients. Furthermore, some clients consider that documentation helps to build trust which lacks in vendors' perceptions.

8.7.3. Trust maintaining factors reported by vendors

Table 8.2 shows five critical factors mentioned only by vendors. Only vendors identified transparency as a critical factor. Vendors considered transparency in process, communication and the demonstrability of results. Clients also suggest transparency when they talk about honesty. Vendors also identified demonstrability as a critical factor which is also related to clients' comments on the presentation skills of vendors. However, vendors indicated demonstrability in a much broader sense than the initial presentation. Furthermore, vendors considered that trust maintaining efforts have to be consistent and cannot be taken for granted. Clients did not indicate anything about putting constant efforts in to maintaining trust. However, it does not mean that clients did not consider consistently putting efforts on maintaining trust.

Vendors also considered that their process driven approach helps to gain trust. Clients emphasised vendors' performance and professionalism helping to build trust. However,

clients did not specifically mention any relation between vendors' process and how it can help increase trust. Furthermore, vendors also identified that understanding between both communities can foster trust. However, clients seem to have considered this issue in their viewpoint that wanted vendors to be part of a team and to work together on the outsourced project.

8.8. Summary

In this chapter trust was investigated from two viewpoints – 1) achieving trust in the initial phase of offshore outsourcing relationship and 2) maintaining it in an ongoing relationship. In the initial phase, client achieved trust based on vendor's previous experience in outsourcing and reference from other client for whom vendor had worked. Furthermore, personal visits also helped to achieve trust. Particularly, client visited vendor site to understand the potentials of vendor in doing outsourcing work. If vendor's capabilities in doing outsourcing work satisfied client, it was likely to increase trust. Not only capabilities but key client facing employees were also reported to be important in achieving trust. Key people background, experience, expertise in outsourcing and high level education also contributed to developing trust in the initial phase of the offshore software outsourcing relationship. In an ongoing offshore outsourcing relationship trust was reported to be maintained by constant communication between client and vendor. Constant communication enabled exchange of information on project and subsequently trust was developed based on the performance of the vendor. Clients also reported that vendors' commitment helped them to maintain trust. Other factors reported to foster trust were how well vendors retain confidentiality of information provided by clients, personal relationship of client and vendor key employees and vendors' honesty in terms of delivering the results.

In addition, clients' perceptions suggest that sometime trust may be achieved by letting vendor develop small version of the system i.e. prototype. This has reported to give opportunity to client to understand the vendor's capabilities well. The increased understanding can result into trust achievement and subsequently client and vendor may engage in larger outsourcing project. Prototype based trust achievement was not addressed by vendors though. Contradicting to vendor views, clients also concentrated more on personal relationship with key vendor employees to developing trust in the relationship. A key summary observation in terms of client and vendor perceptions was their approach to building trust. Although there were many similarities in terms of trust

achieving and maintaining factors reported by clients and vendors, a key difference emerged as vendors were more formal in their approach towards trust building whereas clients were informal towards trust building efforts. Based on the strategy identified in chapter 3, for selecting emerging results for further discussion, the following trust achieving and trust maintaining factors will be carried forward in the discussion chapter.

Table 8.3: Trust achieving factors and Trust maintaining factors to carry forward in the Discussion chapter

Trust achieving factors		
Reference	Reputation	Personal visits
Investments	Experience	Key people background
Prototyping		
Trust maintaining factors		
Commitment	Communication	Confidentiality
Performance	Honesty	Transparency
Demonstrability	Process	Personal relationship
Working together		

Trust factors reported in this chapter were published in three academic publications (Oza et al. 2006; Oza and Mäkelä, 2006; Oza et al. 2005). The next chapter discusses the selected empirical results from chapter 5 to 8.

Chapter 9: Discussion and model development

In this chapter, empirical results are discussed and a model on offshore software outsourcing relationships is presented. The state-of-art literature is also brought in for the discussion of the empirical results. The results discussed here are mainly based on the strategy established in chapter 3. In grounded theory-based analysis, it is essential that the literature is brought back in for comparison with the emerging results. Propositions are presented in this chapter with relevant discussion of empirical results and the literature. Subsequently, a model for managing offshore software outsourcing relationships is presented. Practical guidelines of use in the commercial offshore outsourcing projects are also identified. The empirical results discussed in this chapter are based on the strategy identified in chapter three. Following the 'replication logic' some of the results are considered for further the discussion and model development. The proposed strategy is presented here with its implementation before discussing the actual results. It has two phases. Phase 1 corresponds to the selection of results that are considered for their qualitative discussion and Phase 2 corresponds to the selection of results that are used in the model development.

9.1 Phase 1: Strategy for selecting themes for the discussion

A theme (which emerged in the literature review and empirical investigation) is carried forward to the discussion chapter if it satisfies at least one criterion in the strategy. Each theme is reviewed against the following three criteria (in order):

Criterion 1: A theme that was identified by both groups - client and vendor.
Criterion 2: A theme that was not identified by criterion 1 but is identified in at least half of the total number of case studies in one group – client or vendor.
Criterion 3: A theme was not identified by criterion 1 and criterion 2 but is overlapping with the theme identified in the literature.

Results of applying the above three criteria are presented here:
There are two sets of themes available for review, those from the literature review and those from the empirical investigation. Table 9.1A and Table 9.2B show both sets.

Table 9.1A: Themes from the literature review

Motivators	Difficulties	Managing relationship	Trust Building
Cost savings	Distance	Communication	Establishing structures
Quality	Cultural differences	Cultural convergence	Communication setup
Skilled human resource	Infrastructure problems	Personal relationship	Vendor's desire for contracting in future projects
Latest technology	Technical incompatibility	Expectation management	Shared experience between client and vendor on other projects
Reliable communication	Loss of jobs	Longevity of venture	Developing small system first
Infrastructure	Transfer of work	Mutual understanding	Background knowledge of key members from client-vendor organisation
Democracy		Transparency	Visit of client delegation to vendor site
Entrepreneurial abilities		Flexibility	courtship
Time zone differences		Commitment	Shared goal (project oriented)
Growth opportunities		Technical competence	Recruiting manager in vendor's language
		Value addition	Working together in the project
			Project's early success
			Jointly celebrating completion of interim deliverables
			Showing tangible results

Table 9.1B: Themes from the empirical investigation

	Motivators	Difficulties	Critical factors	Trust building	
				Achieving	Maintaining
Clients and Vendors	Cost savings	Cultural differences	Communication	Reference	Commitment
	Flexibility	Expectation mismatch	Process	Reputation	Communication
	Quality	Language	Resource allocations	Personal visits	Confidentiality
	Core competence	Loss of control	Expectation management	Investments	Performance
	Higher productivity	Distance	Flexibility	Experience	Honesty
	Faster development	Time zone differences	Onsite presence		
	Skills availability		Meetings		
			Commitment		
Only Vendors		Loss of jobs	Cooperation	People background	Transparency
	High maturity of vendors	Transfer of work	Transparency		Demonstrability
		Lack of client's experience	Consistency		Process
	Growth opportunities	Lack of access	Proactive		Consistency
		Getting maturity	Domain expertise		Understanding
	Time zone differences	Loss of business knowledge	Value addition		
		Lack of domain knowledge	Demonstrability		
			Honesty		
			Confidentiality		
Only Clients	Technical expertise	Workforce reshuffling		Presentation	Personal relationship
		Post contractual matters	Payment	Prototyping	Working together
					Documentation

9.1.1. Applying criterion 1

Criterion 1: A theme that was identified by both groups – client and vendor.

Based on Table 9.1B, themes common to both clients and vendors are presented in Table 9.2

Table 9.2: A theme that was identified by both groups - client and vendor

	Motivators	Difficulties	Critical factors	Trust building	
				Achieving	Maintaining
Clients and Vendors	Cost savings	Cultural differences	Communication	Reference	Commitment
	Flexibility	Expectation mismatch	Process	Reputation	Communication
	Quality	Language	Resource allocations	Personal visits	Confidentiality
	Core competence	Loss of control	Expectation management	Investments	Performance
	Higher productivity	Distance	Flexibility	Experience	Honesty
	Faster development	Time zone differences	Onsite presence		
	Skills availability		Meetings		
			Commitment		

9.1.2. Applying criterion 2

Criterion 2: A theme that was not identified in criterion 1 (Table 9.2) but is identified in at least half of the total number of case studies, in one group – client or vendor.

By reviewing Table 9.1B, themes which replicated in more than half of the cases in client or vendor group were identified. Table 9.2A and Table 9.2B show the results.

Table 9.2A: Themes replicated in at least half of the vendor case studies

	Motivators	Difficulties	Critical factors	Trust building	
				Achieving	Maintaining
Only Vendors			Cooperation		Transparency
	High maturity of vendors		Transparency		Demonstrability
					Process

Table 9.2B: Themes identified in at least half of the client case studies

	Motivators	Difficulties	Critical factors	Trust building	
				Achieving	Maintaining
Only Clients	Technical expertise	Workforce reshuffling			Personal relationship
		Post contractual matters			Working together

9.1.3. Applying criterion 3

Criterion 3: A theme was not identified by criterion 1 (Table 9.1B) and criterion 2 (9.2, 9.2A, 9.2B) but is overlapping with the theme identified in the Table 9.1A (literature).

Reviewing Table 9.2, 9.2A and 9.2B, firstly, themes which were identified by criteria 1 and 2 are removed. The resulting themes are presented in Table 9.3 which shows the themes which were not identified in criteria 1 and 2.

Table 9.3: Themes which are not identified in criteria 1 and 2

	Motivators	Difficulties	Critical factors	Trust building	
				Achieving	Maintaining
Only Vendors	Growth opportunities	Loss of jobs	Consistency	People background	Transparency
	Time zone differences	Transfer of work	Proactive		Consistency
		Lack of client's experience	Domain expertise		Understanding
		Lack of access	Value addition		
		Getting maturity	Demonstrability		
		Loss of business knowledge	Honesty		
		Lack of domain knowledge	Confidentiality		
Only Clients			Payment	Presentation	Documentation
				Prototyping	

Now, as suggested in criterion 3, Table 9.3 is reviewed against Table 9.1A which presented themes identified from the literature review. Resulting themes are presented in Table 9.3A

Table 9.3A: Overlapping themes between Table 9.3 (themes which are not identified in criteria 1 or 2) and Table 9.1A (themes identified in the literature)

	Motivators	Difficulties	Managing relationship	Trust Building
Only vendors	Time zone differences	Loss of jobs	Value addition	People background
	Growth opportunities	Transfer of work		
Only clients				Prototyping

9.1.4. Integrating the results of three criteria

Results identified by applying three criteria are integrated and presented in Table 9.4. This completes the Phase 1. Themes presented in Table 9.4 were discussed in the Discussion chapter and were used to develop the propositions.

Table 9.4: Resulting table for Phase 1 (presenting all three criteria – Merging Table 9.2, 9.2A, 9.2B and 9.3A)

CRITERION 1	Motivators	Difficulties	Critical factors	Trust building Achieving	Trust building Maintaining
Clients and Vendors	Cost savings	Cultural differences	Communication	Reference	Commitment
	Flexibility	Expectation mismatch	Process	Reputation	Communication
	Quality	Language	Resource allocations	Personal visits	Confidentiality
	Core competence	Loss of control	Expectation management	Investments	Performance
	Higher productivity	Distance	Flexibility	Experience	Honesty
	Faster development	Time zone differences	Onsite presence		
	Skills availability		Meetings		
			Commitment		
CRITERION 2	**Motivators**	**Difficulties**	**Critical factors**	**Trust building Achieving**	**Trust building Maintaining**
Only Vendors			Cooperation		Transparency
	High maturity of vendors		Transparency		Demonstrability
					Process
Only Clients	Technical expertise	Workforce reshuffling			Personal relationship
		Post contractual matters			Working together
CRITERION 3	**Motivators**	**Difficulties**	**Critical factors**	**Trust building Achieving**	**Trust building Maintaining**
Only Vendors	Time zone differences	Loss of jobs	Value addition	People background	Value addition
	Growth opportunities	Transfer of work			
Only Clients				Prototyping	

9.2. Motivators for offshore software outsourcing

Proposition 1.1

Good quality software at lower cost may be an important motivator but its sustainability is in question.

The results indicate that a combination of low cost and good quality is critical to motivate clients to outsource. However, if cost saving becomes the main motivator for outsourcing to a particular vendor, it may also motivate the client to switch to another lower-cost vendor in the future. Taking a broader perspective, how long a company can provide good quality software at low cost is debatable. For example, in the Indian software industry, software engineers' salary levels have been increasing significantly.

Furthermore, living costs in leading Indian outsourcing cities such as Bangalore, Delhi and Mumbai are increasing. As a result, vendors may not be able to provide software at the same cost for a long period. This may result in changes in outsourcing trends whereby the client decides to in-source or to turn to some other outsourcing destination where cost savings are higher. This relates to Williamson's (1975) theory of Transaction Cost Economics (TCE). Williamson (1975) suggests that companies will only outsource if the transaction costs stay at the level where outsourcing companies can make savings on the total cost of the outsourced work. Until now, TCE seem to have remained acceptable for clients outsourcing to India. However, with the increasing costs of offshore outsourcing to India (Scheiber, 2004), this may change. China is often mentioned as one of the competitors of India in offering higher cost savings (Furniss, 2003). However, Qu and Brocklehurst (2003) apply the TCE concept and identify that China is unable to compete with India in terms of providing lesser transaction costs in offshore outsourcing due to a less compatible legal system with the USA and Europe and its bad record in intellectual property rights. In relation to increasing outsourcing costs in Indian software industry, Kumar (2003) argues that salary costs are likely to go down despite increasing living costs because of the excess supply of personnel in the software sector. He claims that the rupee's exchange-rate appreciation against the US dollar may also increase outsourcing costs.

The quality of outsourced work in Indian software companies has already been regarded as exceptionally high in the literature (Pfannenstein and Tsai, 2004; Bhatnagar and Madon, 1997). Vendors in this empirical study reflected on high maturity processes as the basis of their high quality software and their overall experience with Indian vendor companies. This is also reflected in Bhatnagar's and Madon's (1997) proposition that Indian software companies provide high quality software. Interestingly, all the clients in this study shared a positive view on the quality of software provided by Indian software companies. No client complained about a lack of quality in the outsourced software. However, clients did not express any view on process maturity as a motivation for outsourcing.

Nonetheless, some anomalies emerge from this study. In particular, cost savings was the most frequently cited motivator across all cases but none of the clients or vendors actually identified what specific savings they had derived from offshore outsourcing. This may mean that claims of huge savings by outsourcing may be exaggerated and the

hidden costs of offshore outsourcing may have been overlooked. Palvia (1995) puts forward a similar argument concerning the bias in literature towards reporting only the positive aspects of outsourcing.

Proposition 1.2

Client's motivation to outsource may also be influenced by maturity level of vendor, technical expertise and availability of skills in the vendor country and company.

Bhatnagar and Madon (1997) noted a steady growth of high maturity (CMM Level 4 or 5) Indian software companies. In some client companies, high maturity has become a prerequisite for bidding for outsourcing projects. However, this scenario is mainly confined to the USA, while in Europe, ISO quality certification is a fundamental requirement for bidding for outsourcing projects. It was found that all Indian high maturity companies with CMM certification also had ISO certification. In addition to high maturity, technical expertise has played a critical role in motivating clients to outsource. In the literature, Miles and Snow (1986) found that one of the motivators for outsourcing was to cope up with rapid changes in product and process technologies without investing in them. Vendors can utilise their investments in the latest technologies by using the same technology across different clients. This is also referred to as achieving economies of scale (Williamson, 1975). This may not be possible for clients, however, as software is usually not their core competence. Technical expertise relates to the availability of skills in the vendor country and company. Particularly in India skills availability in software industry is very high. According to NASSCOM, around 15 million people will be available for employment in Indian software industry by 2008.

In response to growing cost advantage threats from other countries such as China, Indian software companies are now actively referring to their process maturity, technical expertise and experience of successful projects to motivate their clients to outsource.

Proposition 1.3

Clients may be motivated to outsource to get flexibility in their own allocation of resources and to strengthen their core competence.

One of the motivators for clients in software outsourcing is to get flexibility to allocate saved resources. Flexibility was addressed in terms of the ease that the client achieves in managing resources and requirements by means of outsourcing. The client has the flexibility to reduce or expand his/her project team based on changing requirements. Furthermore, the client does not need to recruit employees, and gains flexibility to expand or reduce the workforce. However, this also depends on workforce availability at the vendor company and the vendor's ability to bring more people into the project when needed. Here, it is possible for vendor to provide this flexibility to the client, as the vendor can shift employees between projects as required. Relating to the flexibility of workforce and resource management, the client can also focus more on his own core competence. The resources saved by outsourcing can be used to strengthen expertise in the core business area. Core competence has long been cited in the literature (Hendry, 1995) as one of the motivators for outsourcing. However, the original literature on core competence (Prahalad and Hamel, 1990) did not imply outsourcing non-core activities. Prahalad and Hamel (1990) called for a closer focus on core competence, which was probably misinterpreted as a reason to outsource. Now, it has been widely accepted in practice as a motivator!

The question remains, should company outsource software development if its core business itself is software? The literature in general (e.g. Lacity, 2002) does not recommend to outsource the core-competence. However, in practice, many large western software companies have outsourced parts of their software development to software companies in India.

Proposition 1.4

The client's motivation to outsource may be influenced by the vendor's faster development cycle and high productivity records. These may give the client's product a faster entry to the market.

Reich (1991) and Miles and Snow (1986) argue that outsourcing is necessary for clients to survive the international competition, as they can save costs. In this study, there was no indication from clients or vendors that outsourcing helps clients survive the competition in their industries. However, clients mentioned that outsourcing gave them faster development of their software than in-house development, as well as higher

productivity and faster marketability. In this sense, surviving competition by reaching to consumers faster than others could still be one of the motivators for clients to outsource.

Proposition 1.5

The client may be motivated to outsource in order to eventually enter into the vendor's local market to sell his (client's) own products there.

Offshore software outsourcing has also brought in opportunity for clients to expand their own market scope. Clients are motivated to enter the local market (in this case, India) to tap into a large and, in many instances, untapped consumer market. For example, the UK's biggest retail chain, Tesco, started with software development and call centre work in India. Now, there have been reports of Tesco's growing interest in launching a retail supermarket chain in India. The Finnish telecommunication company Nokia has been outsourcing large chunks of software work to India. However, Nokia has now also become the leading mobile brand in India's telecommunication market, where every month around 1 million new customers buy a mobile phone.

9.2.1. Selecting vendor by verifying motivators

The motivators proposed in this study may become key criteria for clients when selecting vendors for assigning outsourcing projects. Indeed motivators can also be used by outsourcing vendors to strengthen their capabilities in respect of the identified motivators.

The proposed motivators can help client to decide whether to select a particular vendor by measuring the vendor's capability against the identified motivator. The client should verify his/her motivations when assigning an outsourcing project to a particular vendor. The relevant motivators are discussed here in terms of how they may be verified. For example, motivators such as cost saving and the vendor's high maturity are directly measurable. Cost savings can be evaluated by evaluating the difference between the cost of in-house software development and the vendor's quotation. Here, clients should not only consider software production costs but also the transaction costs of the outsourcing project. In other words, the total cost of software outsourcing should be the development cost plus transaction costs. Transaction costs of offshore software outsourcing may be higher than domestic outsourcing due to higher coordination- and communication-related costs.

The vendor's high maturity level is measurable by means of certification in process maturity such as SW-CMM. High process maturity level (four or five) indicates that the company is likely to follow good practices in software development. High maturity will also be an indication of good quality. For example, the client can look into vendor's previous software development record to check the defect ratio. However, additional data to verify the quality of vendors' work is available and should be explored. For example, the client can seek external references from the vendor to obtain the views of others about the vendor's work. If the vendor has no previous experience, the client still can check the vendor's domestic record in the software industry. The client can also give the vendor a small assignment as a prototype. This will give the client an opportunity to properly assess the vendor's quality of work.

Based on the vendor's proposal, the client can check how much productivity can be increased by means of software outsourcing. Similarly, the client can verify how much time (often measured in person-hours) the vendor will spend on the client's outsourced software. The client can then evaluate how much more quickly software can be developed by outsourcing to the vendor than developing it in-house. Faster development and higher productivity motivate a client to outsource as this not only helps to generate higher volume at lower cost but also gives the client an opportunity to reach the end consumer faster than others.

Two other motivators that can be verified are the vendor's technical expertise and skills availability. Technical expertise can be verified by reviewing the background of the vendor's workforce and specific projects the vendor has undertaken in the past involving the required technical expertise. Key employees with higher education, long experience of managing outsourcing projects and exposure to a similar domain of outsourcing project may motivate the client to outsource. This also relates to the availability of skills in the vendor company and the region where the vendor is based. For example, skilled programmers in specific software development might be more easily available in India than in the USA. However, the client should also verify the skill set available in the vendor company. This can be measured by the number of vendor's employees with skills relevant to those required in the outsourcing project.

Client can also measure the flexibility s/he will get by outsourcing software activity. Client can measure resources and time that will be saved. However, how flexible vendor will be in operation is not measurable until client actually undertakes outsourcing project with the vendor.

It is difficult to decide the threshold for the client to consider the vendor's proposal based on how many motivators a particular vendor complies with. This probably depends on the client's own objectives and what he expects to achieve from the project. The proposed motivators are only a basic guide for clients to understand and verify some of the important motivators for initiating offshore outsourcing project.

9.3. Difficulties in offshore software outsourcing

Proposition 1.6

Communication between client and vendor may be hampered by differences in their culture, language, time zones and geographic distance.

It is evident from the results of this study that managing offshore outsourcing relationships is not without difficulty. Vendors' perceptions suggest that managing cultural differences is a major difficulty. Managing cultural differences is a challenge when people from different societies and countries work together. Hendry (1995) considered culture differences as one of the hidden costs of outsourcing. Recently, Krishna et al. (2004) also reported that differences in cultural background and working life could create difficulties in offshore outsourcing relationships. This shows that managing cultural differences remains difficult even a decade after it was recognised. This may also suggest that as offshore outsourcing continues to grow, more cultural differences may emerge. Research interest in investigating cultural differences in virtual relationships such as offshore outsourcing is increasing. (e.g. Krishna et al. 2004; Weisinger and Trauth, 2003; Dafoulas and Macaulay, 2001).

To give an example, in one case a vendor explained that their project manager withdrew from one of the biggest offshore outsourcing projects for a client in Japan. This happened because he was required to spend much time at the Japanese company and business colleagues were not very cooperative with him as he was teetotal. In this case, the vendor actually sent another project manager who was comfortable with drinking

alcohol in business meetings. It was also found that vendors generally perceived that they faced fewer difficulties due to cultural differences in the USA than in Europe.

This study found that vendors have addressed cultural differences by providing 'culture training' to employees involved in offshore outsourcing projects. Some vendors also provide a handbook to their clients to help them better understand India's culture. However, clients perceived cultural differences in terms of differences in corporate culture such as working patterns and approaches to project meetings rather than of customary day-to-day cultural differences such as food habits, which were mentioned by vendors. For example, in project meetings many representatives of Indian companies do not usually criticise or vote against what clients think or their project instructions. Clients also had a general perception that Indian companies do not say 'No' to a client's request even if the vendor is not able to meet that request. However, vendors also showed awareness of these issues. This cultural factor has consistently been reported in the literature (e.g. Krishna et al. 2004).

Another client mentioned the Indian habit of 'head nodding'. The client explained that during his visit to an Indian company, managers attending the meeting tended to nod their heads while the client was delivering the project speech. The client took this head nodding to mean that the vendor's representatives were agreeing to and accepting what he said. This led to some serious misunderstandings in the project. Later, the client found that the head nodding was just the normal listening gesture rather than signifying agreement!

Cultural difficulties may lead to problems in effective communication between client and vendor (Krishna et al. 2004). However, communication is also affected by other factors such as geographic distance, time zone differences and language differences.

Based on the cross border International Joint Venture (IJV) relationship literature (Salk and Brannen, 2000) Krishna et al. (2004) recommends adopting a negotiated culture perspective. A negotiated culture perspective focuses on attempts to form and develop cross-cultural teams so as to achieve a compromise working culture in which both sides of the partnership modify their work behaviours to take account of the cultural norms of their partners. In this study, the negotiated culture perspective was identified in clients' and vendors' comments relating to how they change their working patterns to account

of each other. For example, vendors based in India started working until 'late' to catch up with their US-based clients. Similarly, US-based clients also changed their working hours to adapt to Indian vendors' time. However, a negotiated culture perspective may be difficult to achieve when the required change is in deep-rooted habits. For example, as reported earlier an Indian vendor who was teetotal could not negotiate about drinking alcohol to adapt to the business culture or habits of a Japanese client. Krishna et al. (2004) also report that a culture negotiated between clients and vendors can only be achieved over a significant period of time.

Time zone difference resulting from geographic distance is generally reported as a positive factor in outsourcing (Khan et al. 2003). However, this study found that time zone differences can prove an obstacle to managing an effective communication setup. For example, one client reported that he had to go to the office at 6:30AM if he wanted to talk to his project colleagues in the USA and Indian employees working on the outsourced project. On the vendor side, i.e. in Indian software companies, it is considered as the 'norm' for outsourcing employees to work at odd hours and on national holidays. Herbsleb and Moitra (2001) also claim that distance and time zone differences negatively affect communication.

Time zone differences coupled with cultural differences may significantly impact on the social or family life of an outsourcing employee, particularly on the vendor's side. In this study, one vendor expressed serious concerns about the odd working patterns arising from a US-based outsourcing project. He explained that he usually spent ten to twelve hours in his office every day working with the US client. He reported that although in India he spent most of the time talking (formally and informally) with US-based employees and working according to the US-based client's working patterns. He argued that as a result his personal life had also become US-centric although he was based in India. He further explained that he sometimes felt too distant and foreign and not at home or local, and that this also led to conflicts with his family members at home. The cultural shift had created problems in his personal life. This is an interesting point, though no literature-based evidence could be found to explore this issue further.

The language difference can also negatively influence the relationship between client and vendor. This study found that vendors faced difficulties when a client was unable to communicate in English. Language issues may also arise even if both clients and

vendors have common language such as English. For example, in this study, some clients reported that they had difficulty in understanding their Indian vendors' English accent and written language. At least in one case, client reported that they had to rewrite most of the technical documentation written by their vendors as there were several mistakes of grammar and articles in the vendors' English.

Proposition 1.7

The actions of clients and vendors may become less transparent if there are mismatches in expectations, and a perceived loss of control in the relationship.

Other difficulties in offshore outsourcing relate to managing an expectation mismatch. Expectation mismatches mainly occur because of hidden expectations on the part of client and vendor. Hidden expectations are often referred to as expectations of clients and vendors for each other that are not formally documented in the contract but anticipated during the relationship. As a result, hidden expectations may also lead to less transparent actions by client and vendors. Hidden expectations may occur for various reasons such as differences in the perceptions of clients and vendors, different working patterns and management structures of client and vendor. It is also difficult to determine all expectations requiring formal documentation. Expectations are generally developed via personal experiences. For example, if someone flies by any domestic airline in India, snacks or lunches are served free of cost during the journey, even if the flight lasts only one hour. Therefore an Indian traveller will tend to expect 'food' during a flight. However, passengers have to pay for food and drink on domestic flights in the US or in Europe. On the other hand, any European traveller would expect to be able to buy alcohol during a flight. However, in one state of India, Gujarat, alcohol is banned. These expectations may seem trivial, but they have the potential to disrupt business relationships.

Hidden expectations are also consistent with Beulen and Ribbers' (2002) argument that the opportunity to include all details in the contract is very limited. However, Lacity and Hirschheim (1993) claim that the contract is the only mechanism to ensure that expectations are realised. Humphrey (1990) also says that the contract should be detailed enough to identify all expectations. Nonetheless, he also acknowledges that it may not possible to include everything in the contract as future contingencies and realities are hard to predict. This suggests that the literature is somewhat circular in

terms of arguing about how many details a contract should include. In this study, clients and vendors perceived that they should include all expectations to be realised in the contract, but should be flexible to changes or additions that occur. However, in practice this may not be possible. For example, the theory of incomplete contract (Tirole, 1999) suggests that all contingencies cannot be foreseen and even if all contingencies can be foreseen it would be costly for companies to put everything into the contract.

Hidden expectations can also become problematic as they affect the transparency of the actions taken by each party. The client or vendor may not intend to be less transparent but if their actions contravene hidden expectations of the other partner transparency in the relationship will be negatively affected.

In addition to expectation mismatch, other difficulties such as the client's fear of losing control over outsourced work may also negatively affect transparency between client and vendor. In other words, vendor actions may become less transparent if, for example s/he becomes opportunistic and tries to exploit the control gained by way of the outsourced project. Lack of access may also create misperceptions and can consequently lead to less transparent actions.

Proposition 1.8

Process in offshore outsourcing may be negatively impacted by a sudden reshuffle of the workforce and improper transfer of work in the relationship between client and vendor.

The transfer of knowledge and requirements from the outsourcing client to the outsourcing vendor is needed to develop the software. Once the outsourced software is developed, transfer from the vendor to the client is also required. Zhu et al. (2001) argue that transfer is complex and a lack of efficient planning can result in outsourcing failure. They recommend that a transfer plan should be developed before transfer begins and that this plan should be revised as necessary. Process is crucial in executing outsourcing projects and improper transfer can create potential problems at a later stage of the process (Zhu et al. 2001).

If clients and vendors are new to outsourcing, transfer may prove especially difficult. For example, if the client is outsourcing for the first time s/he may not be able to

determine all the required knowledge that should be transferred to the vendor. Furthermore, vendors in this study, who were high maturity companies, reported that it is sometimes difficult to achieve the same maturity in the outsourcing relationship with their clients when those clients are less mature and new to outsourcing. Consequently, a lack of maturity in the relationship and a lack of outsourcing experience can affect the transfer process as well as the management of outsourcing relationships.

Although vendors claimed to be highly mature, clients reported that vendors reshuffled their project employees across projects, and that this hampered their relationships. Clients argued that it was difficult for them when the vendor suddenly shifted a key project employee to a different project. It was even more disturbing for clients when vendors did not inform them about such changes in advance. Such reshuffling may also create a negative impact on the process being followed by the vendors.

Proposition 1.9

Perceived loss of jobs due to offshore outsourcing on the client's side and post-contractual matters may hamper overall commitment to the project.

Recently, offshore outsourcing has been reported as a threat to jobs in outsourcing client companies. The literature contains frequent reports of jobs shifting from the US and Europe to countries such as India and China (Bhagwati et al. 2004). Offshore outsourcing has also become an issue in political campaigns. The front page of the Information Technology Professionals Association of America website shows the picture of a student accompanied by the following words: '*Four hard years. Thousands of dollars. Now your Congressman wants to give her job to a foreign worker'.*

However, a majority of economists favour the outsourcing phenomenon. For example, in the USA President Bush's economic advisory council concurred that '*outsourcing is just a new way of doing international trade'*, which makes it *'a good thing'* (Drezner, 2004). The literature in support of offshore outsourcing (e.g. Drezner, 2004) is also growing. Interestingly, the clients interviewed for this PhD study did not show any concern or express any views on the 'job loss' issue. Contrastingly, vendors reported that the perception or fear of job loss in the West and political or legislative sanctions may be a worrying factor for sustaining business growth in offshore outsourcing. Furthermore, if the client's employee fears that by transferring his/her knowledge

profile to a vendor employee s/he will eventually lose his/her job, the transfer of knowledge may not be adequate. In other words, the fear of losing one's job may impact on the commitment required from the client to providing inputs into the project. The vendor's commitment to the project is also crucial. This study found that clients were finding difficulty in obtaining satisfactory services from vendors once a project was finished. In other words, clients were not happy with some post-contractual matters, such as the provision of adequate documentation, manuals, training and access to key project employees on the vendor's side (Kern, 1997).

In the following section, the discussion moves on to the critical factors in managing offshore outsourcing relationships. After discussing the critical factors, solutions to the emergent difficulties discussed in this section are also proposed.

9.4. Critical factors for managing relationships in offshore software outsourcing relationships

Proposition 1.10

Client and vendor should spend time together on the project, conduct regular meetings and build effective communication to manage offshore outsourcing relationships.

The literature (such as the business literature and the social science literature) emphasises the importance of communication for successful relationships (e.g. Olkkonen et al. 2000). Similarly, in this study of offshore software outsourcing, both clients and vendors perceived communication as critical in managing their relationships, as has also been noted in the literature (Kern and Willcocks, 2000; Zhu et al. 2001). Constant and fruitful communication was imperative to both clients and vendors in managing their relationships. However, managing communication effectively is not easy, particularly in the offshore context, where difficulties such as distance, time zone difference and cultural differences constrain effective communication. Communication can at least be explored from two dimensions, oral and written.

Both oral and written communication was observed to be important. For example, in this study vendors raised the issue that knowing how much to communicate with an offshore client is important, in addition to what is communicated, whereas clients placed greater emphasis on managing written communication with the vendor. Krishna

et al. (2004) also observed that Indian software vendors had to approach communication with U.S. and Japanese clients in very different ways. Krishna et al. (2004:64) says:

> *'U.S. client companies normally work with extensive written agreements and explicit documentation, reinforced with frequent and informal telephone and email contact. In contrast, Japanese clients tend to prefer verbal communication, more tacit and continuously negotiated agreements, and less frequent but more formal use of electronic media'.*

Clients in this study are largely US based clients. The difference found in this study further substantiates the observation made by Krishna et al. (2004) observation. Some literature (e.g. Olkkonen et al. 2000; Kern and Willcocks, 2000) emphasises that a communication plan is essential to outsourcing, and especially to offshore outsourcing (Parkhe, 1998). Russell (2001) says that a communication plan helps

> *'to ensure that all members of the team are updated on a regular basis and receive common information; to permit tight tracking of the project by providing a forum for the discussion of project status and actions required; and to ensure continual building and motivation of the team. A well implemented communication strategy will also allow the timely identification of potential trouble spots before they develop into serious and difficult to solve'.*

Similarly, Paasivaara and Lassenius (2004) also note the importance of a communication plan in global software development projects. However, they explain that in their case studies companies did not agree upon a formal communication plan or practices. Subsequently, it was found that team members did not know whom to contact and eventually it became difficult to advance the project. In this study, vendors emphasised having and following a formal communication plan from the beginning of their projects. They identified the full communication setup, including details such as whom to contact, when to contact and how often to contact. The reason why all vendors were found to follow a formal communication strategy may reflect their high maturity status and other international quality certifications such as PCMM and ISO 9001. However, clients in this study did not report having any communication strategy or plan and said that they were happy to follow vendors' plans. Clients however said they made sure they worked jointly with vendors and spent time together, which helped them in their efforts to build a relationship with the vendor.

Sufficient communication does not replace the need for clear and transparent communication. Vendors said they are proactive in communicating with clients if they

find something 'wrong' in the project, even if it may create extra work or incur additional costs for them. This was further said to build confidence and trust in the vendor. However, it can be said that in addition to having a detailed communication plan clients and vendors should follow the identified plan by actually communicating.

Proposition 1.11

Client and vendor should adopt a software process approach (such as CMM), establish a resource allocation plan and communication processes to manage their relationships, with flexibility integrated into the processes.

Similar to the communication plan, it is also essential to determine and allocate resources for the outsourcing project. Efficient resource allocation makes the outsourcing process easier to follow and gives clients and vendors a clear idea about the time, manpower and money required to conduct the outsourcing project (Krishna et al. 2004; Kern and Willcocks, 2000; Zhu et al. 2001). In addition to communication, a process-driven approach was considered crucial for managing relationships. The process approach is also reflected in the design of a detailed communication plan and resource allocations. Moreover, all vendors in this study were high maturity companies and therefore the process approach may be of greater importance to them. However, processes must not be followed rigidly. In other words, designed processes should be flexible enough to accommodate any unpredicted circumstances. This is reflected in Jiang et al.'s, (2003) study on the relationship between software development process maturity and project performance. They assert (based on Weinberg, 1971 and Bailyn, 1984) that technical project performance can be improved if team members engage in higher levels of self-control as opposed to rigid organizational control. Jiang et al. (2003) highlight the flexibility issue in CMM by clarifying that *CMM provides 'what to do' but allows flexibility on the part of the team members in 'how to' accomplish their tasks.* Furthermore, Haag et al. (1997) studied process improvement in geographically distributed software engineering. They also found communication to be of significant importance and also suggested that project coordination should take flexibility and resource allocations into account.

This study also found that the client's approach to relationship management was more informal. For example, they did not follow any formal process such as CMM, whereas the vendor's approach was more formal. For example, communication was considered

critical by most clients and vendors. However, clients did not report having any communication strategy or plan in place to communicate with their vendors. Clients only reported that they communicate regularly with their vendors but do not follow any formal guidelines, in contrast to the vendors' emphasis on following a formal communication plan. However, clients considered it important and helpful for their vendors to follow high maturity processes and standards such as ISO and CMM.

Proposition 1.12

Client and vendor should maintain a transparent relationship and manage each others' expectations.

The other critical factor observed in this study is transparency. The importance of transparency in the success of the business is evident in the literature. For example, Eggert and Helm (2003), basing their argument on the interaction model of business relationships, claim that transparency in the relationship contributes to the overall success of a business relationship. In particular, they found that *transparency delivers value to the customer, increases customer satisfaction and ultimately leads to favourable behavioural intentions*. In this study, transparency means that clients and vendors are aware of each other's actions, of the project status and of all other information affecting the project. This is also consistent with Eggert and Helm (2003) who defined relationship transparency as *an individual's subjective perception of being informed about the relevant actions and properties of the other party in the interaction.* Transparency may also increase if the vendor can efficiently demonstrate the actions taken at each stage. For example, a vendor might be regularly producing metrics to measure the quality of the results, but if he does not show the measurements and their results to the client, the transparency in the status of the project described by vendors will be weakened.

Transparency is also related to expectation management. It may be difficult to manage the 'hidden' expectations in the relationship. It was observed in this study that, proper documentation and determination of each action in the project will help to manage expectations better. In relation to this, better expectation management will be realised if the actions of clients and vendors are transparent. Transparency also relates to the honesty of clients and vendors. Although honesty may be used interchangeably with transparency, it is considered in this study in terms of communicating honestly and not

being opportunistic in the relationship. *Honesty is often referred to as communicating in a truthful, direct, and complete manner, to the best of one's knowledge and ability and abstaining from unfair behaviour such as cheating* (Wikipedia Encyclopaedia).

Proposition 1.13

Clients and vendors should be committed to the outsourcing project as a shared project. Particularly, commitment may be realised by creating more value propositions, maintaining consistent delivery of successful results and mutually cooperating to make the project successful.

Commitment in the relationship is another important factor observed in the study. Commitment also relates to a few emergent critical factors. Clients said that they should pay their vendors as agreed. This primarily signifies that the agreement or contract between clients and vendors should be properly drawn up and mutually agreed (e.g. Willcocks and Fitzgerald, 1994; Whang, 1992). In addition to payment, the addition of value to the outsourced project is important and takes place if the vendor can add offer more value propositions than anticipated by client. This may also relate to the vendor's domain expertise in a particular outsourcing project. However, throughout the project consistency in the vendor's capabilities and deliverable results and in the client's cooperation in providing necessary inputs to the vendor will be important commitments.

9.4.1 How do the results of this study contribute to the eSCM-SP model?

To further review the critical factors against previously established work, in this study the eSCM-SP model is reviewed. As acknowledged earlier in the literature review of this thesis, the IT Software Qualification Center (ITsqc) of Carnegie Mellon University, USA, has developed the eSourcing Capability Model for Service Providers (eSCM-SP). Recently, ITsqc has also published a similar Capability Model for clients (eSCM-CL) as a working publication. However, the purpose of eSCM-SP models is different from that of this study as they are intended to contribute to practitioners' body of knowledge, to provide certifications to clients and vendors for complying with eSCM-SP practices, and subsequently to help them to better manage their IT-enabled sourcing. This complements this study, the main purpose of which is to contribute to the academic body of knowledge. eSCM-SP models are designed to cover all capability areas involved in outsourcing, including sourcing strategy management, governance management, relationship management, value management, organisational change

management, people management, knowledge management, technology management and risk management. However, in this study, the relationship capability area is studied which is also part of the eSCM-SP. Table 9.5 illustrates the review the eSCM-SP practices in relationship capability area against the results of this study.

Table 9.5: eSCM-SP practices and results of this study

eSCM-SP critical issues in relationship capability area	Similar/matching theme that emerged in this study
Establishing and maintaining trust	Achieving and maintaining trust
Managing stakeholder expectations	Expectation management
Ensuring the effectiveness of interactions with stakeholders	Communication
Managing relationships between clients and service providers, as well as supplier and partner relationships, to ensure that commitments are met	Commitment
Managing cultural differences between stakeholders	Communication, meetings, cooperation
Monitoring and managing clients' and end-users' satisfaction	Commitment, consistency
Maintaining a competitive advantage	Value addition
Innovating, building flexibility, and increasing responsiveness to meet unique and evolving client requirements	Flexibility, process-driven approach, Expectation management

Table 9.5 shows whether points identified in the eSCM-SP also emerged in this study. The table also identifies the relevant themes that emerged in this study against the eSCM-SP findings. For example, the results of this study did not indicate anything about managing supplier and partner relationships. However, the results were focused only on managing client-vendor relationships. The results of this study largely overlap with eSCM-SP practices. Current eSCM-SP models only mention the importance of building trust, but fail to give any detailed explanation of it. This study has exclusively studied trust. Consequently, it provides a plausible extension to eSCM-SP's relationship capability area. However, eSCM-SP covers a wide range of outsourcing issues, from developing the contract to closing the outsourcing project.

9.4.2 Transferring industry perspectives to research: Solutions to identified difficulties

During empirical investigation into difficulties, clients and vendors also expressed their perspectives on how they resolve some of these difficulties. However, those perspectives were essentially the operational knowledge. Therefore, it was required to transform perspectives to research themes i.e. research knowledge to answer the research questions in the study. This is because the questions addressed in the study

were based on the academic insights, i.e. the literature. As mentioned earlier in Chapter 3 of this thesis, research themes were uncovered by applying coding techniques of grounded theory method. Uncovered themes were then observed for their replication across cases. Based on the strategy presented in chapter 3, selected themes were discussed in relation with the literature. The whole process essentially helps transforms operational knowledge into research knowledge. As an example, Table 9.6 presents solutions for the emergent difficulties based on the empirical results emerged in the study in relation to research question 2 and 3. The literature evidence supporting the solution is discussed.

In Table 9.6 (presented on the following page), the first column presents the difficulties reported by clients and vendors in the empirical investigation. The emergent difficulties are then mapped to the corresponding critical factors in the second column. Critical factors also emerged from the empirical study. Based on the critical factors, for each identified difficulty a resolving activity is proposed in column three. Each activity is further supported by the literature references in the last column. The objective is to review the examples of proposed recommendations for each difficulty against the existing literature. Therefore, if there is 'none identified' in the last column, a resolving activity was not found in the literature. It does not mean that the literature has not addressed that particular difficulty. Here, some of the emergent difficulties, examples of resolving activity and the relating literature are reviewed.

In terms of resolving cultural differences, this study uncovered that vendors may give a cultural handbook to clients to assist in the development of cultural harmony in the relationship. Cultural training programs, particularly, for outsourcing managers also emerged as one of the solutions in resolving cultural differences. Krishna et al. (2004), in terms of culture, also found that challenges not only concern the need to adapt to different ways of working but to cultural norms of social behaviour, attitudes toward authority, and language. They, in addition to giving culture training as a solution to managing cultural difference, observed that in most cases, cultural training was perceived as one way learning process. It was argued that cultural training from both clients and vendors should be encouraged as it will develop well-informed understanding of the culture and business practices of both groups in offshore software outsourcing.

Table 9.6: Emergent difficulties and solutions - offshore software outsourcing

Emergent difficulty	Critical factor identified in this study	Examples of resolving activity to manage the identified difficulty	Examples from the literature that support the proposed activity
Cultural differences	Communication [Spending time together, meetings]	Constantly communicate (formally and informally) in the project and when required work together to conduct the outsourcing project	None identified
		Culture training programs for outsourcing project managers	Krishna et al. (2004)
		A concise handbook which can help in understanding a company's corporate and societal cultural environment	None identified
Expectation mismatch	Transparency [expectation management]	Better contract management	Whang (1992)
		Documentation	Koh et al. (1999)
		Clear and sufficient communication	Lacity (2001)
Language	Process [resource allocation]	Bi-/multilingual managers	Krishna et al. (2004)
Loss of control	Transparency [demonstrability, honesty]	Using more than one vendor	Currie (2000)
		Transparency in vendor's processes	Lacity (2001)
		Transparent and open access to client on outsourcing work	Lacity (2001)
Loss of jobs	Commitment [cooperation, value addition]	More opportunity at client company	None identified
		Value added work	Levina and Ross (2003)
Transfer of work	Process [resource allocation, onsite presence]	Better contractual agreements	Lee et al. (2003)
		Mutual understanding and cooperation	Kern and Willcocks (2001)
		Efficient process to manage transfer of work	Zhu et al. (2001)
		Documentation	Koh et al. (1999)
Distance	Communication, Transparency	Using efficient communication links and tools	Lacity (2001)
		Transparency building in the work	Kern and Willcocks (2000)
		More communication and regular meetings	Lacity (2001)
		Regular visits by project personnel	Shaffer (2000)
		Retaining core knowledge in house	Lacity (2002)
Time zone differences	Process [resource allocation, onsite presence]	Process driven approach Onsite presence of vendor	None identified None identified

It also emerged in this study that expectation mismatch may be addressed by efficient contracting, documentation and clear and sufficient communication. The literature has also touched on these issues. For example, Whang (1992) argued that due to limited information, clients and vendors make decisions in their own interest, leaving each party vulnerable to the other's opportunistic behaviour. In this context, Koh et al. (1999) emphasised efficient documentation to avoid expectation mismatch which also emerged as one of the solutions in this study.

Table 9.6 shows that bi/multi-lingual managers may be used by clients and vendors in managing language differences in the project. However, it is considered a responsibility of the vendor to make such provision. Krishna et al. (2004) found differing viewpoints on multi-language provision in offshore software outsourcing. For example, they found that some Norwegian clients expressed a preference for Russian software vendor companies rather than Asian companies. One reason was that the Norwegian clients experienced that Russians learned the Norwegian language with relative ease compared with their Asian counterparts.

Table 9.6 shows three recommendations for managing their client's perceived loss of control in offshore software outsourcing – using more than one vendor, transparency in the vendor's process and open access to outsourcing work being carried out at the vendor's site. It was found that Currie (2000) and Lacity (2001) have also addressed this issue. However, Currie (2000) argued that the overall knowledge of outsourcing vendors as a community is very limited. This signals caution in using more than one vendor for one project as it may create more overhead costs for the client. In other words, managing multiple vendors may be more difficult as there are still several challenges in successfully managing relationship with one vendor in offshore project.

Another difficulty, perceived loss of jobs, is also difficult to manage in offshore outsourcing. If client employees fear losing their jobs to Indian vendors, they may not be motivated to actively cooperate in transferring outsourcing work to vendors. Table 9.6 shows that one resolution to manage this difficulty is joint effort by clients and vendors to create more opportunities on the client's side. Of course, the literature has focused heavily on job losses on the client's side (e.g. McLaughlin, 2003; Bhagwati et al. 2004) in offshore outsourcing but there is lack of focus on resolving it (Drezner, 2004).

9.5. Trust building in offshore software outsourcing relationships

Trust has received significant attention in areas such as health care, social science, economics and business. Part of this study is concerned with the role of trust in offshore software outsourcing relationships. The study mainly addresses the critical factors for building trust in the relationship. Trust building is investigated in two phases – achieving trust in the initial phase of the relationship and maintaining it in an ongoing relationship.

Proposition 1.14

The client's trust in the vendor in the initial phase of the relationship is influenced by factors such as personal visits to the vendor's site, references for the vendor from other clients, the vendor's reputation, experience, investments, key people's backgrounds, or the vendor's performance in prototype development.

In the initial phase of the relationship, vendors use references of previous clients they have worked for to demonstrate their abilities to their prospective client. Clients also mentioned the value of references in achieving initial trust in the relationship. The reference check is a common screening method. Similarly, a good reputation in the industry in the international and domestic market also helped clients to develop trust (Dasgupta, 1988). However, in at least one case the client reported that they sometimes first give small assignments to selected vendors. In other words, a prototype project is first carried out to evaluate the vendor's suitability for the intended outsourcing project. Based on the vendor's performance and the results of the project, the client develops initial trust in the vendor and assigns larger projects to the vendor. The client said '*first develop small and then build big*' is their strategy particularly with new vendors. Vendors also believed that allocating highly experienced and skilled project managers to a client's project also helped to establish trust. Personal visits to the vendor's site were also important for establishing initial trust. A personal visit proved extremely useful in many cases, as the client could personally verify the vendor's capabilities and, if he was satisfied, it helped to establish trust. This also gave both client and vendor the opportunity to meet personally at the start of the outsourcing project. However, in one case it was found that client and vendor had never met since the outsourcing project began. When the client was interviewed he described the overall relationship as very successful and did not report any problem. He said that as their project was very well defined requirements were well documented and the whole team (on both sides)

comprised only 5 people. This might have helped them to sustain a good relationship without meeting each other. He said that he had exchanged photographs of team members with the vendor by way of initial introduction.

Proposition 1.15

Effective communication builds trust in the client vendor relationships. Personal relationship building and joint work by client and vendor may help strengthen the communication and maintenance of the trust between client and vendor.

Without communication, it is practically impossible to build relationship and trust between client and vendor. However, communication has to be effective as mis-communication may foster distrust in the relationship. Clients and vendors perceived constant communication with efficient setup to communicate as a way to build trust in the relationship. Earlier Sabherwal (1999) also emphasised on communication setup in building trust in the relationship. Clients emphasised personal relationships with key people in the vendor company. Clients generally said that trust was built over time by working together with the vendor. Clients also said that both sides had to go through pain together. Clients acknowledged that sometimes things might go badly wrong, and that this could be the fault of their (the clients') customers rather than of the vendors. Therefore, clients perceived that working together even at a 'bad time' increases trust in the relationship. In relation to this, Carmel (1997), based on Meadows (1996), suggests that trust in global software development projects develops during or subsequent to the first projects and not before that.

Furthermore, clients said that it is the person they trust more than the vendor company. The knowledge and commitment of the people with whom clients work directly builds trust in the relationship. This also relates to the vendors' views on allocating their best people to face the client. However, vendors indicate that they are formal in their approach to building trust and have procedures and methods to execute their strategies, whereas clients indicate that they are informal in their approach to building trust. They rely more on 'personal relationships' rather than formal procedures.

Proposition 1.16

Commitment in the outsourcing project and an honest attitude towards each other may help to maintain and develop trust between client and vendor.

Both clients and vendors considered that they have to be honest with each other to develop trust. Honesty was considered in terms of sharing project details with each other and also reporting mistakes to the other party and not trying to cover them up. However, it is extremely difficult to verify such issues objectively. Clients and vendors referred to honesty in terms of trust development but gave no indication as to how much they trusted each other's honesty in the relationship. Commitment to the project success was also seen as important in developing trust between client and vendor. Vendor commitment was addressed particularly in terms of the resources and effort the vendor put into the project and the services s/he offered the client. Client commitment was considered in terms of regular payments to the vendor in accordance with agreed terms and adequate cooperation in providing the information required by the vendor to carry out the outsourced work.

Proposition 1.17

A process-driven approach and project performance in offshore projects may develop trust between client and vendor.

It is widely acknowledged in the literature that good performance in project helps develop trust in the relationship (Sabherwal, 1999). Vendor's performance in terms of delivering project outcomes acceptable to clients was also reported to be useful in maintaining trust in the relationship. Another factor vendors emphasised was a process-driven approach. A process-driven approach helped vendors to establish best practices not only from the technical viewpoint but also from the relationship viewpoint. Vendors thought that processes provided a comprehensive framework for the project. This was reported by vendors to have helped in avoiding misunderstandings in the relationship and in developing trust. However, clients who were not certified as following any software processes said they were happy to follow vendor processes in the project. Clients specifically did not mention how a process-driven approach was useful to them as they probably did not have any exposure to it. No literature evidence was found in relation to the impact of process approach on development of trust in offshore software outsourcing relationships.

Proposition 1.18

Ensuring confidentiality of shared information and demonstrability of results and actions will aid greater transparency in the client-vendor relationship. Consequently, this will help in maintaining trust between client and vendor.

Vendors also considered that trust cannot be taken for granted. It has to be developed by demonstrating actual results to the client. It was observed that high performance or successful project outcomes alone are not enough as they need to be demonstrated effectively enough for the relationship to be successful. Vendors indicated that transparency in their transactions with the client and their work are important. The literature (e.g. Lander et al. 2004) also suggests that transparency is important to maintain trust in the relationship. Transparency is often used with confidentiality or security of shared information in the offshore outsourcing project. In this study, confidentiality was perceived as safeguarding client's data and knowledge on outsourced work. Generally, vendors were observed to guarantee confidentiality of shared information to their clients based on their achievements in scores of security and quality certifications. Schneier (2002) reports the security issues in outsourcing contracts. Scheier (2002) recommends to choose trustworthy outsourcing partner.

9.5.1 Reviewing results of Sabherwal (1999) with this study

As noted in the literature review Sabherwal (1999) exclusively studied trust in offshore software development outsourcing. His study is very relevant to the trust investigation conducted in this study. Here, Sabherwal's (1999) study on trust is compared against the results of this study. Table 9.7, presented on the following page, shows the comparison.

As shown in Table 9.7, Sabherwal (1999) identifies trust factors in four phases – calculus based, knowledge based, identity based and performance based. In reviewing his paper, the critical factor pertaining to each phase is presented in Table 9.7. Table 9.7 also shows the mapping of each factor identified by Sabherwal against this study. In this study, trust is identified across two phases – achieving and maintaining.

Table 9.7 suggests that almost all factors depicted in Sabherwal's study also emerged in this study. The exceptions were courtship, recruiting manager in vendor's language, and jointly celebrating completion of interim deliverables. It was interesting to see that in this study the language difference was tackled by vendors employing project managers

with client-related language skills. However, in Sabherwal's study, language difference is tackled by clients employing project managers with knowledge of the vendor's local language.

Table 9.7 also shows additional results relating to trust building that emerged in this study but were not identified in case studies conducted by Sabherwal. However, the many common factors between these two studies strengthen the results of this study and additional factors found in this study probably advance the literature.

Table 9.7: Sabherwal (1999) and position of this study

	This study	
Sabherwal(1999)	**Trust achieving factor**	**Trust maintaining factor**
Calculus based trust		
Establishing structures		Processes
Communication setup		Communication
Vendor's desire for contracting in future projects		
Knowledge based trust		
Shared experience between client and vendor on other projects	Experience with vendor, Experience in outsourcing	
Developing small system first	Prototyping	
Background knowledge of key members from client-vendor organisation	People background	Personal relationship
Visit of client delegation to vendor site	Client visits, Presentation	
Courtship		
Identification based trust		
Shared goal (project oriented)		Commitment, Working together
Recruiting manager in vendor's language		
Working together in the project		Personal relationship, Working together
Performance based trust		
Project's early success		Performance
Jointly celebrating completion of interim deliverables		
Showing tangible results		Demonstrability
	Additional results in this study	
	References, Reputation, Investments	Transparency, Confidentiality, Documentation, Consistency, Honesty

9.5.2 Characteristics of trust

One of the significant debates about trust in the literature relates to its characteristics. Three main characteristics of trust are risk, expectations and rationality. In terms of risk, results from this study suggest that 'references' are considered as a starting point to achieving trust in offshore outsourcing relationships. The client recognises the possible risk in the prospective outsourcing project and therefore wishes to ensure the credibility of the vendor before engaging in the relationship. Furthermore, the idea of starting with a small project and then shifting to a large project also shows that the client perceives risk in initiating a full scale project from the beginning. However, these measures do not guarantee success. There could still be a failure because of the vendor or even the client. For example, if client does not pay the agreed amount to the vendor or intentional rejects the deliverables offered by the vendor. Therefore, risk may be inherent to becoming involved in trusting action (Mayer et al. 1995).

This study also reveals that both clients and vendors valued honesty and transparency in the relationship. They also said that there should be a 'working together' approach even in problematic situations. These perceptions are consistent with the view of risk taken by Gambetta (2000), who says that trusting a person means believing that, when offered the chance, he or she is not likely to behave in a way that is damaging to us. In this context, this study indicates that clients and vendors may perceive risk in their relationship but not having the intention to damage each other's interest helps to build trust.

In terms of expectations as a characteristic of trust, this study indicates that the issue of 'hidden expectation' remains challenging for clients and vendors. However, awareness of the importance of this issue is also worth considering. This study indicates that offshore outsourcing relationships have not yet reached the stage where trust is integrated into the relationship so that expectations remain 'positive' and develop into a 'moral obligation' as noted by Tyler (2001). However, the results suggest that clients and vendors aim to remain 'flexible' and 'cooperative' when it comes to tackling each other's 'hidden expectations'.

In terms of rationality as a characteristic of trust in this study, clients are rational in the sense that they make provisions for the possibility of opportunistic behaviour by the vendor. These provisions can be many, such as making a detailed contract, ascertaining

the vendors' credibility through references and small projects, and expecting constant updates on their outsourced project. Vendors seem rational in the sense that they aim to clarify what clients will get out of the project by means of formal documentation and procedures. Vendors also want to establish formal payment procedures so that they receive regular payments for their work. All these rational perspectives do not destabilise trust, but help to build trust in long term relationships (Limerick and Cunnington, 2000; Cook and Emerson 1978). However, being too rational does not help build trust but brings conflicts into the relationship. It is difficult to state conclusively how much rationality clients and vendors may need in order to build a trust-based relationship.

One distinction that emerges between client and vendor is in their approach to the idea of trust development. Clients focused on the soft side of relationships, such as working together and personal relationships with the vendor's employees, whereas vendors focused more on the formal side of relationship issues, such as building trust through international certifications, high maturity processes and transparent operations.

9.5.3. Who requires trust from whom?

One other issue that deserves discussion in this study is *who requires trust from whom?* In this study, all the empirical results suggest that vendors only think about how they can achieve trust from the client. But what about vendors trusting the client? One client did not consider it as important for vendors to trust a client. He said:

> *'Well, in a client-vendor relationship, ultimately we are responsible for the work and outcome, so I don't know whether there would have been a need to trust or not to trust us as a client. The only thing I can see, maybe one of the things to answer your question is in our case we own a percentage of that I mean it is almost kind of implied trust because we own a percentage of the company. It is a given trust. But no, there is nothing that we do to foster trust in ourselves for them'.*

However, vendors require trusting clients mainly in two senses – that they are going to receive payments as agreed, and they receive credible and sufficient inputs into the outsourced project as and when required. If inputs are not provided, the clients' project may suffer. However, fear of losing control over the outsourced work or losing business knowledge may hamper the passing of sufficient information to the vendor. One client said:

'... in addition to the regular payments as agreed to the vendor is the inputs we give to the vendor. We have responsibility from our side as well to make sure that it becomes a successful project. So we have to give enough details and credible inputs, so in that sense the vendor trusting us is also important'.

The fear of losing jobs may also de-motivate some of the clients' employees from cooperating with vendors. However, no empirical evidence was found for this in this study. Furthermore, in one case the client expressed an additional view about vendors trusting them. The client said:

'Yes, I think vendors should trust us, for example, in terms of the future of the project as well, because this is the project for which we haven't got a clear end date, for good reasons really, the project has been kept open-ended but I have to give them as clear a view as possible where the project is heading, and provide them with feedback, particularly as the software is beginning to be used commercially, to see how well it is going'.

9.6. Relationship management model

Based on the empirical results, propositions and their discussion, a model for managing offshore software outsourcing relationships is presented. The purpose of the model is to contribute to the academic understanding of software outsourcing, particularly involving India. There are several definitions of 'model' across disciplines. In this study, the model is the end result of the qualitative data analysis conducted by following grounded theory methodology. Thus in this study 'model' is taken to mean a simplified representation of a phenomenon based on empirical research. The implementation of phase 2 of the strategy for selecting results for the model development is presented here. Following on, Figure 9.1 shows the actual model.

9.6.1 Phase 2: Strategy for selecting themes for the model development

Themes identified for the critical factors and trust building in phase 1, were compared with each other to uncover overlapping themes. These overlapping themes were used in the model. In this sense, the proposed model integrates results from the empirical investigation of critical factors for managing relationships and trust building. The Table 9.8 represents the themes identified for the critical factors and trust building in phase 1. Table 9.8 is reviewed to uncover the overlap between themes across critical factors and trust building. Overlapping themes are presented in Table 9.9

Table 9.8: Themes identified for the critical factors and trust building (representing Table 9.4)

CRITERION 1	Critical factors	Trust building Achieving	Maintaining
Clients and Vendors	Communication	Reference	Commitment
	Process	Reputation	Communication
	Resource allocations	Personal visits	Confidentiality
	Expectation management	Investments	Performance
	Flexibility	Experience	Honesty
	Onsite presence		
	Meetings		
	Commitment		
CRITERION 2	**Critical factors**	**Trust building Achieving**	**Maintaining**
Only Vendors	Cooperation		Transparency
	Transparency		Demonstrability
			Process
Only Clients			Personal relationship
			Working together
CRITERION 3	**Critical factors**	**Trust building Achieving**	**Maintaining**
Only Vendors	Value addition		
		People background	
Only Clients		Prototyping	

Table 9.9: Overlapping themes between critical factors and trust building

CRITERION 1	Critical factors	Trust building Achieving	Maintaining
Clients and Vendors	Communication		Commitment
	Process		Communication
	Commitment		
CRITERION 2	**Critical factors**	**Trust building Achieving**	**Maintaining**
Only Vendors	Transparency		Transparency
			Process
Only Clients			
CRITERION 3	**Critical factors**	**Trust building Achieving**	**Maintaining**
Only Vendors			
Only Clients			

Table 9.9 suggests that four themes – communication, commitment, process, and transparency are central to the relationship management and trust alike. They are presented in the model.

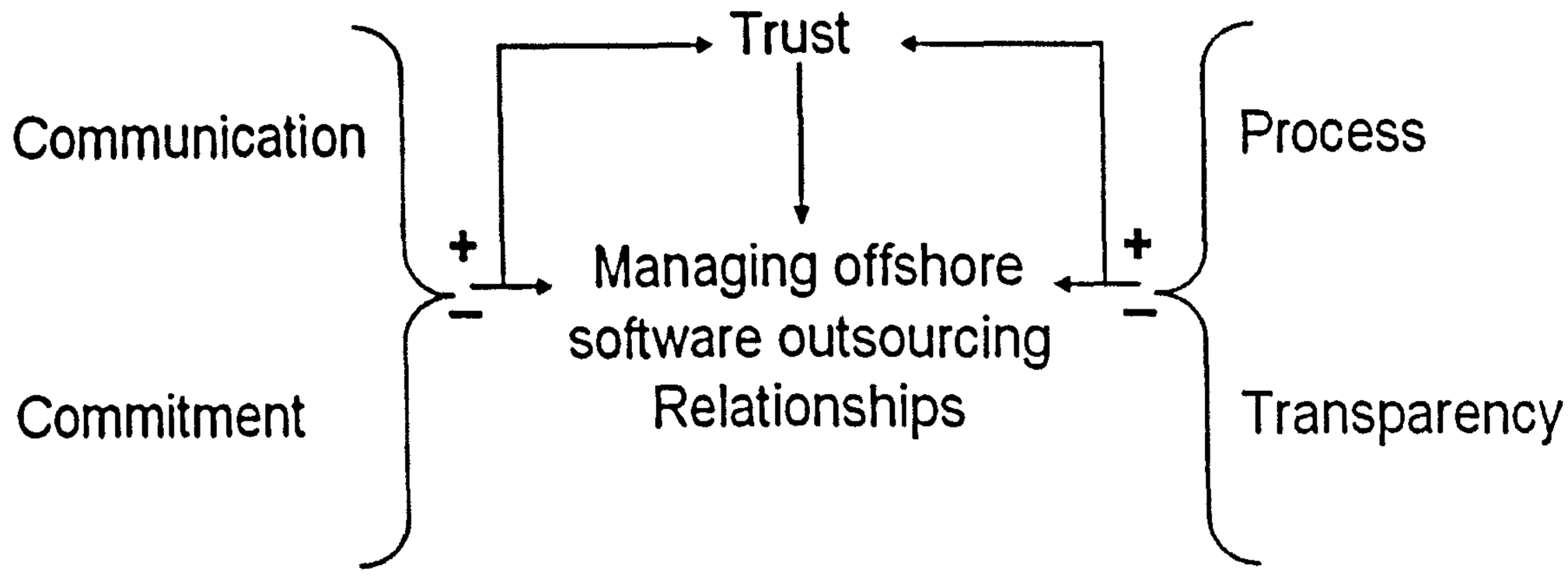
9.6.2. Model for managing offshore software outsourcing relationships

The model presented in Figure 9.1 shows five main areas for managing offshore software outsourcing relationships. Figure 9.1 shows that managing offshore software outsourcing relationships and trust development are in the centre of the model with two arrows pointing towards it. It is meant that communication, commitment, process and transparency affect trust development and overall management of the client-vendor relationship. However, relationship development and trust building can have negative or positive impacts. In other words, if the identified factors are not addressed effectively, it may have negative impact on relationship management and trust building process. This is represented by + and – sign respectively. It is however difficult to establish the severity of the damage or gain in the relationship due to qualitative nature of data and small sample size. Additionally, four factors identified in model are organized only based on their alphabetical order in vertical manner. It means that there is no particular reason to put communication and commitment on left hand side of the figure or process and transparency on right hand side. The essence is just to demonstrate the most central factors emerged in the study in relation to relationship management and trust building in outsourcing relationships. It should be noted that in Figure 9.1 relationship among commitment, communication, process and transparency is not identified. Of course, there could be causal or other kind of relationship between these themes. However, studying such relationships was out of scope of this study. It could be studied further, for example, whether a particular factor or a combination of factors has stronger relation to influence management of the outsourcing relationships or trust building.

The centrality of the model echoes in the overlapping critical factors in relationship management and trust building. Managing relationships is at the core of managing software outsourcing contracts. Therefore, discovering what is central to managing relationships is important. Particularly, exclusive investigation into trust building helped to identify more refined results. The proposed model depicts communication, process, commitment and transparency as most central to managing relationships. Furthermore, in the exclusive investigation into trust building they also emerged as central factors. Hence only four of the identified factors were included in the model. They represent

centrality to relationship management as well as the trust building context.

Figure 9.1: Managing offshore software outsourcing relationships towards India



One could however argue that trust building is also a part of the relationship management. This was in fact recognised during the literature review and therefore a detailed empirical investigation into trust building was conducted. Therefore, that trust, being a separate part of the empirical investigation, did not emerge as a critical factor in managing relationships is not surprising. Interview participants, based on the introduction given at the time of the interview, knew about the exclusive interest in the trust investigation. This could have prevented them from revealing perspectives on trust until they were asked about it. It should be noted that all participants, when they started revealing their perceptions on trust, said that trust building was extremely important to them in managing their offshore outsourcing relationships. Based on the empirical results, and propositions, a key observation suggests that trust development is emerging as a central theme in managing offshore software outsourcing relationships.

The proposed model, presented in Figure 9.1 shows that trust may not develop in the relationship if the identified factors are not addressed effectively. For example, if communication is not efficient or commitment in the project is poor or process driven approach is not followed or actions of vendor are not transparent then trust development will be negatively affected. However, effectively managed communication, process, transparency and good commitments from clients and vendors into the project is likely to foster trust in the relationship. Collectively, communication, process, transparency and commitment are crucial to managing relationships and also affect the corresponding trust development and overall management of the relationship. In the following

subsection, a summary of the central factors is presented.

Communication

Communication turned out to be one of the most central factors in managing client - vendor relationships. Particularly, constant communication, through regular meetings, personal visits and joint work at the client or vendor site emerged as to stimulators for more communication between clients and vendors. The results of the study also suggested that the effectiveness and volume of communication may be hampered as the opportunity of working in close proximity is limited due to substantial geographic distance. Additionally, differences relating to culture, language and time zones may also hamper the communication between clients and vendors. In addition, in the exclusive investigation into trust building, communication also emerged as a critical theme. As part of trust however the importance of communication emerged as to building personal relationships with the key vendor employee and exploring the opportunity of joint work during the project. However, the communication may not be managed effectively if there are substantial difference in culture, language and time zones between clients and vendors. In terms of critical factors, trust building and difficulties, the following propositions relate to communication:

- *Client and vendor should spend time together on the project, conduct regular meetings and build effective communication to manage offshore outsourcing relationships.*
- *Effective communication builds trust in the client vendor relationships. Personal relationship building and joint work by client and vendor may help strengthen the communication and maintenance of the trust between client and vendor*
- *Communication between client and vendor may be hampered by differences in their culture, language, time zones and geographic distance.*

Process

Process driven approach is another emergent central factor, presented in the model. Establishing processes for resource allocation and communication was also considered important in managing relationships. However, client and vendor should be flexible enough to accommodate each other's and project's concerns when following established processes. In other words, processes should not be rigidly followed. They should be established and followed in the interest of effective collaboration and success of the

outsourcing project. Furthermore, processes emerged as a key contributor to providing a comprehensive structure to client and vendor in understanding expectations and building trust in the relationship. However, process driven approach may face challenges if vendor changes the key employees in the project very frequently, or there is an improper knowledge transfer of outsourcing work from either client or vendor. In terms of critical factors, trust building and difficulties, the following propositions relate to processes:

- *Client and vendor should adopt a software process approach (such as CMM), establish a resource allocation plan and communication processes to manage their relationships, with flexibility integrated into the processes*
- *A process-driven approach and project performance in offshore projects may develop trust between client and vendor.*
- *Process in offshore outsourcing may be negatively impacted by a sudden reshuffle of the workforce and improper transfer of work in the relationship between client and vendor.*

Commitment

Commitment, as presented in the model, is also central factor in managing relationships and building trust in the client – vendor engagements. Particularly, client's commitment in conducting adequate knowledge transfer and paying agreed amount and agreed time were important. Whereas, vendor's commitment in putting all the agreed efforts into the outsourced work, delivering outsourcing work at agreed time and being proactive and honest in providing the status of the outsourcing work were considered important in building trust in the relationship. In terms of commitment as a critical factor in managing relationships, client and vendor took a stance of creating more value propositions, maintaining consistent delivery of successful results and mutually cooperating to make the project successful. In terms of critical factors, trust building and difficulties, the following propositions relate to commitment:

- *Clients and vendors should be committed to the outsourcing project as a shared project. Particularly, commitment may be realised by creating more value propositions, maintaining consistent delivery of successful results and mutually cooperating to make the project successful.*
- *Commitment in the outsourcing project and an honest attitude towards each other may help to maintain and develop trust between client and vendor*

- *Perceived loss of jobs due to offshore outsourcing on the client's side and post-contractual matters may hamper overall commitment to the project.*

Transparency

Transparency is presented as another central factor in managing offshore software outsourcing relationships. Particularly, it emerged that clients should be able to have a full, reliable and open access control to the outsourcing project carrying out by the vendors. Additionally, the results produced by vendors should also be accountable and traceable. In terms of trust building, confidentiality of shared information and demonstrability of results and actions emerged as means of greater transparency in the client-vendor relationships.

- *Client and vendor should maintain a transparent relationship and manage each others' expectations.*
- *Ensuring confidentiality of shared information and demonstrability of results and actions will aid greater transparency in the client-vendor relationship. Consequently, this will help in maintaining trust between client and vendor.*
- *The actions of clients and vendors may become less transparent if there are mismatches in expectations, and a perceived loss of control in the relationship.*

9.6.3 Applicability of the model

The scope of the proposed model spans across Indian software vendor companies and their US and European client companies. Although the investigation on which the model was based only covered high maturity India software companies and their clients, it still can be used by other (non-high maturity) software vendor companies and their clients. The scope of this model is questionable if clients are from countries other than USA or Europe and vendors are from India. This is because the approach to relationship management and trust development may differ in other regions. For example, based on this study, a PhD study has been initiated in an Australian university to investigate trust in the Vietnamese software industry.

No specific model for managing offshore software outsourcing projects is yet in use or has yet been presented in the literature except the eSCM-SP, which is still undergoing revisions. This model can well be used with eSCM-SP as it addresses only the relationship management part of the eSCM-SP and it complements what is currently offered by the eSCM-SP. Specifically, the eSCM-SP does not include any detailed

conceptualisation of trust, but only acknowledges the importance of trust. Therefore, this model may well complement the existing eSCM-SP model.

9.6.4 Limitations of the model

The model has not been tested in real outsourcing relationships. Therefore, at this stage, the model may be limited in terms of commercial applicability. However, it has been developed on the basis of empirical data. The model is also not generalisable to for all types of outsourcing. It merely captures the picture of outsourcing in India which can be helpful to the academic researcher, trying to understand outsourcing relationships in India. The other limitation of the model, as explored earlier, is that it may not be applicable in contexts other than the one studied in this investigation. However, the factors identified in the proposed model are highly abstract. Therefore, their applicability in other contexts cannot be completely ruled out. For example, issues such as transparency, communication or process grow out of 'distance,' so the 'offshore' context may be more important than the country to which the software is outsourced. The proposed model does not present the complete process of managing outsourcing contract. It limits itself to management of the client-vendor relationship.

9.7. Guidelines for managing offshore software outsourcing relationships

Based on the empirical results, evidence-based guidelines were developed in this study. The proposed guidelines focus on practical recommendations for managing offshore software outsourcing relationships. Guidelines common to clients and vendors and specific to clients and vendors are presented. The proposed guidelines also partly relate to the model presented in the previous section. Specifically, part of the guidelines suggests particular actions the client and vendor can take to address communication, process, commitment and transparency. Guidelines for the development of mutual trust between client and vendor are also proposed. The practical value and technology transfer may be increased substantially by following the proposed guidelines. These guidelines are based solely on empirical results and are therefore evidence-based. They are certainly applicable to the commercial situation, as detailed, very low level activities are proposed to guide relationship management between client and vendor. However, the underlying empirical results may not be fully representative due to the fact that only six clients were investigated as opposed to eighteen vendors. A full set of guidelines, along with the relevant literature review, is presented in appendix 8.

9.8. Summary

This chapter discussed results of the empirical study. Selected empirical results were brought into this chapter from the empirical investigation presented in chapters 5 to 8. These results were compared across the client and vendor group and the literature. Based on discussion of these results, a total of 18 propositions were identified. These propositions and discussions then helped in developing a model. This chapter proposed two models, one focusing on vendor selection and the other focusing on client-vendor relationship management in offshore software outsourcing. Furthermore, practical guidelines based on the empirical investigation were introduced. The qualitative discussion presented in this chapter helped to bring in state-of-art knowledge and actual results for comparison and to identify the central results of the thesis. The next chapter presents the conclusions drawn from these results and suggests future research directions that emerge from this study.

Chapter 10: Conclusions and future work

This chapter summarises the overall contributions this study has made to the body of knowledge. Results of the empirical investigation and the research methodology used in the study, together with their limitations, are also summarised. To aid the sustainability and continuity of this research, specific action points for future research work and some ongoing activities are described in this chapter.

10.1 Research methodology

In this thesis, the grounded case research approach was used to investigate client-vendor relationships in offshore software outsourcing. The research approach included multiple case studies and grounded theory for conducting empirical investigation. Investigation into 'human' issues such as relationships made case studies and grounded theory the appropriate choices of research methodology.

10.1.1 Data collection

Using multiple case studies, qualitative data was collected from 18 high maturity Indian software vendor companies and 6 of their clients based in the USA and Europe. Nilay Oza spent approximately four months in India to collect qualitative data from high maturity Indian software companies. All vendors were personally visited at their premises to collect qualitative data, whereas data from clients were collected by telephone interviews. Therefore, the collection of client data was somewhat limited as interviewer observations were not possible. However, it was not practically feasible to visit the clients' sites due to their geographic distribution and the time and resources available for the study.

The standardised open-ended interview method was used to collect qualitative data. The interview questions were piloted and Patton's (1990) recommendations on the preparation of interviews were followed. However, this method of data collection is somewhat limited as it reduces the extent to which individual differences and circumstances can be taken into account (Patton, 1990).

Each participating company identified its interviewee based on the criteria provided to them. This may be a signal limitation in terms of bias in the selection of interviewees. It was not possible to directly verify how each participating company identified its

interviewee. However, during the interviews background information on each interviewee was collected to verify that the right person was being interviewed.

10.1.2 Data analysis

To analyse the qualitative data, grounded theory techniques were used in this study. In particular, coding techniques such as open coding, selective coding and axial coding were used. Furthermore, propositions were formulated and theory building was undertaken in pursuit of a grounded approach to the analysis. Based on the results of the analysis and discussion of these results, a model for offshore software outsourcing relationship management was proposed.

One of the limitations of analysing qualitative data is the reliability of views or perceptions identified by interviewees. It is possible that during the interview the interviewee may have censored some comments in order to look good. In addition, interviewees relied on their memories and assumptions about how things were done in other projects. A perception found in multiple cases is, however, unlikely to be completely unreliable. Replication of cases strengthened the results presented in this study. Replication was achieved beyond cross-case comparison in this study. In particular, the investigation was replicated with two groups of cases, clients and vendors. This also increased the reliability and validity of the results. Interviewees in this study had extensive experience in the software industry and outsourcing business and all held senior positions in their companies. This might also increase confidence in the qualitative data.

Another area of concern could be that all the cases studied were 'success cases'. All participating vendor companies had been successful outsourcing vendors for many years. These companies were India's leading software exporters. The clients studied were also some of the major players in their field. Therefore, all the case studies were of success and no negative or failed outsourcing case formed part of this investigation. It could be argued that there was bias in selecting cases. However, the study was intended to investigate 'success' cases so that best practices could be established in the relatively young business area of offshore outsourcing. New and immature outsourcing companies can also use this study as an aid to improving their practices.

10.2. Empirical results

The empirical results of this study were related to four themes – motivators, difficulties, critical factors for managing relationships and critical factors for building trust in relationships – across four distinct research questions. The results were presented as answers to four research questions established on the basis of the literature review and pilot study. The empirical results were qualitatively discussed by bringing in the literature to develop rich insights into how clients may be able to verify a particular motivator. Propositions relating to the discussion were developed. The 'answers' for each research question are summarised here:

Research question 1 What are the motivators for offshore software outsourcing?

The empirical results presented in Chapter 5 relate to research question 1. Key motivators identified in this study were cost savings, quality, flexibility, core competence, higher productivity, faster development, high maturity of the vendor, technical expertise and growth opportunities. The discussion of the motivators helped in developing propositions from the empirical results. A list of propositions identified in this study is presented here:

Proposition 1.1: *Good quality software at lower cost may be an important motivator but its sustainability is questionable.*

Proposition 1.2: *The client's motivation to outsource may also be influenced by the vendor's maturity level and technical expertise, and by the availability of skills in the vendor country and company.*

Proposition 1.3: *The client may be motivated to outsource to secure flexibility in his own resource allocation and to strengthen his core competence*

Proposition 1.4: *The client's motivation for outsourcing may be influenced by the vendor's faster development cycle and high productivity record. These may give the client's product a faster entry to the market.*

Proposition 1.5: *The client may be motivated to outsource in order to eventually enter into the vendor's 'local' market to sell his (client's) own products.*

Research question 2 What are the difficulties in offshore software outsourcing?

The empirical results presented in Chapter 6 relate to research question 2. The key difficulties identified in this study were managing cultural differences, expectation mismatch, language differences, perceived loss of control, distance, time zone

differences, fear of loss of jobs on the client's side, transfer of outsourcing work, workforce reshuffling and post-contractual matters. It was observed that vendors were more concerned about soft issues such as personal habits, etc, in the relationship, whereas clients were more concerned about differences in work culture, for example junior employees being unable to argue against senior staff in a project meeting (on the vendor's side). A list of propositions identified from discussion of the empirical results is presented here:

Proposition 1.6: *Communication between client and vendor may be hampered by differences in their culture, language, time zones and geographic distance.*
Proposition 1.7: *The actions of clients and vendors may become less transparent if there are mismatches in expectations and perceived loss of control in the relationship.*
Proposition 1.8: *Process in offshore outsourcing may be negatively impacted by sudden reshuffles in the workforce and improper transfer of work between client and vendor.*
Proposition 1.9: *Perceived loss of jobs due to offshore outsourcing on the client's side and post-contractual matters may hamper the overall commitment to the project.*

The above propositions suggest that managing offshore software outsourcing relationships is not trouble-free. However, the difficulties identified in managing client-vendor relationships constitute human resource management and communication challenges rather than software-specific challenges. These difficulties also call for more empirical research into the non-technical issues of software engineering and their management.

Research question 3 What are the critical factors in managing offshore software outsourcing relationships?
The empirical results presented in Chapter 7 relate to research question 3. The key critical factors for managing offshore software outsourcing relationships were keeping up constant communication, following a process-driven approach and allocating resources effectively. Other important factors are managing expectations, being flexible, on-site presence of the vendor, holding regular meetings, commitment, transparency in all actions, consistency and value addition. A list of propositions identified from discussion of the empirical results is presented here:

Proposition 1.10: *Client and vendor should spend time together on the project, conduct regular meetings and build effective communication to manage offshore outsourcing relationships.*

Proposition 1.11: *Client and vendor should adopt a software process approach (such as CMM), establish a resource allocation plan and communication processes to manage their relationships, with flexibility integrated into these processes*

Proposition 1.12: *Client and vendor should maintain a transparent relationship and manage each others' expectations.*

Proposition 1.13: *Clients and vendors should be committed to the outsourcing project as a shared project. In particular, commitment may be achieved by creating more value propositions, maintaining consistent delivery of successful results and mutually cooperating to make the project successful*

A model based on the empirical results and their discussion was presented. The model focused on the client-vendor relationships in offshore software outsourcing. It emerged from the empirical study that transparency, commitment, process and communication were replicated in both the critical factors and the trust building investigation. Thus the model showed that transparency, commitment, process and communication may also impact on the development of trust in client-vendor relationship management. There follows a summary of results of the trust investigation:

Research question 4 What are the factors for achieving and maintaining trust in offshore software outsourcing relationships?

The empirical results presented in Chapter 8 relate to research question 4. The key trust-achieving factors in offshore software outsourcing relationships were references, reputation, experience, investments, key people's backgrounds, personal visits, and the vendor's performance in a prototype development. The key trust-maintaining factors in offshore software outsourcing relationships were commitment, a process-driven approach, communication, confidentiality, performance, honesty, transparency, demonstrability, personal relationships and working together on the outsourcing project. These factors were further compared with relationship management factors. Overlapping factors were used to identify important factors contributing towards the building of trust in the relationship. A list of propositions identified from discussion of the empirical results is presented here:

Proposition 1.14: *The client's trust in the vendor in the initial phase of the relationship is influenced by factors such as a personal visit to the vendor's site, references for vendor from other clients, the vendor's reputation, experience, investments, key people's backgrounds or the vendor's performance in prototype development.*

Proposition 1.15: *Effective communication builds trust in the client-vendor relationship. Personal relationship building and joint work by client and vendor may help strengthen the communication and maintenance of trust between client and vendor.*

Proposition 1.16: *Commitment to the outsourcing project and an honest attitude towards each other may help maintain and develop trust between client and vendor.*

Proposition 1.17: A *process-driven approach and performance in an offshore project may develop trust between client and vendor.*

Proposition 1.18: *Ensuring confidentiality of shared information and demonstrability of results and actions will aid greater transparency in the client-vendor relationship. Subsequently, this will help in maintaining trust between client and vendor.*

The above propositions suggest that, initially, trust is mainly achieved by checking previous data available to prove the credibility of the vendor. However, prototyping is another way to achieve trust by reviewing the vendor's capability relevant to the outsourced work. Then, to maintain the trust achieved, several factors must be taken care of. The most central ones suggest that effective communication, transparent actions, a process-driven approach and commitment to the project's success would help to build trust in the relationship.

Answers to the above research questions helped to develop the model and guidelines which turned out to be key contributions of this study. The model or guidelines do not answer research questions but integrate the answers to form the key contributions. Particularly, the model proposed in this study only uses the answers of research questions 3 and 4. Guidelines however use answers of research questions 2, 3 and 4. That means that answers to research question 1, due to the focused scope of the model and guidelines, are not used in the model development or guidelines. Answers to all research questions however are utilised in the discussion of the results in relation to the literature.

10.3 Major contributions

This thesis essentially contributes to academic and practitioner communities' knowledge on offshore software outsourcing relationships. For the academic community, this thesis gives a thorough understanding of offshore outsourcing practices in Indian high maturity software companies. The proposed model also offers an opportunity to understand the outsourcing relationship between Indian vendors and their clients. The model represents the most central empirical results from the study. Indeed the underlying empirical results and propositions strengthen the understanding of the model. The literature relevant to the study built the bases for empirical study. Henceforth, findings from the literature were also utilised in selecting the themes for their escalation to discussion and model development. For example, those themes which did not replicate across both groups – clients and vendors, were compared with literature for their replication and subsequently considered for the discussion. However, the overall model building process was inductive and therefore it was firmly grounded in the empirical study and context rather than the literature.

Practical guidelines are presented in this study by converting each empirical result into a directly applicable guideline for clients and vendors. The guidelines are evidence-based and address relationship management and trust building between clients and vendors. Evidence-based guidelines are also part of the medical literature and therefore the software engineering body of knowledge is further enhanced by this study. Moreover, the contributions made by this study develop a sound platform for future research work.

10.4. Application of research results

The results of this research can be applied directly to offshore software outsourcing projects. The results of this study are particularly relevant to companies outsourcing to India. In addition, the study may be relevant to companies outsourcing to high maturity software companies. Motivators identified in this study should help new clients who want to outsource to India. Clients will not only get an idea of the strengths of the Indian software industry but will also be able to evaluate whether the identified motivator can be met by their prospective vendor. Furthermore, the difficulties identified in this study should help clients understand what kind of challenges they may come across during an offshore outsourcing project. The identified difficulties can also help clients to develop a more effectively structured relationship with the vendor. The motivators and difficulties identified in this study will also help vendors. Vendors who are relatively new to the offshore outsourcing market will learn more about what kind of

strengths they can build up to secure more offshore outsourcing contracts. Vendors can also learn from the difficulties and demonstrate to their clients how capable they are of guarding against the difficulties of offshore outsourcing.

Furthermore, the critical factors identified in this study should help both clients and vendors to effectively manage their outsourcing relationships and to build trust in the relationship. In this context, this study has presented guidelines for clients and vendors. The proposed guidelines presented in Appendix 8 will directly help clients and vendors to better understand and manage their offshore outsourcing relationships. They may only be relevant to US and European companies, outsourcing to Indian software companies. Nevertheless, the guidelines only present perspectives of six clients, which may signal more cautious application in the commercial outsourcing relationships. The critical factors identified in this study are going to be published in the fourth edition of the book Global Information Technology Management.

10.5. Future work

The most obvious future study would be replication of this study in other contexts. Replicating this study will generate more conclusive results for managing offshore software outsourcing relationships. A more substantial theory of offshore outsourcing can emerge once empirical saturation is achieved through results in different contexts. It was learnt recently that a research student in Australia has already started to replicate this study to understand trust building in the Vietnamese software outsourcing industry. An academic book focusing on the four themes of this study can be developed from this thesis. Additionally, a practitioner handbook can be developed on the basis of the empirical results and guidelines presented in this thesis. Such a book would be very useful to outsourcing clients and vendors.

The theoretical propositions identified in the discussion of the results (in Chapter 9) are prime candidates for detailed empirical inquiry as hypotheses in similar or different outsourcing contexts. The model, which itself is based on empirical results, can also be further refined into a theory base for software outsourcing.

The guidelines presented in this study are preliminary and require further validation. This can be done by getting companies to use them in real outsourcing relationships. This will help create a firmer basis for the guidelines and their use in offshore software

companies. The other possible future work is investigating failed outsourcing projects. Failed outsourcing projects will help in understanding what can go wrong in managing offshore outsourcing project. This will also help to further validate the difficulties of offshore software outsourcing presented in this study. The literature review in this study brings insights into trust and relationship management from other established disciplines, such as management, social science and economics. In doing so, several software engineering and management specific points such as transaction cost economics, incomplete contract and trust issues are highlighted. These points can be important research directions to increase inter-disciplinary knowledge in software engineering.

In this thesis, only high maturity software companies and their clients were studied. These high maturity companies were found to follow best practices internally and to manage outsourcing projects well. However, this may be investigated by replicating the study with small, low maturity software companies and their clients. Nilay Oza has already started collecting data from small size, low maturity software companies in India. Future work may also focus on a specific offshore outsourcing relationship for a long period of time. This will help to collect real time data throughout the relationship. Such case studies, if undertaken with a few companies, can significantly extend the contribution to knowledge.

Nonetheless, the grounded case approach used in this study can also be further developed. Empirical software engineering studies planning to use grounded theory and case studies can take this study as a reference point and use it in different software engineering contexts. Subsequently, a stronger theory base for software engineering studies can be created, which is perhaps, missing from the literature at present. In the long term it may also provide opportunities for identifying how grounded theory maps to software engineering studies, compared with its core discipline, i.e. social science.

10.5.1 Actions taken on identified future work

One should take the opportunity to note that some of the future work identified in this study has already been addressed in the ongoing research work of Nilay Oza. A few examples are presented here. Economics-related issues identified in this study, such as transaction cost economics and game theory, are being further investigated by Nilay Oza. In particular, the game theory principles were presented at an Economics-Driven

Software Engineering Research workshop (EDSER) (Oza, 2006). The grounded case approach is being studied from the social science method perspective jointly with Professor Mäkelä. A publication on advances in empirical software engineering research through the development of grounded theory is envisaged soon. Similarly, a plan to develop this thesis into an academic and a practitioner book is being reviewed with other experts in software engineering and management. This research work is being undertaken as part of Nilay's current job. Nilay is currently working as a senior researcher at Helsinki University of Technology (HUT), Finland and as a mentor in the European Commission's EU-INDIA Economic Cross Cultural Programme (ECCP) run by the Dipoli Lifelong Learning Institute at HUT. In the ECCP programme, critical factors in relationship management are studied empirically. To date, qualitative data from four case studies has been collected to evaluate the prospects of software business relationships between Finland and India.

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Appendices

Appendix 1: Interview script (Including interview questions)

Appendix 1 presents the interview script used during the interviewing session at the participating company. The following text was used as format to give initial information to the interviewees in the beginning of the interview.

Greetings (Good afternoon or Good morning) and welcome. Thanks for taking the time to join this meeting on outsourcing. The purpose of this meeting is to obtain your views on offshore outsourcing relationships. My name is Nilay Oza, and I am undergoing research study in software outsourcing at the Department of Computer Science, University of Hertfordshire, UK.

Our research group, Centre for Empirical Software Process Research works on variety of software engineering research issues. Currently, we are undertaking research project on software outsourcing. We have investigated critical factors in software outsourcing from the literature. This meeting will help us to empirically evaluate critical factors in software outsourcing relationships.

I want to tap into your experiences and your opinions about the outsourcing. There is no right or wrong answer. I expect that you will have different points of view. Please feel free to share your point of view.

I am tape recording the session because we do not want to miss any of your comments. No names will be included in any reports. Your comments are strictly confidential. Ethics approval has been received for this study.

I mainly like to take your perceptions on what motivates offshore outsourcing, what difficulties you face, what you think are the critical factors in managing offshore outsourcing relationship and the role of trust in it. I have designed a set of questions that will help us structure the whole session.

Do you have any questions before we start the questions?

Let's begin.

A1.1 Interview questions

The following interview questions were asked. The description under each question explains the reason for asking a particular question.

A. Can you tell something about yourself?
The literature on qualitative research identifies the importance of general introductory questions in the beginning of interview. This question helped interviewee to settle down and encourages them to involve in the meeting.

- Can you tell something about your most recent outsourcing project?

This question helped interviewee to talk about his or her most recent outsourcing experience. The objective of asking about the most recent outsourcing activity is to help interviewees respond quickly and easily to the question. I found in the pilot study that interviewees started talking about the overall setup in this question as interviewees were

asked to talk about last outsourcing project. Therefore, it was changed to 'most recent' in the above question.

- How have you been involved in outsourcing arrangements?

This question was linked with the previous question and encouraged interviewees to talk about their involvement in the overall outsourcing arrangements of the company. I hoped that this question would encourage interviewee to talk about the overall outsourcing arrangements within the company with the emphasis of his/her involvement in the arrangements.

- What do you think about the advantages of offshore outsourcing?
- Do you see any disadvantages of offshore software outsourcing?

Previous questions set the basis for interviewees to talk about their role in the company. This question helped to get interviewee's general feeling towards outsourcing arrangements. We hoped interviewees to identify strengths and weaknesses of outsourcing. The questions are split into two separate questions focusing advantages and disadvantages because this gives interviewee more focused direction to think about.

- How do you manage relationship with the client (/vendor)?

In this question abstract opinions are narrowed down to specific issues. This question specifically asked about company's strategy in managing relationships with clients. From the responses of this question, the basis for identifying critical factors in managing relationships will be developed.

- What kind of difficulties you have come across in managing relationships?

This question tried to investigate more into the answers of the previous question by asking about the difficulties experienced by interviewees in managing outsourcing relationships.

- Can you list important factors in managing effective outsourcing relationships?

This question helped to combine previous two questions and encouraged interviewees to focus on the important factors in managing effective outsourcing relationships.

- What do you think about the role of trust between in outsourcing relationships?

This question specifically investigates trust in client – vendor relationships. Trust is investigated in terms of achieving trust and maintaining it in the relationship.

Appendix 2: Codebook presenting meaning of each theme

Codebook		
Code	Term	Description
c0	**Personal background**	Relates to personal demographic information of the interviewee for example name, education, experience, designation and role of the interviewee in the organisation.
c0.1	Name	Name of interviewee
c0.2	Education	Educational background of interviewee
c0.3	Experience	Experience of interviewee in the IT industry
c0.4	Designation	Designation of interviewee in the organisation
c0.5	Role	Role of the interviewee in outsourcing activities
c0.6	Highly mature	CMM level 4 or 5 companies are considered highly mature companies
c1	**Outsourcing work**	
c1.1	Most recent project	The most recent outsourcing project carried out by the vendor
c1.2	Reason of outsourcing	What are the imperatives/motivations of the client to outsource
c1.3	Nature of work	Nature of outsourcing work carried out by the vendor. How particular outsourcing work is being carried out. One which the vendor gives the example about outsourcing project
c1.4	Capabilities	Vendor's capabilities in outsourcing business to complete the outsourced work, it also covers company's presence in different domains and infrastructural capabilities as well
c1.5	People background	Skilled workforce available to the vendor and their backgrounds and credentials which help to the success of outsourcing
c2	**Motivators**	
c2.1	Cost savings	The cost savings gained by the client from the offshore software outsourcing
c2.2	Flexibility	Flexibility gained by outsourcing, clients may not need to worry about recruiting or sacking people in the peaks and turfs based on the requirement, they also do not need to worry about the resources or the technologies they are looking for.
c2.3	Quality	Quality of work provided by software outsourcing vendors.
c2.4	High maturity of vendor	process maturity certifications such as SW-CMM and SW-CMMI achieved from vendors. Maturity level certified may be four or five.
c2.5	Core competence	Concentrating more on core business or expertise of the company and outsource the non-core activity such as software
c2.6	Higher productivity	Total production capacity may be increased by software outsourcing compared to in-house production capacity
c2.7	Faster development	Time required to develop the outsourced software in-house may be much longer than what vendors take time to develop it. by offshore outsourcing, development of software may become faster.
c2.8	Growth opportunities	vendors' local market can be tapped in for new business opportunities. offshore outsourcing vendor may become an important link in entering his local market.
c2.9	Skills availability	It is easy to develop the team quickly for software outsourcing projects, skilled workforce/human resource available in India, skills shortages on client side in software development
c2.10	Time zone differences	Software development work can be done for twenty four hours, round the clock, follow the sun approach to work

c2.11	Technical expertise	Vendors' niche technical expertise in software, expertise in particular software packages
c3	**Difficulties**	
c3.1	Cultural differences	In outsourcing, people with different cultures work together, how differences in culture such as food habits, accent, local customs, gestures and religious matters can create troubles. Cultural differences may also refer to work culture where companies from two different countries may have different approach to work etc.
c3.2	Expectation mismatch	Hidden expectations that may be considered to be satisfied without agreeing formally on the contract.
c3.3	Language	Client and vendor may not have common language of communication, or they may have common native language. Language differences may create problems in communication and in the relationship
c3.4	Loss of control	Perceived loss of control, by outsourcing, by transferring work to the vendor, vendor will have all the control over outsourced project. Could be fear of losing control
c3.5	Loss of jobs	Offshore outsourcing to vendor that may lead to loss of jobs at client side or perceived loss of jobs that may demotivate client employees to cooperate vendor counterparts in transferring outsourcing work.
c3.6	Transfer of work	For the outsourced work to be performed necessary information and resources must be transferred from the client to the vendor and after the work is complete, the work should also be transferred back to client.
c3.7	Lack of client's experience	Vendor may have very long experience in outsourcing, and client might be doing it first time, this imbalance of experience may create difficulty
c3.8	Distance	Geographic distance between client and vendor in offshore outsourcing
c3.9	Lack of access	Due to distance and other factors, it may be difficult access vendor's work, vendor may also have difficulty in accessing required resourced or information for outsourcing work from client
c3.10	Getting maturity	If vendor is highly mature and very experienced in software outsourcing, then, his client, if new or having very little experience, can create difficulties in the relationship
c3.11	Loss of business knowledge	Knowledge transfer is required in outsourcing development. So vendors get the business knowledge with the outsourced work from the client. There is perception of losing this business knowledge (while transferring) and the future exploitation of it from the vendor
c3.12	Time zone differences	It can be difficult if project manager has to work for many odd hours, to cope with different time zones in different outsourced projects, impact on social or personal life of the employees working at odd times
c3.13	Lack of domain knowledge	Sometime vendor does not have enough knowledge about the client's business domains which may lead to the difficult situation in understanding the requirement
c3.14	Workforce reshuffling	Changing workforce from one outsourcing project to another.
c3.15	Post contractual matters	Issues arising after the contractual period, after the software is delivered to client by vendor.
c4	**Critical factors (managing relationships)**	
c4.1	Communication	Communication that take place between client and vendor on a regular basis in different forms
c4.2	Process	Processes followed by vendor to complete the outsourced work successfully. It comprises process of for example, communication, delivery, development etc. (an overall process driven approach).
c4.3	Resource allocations	Resources allocated by the vendor for the outsourcing project in terms of technical resources allocated, people allocated, infrastructure setup or any other resources allocated for the outsourced work

c4.4	Meetings	Regular meetings organised by both organisations to discuss the status and the progress of the outsourced work, vendor regularly seeks feedback from the client about the outsourced work
c4.5	Cooperation	For outsourcing success, how it is useful to cooperate by contributing the necessary inputs (from the client and the vendor side). How both organisations can support/educate each other in tough situations. During the engagement, both should have common goal of successful completion towards outsourced work and should treat each other as partner rather than client-vendor
c4.6	Expectation management	Both clients and vendors should have clear expectations about what they are going to get out of the outsourcing work. The balance or the management of these expectations are considered crucial
c4.7	Transparency	The actions and outcomes of vendors' work should be transparent in terms of the communication that take place, processes followed or any other actions performed in respect to the outsourced work
c4.8	Consistency	How consistently (timely) vendor can deliver the outsourced services/work
c4.9	Proactive	Vendors views about reporting the client regularly about the status of the outsourced work and getting their feedbacks on the work is necessary
c4.10	Domain expertise	Vendor's domain expertise (competencies) to complete the outsourced work and to satisfy the client's requirements in a specific domain
c4.11	Value addition	How vendor can add value to the outsourced work which can be more beneficial for the client
c4.12	Commitment	How committed the vendor is in completing outsourced work successfully, how serious efforts are executed from vendor for the outsourced work, It may be referred as vendor has to put serious efforts for not losing the business
c4.13	Demonstrability	Demonstrability of the work done and articulating the facts in a right manner to manage relationships
c4.14	Onsite presence	In outsourcing, usually vendors have onsite presence. How relationship is managed onsite is considered important in outsourcing relationships, It also refers to the vendor going to onsite location now and then to meet the client
c4.15	Honesty	Working honestly in outsourcing relationships. Honesty required at both ends in transactions.
c4.16	Confidentiality	Many outsourced services/products also carries sensitive information which should be treated with strict confidentiality by the vendor and they should be able to demonstrate that
c4.17	Flexibility	Vendors should be flexible in adjusting with the client's requirements and expectations upto the extend they can to aid better relationship
c4.18	Payment	Remuneration that client needs to pay to vendor as agreed in the contract
c5	**Trust building**	Trust is investigated at two levels. 1. Initial trust when outsourcing relationship has not started and 2. after the relationship has started
c5.1	Trust achieving	How vendor achieves first time (initial) trust when outsourcing engagement has not started or just started.
c5.1.1	References	Vendor's opinion about how references from their previous clients is useful to them in achieving trust from the client
c5.1.2	Experience	How vendor's experience in the outsourcing industry helps to gain trust from the client
c5.1.3	Reputation	Reputation of the vendor company in providing outsourcing service/work in the client community, Reputation of the brand name is also referred here. Vendor's opinion about how certifications from international organisations/committees are helpful to them in achieving trust from the client. Word of mouth is the experiences shared informally between companies about each other
c5.1.4	Personal visits	Vendors views about the client visits to their premises, how it can help gaining trust from the client
c5.1.5	People background	Skilled workforce available to the vendor and their backgrounds and credentials which help to the success of outsourcing

c5.1.6	Investments	Vendors present the financial strength and willingness to invest in the outsourced work to give the best possible outcome
c5.1.7	Presentation	Vendor representative give initial presentation to outsourcing client about the their capabilities and plan of actions in doing the outsourced work
c5.1.8	Prototyping	Client may outsource very small part of the whole project first and reviews the whole engagement. This refers to prototyping of the outsourcing project. Trust is achieved if the client satisfies with the performance of vendor.
c5.2	Trust maintaining	Investigation of trust factors when outsourcing relationship has started (in presence).
c5.2.1	Transparency	How vendor's transparent actions/outcomes can help to gain more trust. It also refers how client is transparent in sharing the necessary information in outsourcing engagement
c5.2.2	Demonstrability	Demonstrability of the work done and articulating the facts in a right manner which can help in gaining trust.
c5.2.3	Honesty	How vendor's honesty assist in gaining trust, honesty here is referred in terms of presenting the real facts about the outsourced work, reacting proactively if something is wrong, and performing honestly with the client in terms of outsourcing operations
c5.2.4	Process	Processes followed by the vendor to complete the outsourced work successfully. Some vendors also emphasised process driven approach to gain trust
c5.2.5	Commitment	How commitment to the outsourced work can help vendor to gain trust from the client. It also comprises that In vendor's opinion, it is better to under commit and than over deliver rather than doing over commitment and under deliver which can be destructing in gaining the trust.
c5.2.6	Communication	How communication can help building trust between clients and vendors
c5.2.7	Consistency	How consistently you can maintain trust from the client. How consistently vendor can deliver the outsourced services/work successfully, how consistently vendor can maintain trust from the client
c5.2.8	Understanding	Understanding between clients and vendors in transacting with each other.
c5.2.9	Confidentiality	Many outsourced services/products also carries sensitive information which should be treated with strict confidentiality by the vendor and they should be able to demonstrate that
c5.2.10	Performance	You have to perform the work to gain the trust, it is based on performance
c5.2.11	Personal relationship	Personal relationship between key employees from vendor and client side who are constantly working together in outsourcing helps maintain trust.
c5.2.12	Working together	Outsourcing requires both client and vendor to work together as if they are working on joint project, they should work together to maintain trust in the relationship
c5.2.13	Documentation	Every action and process should be documented to increase accountability in the relationship. Documentation of processes, outcomes and then exchanging such formally documented processes helps maintain trust.

Appendix 3: Coding techniques

This appendix presents details on how the empirical analysis was conducted. Grounded theory techniques – Open coding, Axial coding and Selective coding are presented here in the context of the analysis conducted in this study.

Open coding

Open coding does the initial categorisation of the transcript. In this study, firstly, each transcript was read through to get the overview of the transcript. To conduct open coding, each transcript was read through and relevant themes were identified. Themes were named based on codebook meaning associated with a particular statement. If a new theme emerged, the theme and meaning associated to it, was added to the codebook.

Figure A3.1: An excerpt from the transcript

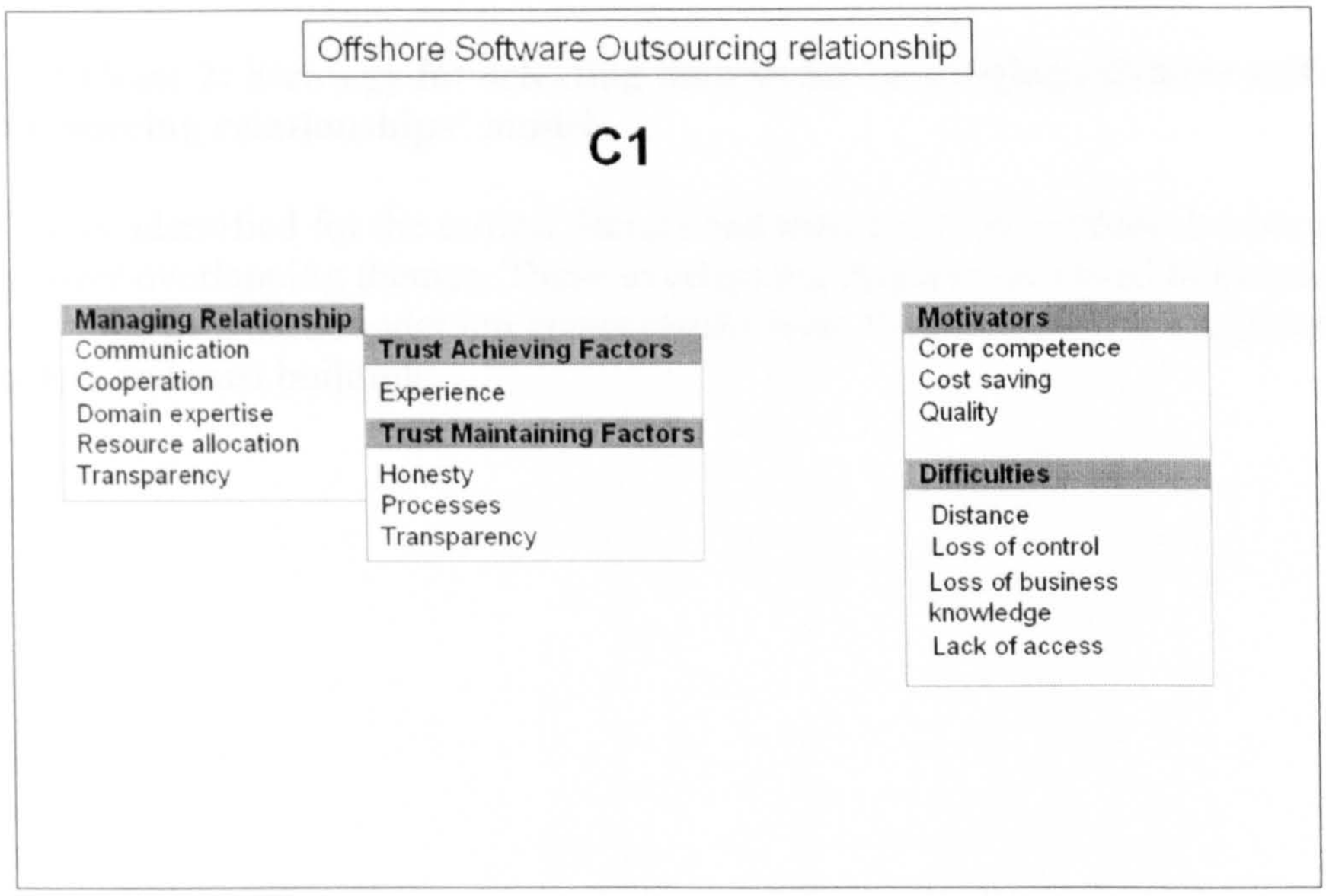
N Can you list important factors in managing effective outsourcing relationships?
L I would rank our onsite presence at client side as very important factor. Because the client sees the face and gets the voice of the guys over there and that creates lot of comfort, he can pick up the phone and can talk very easily or meet up with the person if something goes wrong, that is very important, and the client values this very high, if you don't have onsite presence, and just have an offshore play, I think it will be difficult for the company. Number two, I will say commitment, if you comment something, the ability to deliver it and you actually deliver it are very important. Number three, I would say is to create additional values for client. Because, client may be happy with your work over first month, three months, six months, one year but can you retain that client for long? You can only do that by providing value added services may be by improving productivity or processes. For example, he is happy with three product sales an hour, can you suggest something to make it four or five through your competencies? That brings lot of excitement and interests in client and he also believes in the vendor and start trusting the vendor at the great extend.

It is seen in Figure A3.1 that three themes were identified from the sample text of one case transcript. They are highlighted with the yellow mark. N represents Nilay (Interviewer) and L is the initial of the interviewee. Similarly, all transcripts of all the cases were used to identify relevant themes in each case. The axial coding then started.

Axial coding

Themes identified through open coding were grouped in five different areas. Figure A3.2 shows an example of one case, presenting all themes relevant to that case in five different areas – motivators, difficulties, relationship management, trust achieving factors and trust maintaining factors. These areas represent four main research questions identified in the study. The design of the presentation was just used for the flexibility and it does not convey any specific meaning except that the themes were grouped under their higher level 'areas'. C1 in Figure A3.2 represents company 1.

Figure A3.2: Axial coding of the themes identified in open coding



To increase the traceability of the coded themes, coded themes were related to their corresponding interview quotes. This was done through Microsoft Powerpoint-2003. Basically, each theme is clickable. When clicked, corresponding quotes from a case transcript against which it was identified are shown in a text box. Although this does not relate to axial coding, it helped later, to review the analysis and ensure the traceability of theme to its root level of quote.

Additionally, all the themes, across all cases were merged into the form of matrices to get the overall picture of the themes. All matrices are presented in appendix 4. Matrices were developed using Microsoft Excel-2003 package. With the same package, themes identified in the matrices were used to develop charts. Charts were presented in the results chapters (Chapters 5, 6, 7, 8). Selected themes were carried forward from the results chapters (chapter 5, 6, 7, 8) to the Discussion chapter for further discussion and model development. Here, the selective coding comes into use.

Selective coding

A strategy was established to select the results for further discussion and model development. Based on the selected results, propositions were also presented in the discussion chapter. The complete breakout of the strategy (for phase 1, please refer to page 132, section 9.1 and for phase 2, page 164, section 9.6.1) is presented in chapter 9. Summary of the phases in presented here.

A3.1. Phase 1: Strategy for selecting themes for the discussion

A theme (which emerged in the literature review and empirical investigation) is carried forward to the discussion chapter if it satisfies at least one criterion in the strategy. Each theme is reviewed against the following three criteria (in order):

Criterion 1: A theme that was identified by both groups - client and vendor.
Criterion 2: A theme that was not identified by criterion 1 but is identified in at least half of the total number of case studies in one group – client or vendor.

Criterion 3: A theme was not identified by criterion 1 and criterion 2 but is overlapping with the theme identified in the literature.

A3.2 Phase 2: Strategy for selecting themes for 'managing offshore software outsourcing relationships' model

Themes identified for the critical factors and trust building in phase 1 were compared to uncover overlapping themes. These overlapping themes were used in the model. In this sense, the proposed model integrates results from the empirical investigation of critical factors and trust building.

Appendix 4: Matrices developed from transcript analysis

The tables presented from A4.1 to A4.10 in this section are matrices developed from analysis of the transcripts. The matrices present the coded themes (using open and axial coding). Rows in the tables show themes and columns show corresponding case companies. '1' and '0' indicates whether a particular theme has been identified ('1) or not ('0'). The last column in the tables, 'Replication' presents the total number of times each theme replicated across case studies. For example in Table A4.1, in the second row, against Flexibility, 11 is presented in the 'Replication' column. This means that flexibility replicated in 11 cases out of 18 cases.

A4.1 Motivators of offshore software outsourcing - VENDORS' perceptions

Themes/Companies	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	Replication
Cost savings	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18
Flexibility	0	1	1	1	0	1	0	1	0	1	0	0	1	1	0	1	1	1	11
Quality	1	0	0	1	1	1	1	0	0	1	1	1	1	0	1	1	0	0	11
High maturity	0	0	0	0	1	0	1	0	1	1	1	1	1	0	1	1	0	1	10
Core competence	1	0	0	0	0	0	1	0	1	0	0	0	1	1	1	1	1	0	8
Higher productivity	0	1	1	0	1	1	0	0	0	0	0	0	1	1	1	1	0	0	8
Faster development	0	1	0	0	1	0	0	1	0	1	0	0	0	0	1	1	0	1	7
Growth opportunities	0	0	0	0	0	0	0	1	0	0	1	1	1	0	0	1	0	1	6
Skills availability	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1	6
Time zone differences	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1	5

A4.2 Difficulties in offshore software outsourcing - VENDORS' perceptions

Themes/Companies	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	Replication
Cultural differences	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	16
Expectation mismatch	0	1	0	0	0	0	1	0	1	1	1	1	1	1	1	0	1	0	10
Language differences	0	1	0	1	0	0	1	0	1	0	1	0	1	0	1	0	0	1	8
Loss of control	1	0	0	0	1	0	0	0	0	1	0	1	1	1	1	0	0	1	8
Loss of jobs	0	0	1	0	1	1	1	0	1	1	0	0	0	1	0	0	0	1	8
Transfer of work	0	0	1	0	1	0	0	1	1	0	1	1	0	1	0	0	1	0	8
Lack of client's experience	0	0	0	0	1	0	0	0	0	0	1	1	1	0	0	1	0	1	6
Distance	1	0	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	5
Lack of access	1	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	5
Getting maturity	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	4
Loss of business knowledge	1	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4
Time zone differences	0	0	0	0	0	1	0	1	0	0	0	1	1	0	0	0	0	0	4
Lack of domain knowledge	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2

A4.3 Critical factors in managing offshore software outsourcing relationships - VENDORS' perceptions

Themes/Companies	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	Replication
Communication	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	17
Process	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17
Resource allocation	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16
Meetings	0	0	0	0	1	0	0	1	1	1	1	1	1	0	1	1	1	1	11
Cooperation	1	1	0	0	0	0	1	1	1	0	1	1	1	1	1	0	0	1	11
Expectation management	0	1	0	0	1	0	1	0	1	0	0	1	0	0	1	1	1	1	9
Transparency	1	0	1	1	0	1	0	1	0	0	1	0	1	0	1	0	1	0	9
Consistency	0	0	1	0	0	1	0	1	1	1	0	1	0	0	0	1	0	1	8
Proactive	0	0	0	0	1	1	0	0	1	1	0	1	1	0	0	1	1	0	8
Commitment	0	0	0	1	0	0	1	0	1	0	0	1	0	0	1	0	1	1	7
Value addition	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	1	7
Domain expertise	1	0	0	1	0	0	1	0	1	0	1	1	0	0	0	0	0	1	7
Demonstrability	0	0	1	1	0	0	0	0	0	0	1	1	0	0	1	0	1	0	6
Onsite presence	0	0	1	1	0	0	0	0	1	0	1	1	0	0	0	1	0	0	6
Honesty	0	0	0	0	1	0	0	1	0	0	0	1	0	1	0	1	0	0	5
Confidentiality	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	3
Flexibility	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2

A4.4 Critical factors in achieving trust in offshore software outsourcing relationships - VENDORS' perceptions

Themes/Companies	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	Replication
References	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0	14
Experience	1	1	1	1	1	0	1	0	0	1	0	1	0	0	1	0	0	0	9
Reputation	0	0	1	1	1	0	0	0	0	1	0	0	0	1	0	1	0	0	6
Personal visits	0	0	1	0	0	0	0	1	1	1	0	0	0	0	0	1	0	0	5
People background	0	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	1	0	5
Investments	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	4

A4.5 Critical factors in maintaining trust in offshore software outsourcing relationships - VENDORS' perceptions

Themes/Companies	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	Replication
Transparency	1	1	1	0	0	1	0	1	1	0	1	0	0	0	0	1	1	1	10
Demonstrability	0	0	0	1	0	1	0	0	0	0	1	1	1	0	1	1	1	1	9
Honesty	1	0	1	0	1	0	1	1	0	0	0	0	1	0	1	1	1	0	9
Process	1	0	1	0	1	1	0	0	0	0	0	1	1	1	1	0	0	1	9
Commitment	0	0	1	0	1	0	1	1	0	0	1	0	1	1	1	0	0	0	8
Communication	0	0	1	0	0	0	1	1	1	0	1	1	0	1	0	1	0	0	8
Consistency	0	1	1	1	0	1	0	0	0	1	0	1	0	1	0	0	0	0	7
Understanding	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	1	0	0	7
Confidentiality	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	4
Performance	0	0	1	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	4

A4.6 Motivators of offshore software outsourcing - CLIENTS' perceptions

Themes/Companies	C1	C2	C3	C4	C5	C6	Replication
Cost savings	1	1	1	1	1	1	6
Skills availability	1	1	1	1	1	1	6
Quality	1	1	0	1	1	1	5
Flexibility	1	0	1	1	1	1	5
Technical expertise	0	1	0	1	0	1	3
Core competence	1	0	0	0	0	1	2
Higher productivity	0	1	0	0	0	1	2
Faster development	0	1	0	0	0	0	1

A4.7 Difficulties in offshore software outsourcing - CLIENTS' perceptions

Themes/Companies	C1	C2	C3	C4	C5	C6	Replication
Loss of control	1	0	0	1	1	1	4
Distance	1	0	0	0	1	1	3
Postcontractual matters	0	1	1	0	0	1	3
Workforce reshuffling	0	1	1	0	0	1	3
Language	0	0	1	1	1	0	3
Cultural differences	0	0	0	1	1	1	3
Timezone differences	1	0	1	0	0	0	2
Expectation mismatch	0	0	0	1	0	0	1

A4.8 Critical factors in managing offshore software outsourcing relationships - CLEINTS' perceptions

Themes/Companies	C1	C2	C3	C4	C5	C6	Replication
Communication	1	1	1	0	1	1	5
Resource allocation	0	1	1	0	1	1	4
Flexibility	1	0	0	1	1	1	4
Onsite presence	0	1	1	1	1	0	4
Expectation management	0	1	1	0	1	1	4
Process	0	1	1	0	1	1	4
Meetings	0	1	1	0	0	1	3
Payment	1	0	0	0	0	1	2
Commitment	0	1	0	0	0	1	2

A4.9 Critical factors in achieving trust in offshore software outsourcing relationships – CLIENTS' perceptions

Themes/Companies	C1	C2	C3	C4	C5	C6	Replication
Reference	1	1	1	0	1	1	5
Experience	1	0	0	1	1	1	4
Reputation	0	1	0	1	1	1	4
Personal visit	1	0	0	0	1	1	3
Presentation	0	1	0	0	0	0	1
Investments	0	1	0	0	0	0	1
Prototyping	0	0	1	0	0	0	1

A4.10 Critical factors in maintaining trust in offshore software outsourcing relationships - CLIENTS' perceptions

Themes/Companies	C1	C2	C3	C4	C5	C6	Replication
Peronal relationship	1	1	0	1	1	1	5
Performance	0	1	0	1	1	1	4
Working together	0	0	1	1	1	1	4
Honesty	1	0	0	1	0	1	3
Documentation	0	1	0	0	0	1	2
Commitment	0	1	1	0	0	0	2
Confidentiality	0	0	1	1	0	0	2
Communication	0	0	1	0	1	0	2

Appendix 5: Inter-rater reliability test results

Appendix 5 presents the results of the inter-rater reliability test. The test was conducted twice as after the second time agreement rate between two raters on coding scheme was acceptable. Results from the both rounds are presented here.

Round 1

Themes selected for the test

A. **Transparency:** It is about vendor's (and client's) transparent actions/outcomes or openness which may help to gain more trust. It also refers to how client is transparent in sharing the necessary information in outsourcing engagement
B. **Flexibility:** Clients get flexibility of increasing and reducing the human resource based on their needs without employing full time employees for the project. They also get flexibility of using the latest technologies without investing in them. Clients also get access to vast pool of technical manpower by outsourcing especially to India or China. It also refers to flexibility of vendor to adapt to the client's changing requirements or any other necessity.
C. **Neither:** None of the above two themes applicable to the quote.

R1 – Researcher 1
R2 – Researcher 2

Quote#	Theme (R1)	Theme (R2)
1	C	C
2	A	A
3	C	C
4	A	A
5	C	A
6	C	B
7	C	C
8	C	C
9	C	A
10	C	B
11	B	B
12	C	C
13	B	B
14	B	B
15	C	C
16	C	A
17	B	B
18	B	B
19	C	B
20	C	B
21	A	A
22	A	A
23	A	A
24	A	A
25	B	B
26	B	B
27	C	C
28	C	C
29	A	A
30	A	A
31	B	B
32	B	B
33	C	A
34	C	C
35	B	B
36	C	C
37	A	A

	Agreements	Disagreements	Total
Category A	9	0	9
Category B	10	0	10
Category C	10	8	18
Total quotes			37

Matrix: 3 x 3
Data : 29

	A	B	C	SUM
A	9	0	0	9
B	0	10	0	10
C	4	4	2	10
SUM	13	14	2	29

Kappa : 0.588652482269504 (59%)

Po : 0.724137931034483
Pc : 0.329369797859691
Se : 0.123758357210037
Sk : 0.119003568054467
Z : 4.94651120040435

Note:

```
  Kappa: The value of kappa (Cohen's kappa).
  Po   : The proportion of agreement obserbed. (composite)
  Pc   : The proportion of agreement expected due to chance.
(composite)
  Se   : The standard error of data.
  Sk   : The standard error for kappa.
  Z    : The associated score (kappa divided by its standard error).
```

The resulting agreement ratio (59%) suggested to review the coding scheme and another round of reliability test was conducted.

Round 2

Themes selected for the test

A. **Transparency**: It is about vendor's (and client's) transparent actions/outcomes or openness which may help to gain more trust. It also refers to how client is transparent in sharing the necessary information in outsourcing engagement
B. **Flexibility:** Clients get flexibility to not worry about recruiting or sacking people in the peaks and turfs; they also do not need to worry about the needs or the technologies they are looking for. Clients also get access to vast pool of technical manpower by outsourcing especially to India or China. It also refers to flexibility of vendor to adapt to the client's changing requirements or any other necessity.
C. **Cultural:** This theme is referred when any views relate to the cultural aspects of the engagement. Cultural aspects include various things such as the way of

communication, customs, different perceptions of different countries about certain things, understanding of certain things etc.

R1 – Researcher 1
R2 – Researcher 2

Quote#	Theme (R1)	Theme (R2)
1	C	C
2	A	A
3	C	C
4	A	A
5	C	C
6	C	C
7	C	C
8	C	C
9	C	C
10	C	C
11	B	B
12	C	C
13	B	B
14	B	B
15	C	C
16	C	C
17	B	B
18	B	A
19	C	C
20	C	C
21	A	A
22	A	A
23	A	A
24	A	A
25	B	B
26	B	B
27	C	C
28	C	C
29	A	A
30	A	A
31	B	B
32	B	B
33	C	C
34	C	C
35	B	B
36	C	A
37	A	A

	Agreements	Disagreements	Total
Category A	9	0	9
Category B	10	1	10
Category C	10	1	18
Total quotes			37

[BASED ON http://www.kokemus.kokugo.juen.ac.jp/service/kappa-e.html]
Matrix: 3 x 3
Data : 29

	A	B	C	SUM
A	9	0	0	9
B	1	9	0	10
C	1	0	9	10
SUM	11	9	9	29

Kappa : 0.896797153024911 (89%)

Po : 0.931034482758621

```
  Pc   : 0.331747919143876
  Se   : 0.0704140887452291
  Sk   : 0.130454746149388
  Z    : 6.87439268785177
```

Note:

```
  Kappa: The value of kappa (Cohen's kappa).
  Po   : The proportion of agreement obserbed. (composite)
  Pc   : The proportion of agreement expected due to chance.
(composite)
  Se   : The standard error of data.
  Sk   : The standard error for kappa.
  Z    : The associated score (kappa divided by its standard error).
```

The resulting agreement ratio (89%) is considered quite acceptable in any qualitative study. Subsequently, the coding scheme used in this study can be considered reliable.

Appendix 6: Summary of experience at the interview sites in Indian software companies

It may be important to document and discuss some the important experiences during the visit to India for the data collection. This is in line with Patton's (1990) recommendation on documenting experiences of the qualitative research. The vendor interviews of this study were conducted at the vendor site. Nilay Oza personally visited all the vendor companies in India to conduct interviews. This appendix describes an experience of being an interviewer in the companies visited. It is anonymous and does not intend to quote any specific participant company. Nilay Oza spent three months in India to collect the empirical data from 18 high maturity software companies. Nilay had tentative appointments and acceptance for participation from companies before he went to India to collect the data. Nilay visited three cities including Delhi, Mumbai and Bangalore. Some of the critical observations made during the visit are listed here:

- All the participating companies had security check points at the arrival lounge of the company. In some cases, the security checking was as stringent as at airport departure point.
- During one visit to the company, it took half an hour to enter into the main gate of the premise of the business park although valid document such as email confirmation of the meeting were presented. Later it was found that, it was the mistake of the participating company who did not arrange the gate pass for the entry into the business park.
- At one instance, it was found that the gate pass was arranged but at the time of arrival to the business park, Nilay was told to collect the pass from the other premise, located at 10 minutes walking distance.
- Most of the software companies in India are located in the outskirts of the city. Long travel distances and chaotic traffic conditions persvaded me to start a journey to the company premise at least two hours prior to the appointed time.
- Although, the public infrastructure i.e. bus service, roads and other public utilities was relatively poor in India, the infrastructure and the services within the company's premise were excellent and comparable to any international standard of infrastructure.
- It was observed that all the participating companies had very professional and decent work environment.
- In one case, the project manager who scheduled the meeting did not turn up at the designated premise. When he was telephoned to ask the reason of his 'no appearance' he admitted that he actually forgot to attend the meeting!
- In all other cases, meetings started on scheduled time. In all cases, a brief tour of the company premise was organised either by the interviewee or other public relation officer.
- In one case, the interviewee was so concerned about confidentiality that he did not introduce himself by his name as the interview was being tape recorded!
- In most cases, the interviewees talked for at least five to ten minutes after the interview was over. The interviewees generally shared information such as strategic insights of their companies, what they think about the future trends or how India would progress in software outsourcing industry.

In summary, the experience of visiting Indian software companies was really interesting. The world class infrastructure of the companies and very professional work environment were echoing their growth in offshore software industry.

Appendix 7: Generic skill training undertaken during this study

During the three year research study, Nilay Oza underwent several research training programmes offered by University of Hertfordshire's Generic Training Research Scheme (GTRS). A list of the some of the sessions attended is presented here.

1. Writing a research programme (MPhil/PhD)
2. Getting your ideas across: communication
3. Presenting your research (oral presentation)
4. Introduction to Endnote
5. How to survive research degree assault course
6. Research: What is truth?
7. Role and structure of literature review
8. Supervisor relationships
9. Getting published
10. Into the Workplace: preparing for employment
11. Managing (and being managed)
12. Basic statistical analysis
13. Choosing statistics for planned investigations

Appendix 8: Guidelines for managing offshore software outsourcing relationships

This appendix presents guidelines for managing offshore outsourcing relationships. Both clients and vendors can use these guidelines. The guidelines are based on the results of the empirical investigation presented in the previous chapters. The following section presents the literature background on developing guidelines before presenting the guidelines.

8.1. Approaches to developing 'guidelines'

Hayward et al. (1993) refer to guidelines as a '*set of statements, directions, or principles presenting current or future rules or policy*'. Guidelines may be developed by government agencies at any level, institutions, organizations such as professional societies or governing boards, or by the convening of expert panels. Hayward et al. (1993) note that a guideline is generally a guide to addressing problems and selecting approaches in a discipline or activity.

In software engineering, very few papers justify the basis for published guidelines or recommendations. Indeed few prior studies in software engineering present formal guidelines (Kitchenham et al. 2002). No previous study has proposed guidelines for managing offshore software outsourcing relationships.

Disciplines such as medicine have been using guidelines for decades. Eccles et. al (2000) in their work on developing guidelines in health care note that in the last ten years, approaches to developing guidelines have improved to take explicit account of relevant evidence. Furthermore guidelines on developing clinical guidelines are well documented (Shekelle et al. 1999). The literature on developing guidelines mainly recommends that guidelines should be clearly and explicitly linked to the evidence supporting them.

This thesis proposes evidence-based guidelines on the basis of empirical data. The guidelines address relationship management between offshore software outsourcing clients and vendors. The motivation for developing these guidelines is to address the challenges of offshore software outsourcing relationship management and reduce the chances of failure in offshore outsourcing.

8.1.1. Applicability of the guidelines

The guidelines proposed in this chapter apply to the practices of the US and European clients and vendors who are undertaking a software outsourcing project to India. The applicability of guidelines is limited due to its investigation into six clients as opposed to eighteen vendors. Therefore, the guidelines may not be balanced in terms its applicability to vendors, clients or both. A self context assessment should be conducted to review the applicability of the guidelines. Fridsma et al. (1996) argue that developing guidelines that are specific to an organisation is expensive, and limits the ability to share guidelines among different institutions. Consequently this thesis proposes the following recommendations that can also help implement the generic guidelines to a company-specific environment. A specific guideline may be added, deleted, expanded, substituted or reordered. The description on making the guideline site (context) specific is as follows.

Addition – New or additional activities are added to the proposed guidelines when the additional company specific activities satisfy company's requirements or are part of the relationship management agreement.

Deletion – In some specific contexts, some of the proposed guidelines may not be necessarily required to follow. In this situation, the company should not consider that particular guideline. For example, one of the proposed guidelines for the vendor is to organise one or two local representatives at the client's site. However, if there is an agreement between the client and the vendor that the client will visit the vendor's site regularly and therefore there is not any need for local representative. Furthermore, there may be a context, where the outsourced project is small and too technical or specialised comprising only a few people. In this context, the company may not need to organise a local representative at the client's site.

Expansion – A company specific guideline may require more detail than that specified in the generic guidelines. For example, one of the proposed guidelines for the client is that the client should make regular payments to vendor as mutually agreed. It is highly likely that client-vendor agreement have specific payment terms in the contract. In this context, the company may expand the payment guideline to include more specific details for example when and how much payment will be done by the client, the mode of the payment, the delivery of the payment and will there be extra or less payment if the vendor meets or doesn't meet the deadline.

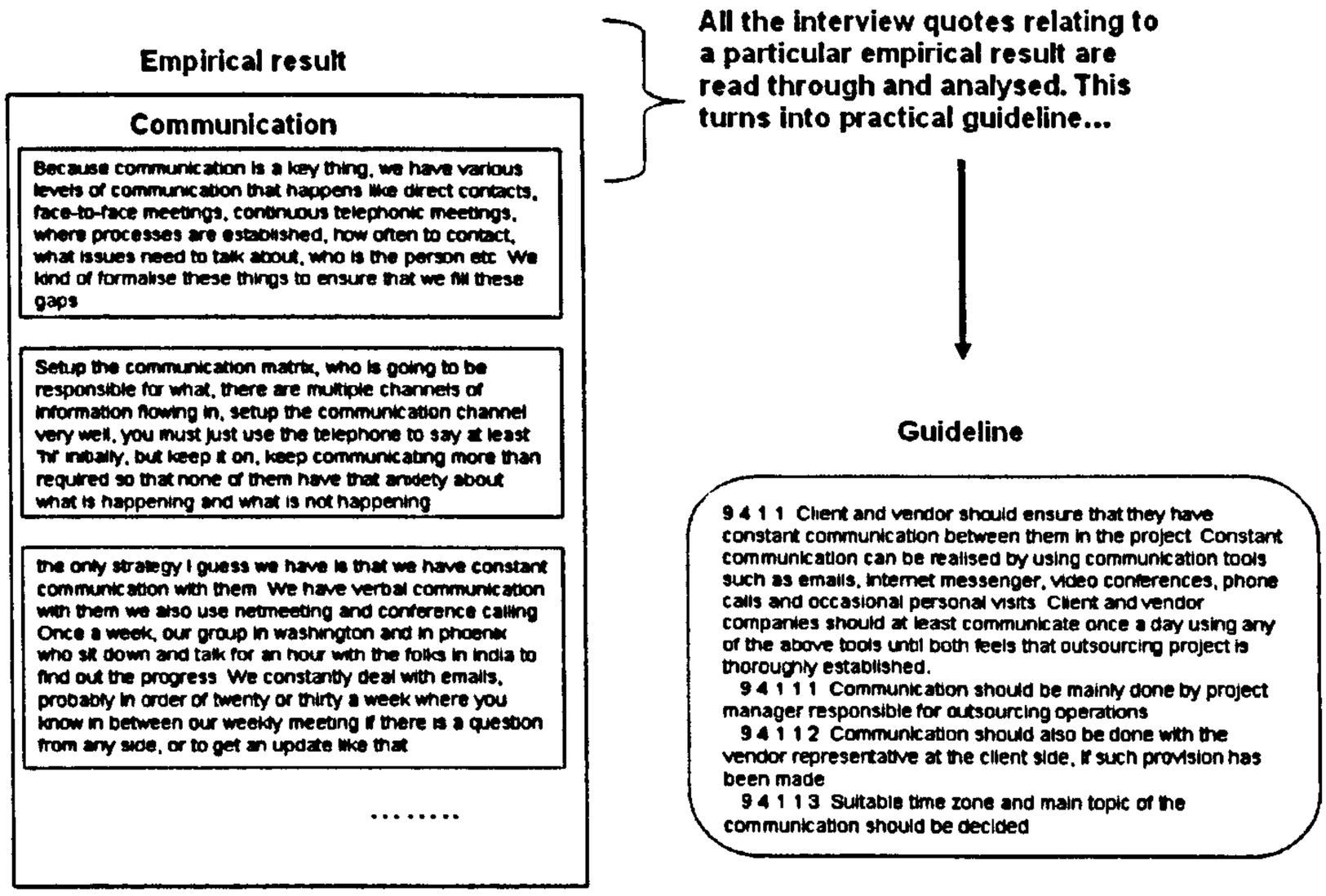
Substitution – Substitution is a combination of addition and deletion. The original activity proposed in the guideline may be deleted, and one or more activities may be added to the guidelines. These activities would have the same underlying intention or goal.

Reordering – It should be possible to reorder activities proposed in the guidelines suitable to the company's internal relationship management strategy.

8.2. Procedure for developing guideline

Guidelines are developed on the basis of empirical results achieved in answering four research questions of this thesis. There is not any established procedure to developing guidelines. In this thesis, empirical evidence is used to form a particular guideline. The proposed evidence based guidelines are developed by reviewing all the interview quotes relating to each empirical result achieved. Then, the consensus of all the interview quotes is formed into a particular guideline. An example is presented to show how a particular guideline is developed from the empirical result.

Figure 8.1: Example for developing the guideline



8.3. Guidelines for Managing offshore outsourcing relationships - Applicable to clients and vendors

8.3.1. Communication

Client and vendor should ensure that they have constant communication between them in the project. Constant communication will not only help in delivering project status efficiently but also will help to smooth the cultural differences. For client or vendor, it would be difficult to know about each others' culture without communicating with each other. Additionally, distance related problems in managing offshore software outsourcing can also be resolved by constantly and clearly communicating in the relationship. Constant communication can be realised by using communication tools such as emails, internet messenger, video conferences, phone calls and occasional personal visits. Client and vendor companies should at least communicate once a day using any of the above tools until both feels that outsourcing project is thoroughly established. Furthermore the following points should also be considered:

- Communication should be mainly done by project manager responsible for outsourcing operations.
- Communication should also be done with the vendor representative at the client side, if such provision has been made.
- Suitable time zone and main topic of the communication should be decided.

8.3.2. Commitment

Client and vendor should be committed to their promises in outsourcing project. Commitment should be achieved by delivering the outsourced work according to the agreed terms in the contract. Higher level of commitment develops trust in the relationship. It is important that vendor or client do not over commit themselves as the failure in delivering the committed work may create distrust in the relationship.

8.3.3. Resource allocation

Client and vendor should allocate enough resources to the outsourced project. Resources include both the human resources, and the infrastructure resources. They should mutually agree on the responsibilities of the allocation of resources required in the outsourced project. Appropriate resource allocation will help to come over the

problems relating to distance and time zone differences between client and vendor companies. Distance and time zone differences create problems in offshore outsourcing as clients and vendors get only few hours of overlap to oversee each other's activities. Resource allocation may involve the following:

- At least one of the vendor representatives should be available at the client side or someone should visit client frequently to give key updates on the project.
- Vendor should allocate an account manager pertaining to client vendor relationship and project manager
- Necessary communication tools should be established such as phone lines, computing infrastructure, and networking infrastructure.
- All the relevant responsibilities of the outsourcing project should be allocated and documented.
- Client should make necessary provisions for the payment procedures and delivering inputs to the outsourcing project.
- The client should also plan the resources that may be required. For example, the client generally needs to transfer knowledge of the outsourced work to the vendor.

8.3.4. Regular meetings

Regular meetings are particularly important in bringing different perspectives and status information of project from client and vendor side. Beyond the project work, meetings will also help in smoothening cultural differences and distance related challenges between client and vendor. Client and vendor should conduct regular meetings in addition to having day to day communications to share updates on the outsourced project. The following should be considered:

- The topic of the meeting, who will attend the meeting and other logistics such as time, venue and duration should pre-determined.
- Minutes of the meetings should be documented.
- An urgent meeting should be conducted if needed. Such urgent meetings should also be documented.
- Meetings can be personal, over phone or over internet through conferencing facilities.
- Meetings may be arranged at different levels of people from both sides. For example, higher level strategic meeting should be organised between senior members of the clients and vendors whereas project update meeting should be organised between project managers responsible for operations in the project.
- Client and vendor should also have internal meetings within their companies to discuss the achievements of the outsourced project.

8.3.5. Cooperation

Client and vendor should be willing to co-operate with each other if there is any difficulty at either side. In other words, both parties should take care of the other's interests in the outsourced project. However, client and vendor should have an action plan in case of possible emergencies at either side. For example, a client may want to review a vendor's backup arrangements in case the vendor's office is destroyed due to natural calamity or terrorist attack. In this context, if there are any financial implications to the vendor, they should be clearly documented and agreed between client and vendor.

8.3.6. Expectation management

Clients and vendors should document and mutually agree on what they expect from each other and the outsourced project.

- Client and vendor should clearly document what the client will get as the result of the project and how much the vendor will be paid for those results. Furthermore,

clients and vendors should also be clear on any implications if the outsourced work does not meet expectations

- Issues such as post-contract (i.e. what kind of services will be delivered after the completion of outsourced work) management should be identified.
- Issues relating to the outcomes client expect from the outsourced project, the payment terms and timeframe to conduct the outsourcing project should be documented and mutually agreed.
- If the outsourcing project is open ended i.e. no timeframe is decided, both clients and vendors should at least document when the periodic reviews of the outsourcing project will be done. Possible results of the reviews in terms of deciding the continuity of the outsourcing project should be documented.

Managing efficient documentation and better understanding of contractual issues will help both client and vendor to avoid mismatching in their expectations from the outsourcing project and each other. Subsequently, a transfer of outsourcing work between client and vendor will also become easier.

8.3.7. Transparency

Clients and vendors should be transparent in all of their undertakings in the project. Vendors should ensure that clients can take a view of all the activities of the project. Particularly, transparency will increase client's confidence on controlling the outsourced work to the vendor. The following should be considered to develop transparency in the project:

- Transparency may be achieved by clear and direct communication, and constant realistic updates of the status of the project to the vendor.
- Vendors should monitor and collect necessary data throughout the outsourced project and present the analysis to the client in the form of a matrix or graphs showing the status of the project.
- Vendors may also deploy a 'project tool' for the client where the client can see 'real time' updates of their outsourced project.
- Clients and vendors should remain honest in demonstrating results or passing on other information about the project.

8.3.8. Cultural awareness

Client and vendor should develop cultural awareness of each other. In addition to constant communication and regular meetings, cultural awareness can mainly be created by spending time together on the project. Some of the steps that can be followed are:

- Vendor can provide a 'cultural handbook' that describes cultural issues on their society, country and also customs of their company. Handbook should aim at providing client understanding of what cultural issues s/he should consider when working in the vendor company.
- Vendor employee who has multinational exposure and has travelled to client country should also conduct workshop and training to share cultural experiences in other country.
- Client should meet all levels of employees relating to project when travelling to vendor company rather than just meeting senior members of the company.
- Client and vendor should accept each other's habits distinct to the specific culture that are followed not to disrespect other or harm project success. Examples of such habits include, eating vegetarian or non-vegetarian food, drinking alcohol or being non-alcoholic in business lunch/dinner, having religious symbol on forehead or other religious sensitivities and dressing of clothes.

8.4. Guidelines for Managing offshore outsourcing relationships - Applicable to vendors

8.4.1. Process driven approach

Vendors should follow a process driven approach and establish high maturity practices in undertaking the outsourced project. This will result in smoother transfer of outsourcing from client and tackle time zone differences between client and vendor. It will also help in transferring outsourcing work back to client once it is complete. Vendors may follow internationally recognised standards such as ISO 8001:2000 and CMMI to mature their processes. However, vendors should be flexible enough to accommodate any mutually agreed changes in the outsourced project. The established processes should be adaptable to changes that may be required during the project.

8.4.2. Consistent quality

Vendors should monitor consistency of the quality of the development of the outsourced work. To monitor consistency:

- Vendor should conduct regular audits to review the quality of work. Furthermore, vendor should also make the audit results available to the client.

8.4.3. Proactive

Vendors should be proactive in approaching clients with updated information relevant to the outsourced project.

8.4.4. Domain expertise

Vendors should develop domain expertise across different sectors depending on the interests of the outsourcing client's business areas.

8.4.5. Value addition

Vendors should attempt to add value to the outsourced project in addition to the agreed outcomes of the project. Vendors should also demonstrate how and what any additional value is brought in for the client's project. Value addition can be done depending on the context of the project. For example, client expects 90% of accuracy in software coding for the outsourced software development. In this case, vendor should attempt to achieve more than 90% of accuracy and demonstrate it to the client.

8.5. Guidelines for Managing offshore software outsourcing relationships - Applicable to clients

8.5.1. Work together

Clients should work together with the vendor in the outsourcing project. This can be done by visiting the vendor site regularly, inviting vendor key employees to local offices or by spending time at the vendor offices as part of the project. This will also increase mutual understanding and cooperation between client and vendor.

8.5.2. Security

Client should review how vendor maintains confidentiality of information revealed to them to undertake the outsourcing project. Client should also review infrastructural security arrangements of the vendor site.

8.5.3. Payment

Clients should make regular payments to vendors as mutually agreed.

8.6. Guidelines for achieving trust initially in offshore software outsourcing relationship - Applicable to clients and vendors

8.6.1. Personal meeting

Clients and vendors should meet personally in the initial phases of the relationship. This may be done by clients visiting the vendor site or the vendor spending time at the client site.

8.7. Guidelines for achieving trust initially in offshore software outsourcing relationship - Applicable to vendors

8.7.1. Initial presentation

Vendors should put considerable effort to the initial client presentation.

8.7.2. References

Vendors should provide 'relevant' references to the client. Relevant references reflect the previous work of the vendor which is in a similar domain to the client's business. For example, if the vendor is working for a telecom company, a reference of the vendor's previous work for another telecom company would be relevant. In the absence of such reference, any other previous work reference is also beneficial.

8.7.3. Experience

Vendors should demonstrate how long the company has been working in the offshore software outsourcing business and how many previous successful projects have been undertaken.

8.7.4. Reputation

Vendors should constantly put effort in to building a reputation in the software industry. Not only in terms of technical competencies but also in terms of following best practices.

8.7.5. Resource allocation

Vendors should allocate high calibre, experienced and highly educated employees to key client facing positions.

8.7.6. Investments

Vendors should demonstrate to the client what kind of investments, if any, will be made for carrying out the outsourcing project.

8.8. Guidelines for achieving trust initially in offshore software outsourcing relationship - Applicable to clients

8.8.1. Personal visit

Clients should visit the vendor site at least once if they have no prior experience with the vendor. Regular visits are more encouraged during the project.

8.8.2. Reference

Clients should get an internal reference if another department within the company has worked with the vendor previously. Clients should get an external reference from the vendor's previous clients.

8.8.3. Prototype

Clients should run small prototype projects to review the performance and claims of the vendor before starting very large scale project.

8.9. Guidelines for maintaining trust in ongoing offshore software outsourcing relationships - Applicable to clients and vendors

8.9.1. Commitment

Clients and vendors should show commitment in the project. Both parties should be committed towards their responsibilities in the project. Commitment can reviewed by assigning clear and mutually agreed responsibilities to both parties then conduct periodic review to verify what has been achieved against what was committed.

8.9.2. Communication

Clients and vendors should communicate regularly. However, only communication may not help build trust. Both parties should establish proper channels and levels of communication. Communication responsibilities should be clearly established.

8.10. Guidelines for maintaining trust in ongoing offshore software outsourcing relationships - Applicable to vendors

8.10.1. Transparency

Vendor should make arrangement so that client can have access to all the information about the project on 'as it happens' basis. Furthermore, vendor should not hide any information relating to outsourced project from the client. Vendor should be honest in communicating the progress of the outsourcing project.

8.10.2. Demonstrability

Vendor should build capabilities to demonstrate the strengths and outcomes of the outsourced project.

8.10.3. Process driven approach

Vendor should follow a process driven approach and practise high maturity processes.

8.10.4. Consistency

Vendor should consistently follow best practices and should not take the established trust as granted. Consistent efforts should be made to keep on building trust.

8.10.5. Confidentiality

Vendor should present valid proof points to client that any information relating to outsourced product would be confidential.

8.11. Guidelines for maintaining trust in ongoing offshore software outsourcing relationships - Applicable to clients

8.11.1. Knowledge transfer

Clients should provide detailed information about the outsourced project to the vendor.

8.11.2. Integration of vendor

Clients should create an organisational atmosphere where the vendor feels part of the team rather than just a sub-contractor. Clients should also work jointly with vendor personnel in the outsourced project. Furthermore, clients should provide feedback on vendor's services in the outsourcing project when required by the vendor.

8.11.3. Incentives

In addition to paying agreed amount for the outsourced project, clients should offer incentives if they get better than expected outcomes from the outsourcing project. For example, vendor completes outsourcing project before or on time, vendor provides higher quality standards than agreed in the contract or vendor provides critical input in the success of the project i.e. value addition to the project which was not agreed contractually.

8.12 Identifying guidelines for emergent difficulties

This section maps emergent difficulties to possible solutions based on the results of the empirical study. Essentially, each emergent difficulty was checked to see which critical factors related to it. Then, the guidelines relevant to a particular critical factor were reviewed and activities were proposed that might help to resolve a particular difficulty. This suggests that critical factors or guidelines were not developed to resolve difficulties identified in the study, but, were related after their emergence in the study. It was due to the inductive nature of the study. However, to raise confidence in the proposed solutions, the literature was reviewed to see if similar difficulties and solutions had been addressed. The relevant discussion is presented in section 9.4.2. Additionally, all the selected empirical results are also discussed in relation to the literature in the following chapter (from section 9.2 to 9.4). Table A8.1 presents relevant recommendations and corresponding difficulties. Table A8.1 has three columns, the first, representing the emergent difficulty that emerged in the empirical study, second, representing the exemplary recommendation based on the guidelines presented in this appendix and third, the associated guideline number from which the exemplary recommendation was presented. It can be argued that the proposed guidelines do not incorporate the recommendations from the literature. However, the proposed guidelines were meant to be developed based on empirical evidence only, referred to as evidence-based guidelines. This approach has been used widely in clinical studies. Furthermore, the guidelines proposed here are provisional and therefore practical implementation and subsequent refinement will help to incorporate the literature-based guidelines.

Table A8.1: Guidelines and difficulties

Emergent difficulty	Guideline number	Exemplary recommendations
Cultural differences	8.3.1, 8.3.4	Constantly communicate (formally and informally) in the project and when required work together to conduct the outsourcing project
	8.3.8	Culture training programs for outsourcing project managers. Cultural awareness builds as client and vendor spend time together in the project.
		A concise handbook which can help in understanding a company's corporate and societal cultural environment
Expectation mismatch	8.3.6	Better contract management
		Documentation
	8.3.1	Clear and sufficient communication
Language		Bi-/multilingual managers
Loss of control	8.3.7	Transparency in vendor's processes
		Open and up-to-date access to client on outsourcing work
Loss of jobs	8.4.5	Value added work
Transfer of work	8.3.6	Better contractual agreements
	8.3.5, 8.5.1	Mutual understanding and cooperation
	8.4.1	Efficient process to manage transfer of work
	8.3.6	Documentation
Distance	8.3.1, 8.3.3	Using efficient communication links and tools
	8.3.7	Transparency building in the work
	8.3.1, 8.3.4	More communication and regular meetings
	8.8.1	Regular visits by project personnel
		Retaining core knowledge in house
Time zone differences	8.4.1	Process driven approach
	8.3.3	Onsite presence

8.12. Summary

This appendix developed evidence based guidelines applicable to client vendor relationships and trust building in their relationships. The guidelines were based on empirical results identified during the study. Guidelines common to clients and vendors and distinct for clients and vendors were presented. The guidelines for managing relationships were based on a range of issues such as communication, commitment, resource allocation, expectation management, transparency and cultural awareness. The guidelines for achieving and maintaining trust in the relationship repeated some of the issues focused on relationship management guidelines. This was because the empirical results were overlapping on a few issues. The trust related guidelines were based on issues such as references, personal visits, prototyping, communication, commitment, and process driven approach.

Appendix 9: A variety of definitions on Trust

The definition of trust is complex and holds different viewpoints. However, there are some common characteristics prevailing across various definitions of trust. Therefore, it will be helpful to review some of the frequently quoted definitions across disciplines. Widely accepted definitions found on trust in the sociology (Gambetta, 2000), social psychology (Deutsch, 1962), organisational (Mayer et al. 1995) and the management literature (Anderson and Narus, 1990) are as follows:

- Gambetta's (1990) definition on trust encompasses views of diverse disciplines and considers trust as:
  'A particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both *before* he can monitor such action (or independently of his capacity ever to be able to monitor it) *and* in a context in which it affects *his own* action'.

- Deutsch's (1962) widely accepted definition of trust states that:
  'a) the individual is confronted with an ambiguous path, a path that can lead to an event perceived to be beneficial (Va+) or to an event perceived to be harmful (Va-);
  b) he perceives that the occurrence of Va+ or Va- is contingent on the behaviour of another person; and
  c) he perceives the strength of Va- to be greater than the strength of Va+.

  If he chooses to take an ambiguous path with such properties, I shall say he makes a trusting choice'.

- Mayer et al's. (1995) definition also draws together multi-disciplinary views of trust. They define trust as:
  'The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party'.

- Anderson and Naurs (1990) define trust in the distributor – manufacturer working relationship. According to them trust is:
  'Firm's belief that another company will perform actions that will result in positive outcomes for the firm, as well as not take unexpected actions that would result in negative outcomes for the firm'.

These definitions give the essence of the different viewpoints on trust across disciplines in a plethora of papers. Chapter 2.3.1.3 presents a working definition in the context of offshore software outsourcing relationships.