Trust in Software Outsourcing Relationships: An Analysis of Vietnamese Practitioners' Views

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Trust is considered one of the most important factors for successfully managing software outsourcing relationships. However, there is lack of research into factors that are considered important in establishing and maintaining trust between clients and vendors. The goal of this research is to gain an understanding of vendors' perceptions of the importance of factors that are critical to the establishment and maintenance of trust in software outsourcing projects in Vietnam. We used a multiple case study methodology to guide our research and in-depth interviews to collect qualitative data. The participants of study were 12 Vietnamese software development practitioners drawn from 8 companies that have been developing software for off shore clients. Vendor companies identified that cultural understanding, creditability, capabilities, and personal visits are important factors in gaining the initial trust of a client, while cultural understanding, communication strategies, contract conformance, and timely delivery are vital factors in maintaining that trust. We also identify similarities and differences between Vietnamese and Indian practitioners' views on factors affecting trust relationships.

Software outsourcing, managing trust relationships, software development in Vietnamese software developers

1. INTRODUCTION

This paper describes an empirical investigation into the perceptions of software practitioners on the role of trust in software outsourcing relationships. The goal of our research is to gain an understanding of software practitioners' perceptions of the importance of trust in software outsourcing relationships and the factors that facilitate the establishment and maintenance of trust between a client and vendor. It has been suggested that trust is crucial for all business relationships as it enables more open communication, increased performance, higher quality deliverables and greater satisfaction in the decision-making process (Morgan and Hunt, 1994, Rousseau et al., 1998, Kanawattanachai and Yoo, 2002). There are few studies into the role of trust in software outsourcing relationships. Software outsourcing is defined as a situation where a company (a client), contracts out all or part of its software development activities to another company (a vendor), who provides agreed services for remuneration (Loh and Venkatraman, 1992, Palvia, 1995, Kern and Willcocks, 2000). The trend towards off-shore software outsourcing has been growing steadily, and was expected to exceed \$150 billion in 2003 (International Data Corp., 2000 cited in (Chidamber, 2003)). Understanding issues involved in the management of off-shore software outsourcing relationships can help ensure the successful outcome of projects (Sabherwal, 1999) and long lasting relationships between clients and vendors (Zviran et al., 2001). As noted earlier given the paucity of previous studies into the role of trust in software outsourcing relationships, and the increasing number of outsourcing relationships between companies from different countries with different languages and cultures, we investigate trust in outsourcing relationships by answering the following questions:

What factors are important for

- establishing trust in off-shore software outsourcing relationships?
- maintaining and strengthening trust in off-shore software outsourcing relationships?

Our paper is organized as follows: section 2 provides some background information; section 3 describes the research methodology and data collection procedures and section 4 presents the results. Section 5 presents the results of a comparative analysis of Indian and Vietnamese practitioners; limitations of our research are discussed in section 6; section 7 concludes the paper with a discussion of possible future research.

2. BACKGROUND AND MOTIVATION

Though trust has been studied in many disciplines there seems to be no acknowledged definition of the term "trust" as researchers in different disciplines have different views comprising many different dimensions (Kim and Prabhakar, 2000). In general, researchers seem to agree that trust refers to an aspect of a relationship between parties, in which the parties are willing to accept risk for commitments that will (hopefully) result in a positive desired outcome (Mayer et al., 1995). Oza et al. (2005) define trust in software outsourcing relationship as "*clients*

and vendors having positive expectations of each other's actions, while having a rational interest in maintaining that relationship in the awareness of the risk in those expectations".

Trust in software outsourcing relationships is expected to

- enable a more open exchange of information and cooperative behaviour,
- enable a reduction in conflicts and transaction costs, and
- improve responses to crises (Rousseau et al., 1998).

Trust also "act(s) as an obstacle to opportunistic behavior" (Karahannas and Jones, 1999). Furthermore, trust helps to ease the development process with a smoother requirements process and aids in the removal of unnecessary but expensive documentation (Humphrey, 1989).

In the software export market, India is a dominant software outsourcing provider (Terdiman and Karamouzis, 2002). However, in recent years, other countries like Ireland, Israel, Russia, China, Philippines, Taiwan, Singapore and Vietnam are gaining a reputation for offshore outsourcing (Nidumolu and Goodman, 1993, Amoribieta et al., 2001). Vietnam, although still listed as a tier-4 nation amongst the software exporting countries classification (Carmel, 2003b), has recently become more attractive for outsourcing work due to *"positive macroeconomic changes and investments from government and multi-lateral organizations, a cost-effective workforce, improving infrastructure, linkages with key markets and an ambitious national vision"* (Chidamber, 2003). Due to its relatively new position in the software outsourcing business, there are no previous studies on trust management in software outsourcing relationships in a Vietnamese context. As a result, a comparative study in this area provides some insight into the views of Vietnamese vendors with regard to establishing and maintaining trust.

3. METHODOLOGY

We used a case study approach as the basis of our research strategy because a case study is a powerful and flexible technique, considered suitable for exploratory research both prospectively and retrospectively (Perry et al., 2004). We used multiple case study in our research because of its many advantages over single case study approach (Yin, 2002). Our research is conducted following Yin's guidelines for the design and execution of multiple case studies (Yin, 2002). We also referred to the checklist provided by Kitchenham et al. (1995) for conducting case studies.

Since the goal of this research is an understanding of software practitioners' perceptions of the importance of trust in software outsourcing relationships and the factors that facilitate the establishment and maintenance of trust between a client and vendor, we collected data from Vietnamese companies who are involved in software outsourcing. More than two dozen software development companies, with significant revenues arising from the development of software for clients outside Vietnam, were identified with the help of the Vietnam Competitive Initiative (VNCI), a US-Aid funded organization working to improve the competitiveness of Vietnamese companies. An email invitation to participate in our research was sent to the Directors or Managing Directors of the identified companies. Our invitation letter included a brief description of the research project and the nature of the commitment required. In return, we offered to make the findings of the research available to the participating companies and, in addition, to provide a half-day of software architecture review training to their staff. As one of the researchers was experienced in architecture reviews this offer was intended to provide an incentive for the companies to participate. Ten organizations agreed to participate in the research project. While the rest of the organizations did respond, they were unable to participate due to heavy workloads and approaching deadlines. Each of the participating companies nominated a person to liaise with the researchers to plan and execute the research. Potential interviewees were identified with the help of the liaison people. One or more relevant persons were interviewed based on the specified criteria of 1) five years of software development experience and 2) direct involvement in software outsourcing projects either in a business development or technical role.

3.1 Study Procedure

We used semi-structured interviews to collect self-reported qualitative data. Since we wished to compare our results with the results reported by Oza et al. (2005), who worked with Indian companies on a similar topic, we based our semi-structured interviews on a modified version of the questionnaire developed and used by them (Oza et al., 2005). Our interview guide included a mixture of open-ended and fixed format questions, aimed at identifying

- factors involved in establishing trust and
- factors involved in maintaining trust relationships

in the context of software outsourcing based on practitioners perceptions. Because all data in a qualitative study is considered potentially useful, the open-ended questions were designed to allow any other relevant information related to software outsourcing to be recorded (Seaman, 1999, Lethbridge et al., 2005). An interview steered by a series of related open-ended questions is considered an effective mechanism to elicit in-depth information on a particular topic. Moreover, open-ended questions also help safeguard against researcher bias being introduced into

the conversation. In order to maintain consistency, in every interview we asked the same questions in the same sequence during each interview.

The interviews were conducted during September 2005. There were eight participating companies (two companies had found that they were too busy to be interviewed when it came time to set up appointments). Some companies allowed us to interview more than one employee. Although one of the researchers is a Vietnamese speaker the interviews were conducted in English as all the interviewees were well-versed in English. Two weeks before the interviews participants were provided, via email, details of the process and procedures for the interview sessions. In order to safeguard the confidentiality of the data and privacy of the participants we also sent a statement of the ethical principles the research team would follow. We did not however, provide the participants with the interview questions in advance in order to avoid any pre-judgment bias. Participants were given the option of having their conversations recorded and were also assured that their data would not be accessible to anyone except the research team. Moreover, we explicitly made it clear to the participants and their companies that the research team would not share the data with anyone in a way that could reveal any participant's or organization's identity. There were no objections by any of the participants to the recording of the interviews. All the face-to-face interviews took place at the participating companies' offices in an environment free of distractions. The interviews were recorded and in addition, researchers took extensive notes of the discussions. Each interview lasted approximately 60 minutes. Since the time available for face-to-face interviews was limited, a few interviews were also conducted via email. For the email-based interviews, most of the participants were technical managers working on outsourced projects. The same questions and format were used for all interviews.

3.2 Data Analysis Procedure and Methods

The data collection phase generated a large amount of qualitative data. While the interviews were transcribed by one author, another author listened to a few parts of each interview at random to ensure inter-rater reliability. After interview transcription, content analysis and frequency analysis were used to examine the data. Content analysis is extensively used in focus group and interview-based empirical studies in software engineering, (e.g. Beecham et al., 2003, Niazi et al., 2005) to prepare qualitative data for qualitative or quantitative analysis. We used an emergent coding scheme (Haney et al., 1998) to code the interview data. The following steps were followed in order to encode the transcripts of the interviews and field notes:

- two researchers independently reviewed the data and determined a set of themes that would enable us to build two coding checklists;
- the checklists were compared and differences were resolved before consolidating the checklists;
- the consolidated checklist was applied to encode the data independently;
- the reliability of the coding was checked;
- these steps were repeated until the required reliability was obtained after which the coding scheme was applied to the whole data.

Having established a coding scheme, we analyzed:

- each interview in order to break down the data into two main categories:
 - factors important for achieving client trust,
 - factors important for maintaining client trust.
- the transcripts in order to annotate the data with the themes determined in the coding checklist. We marked both the original transcripts and the field notes from the interviews in order to ensure that the transcript analysis was a true reflection of the discussion that took place during the interviews. This step also verified that the transcription process did not introduce anything new to the original data or omit any significant point.

We performed the two step content analysis process for each interview, as each interview was treated an individual case study, in order to follow our multiple case study research strategy (Yin, 2002).

4. RESULTS

4.1 Demographics

Table 1 shows the profile of the interviewees who participated in the study. Most of the participants are young with 5 to 8 years experience in software development and outsourcing. There were however, some veterans with more than 15 years experience. The companies are fairly small, with the number of employees varying from 50 to 150; one company however, has 700 staff. The companies are all relatively new with 5 to 10 years of experience in the software industry. About half of the participants are involved in business-oriented relationships with their clients while the other half are in charge of the technical implementation of the projects.

4.2 Factors Important for Establishing Trust

Table 2 presents factors that the participants of our study perceive essential for establishing initial trust in software outsourcing relationships. All twelve interviewees consider that cultural understanding is a vital factor for gaining trust in the initial phase of outsourcing relationships. Respondents described cultural understanding as knowledge

of the norms, beliefs, business ethos, and skill in the native language of the potential client. Vietnamese practitioners believe that familiarity with the culture of a client's country and ability to communicate in the native language of that country can help vendors get prospective clients to feel comfortable in starting business initiatives. One of interviewees elaborated on the importance of cultural understanding: *"Ability to communicate in a client's native language and familiarity with his/her culture can provide the biggest advantages or barriers to achieving initial trust. For example, Japanese clients are insistent on working in their own language. That [is] why companies who have bridge engineers,[and] software engineers fluent in Vietnamese and Japanese, are well placed to develop new business in Japan. At the same time, an understanding of the Japanese business ethos is vital as [when] compared with their Western counterparts Japanese clients need more patience and energy to establish business partnerships. There can be several visits by the staff and management of Japanese companies before any negotiation begins. However, European and American clients do not insist [on] personal visits and if a visit is necessary, they usually want vendors to visit their companies rather than the other way around"*.

Table 1: Demographics of the interviewees and their companies

Interviewees	Title	Interviewee's experience in software development	Company	No. of employees in company	Company's experience of outsourcing
1	Project Manager	8-10	C1	80	5
2	Business Unit Manager	5-7	C2	70	5
3	Chief Technology Director	>15	C3	70	12
4	Vice-Director	>20	C4	150	7
5	Business manager	>10	C5	700	6
6	Vice-Director	>15	C5	700	6
7	Chief Technology Director	>20	C6	150	5
8	Project Manager	5-7	C6	150	5
9	Business Unit Manager	8-10	C7	50	6
10	Project Leader	5-7	C7	50	6
11	Divisional Manager	5-7	C8	50	5
12	Project Manager	5-7	C8	50	5

Creditability of a vendor was also identified as an important factor in order to initially gain a client's trust by 92% (11 out of 12) of the respondents. They suggested that a vendor can gain creditability in a number of ways such as through good references from previous or existing customers, certification such as CMMI or ISO, or being introduced by a highly reputed agent or Vietnamese working overseas. Vietnamese practitioners believe that being a relatively new player in the software outsourcing arena, they need to quickly build a reputation for being able to develop quality software by following rigorous and systematic processes. Most respondents reported that they have learned from Indian companies that certification is an important mechanism for building creditability and assists in convincing clients to trust in their capabilities. Because of this, the majority of respondents' companies are aiming to get CMMI level 2 or 3 certification by the end of 2006. Two of the participants' companies are already certified at CMM level 5 with preparation for CMMI certification.

Table 2 shows that a vendor's capability is another factor considered important for building initial trust by 75% (9 out of 12) the interviewees. Vendors believe that a client is usually keen to know a vendor's capability in at least three areas: technical capability, people capability and management capability. The majority of respondents opinioned that if a vendor can provide proof that they have the required level of capability in all three areas, there is higher probability of achieving the initial trust of a client. One respondent reported the importance of demonstrable capabilities in these words: *"Before outsourcing software development to an off-shore company, a client likes to seek some guarantee that a vendor is capable of developing high quality software on time. One way of giving this guarantee to a potential client is to demonstrate that a vendor has expertise in the required technology, staff who are experienced in state-of-the-art technologies and able to learn new technologies quickly"*.

Table 2 also shows that 67% (8 out of 12) interviewees thought that performance on a pilot project is another important factor for appeasing the concerns of a potential outsourcing partner regarding vendor capability. During our research, we noticed that almost all Vietnamese vendors start their business partnerships with a pilot project, which is either a proof of concept project or provides proof of their capability. Vietnamese practitioners believe that if a potential client is reluctant to trust them based on references or other factors, offering to do a pilot project is usually an effective mechanism for expanding the client's comfort zone. When discussing the importance of a pilot project for gaining initial trust, one respondent noted that: *"When we approach an outsourcer in seeking business, we need to demonstrate our knowledge and experience in their domain of interest. One way of demonstrating our capability is [by] doing a pilot project. We have to invest in such a kind of testing, which usually pays off. For example, in order to demonstrate our capability in IBM technologies to IBM's Global Procurement Service Group (GPSG), we decided to invest in a pilot project with them. Our performance on that pilot project convinced IBM to recommend us for outsourcing contracts with their company"*.

Table 2: Factors important to establish trust relationship

Initial trust factors	Definition	Frequency	Percentage
Cultural understanding	How knowledge of the norms, beliefs, business ethos, and skill in the native language of potential clients helps vendors achieve trusts	12	100%
Creditability	How references, certifications, previous experiences help to gain trust from clients	11	92%
Capabilities	How technology, people and management capabilities of vendors help to gain trust from clients	9	75%
Pilot project performance	How performance of pilot projects help to gain trust from clients	8	67%
Personal visits	How visits by clients to vendors' development facilities help to gain trust from clients	7	58%
Investment	How investments of vendors in people, technologies and infrastructure help to gain trust from clients	6	50%

Other factors mentioned by the vendors as important to achieving initial trust were personal visits and investment. Table 2 shows that more than half the participants considered that personal visits are an important factor in forging trust during the initial stages of a relationship. Vietnamese vendors believe that exchange visits provide a mechanism of setting up rapport between client and vendor that help build the initial trust. The interviewees mentioned that inviting potential clients to visit a vendor's software development facility provided clients with an opportunity to observe working conditions and meet the practitioners who may be developing the software for them. Vietnamese practitioners consider that exchange visits should involve both technical and managerial staff in order to help establish personal relationships at different organizational levels in both companies. Most of the participants reported that they usually send their staff to work with a client for two to three months during the initial phases of a project. They also emphasized the significance of inviting a client's technical staff to provide short training, which also helps form trust between technical people who work on day-to-day basis on projects.

Regarding the investment involved, the interviewees considered that staff training, reliable infrastructure, and process improvement initiatives are the major types of investments that are needed to persuade a new client to trust in the vendor's ability to develop software of highest quality. One of the participants stressed the importance of investment in staff training in these words: *"We need to keep investing in grooming the talent of new recruits as well as existing staff. We need to provide them training in state-of-the-art technologies, project management and process improvement practices, and appreciating different cultural values and norms. For example, we are running a large project for a Malaysian client. At the beginning of the project, we hired two Malaysian culture experts to run a workshop for our staff assigned to that project. Our client appreciated this initiative and it convinced them to trust us for a long term working relationship"*.

4.3 Factors Important for Maintaining Trust

Establishing the initial trust between a client and vendor is very important for initiating business relationships. Initial trust is usually considered a calculus-based trust (Maria Cristina et al., 2004), which is the lowest form of trust that exists where both parties can be trusted to keep their word. However, it is important that vendors do not take the initial trust for granted. A vendor needs to not only maintain the trust that a client has put in their capabilities but also to work to strengthen that trust for ongoing business relationships. Thus, a vendor can greatly benefit from focusing on measures that are important in maintaining trust in an ongoing relationship; hence our goal of identifying critical factors for strengthening trust between a client and vendor. In response to our question about factors that play a vital role in maintaining trust relationships, the interviewees identified several factors. However, we present only those factors that were mentioned by at least half of the study participants. Table 3 presents those factors.

Table 3 shows that all vendors considered communication and cultural understanding as critical factors in maintaining trust relationships with clients. Vendors believe that effective and frequent communication between clients and vendors at all levels of the organizational hierarchy are pivotal for managing trust-based business relationships. On the importance of communication, one vendor commented: *"Trust building is a slow process that needs effective and frequent communication between [the] two parties. We establish formal and informal channels of communication between our and a client's staff. We encourage our staff to discuss and clarify issues with a relevant person at a client's site before taking any action, and explain the reasons for every action to them. In order to avoid any serious misunderstandings, we assign a project liaison engineer capable of communicating in a client's native language to work with client's staff. Our staff can request the liaison engineer to help them discuss any matter with a client. Moreover, we send our people for face-to-face meetings with client's staff. All these measures of improving communication help prosper trust in relationships"*.

The respondents suggested that frequent communication not only help avoid misunderstandings but also improves cultural understanding, which is considered an equally important factor in maintaining trust. The interviewees believe that a vendor's capability is another factor that helps maintain a trust relationship. Ninety two percent of the

vendors (11 out of 12) mentioned that their technical, managerial, and staffing capabilities play a cardinal role in maintaining a client's trust in an ongoing business relationship. Table 3 shows that 83% (10 out of 12) respondents identified contract conformance and quality of deliverables as two other important factors in maintaining trust in an outsourcing relationship. They describe contract conformance as making their staff observe all clauses of Non-Disclosure Agreement (NDA) that they or their company might have signed with a client, protecting a client's Intellectual Property (IP), and commitment to delivering what was originally agreed upon. One of the respondents commented on the importance of contract conformance as follows: *"It is vital to have a client's confidence in our words and deeds. We make sure that our staff members are aware of all the contractual obligations they assume by being on a particular project outsourced to us. We also put certain measure in place to ensure a client's IP of business processes are fully protected. We also commit ourselves to the timeframe and cost agreed in a contract. Rather, we try to go beyond that by accommodating change requests to a certain level without requiring changes in the project cost. We believe that these acts demonstrate to a client that we are keen to make our relationship with them work"*.

Table 3: Factors important to maintain trust relationships

Maintaining trust factors	Definition	Frequency	Percentage
Communication	How effectiveness of communication with clients (maybe in clients' native language) help to maintain the trusts	12	100%
Cultural understanding	How knowledge of the norms, beliefs, business ethos, and skill in the native language of potential clients helps vendors achieve trusts	12	100%
Capabilities	How technology, people and management capabilities of vendors help to gain trust from clients	11	92%
Contract conformance	How observation of all clauses in business agreement, protection of intellectual properties help to gain trusts from clients	10	83%
Quality	How quality of delivered products help to maintain trusts with clients	10	83%
Timely delivery	How adherence to development schedule helps to maintain trusts with clients	9	75%
Development processes	How processes followed in the outsourced development help to gain trusts from clients	9	75%
Managing expectations	How to raise fulfillable expectation to clients help to maintain trusts	8	67%
Personal relationships	How personal relationships between clients and vendors at different levels of management and development team help to maintain trusts with clients	7	58%
Performance	How performance (productivity/effectiveness) of staff in carrying out the projects help to maintain trusts with clients	6	50%

Quality of delivered product is another factor that was considered important for maintaining trust relationship by the interviewees. Vietnamese practitioners realize that relatively cheap labour cost may be an attractive factor for outsourcers; however, they would not compromise on quality. Vendors mentioned that they need to convince a client of their capability of deliver quality product and services for forming long term partnerships with them. Two other factors considered by vendors important for maintaining a client's trust are on-time delivery and a vendor's commitment to process improvement. The interviewees indicated that on-time delivery can demonstrate to their clients that they can work according to deadlines set by both parties, which usually improves trust in the client's capability to develop quality software at reasonable cost, on time. Vendors believe that continuous process improvement can help them maintain trust in established outsourcing relationships. Nine of the interviewees suggested that like Indian companies they can also gain and maintain a large clientele's trust by having highly mature development processes.

Table 3 shows that 67% (8 out of 12) respondents considered managing expectations an important factor in maintaining a client's trust for ongoing relationships. Vendors believe that they should not promise what they cannot deliver, and they should proactively determine a client's requirements and expectations of an outsourcing relationship, vendor capabilities and state upfront what is correct. The vendors who mentioned this factor considered that nothing is more damaging in an outsourcing relationship than raising expectations which cannot be met.

Personal relationship with clients and performance outcomes were two other factors that were mentioned by more than half of the interviewees as vital in maintaining a client's trust. Vendors believe that forming personal relationships with a client improve their business relationships, especially with Japanese clients. They believe that consistently good performance helps a vendor convince a client to form long term partnership.

5. COMPARISON OF VIETNAMESE AND INDIAN PRACTITIONERS' VIEWS

Apart from understanding the perspectives of Vietnamese vendors with regard to trust between clients and vendors in the context of off-shore software development outsourcing, another objective of our research is to compare the

Vietnamese practitioners' views with their Indian counterparts. Such a cross-cultural comparative analysis is expected to shed some light on the approaches that software vendors these two countries (Vietnam and India) may take to establish and maintain trust relationships with their clients. In this section, we present a comparative analysis of factors identified as important in establishing and maintaining trust relationships by the Vietnamese and Indian practitioners. The data for Indian practitioners' views are taken from the study reported by Oza et al. (2005) on the same topic. Table 4 and 5 present the results of our comparison.

5.1 Establishing Trust

For factors perceived as important for establishing initial trust between clients and vendors, Indian and Vietnamese practitioners seem to agree on only two factors: "*Client visits*" and "*Investment*". A semantic analysis of the factors identified by both groups revealed that Indian practitioners mentioned "*Customer references*", "*Experience in outsourcing*", and "*Reputation*" as important factors, which can be semantically considered quite close to "*credibility*", a factor mentioned by the Vietnamese practitioners. Vietnamese practitioners also agree on the importance of some other factors (such as references, experience, reputation, and credibility) in gaining a client's trust initially. However, Vietnamese companies are relatively new in the software outsourcing business and have relatively few significant customers, whose references they can use to gain the trust of new customers. On the other hand, Indian companies, being veterans of the software outsourcing business, do not face this situation as they are able to use the references of large multi-national companies, who have outsourced their software development to Indian companies. This is why, unlike Indian vendors, Vietnamese vendors rely on pilot projects to demonstrate their capabilities, quality of deliverables, and process maturity. All of the Vietnamese vendors mentioned that they usually start their initial outsourcing relationships with pilot projects, which are small in scope (in terms of technical and financial requirements) and are used for proof of concept or assessment of a vendor's capabilities before launching on a large scale projects. Vietnamese vendors also use pilot projects for making adjustments in their software development processes and practices according to clients' requirements. For Indian vendors, especially those at CMM level 4 or 5, pilot projects do not seem necessary as they have well established processes coupled with extensive experience of working for off-shore customers.

Table 4: Comparison of factors considered important to establish trust by Indian and Vietnamese practitioners

Initial trust factors	Indian	Vietnamese
References	✓	
Experience	✓	
Reputation	✓	
Client visits	✓	✓
People background	✓	
Investment	✓	✓
Cultural understanding		✓
Credibility		✓
Capabilities		✓
Pilot project		✓

One significant difference between Vietnamese and Indian practitioners' views is the role of "*cultural understanding*" in establishing a trust relationship. While Vietnamese vendors consider the understanding of a client's culture very important to gain trust, their Indian counterparts do not mention it at all. Cultural differences are considered responsible for serious and chronic misunderstandings in global software development (Prikładnicki et al., 2003). One explanation for Indian practitioners not mentioning cultural understanding can be their familiarity with the culture and language of their major clients, usually Americans. Understanding the written and spoken language (English), coupled with a strong linkage to Western countries through expatriates has been widely cited for Indian companies' success in attracting outsourced contracts (Carmel, 2003a). On the other hand, Vietnam has its own language and business ethos, which necessitates learning the languages and gaining a cultural understanding of their clients. That is why Vietnamese practitioners view "*cultural understanding*" as one of the most important factors in gaining a client's trust for establishing long term relationships. This is particularly true for their Japanese clients, who because of the strong uncertainty avoidance nature of their culture (Hofstede, 1980) prefer long term business relationships to gaining short term benefits.

5.2 Maintaining Trust

A comparison of the views of Indian and Vietnamese practitioners with regard to the factors important to maintaining trust in ongoing software outsourcing relationships also revealed interesting similarities and differences. Table 5 shows that both groups agree that processes, communication and performance are important factors for maintaining trust between clients and vendors. Additionally, both groups also seem to agree on some other factors as important in maintaining trust, though the description of these factors is lexically different. For example, Indian practitioners mentioned "*Honesty*", "*Commitment*", "*Confidentiality*", "*Cooperation*", and

"*Understanding*", while the Vietnamese used constructs like "*Contract conformance*", "*Managing expectations*", and "*Personal relationship*" to describe similar factors.

The views of Vietnamese and Indian practitioners again differ on the importance of "Cultural understanding". The Vietnamese considered this factor important in maintaining trust in ongoing relationships, while their Indian counterparts did not mention this factor. Thus, a major difference between the Indian and the Vietnamese practitioners' views is that the former seem to consider factors related to business process more important, while the latter not only realize the important of business process related factors but also recognize the vital role of cultural understanding and personal relationships in maintaining a trust relationship. These two factors are considered very important for successful business partnership by Asian clients in general and by the Japanese in particular, who are major software outsourcing clients of Vietnamese vendors.

Another significant point revealed by this comparative analysis is that the Indian practitioners identified entirely different factors that they considered important for establishing trust and maintaining trust, while there are a few factors that the Vietnamese practitioners considered important for both establishing trust and maintaining trust. For example, the Vietnamese practitioners described cultural understanding and capabilities as important factors for both gaining and maintaining trust. That the views of the Vietnamese practitioners are aligned with the findings of other research into trust relationships suggests that trust building is a continual process, with different stages but the transition from one stage to another is often a smooth and unrecognizable process (e.g. Maria Cristina et al., 2004).

Table 5 Comparison of factors considered important to maintain trust by Indian and Vietnamese practitioners.

Maintaining trust Factors	Indian	Vietnamese
Transparency	✓	
Demonstrability	✓	
Honesty	✓	
Processes	✓	✓
Commitment	✓	
Communication	✓	✓
Cooperation	✓	
Consistency	✓	
Understanding	✓	
Confidentiality	✓	
Performance	✓	✓
Cultural understanding		✓
Capabilities		✓
Contract conformance		✓
Quality		✓
Timely delivery		✓
Managing expectation		✓
Personal relationship		✓

6. LIMITATIONS

Our study also has some limitations. This study explored the perceptions of software practitioners regarding establishing and maintaining trust in software outsourcing relationships through semi-structured interviews, however, the interviewees' perceptions have not been directly verified. This situation can cause problems when practitioners' perceptions may be inaccurate or factors identified as important in establishing and maintaining trust may not be important at all. However, like the researchers of many studies based on opinion data (e.g. Beecham et al., 2003, Niazi et al., 2005), we also have full confidence in our findings because we have collected data from practitioners working in quite diverse roles and directly involved in outsourced projects; their perceptions were explored without any direction from the researchers. Sample size may be another issue as we interviewed only 12 practitioners from 8 Vietnamese companies. To gain a broader representation of Vietnamese practitioners' views on this topic, more practitioners and companies need to be included in a study. Moreover, this study is also limited in the sense of validating our vendors' viewpoints by comparing them with their clients' viewpoints. This is something that we plan to do in future. Another limitation of the study is the lack of a proven theory for establishing and maintaining trust in software outsourcing relationships between clients and vendors. This is why our study is exploratory and aimed at gathering facts in the hope of drawing some general conclusions that will help to identify research directions leading to the development of a theory related to software outsourcing trust and the factors influencing it. Our participants belonged to only one country, Vietnam, which is another limitation as the findings cannot be widely generalized to practitioners from other countries.

7. CONCLUSION AND FUTURE RESEARCH

A growing consensus in the business literature is that trust between transacting parties is a vital factor in business relationships (Deutsch, 1962, Creed and Miles, 1996, Blois, 1999, Kanawattanachai and Yoo, 2002). However, trust in software outsourcing relationships is relatively new area of research in software engineering. There is an increasing realization that understanding the dynamics of building and maintaining trust between clients and vendors, who usually lack prior relationships and are from different cultural backgrounds, is important in successful management of software outsourcing relationships. This article advances the knowledge in trust management of software outsourcing relationships by exploring the factors that are considered important in establishing and maintaining trust relationships. Moreover, this paper also identifies the similarities and differences between Indian and Vietnamese practitioners' views on the dynamics of establishing and maintaining trust relationships. The results of this study reveal that while Vietnamese practitioners are quite cognizant of the importance of having a solid understanding of the cultural and business ethos of potential clients for establishing and maintaining partnerships, their Indian counterparts seem unconcerned with this important aspect. This may explain why, despite having expertise in areas (e.g. embedded and real-time systems) highly demanded by Japanese and Korean companies, Indian vendors attract only a modest number of contracts from these countries (Kshetri, 2005). Several studies have made it quite clear that cultural understanding and personal relationships are an equally important part of doing business in Far Eastern countries as technical capabilities (Hagen and Choe, 1998, Sarker and Sarker, 2000). Our findings disclose that the Vietnamese vendors are well aware of the importance of knowing their clients' cultures and believe that they must make an effort to understand their clients' cultures and to fit with their norms and values. However, it seems that Indian software vendors are paying less attention to this aspect. The results from this study further reveal that a vendor needs to be perceived trustworthy as well as technically competent by clients in order to secure long term relationships (Zviran et al., 2001). Furthermore, flexible behaviour in terms of understanding and adjusting to changing needs of client certainly help gain and maintain trust. Limitations of our study, discussed in the previous section, necessitate further research in this area to validate our findings. Nevertheless, our results thus far suggests factors that are important for success in establishing and maintaining trust in software outsourcing relationships with clients around the world in general and in Far Eastern countries in particular. We plan to conduct further empirical research by interviewing representatives of some the off-shore clients of the companies participating in our study. The findings from that study will enable us to gain an understanding of how clients view trust in software outsourcing relationships.

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